

NATURAL RESOURCES TECHNICAL MEMORANDUM



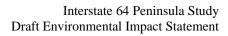


1401 EAST BROAD STREET RICHMOND, VA 23219



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ACRONYMS

APF Areas Protected from Fishing CCB Center for Conservation Biology

Corps United States Army Corps of Engineers

CWA Clean Water Act

CZMA Costal Zone Management Area

EBL Express Bus Lane EFH Essential Fish Habitat

EIS Environmental Impact Statement

ESA Endangered Species Act

ESRI Environmental Systems Research Institute

ETL Express Toll Lane FE Federal Endangered

FEMA Federal Emergency Management Agency

FHWA Federal Highway Administration FIRM Flood Insurance Rate Maps

FT Federal Threatened

GIS Geographic Information System
GPS Global Positioning System
GWMA Ground Water Management Area

HAPC Habitat Area of Particular Concern

HOT High Occupancy/Toll
HOV High Occupancy Vehicle
HUC Hydrologic Unit Code

I-64 Interstate 64
I-664 Interstate 664
I-95 Interstate 95

IPaC Information, Planning, and Conservation

JPA Joint Permit Application

LOS Level of Service
MBT Migratory Bird Treaty

MPO Metropolitan Planning Organization

MSL Mean Sea Level

NEPA National Environmental Policy Act

NHD Natural Heritage Division NHS National Highway System

NMFS National Marine Fisheries Service

NOAA National Oceanic and Atmospheric Administration

NPS United States National Park Service NRCS Natural Resources Conservation Service

National Rivers Inventory NRI National Wetlands Inventory **NWI** Polychlorinated Biphenyl **PCB** Palustrine Emergent PEM **PFO** Palustrine Forested Palustrine Scrub Shrub PSS **PWC** Personal Water Craft RCI **Reach Condition Index** Resource Management Area **RMA**



RPA Resource Protection Area
SAV Submerged Aquatic Vegetation
SDWA Safe Drinking Water Act

SE State Endangered ST State Threatened

STRAHNET Strategic Highway Network

SWPPP Stormwater Pollution Prevention Plan SYIP Six-Year Improvement Program TMDL Total Maximum Daily Load

TPO Transportation Planning Organization

USCG United States Coast Guard

USDA United States Department of Agriculture
USDOT United States Department of Transportation
USEPA United States Environmental Protection Agency

USFWS United States Fish and Wildlife Service

USGS United States Geologic Survey USM Unified Stream Methodology

VCZMP Virginia's Coastal Zone Management Program

VDACS Virginia Department of Agriculture and Consumer Services

VDCR Virginia Department of Conservation and Recreation VDEQ Virginia Department of Environmental Quality VDGIF Virginia Department of Game and Inland Fisheries

VDH Virginia Department of Health

VDOT Virginia Department of Transportation

VFWIS Virginia Fish and Wildlife Information Service

VIMS Virginia Institute of Marine Science VMRC Virginia Marine Resources Commission

WUS Waters of the United States



I. Introduction

The following report describes existing natural resources and conditions which may be impacted by the various Alternatives within the study area of the Interstate 64 (I-64) Peninsula Study. The purpose of this report is to summarize baseline conditions along the property, provide a comparison of the impacts to these resources for the different Alternatives, and summarize potential permits or environmental clearances needed prior to the construction of the project. This information can also serve as a basis for the Indirect and Cumulative Impacts Analysis.

A. Project Description

The Virginia Department of Transportation (VDOT), in cooperation with the Federal Highway Administration (FHWA), is evaluating options to improve the 75 mile long Interstate 64 (I-64) corridor from the Interstate 95 (I-95) (Exit 190) interchange in the City of Richmond to the Interstate 664 (I-664) (Exit 264) interchange in the City of Hampton. This study is known as the Interstate 64 Peninsula Study (hereinafter referred to as the I-64 Study in this document). As shown in **Figure 1**, the study area is located within seven localities, including the City of Richmond, Henrico County, New Kent County, James City County, York County, the City of Newport News, and the City of Hampton.

The number of lanes on existing I-64 varies through the study area. In the vicinity of the City of Richmond, from Exit 190 to Exit 197, there are generally three travel lanes in each direction. Between Exit 197 and mile marker 254, there are generally two travel lanes in each direction. Beginning at mile marker 254 and continuing east to the City of Hampton area, I-64 widens to four lanes in each direction with three general purpose lanes and one 2+ person High Occupancy Vehicle (HOV 2+) lane during the AM and PM peak periods. There are some additional lanes between closely spaced interchanges at the eastern end of the corridor to provide for easier merging of traffic on and off of the I-64 mainline.

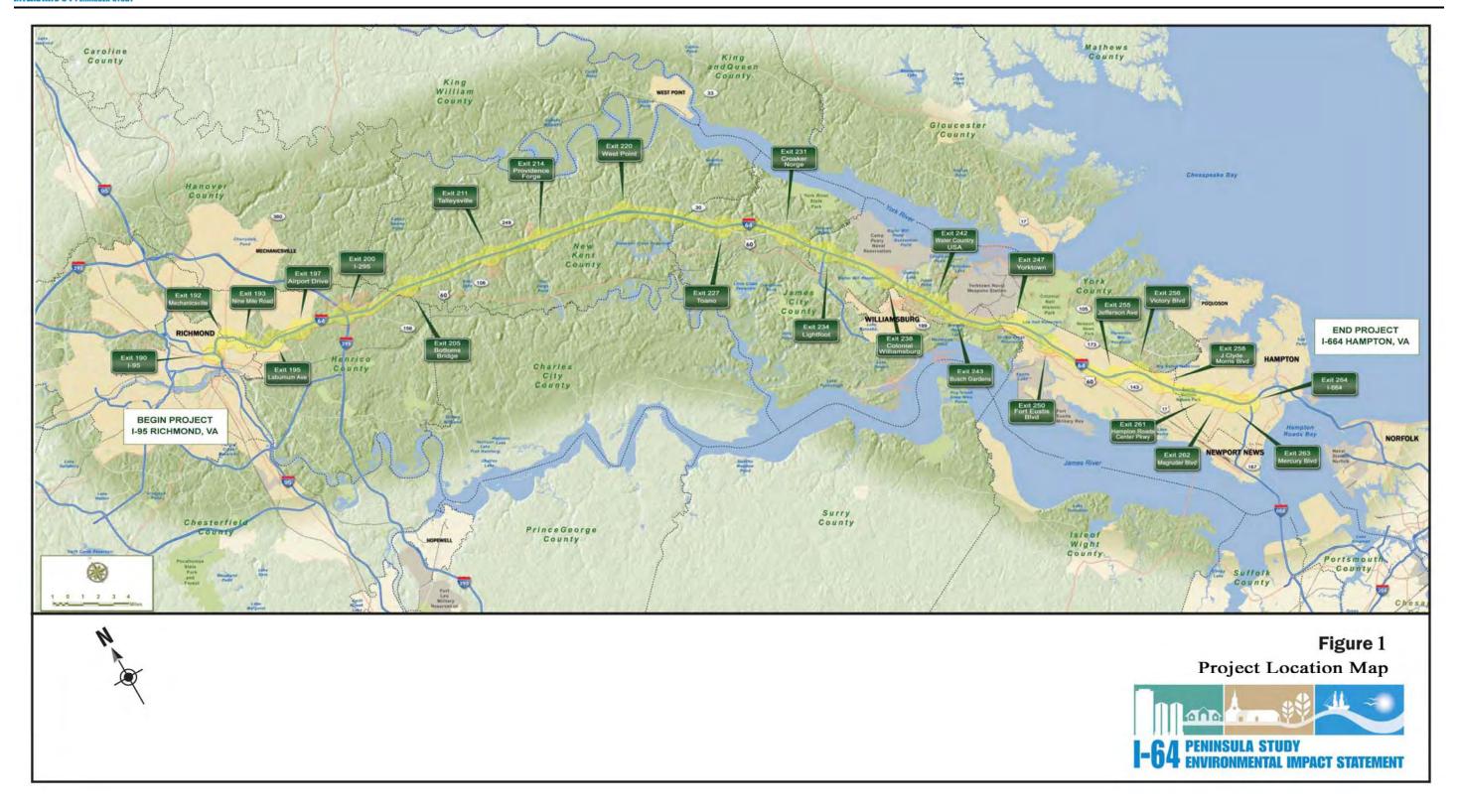
B. Alternatives

There are a number of possible solutions to address the need for improvements along the I-64 corridor, as described in detail in the *Alternatives Development Technical Memorandum*. The goals are to develop solutions that meet the project purpose and needs while avoiding and/or minimizing impacts to the human and natural environments. The following are the Alternatives being carried forward in this study:

1. No-Build Alternative

The No-Build Alternative serves as a baseline for the comparison of future conditions and impacts. The No-Build Alternative assumes that the projects currently programmed and funded in the VDOT's Fiscal Year 2013 - 2018 Six-Year Improvement Program (SYIP) will be implemented. In addition to the programmed VDOT projects, the Tidewater Super-Regional Model developed by VDOT and used for this study includes other projects within the corridor that are part of the Richmond Area Metropolitan Planning Organization (MPO) or Hampton Roads Transportation Planning Organization's (TPO) Constrained Long Range Plans, as well as the Rural Long Range Transportation Plans (which are not fiscally constrained) for the Richmond and Hampton Roads Planning District Commissions. Those projects form a part of the Base Conditions and the effects of these projects on I-64 traffic are accounted for in all 2040 No-Build analyses.







2. Alternatives 1A/1B General Purpose Lanes

These Alternatives involve adding additional general purpose travel lanes to the I-64 mainline to achieve a Level of Service (LOS) C or better in the design year 2040. Although there are numerous possible combinations for adding these lanes, the analysis focused on adding all needed lanes within the existing right of way, to the greatest extent practicable, to either the outside of the existing lanes, which is Alternative 1A, or to the inside of the existing lanes within the median, which is Alternative 1B. For Alternative 1B, the lanes are also proposed in the median to the greatest extent practicable. However, not all sections of the corridor have sufficient median area to accommodate the needed additional lanes so in these areas the additional lanes are proposed to the outside. For the 25 existing interchanges within the study area corridor, geometric deficiencies were examined along with design year 2040 traffic volumes and resulting LOS at each interchange location. Conceptual designs were investigated that would accommodate the future traffic and assumptions were made and applied to each interchange to establish a study footprint that would allow for enough flexibility during the final design stage to accommodate other concepts not yet examined. Further engineering and traffic analyses would be performed at each interchange as the project progresses. During the Interchange Modification Report (IMR) process, which is required by FHWA before any changes can be made to Interstate interchanges, each of these interchange configurations would serve as a starting point to be further studied and refined with a more in-depth examination of the needs at each location, in order to produce a constructible design.

3. Alternatives 2A/2B Full Toll Lanes

These alternatives evaluate the impacts of tolling the entire facility. However, as of the time of this study, there is no federal or state agreement in place that would allow for tolling I-64 from I-95 in the City of Richmond to I-664 in the City of Hampton. Therefore, these alternatives that involve tolling may or may not ultimately be possible. Notwithstanding, because tolling could be an option in the future, alternatives that involve tolling were considered in the range of possible alternatives evaluated. For the purposes of this study, it was assumed that if the facility is tolled, the tolling would be for all vehicles, in both directions, and for the entire length of the corridor from I-95 in the City of Richmond to I-664 in the City of Hampton. It was also assumed that there would be toll collection stations, using overhead gantries and all-electronic tolling, for every interchange-to-interchange sections of I-64. If Alternative 2A or 2B is selected, subsequent studies would refine the specifics of the tolling, such as whether or not it would encompass the entire length of the I-64 corridor along with the number and placement of the toll collection stations. In order to determine the number of lanes needed for Alternatives 2A/2B, the traffic studies included a toll diversion analysis. As a result of this analysis, the tolling of I-64 is expected to have either a neutral effect or result in a decrease in traffic volumes on the I-64 mainline due to people choosing to avoid a tolled I-64 and using other parallel routes instead. The tolls are not expected to result in increased volumes at any location on the I-64 mainline. This analysis indicated possible reductions to traffic on the I-64 corridor, however these reductions are not projected to change the number of lanes needed to achieve a LOS C or better in the design year 2040 from those indicated for the General Purpose Lanes Alternatives. Therefore, the proposed disturbance limits for Alternatives 2A/2B would be the same as Alternatives 1A/1B, respectively. Although there are numerous possible combinations for adding these lanes, the analysis focused on adding all needed lanes within the existing right of way, to the greatest extent practicable, to either the outside of the existing lanes, which is Alternative 2A, or to the inside of the existing lanes within the median, which is Alternative 2B. For Alternative 2B, the lanes are also proposed in the median to the greatest extent practicable. However, not all sections of the corridor have sufficient median area to accommodate the needed additional lanes so in these areas the additional lanes are proposed to the outside. In addition to the mainline improvements, due to only modest changes in traffic volumes, as determined in the toll diversion analysis, Alternatives 2A/2B also includes the same improvements to the 25 interchanges as described with Alternatives 1A/1B.



4. Alternative 3 Managed Lanes

This Alternative involves the addition of separated, managed lanes located in the median. These managed lanes were examined for the entire length of the I-64 study area from I-95 in the City of Richmond to I-664 in the City of Hampton. As previously described, not all sections of the I-64 corridor have sufficient median area to accommodate the addition of any lanes. In these areas, the facility is proposed to be widened to the outside of the existing general purpose lanes in order to accommodate the managed lanes between the eastbound and westbound general purpose travel lanes. Managed lanes can refer to many different strategies, including:

- High Occupancy Vehicle (HOV) lanes.
- High Occupancy Toll (HOT) lanes.
- Express Toll Lanes (ETL).
- Express Bus Lanes (EBL).

For any of the managed lanes that involve toll collection (HOT or ETL lanes), traditional toll plazas were not included. All toll collection would be conducted by overhead gantries with all-electronic tolling used to collect all tolls at highway speeds. The Environmental Impact Statement (EIS) study does not identify what type of managed lanes would be constructed. Based on the results of the capacity analysis, the lane configurations developed for Alternative 3 along the I-64 corridor are described in the *Alternatives Development Technical Memorandum*. If Alternative 3 is selected, subsequent studies would refine the specifics of the managed lanes throughout the I-64 corridor.

II. Existing Conditions and Potential Impacts

The following sections summarize the existing natural environmental conditions that exist in the vicinity of the study corridor. A number of natural resources and specific conditions were identified within the study area of the I-64 Study, including:

- Topography.
- Geology and Soils.
- Surface waters
- Water quality
- Water supplies.
- Floodplains.
- Threatened and endangered species.
- Terrestrial and aquatic habitat and wildlife.
- Invasive species.

As part of the environmental review process for this study, various federal and state agencies were contacted and databases and websites were reviewed to determine the presence and status of the existing natural environmental conditions located within the study corridor. Several other environmental resource related features (e.g., parks and recreation areas, easements, prime farmlands, agricultural/forestal districts, etc.) are discussed in other reports developed for the EIS.

A. Topography

Methodology and Existing Conditions

The study area is located within the Coastal Plain Physiographic Province of Virginia. The Coastal Plain in Virginia extends inland from the coast about 110 miles to the Fall Line of Virginia and passes roughly through Fairfax County and the Cities of Fredericksburg, Richmond, Petersburg, and Emporia. The study corridor crosses two Coastal Plain sub-provinces: the Upland Sub-province and the Lowland Sub-province. The small sections of the corridor which cross the Coastal Upland Sub-province are



characterized as a broad upland with low slopes and gentle drainage divides. Steep slopes develop where the area is dissected by stream erosion. Elevations within this subprovince range from 60 - 250 feet above mean sea level (MSL). The majority of the study area corridor is generally characterized as coastal lowland drained by an elaborate network of streams and rivers, which flow east to the Atlantic Ocean. The Coastal Lowland Sub-province is flat, with low relief areas along major rivers and near coastal areas of the Chesapeake Bay. Elevations in the Coastal Lowlands are generally between 0-60 feet above mean MSL.

The length of the study corridor is north of the James River and south of the York River but crosses many major tributaries to these systems including the Chickahominy River at Bottoms Bridge and the headwaters of the Warwick River in Newport News. A dendritic network of creeks and small streams rise near the center of the landform and meander south and north to the James and York Rivers, respectively, producing a dissected landscape of ridges, steep slopes, and floodplains. The study area spans the following United States Geologic Survey (USGS) 7.5-minute quadrangle maps (from west to east): Richmond, Seven Pines, Quinton, Tunstall, Providence Forge, Walkers, Toano, Norge, Williamsburg, Hog Island, Yorktown, Mulberry Island, Newport News North, and Hampton. A topographic map showing the entire study area is included as **Figure 2**. This map was created using the Environmental Systems Research Institute (ESRI) World Topographic Map layer which was compiled to uniform cartography using a variety of best available sources from several data providers, including the USGS, United States Environmental Protection Agency (USEPA), United States National Park Service (NPS), Food and Agriculture Organization of the United Nations, Department of Natural Resources Canada, Agriculture and Agri-Food Canada, Dutch Kadaster, DeLorme, NAVTEQ, TomTom (select countries in Eastern Europe and select European island nations), and ESRI.

Within the study area, elevations range from 0 to 180 feet above MSL. According to the topographic maps of the area, the mean elevation through the proposed project area is approximately 82.14 feet above MSL.

Potential Impacts and Mitigation Measures

There is very little topographic relief along the corridor. In addition, the study involves potential widening along the existing, already disturbed I-64 corridor. In terms of topography, the highway corridor is already suitable for the proposed widening activities, and therefore, no adverse changes to topography would occur. No measures to mitigate potential topographic changes are warranted.

B. Geology

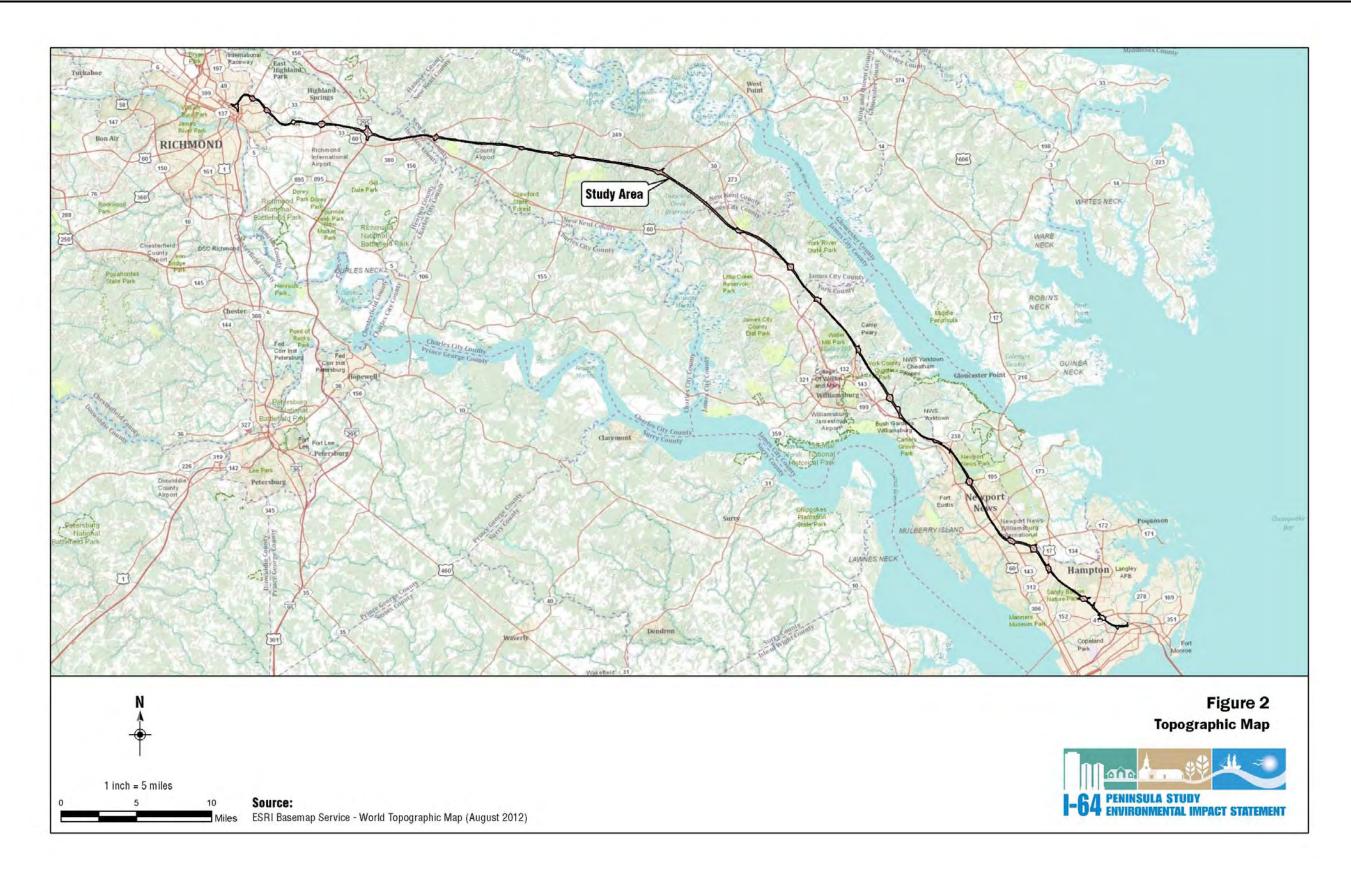
Methodology and Existing Conditions

The study area is located within the Coastal Plain Physiographic Province of Virginia. According to the Geologic Map of Virginia, the Coastal Plain is composed mostly of unconsolidated deposits, primarily alternating layers of sand, gravel, shell rock, silt, and clay. Geologically speaking, this physiographic province is still considered a young landscape sculpted during the last few million years by the repeated rising and falling of sea level during several cycles of Pleistocene glaciations.

The Coastal Plain, in general, is underlain by a thick wedge of sediments that increases in thickness from a featheredge near the fall zone to more than 4,000 meters under the continental shelf. These sediments rest on an eroded surface of Precambrian to early Mesozoic rock. Two-thirds of this wedge is comprised of late Jurassic and Cretaceous clay, sand, and gravel. These layers were stripped from the Appalachian mountains, carried eastward by rivers and deposited in deltas in the newly formed Atlantic Ocean basin.

A sequence of thin, fossiliferous marine sands of Tertiary age overlies the older strata. They were deposited in warm, shallow seas during repeated marine transgressions across the Coastal Plain. This pattern of deposition was interrupted about 35 million years ago by a large meteorite that plummeted into







a shallow sea, which created the Chesapeake Bay. It was subsequently buried under about 1.2 kilometers of younger sediment.

The latest soils of Tertiary and Quaternary sand, silt, and clay, which cover much of the Coastal Plain, were deposited during interglacial highstands of the sea under conditions similar to those that exist in the modern Chesapeake Bay and its tributaries.

The western end of the study corridor begins near the Fall Line of Virginia, a low escarpment where the sedimentary rocks of the Coastal Plain meet the metamorphic rocks of the Piedmont, and extends across the inner and outer Coastal Plain to the Chesapeake Bay. The Coastal Plain is a terraced landscape that steps down to the coast and to the major rivers.

The study area corridor includes both the Cenozoic Era Tertiary and Holocene formations. The corridor extending from the City of Richmond to south of the City of Williamsburg is underlain by Tertiary-age formations which consists of sand, mud, limey sand and muck. The Holocene-age formations, which consists of sand, marsh, and peat deposited in beaches, marshes, swamps, and estuaries underlies the eastern section of the corridor.

According to information provided by the Virginia Department of Conservation and Recreation (VDCR) through the project scoping process, there are no karst features located within the study area corridor.

Potential Impacts and Mitigation Measures

There are no geological conditions or unique geologic resources along the study area corridor that would be adversely affected by the proposed activities. Seismic risks are low and would not affect the construction or interstate operation. No mitigation action related to geological or seismic conditions is warranted. All limitations that may be associated with any geological constraints can be mitigated for through standard engineering practices.

C. Soils

Methodology and Existing Conditions

The study area is located within the Coastal Plain Physiographic Province of Virginia. Parent material in the Coastal Plain consists mainly of marine and alluvial deposits. It is very rich in quartz with most soils containing 50% with the highest concentration of up to 80-90%. Feldspars are also common in Coastal Plain parent material, but tend to be in lower quantity (up to 25%). Micas, iron oxides, heavy minerals and clay minerals are common in small amounts. Organic parent materials are common in the numerous swamps and marshes across the region.

The soils within the study area corridor were identified using the United States Department of Agriculture Soil (USDA) Natural Resources Conservation Service (NRCS) County Soil Surveys and digital mapping. Classified soils are grouped into general soil map units and have broad areas with distinctive patterns of soils, relief, and drainage. Each unit is named for the major soils it contains; however, a unit may also consist of several minor soil classifications. The soils in any one general soil map unit may differ across a region in slope, depth, drainage and other characteristics. The classified unit provides many details regarding the characteristics of the soil including soil structure or components, the ability to retain water, and how easily the soil erodes. For many counties/localities, there is a soil type identified as "NOT COM", which stands for "Not Complete", indicating a gap in the NRCS data.

According to NRCS, a hydric soil is a soil that formed under conditions of saturation, flooding, or ponding long enough during the growing season to develop anaerobic conditions in the upper part. The NRCS maintains the official list of hydric soils. The presence of hydric soils is required for the legal definition of a wetland.



Also according to NRCS, the likelihood of a soil type to erode can be expressed as a "K" value. The K factor is a soil erodibility factor which represents both susceptibility of soil to erosion and the rate of runoff, as measured under the standard unit plot condition. The higher the K value, the more easily the soil would erode. Soils high in clay have low K values (about 0.05 to 0.15) because they are resistant to detachment. Coarse textured soils, such as sandy soils, also have low K values (about 0.05 to 0.2) because of low runoff, even though these soils are easily detached. Medium textured soils, such as the silt loam soils, have a moderate K values (about 0.25 to 0.4) because they are moderately susceptible to detachment and they produce moderate runoff. Soils having a high silt content (K values greater than 0.4) are most erodible of all soils. They are easily detached, tend to crust, and produce high rates of runoff.

While the K value indicates the likelihood of a soil type to erode, there are a number of factors that also contribute to the soils erodibility. Organic matter reduces erodibility as it reduces the susceptibility of the soil to detachment and increases infiltration, reducing runoff and therefore, erosion. In addition, soil structure affects both susceptibility to detachment and infiltration. Permeability of the soil profile affects K because it affects runoff. Since the K factor represents soils in their natural state, the value may need to be increased if the subsoil is exposed or where the organic matter has been depleted, the soil's structure destroyed or soil compaction has reduced permeability.

There are a total of 115 soils map units within the study area, as identified from the NRCS Soil Survey Maps. The tables in **Appendix A** identify soil mapping units, along with general characteristics of those soil units, within the City of Richmond (14 soil map units), Henrico County (44 soil map units), New Kent County (36 soil map units), James City County (24 soil map units), York County (25 soil map units), City of Newport News (22 soil map units), and the City of Hampton (11 soil map units). It should be noted that the actual soil types throughout the study area, particularly in high population areas, may differ from the soil survey, primarily due to urban development that has occurred since the soil survey data was collected. Summary tables of the soil types and maps depicting the different soil types along the study area corridor are included in **Appendices A and B**, respectively.

There are a variety of soil units, with associated characteristics, identified across the corridor. Loamy soils, with a predominance of sand and silt, are common across the study area. Loam is a soil composed of sand, silt, and clay in approximate concentrations of 40-40-20%, respectively. Loam soils generally contain more nutrients and humus than sandy soils, have better drainage and infiltration of water and air than silty soils, and are easier to move through than clay soils.

Soils were identified ranging from somewhat extensively well drained to very poorly drained throughout the corridor. While varying ranges of soil drainage were identified throughout the corridor, the eastern part of the study area commonly exhibited poorly drained soils. In addition, hydric soils are located throughout the corridor and generally correspond to areas where wetland systems were identified (as described in Section D, below). In general, the depth to the water table decreases from west to east; however, the greatest water depths were associated with soil units located in the middle of the study area. There were varying levels of soil erodibility across the corridor with K values ranging from 0.1 (Catpoint fine sand in New Kent County; Nevarc-Uchee complex in New Kent County, James City County and the City of Newport News; Uchee loamy fine sand in New Kent County, James City County and the City of Newport News; and Seabrook-Urban land complex in Hampton City) to 0.49 (Duplin very fine sandy loam and Kempsville very fine sandy loam, clayey substratum in Henrico County).

The most prevalent soils, based on acreage within the study area corridor, are the Nevarc-Remlik complex found in New Kent and James City Counties. This soil unit is found on approximately 13% of the study area corridor and had the highest number of occurrences (202) along the corridor. The Chickahominy-Urban Land complex, found in York County and the Cities of Newport News and Hampton, and the



Kempsville-Emporia complex and Craven-Uchee complex, found in New Kent, James City, and York Counties, comprise approximately 18% (6% each) of the study area corridor.

Potential Impacts and Mitigation Measures

The proposed widening associated with the Build Alternatives would be built on the appropriate fill or cut materials. Soils used for this purpose would be subjected to specifications designed for the road building purposes. Any required mitigation of soils with substantial limitations would be resolved as part of the contract special provisions.

No substantial mitigation of soils with severe limitations is anticipated. Careful design and construction practices, as well as adherence to applicable erosion and sediment control regulations, stormwater management regulations, and on-site waste disposal regulations are sufficient to avoid impacts on soils. No mitigation measures are required.

D. Surface Waters

1. River Basin Information

The study area corridor falls within three of the twelve major river basins in Virginia, specifically the James River (Lower James River sub-basin), the York River, and the Chesapeake Bay/Atlantic Ocean and Small Coastal Basins. All drainage along the study area corridor ultimately flows from west to east, eventually entering the Chesapeake Bay. The following provides additional information on the major river basins and areas located along the study area corridor.

The USGS has assigned a hydrologic unit code (HUC) to all major watersheds in the United States. The western section of the corridor is located in the Lower James River watershed (HUC 02080206), with the drainage throughout this area of the corridor generally flowing to the south. The study area then drains to the northeast to the York River watershed (HUC 02080107). In York County, drainage again flows to the Lower James River watershed (HUC 02080206). The eastern section of the study area corridor drains to the Chesapeake Bay-Lynnhaven-Poquoson watershed (HUC 02080108). Table 1 describes the locations of the three major river basins along the corridor. In addition, the HUC eight digit watersheds are included on the mapping in Appendix C.

The James River Basin occupies the central portion of Virginia and covers 10,265 square miles or approximately 24% of the Commonwealth's total land area. As Virginia's largest river basin, it is composed of the Upper, Middle, and Lower James River sub-basins, as well as, the Appomattox River sub-basin. The James River Basin begins in the Alleghany Mountains and flows in a southeasterly direction to Hampton Roads where it enters the Chesapeake Bay. The river is formed by the confluence of the Jackson and Cowpasture Rivers and flows 242 miles to the Fall Line at the City of Richmond and another 106 miles to the Bay. Other major tributaries to the James River (from west to east) include the Maury River, Tye River, Rockfish River, Slate River, Rivanna River, Willis River, Appomattox River, Chickahominy River, Pagan River, Nansemond River, and the Elizabeth River.

The topography of the James River Basin varies throughout the four physiographic provinces that it spans. For the area west of the City of Richmond, the Piedmont Province extends to the Fall Line in the City of Richmond with scattered hills and small mountains, gradually turning into gently rolling slopes and lower elevation in the eastern portion of the province. The Fall Zone, which separates the Coastal Plain Province from the Piedmont Province, is a three mile stretch of river running through the City of Richmond where the river descends 84 feet as it flows from the resistant rocks of the Piedmont to the softer sediments of the Coastal Plain. Over 65% of the entire James River Basin is forested, with 19% in cropland and pasture. Approximately 12% is considered urban. The population of the entire James River Basin is concentrated in Tidewater and the Greater Richmond – Petersburg area.



In comparison to the James River Basin, the York River Basin is substantially smaller in size. This basin lies in the central and eastern section of Virginia and covers 2,674 square miles or 6% of the Commonwealth's total area. The headwaters of the York River begin in Orange County and flow in a southeasterly direction for approximately 220 miles to its mouth at the Chesapeake Bay. The York River is only approximately 30 miles in length and has only two major tributaries: the Pamunkey River (with the North and South Anna Rivers and the Little River as major tributaries) and the Mattaponi River (composed of the Matta, Po, and Ni Rivers).

Table 1: Major River Basins along the Study Area

Basin	HUC	General Drainage Direction	Approximate Watershed Boundary along the Project Corridor	Localities within the Project Corridor
Lower James	02080206	South	I-95 Interchange to Exit 227 (Toano)	City of Richmond, Henrico County, New Kent County, James City County
York	02080107	Northeast	Exit 227 (Toano) to Mile Marker 244 (just east of Exit 243, Busch Gardens)	James City County, York County
Lower James	02080206	South	Mile Marker 244 (just east of Exit 243, Busch Gardens) to Exit 255 (Jefferson Avenue)	York County, James City County, City of Newport News
Chesapeake Bay- Lynnhaven- Poquoson	02080108	North / East	Exit 255 (Jefferson Avenue) to I-664 Interchange	City of Newport News, City of Hampton

Lying in the Piedmont and Coastal Plain physiographic provinces, the York River Basin's topography is characterized by slightly rolling hills at the headwaters indicative of the Piedmont Physiographic Provide to the Coastal Plain Physiographic Province's gently sloping hills and flat farmland near its confluence with the Chesapeake Bay. Tributaries in the central Piedmont exhibit moderate and near constant profiles. Their flat slope largely characterizes streams in the Coastal Plain. Approximately 65% of the land area is forested. Farmland and pasture account for approximately 20% of the land area. Approximately 10% of the river basin land area is urban. The only major city that falls within this basin is a section of Williamsburg.

The Chesapeake Bay/Atlantic Ocean and Small Coastal Basins are located in the eastern part of Virginia and covers 3,592 square miles or approximately 8% of the Commonwealth's total land area. The combined basins encompass, in addition to the Bay itself, the small bays, river inlets, islands and shoreline immediately surrounding the Chesapeake Bay and the southern portion of the Delmarva Peninsula.

The topography of the Chesapeake Bay/Atlantic Ocean and Small Coastal Basin has little variation. The entire basin lies within the Coastal Plain Physiographic Province where elevations average no more than a few feet above sea level. More substantial elevation occurs along the central spine of the Eastern Shore portion, which forms a plateau about 45 feet above sea level. Much of the Chesapeake Bay/Coastal Basin



is marshland. About 30% of the Chesapeake Bay/Atlantic Ocean and Small Coastal Basin is forested, while nearly 22% is in cropland and pasture. Approximately 24% is considered urban.

Tributaries in the Chesapeake Bay/Atlantic Ocean and Small Coastal Basins drain into the Chesapeake Bay or the Atlantic Ocean. Major tributaries flowing into the Chesapeake Bay from the western shore are the Great Wicomico River, Piankatank River, Fleets Bay, Mobjack Bay including the East, North, Ware, and Severn Rivers, Poquoson River, Back River and Lynnhaven River.

A number of non-tidal and tidal surface water systems (including both wetlands and stream channels) are located along the study area corridor. These waters are detailed in the sections below. These systems have been identified both north and south of the mainline, as well as, within the median. Systems were also identified within and adjacent to a number of the interchanges. Stream channel types include perennial, intermittent, and ephemeral systems.

Major rivers along the study area corridor include the Shockhoe Creek, Chickahominy River, Boar Swamp, Rumley Marsh, Diascund Creek, Beaverdam Creek, Wahrani Swamp, Queen Creek, and Newmarket Creek. Numerous smaller tributary drainages to these major systems cross the study area.

2. Navigable Waters of the United States (Section 10 Waters) Methodology and Existing Conditions

Navigable Waters of the United States are regulated by the United States Army Corps of Engineers (Corps) under Section 10 of the Rivers and Harbors Act of 1899. The Corps general definition of navigable waters of the United States is "those waters subject to the ebb and flow of the tide shoreward to the mean high water mark and/or are presently used, or have been used in the past, or may be susceptible for use to transport interstate or foreign commerce. A determination of navigability, once made, applies laterally over the entire surface of the waterbody, and is not extinguished by later actions or events which impede or destroy navigable capacity." This includes, by definition, all tidal waterbodies including streams/ rivers and wetlands.

According to both the Navigable Waters of the United States Section 10 of the Rivers and Harbor Act list (Norfolk District Corps, March 5, 2010) and the United States Department of Transportation (USDOT) National Transportation Atlas Database (Version 11), there are no navigable waters identified within the study area corridor. However, neither of these sources includes tidal features in their database. The Corps, by definition, considers all tidal systems as navigable. The tidal features along the study area corridor are detailed in Section D.3 below, and include the channels (4,467 linear feet) and associated wetland systems (29.53 acres) of Queen Creek and Newmarket Creek.

Potential Impacts and Mitigation Measures

No-Build Alternative

The No-Build Alternative would not involve any project-related construction or changes to the natural environment. As a result, project-related impacts to navigable waters from the No-Build Alternative are not anticipated.

Build Alternatives

In accordance with the federal and state regulations governing streams and wetlands, efforts have been made to reduce the potential for impacts to navigable waters, wherever possible. However, because the Build Alternatives involve the widening of an existing corridor which currently crosses Queen Creek and Newmarket Creek (and the associated wetlands) impacts are unavoidable. **Table 2** summarizes the potential impacts to navigable waters associated with the different Build Alternatives. The potential impacts to both streams and wetlands are very similar for all Build Alternatives.



The values listed in **Table 2** represent an overlay of each Build Alternative's construction footprint. The existing crossings over Queen Creek and Newmarket Creek are span bridges. Therefore, the true footprint of the impact would be minimized due to the widening of these existing bridges. Additional discussion of the tidal waters and avoidance and minimization and compensatory mitigation measures for navigable waters (tidal systems) for this study are detailed in Section D.3.

Table 2: Potential Impacts to Navigable Waters of the United States

	Tidal				
Build Alternative	E2EM1P Wetlands (acres)	Other Waters of the United States (linear feet)			
Alternatives 1A/2A	28.01	3,012			
Alternatives 1B/2B	27.76	2,932			
Alternative 3	27.83	2,936			

3. Waters of the United States (Section 404/Section 401)

Methodology and Existing Conditions

All surface waters, including streams, lakes, ponds, and wetlands are protected and regulated by both the Corps and the Virginia Department of Environmental Quality (VDEQ) through Sections 404 and 401, respectively, of the Clean Water Act (CWA). These systems are collectively referred to as Waters of the United States (WUS), and refer to water bodies such as streams, rivers, wetlands, reservoirs, etc. The VDEQ also regulates these resources through the Virginia Water Protection Permit (VWPP) Program Regulation 9 VAC 25-210. In addition, in Virginia the Virginia Marine Resources Commission (VMRC) has jurisdiction over subaqueous bottoms or bottomlands, tidal wetlands, and coastal primary sand dunes through the Virginia Wetlands Act (Chapter 13, Title 28.2 of the Code of Virginia). This agency specifically regulates physical encroachment in, on, or over these resources.

The assessment methodology to identify the presence and location of WUS, including wetlands, within the study area corridor included both desktop and field review components. The desktop component involved the review of the United States Fish and Wildlife Service (USFWS) National Wetlands Inventory (NWI) maps and USGS 7.5-minute topographic quadrangles to identify perennial and intermittent streams subject to the regulations, Resource Protection Area (RPA) maps, hydrologic soils mapping, and natural color aerial imagery.

A surface water assessment was completed along the corridor in June, July, November and December of 2011 and March 2012. The field review was completed in areas which could be accessed within the study area corridor as depicted in the mapping in **Appendix C**. For sites where the areas could not be accessed due to fencing or landowner limitations, mapping of systems was conducted using the desktop review. Surface waters were designated as either a wetland (labeled WET) or other WUS (labeled WUS). The systems were further designated as being located north of the mainline ("N"), south of the mainline ("S"), or within the median ("M"). The same physical stream channel or wetland system may have different designations if they are located within more than one area (north or south of the mainline and/or within the median).

Wetlands were identified in the field in accordance with the *Corps of Engineers Wetland Delineation Manual* (Environmental Laboratory 1987) and supplemental guidance papers issued by the Corps, the NRCS, and the USFWS. This method requires the positive identification of three wetland parameters



during normal circumstances: hydrophytic vegetation, hydric soils, and wetland hydrology. After identification in the field, wetlands were then classified according to the Cowardin System, as described in *A Classification of Wetlands and Deepwater Habitats of the United States* (Cowardin et al. 1979). Regional supplements were not followed and Rapanos forms were not completed as part of this study's scope of work. The supplements were not followed to maintain consistency with earlier work conducted by VDOT staff. The boundaries of the systems were mapped using Global Positioning System (GPS) and identified on project base mapping. Wetland data sheets and Unified Stream Methodology (USM) Form 1s were completed for representative systems (N, S, and M) along the corridor. The wetland data sheets and USM Forms are included in **Appendix D**. Tables summarizing various characteristics of each system are included in **Appendix E**. Road side ditches (some jurisdictional and others non-jurisdictional) were common along the corridor and were assessed following guidance provided by the Corps and VDEQ, both in written communication and in personal communication during a pre-field work site visit held with the Corps on June 8, 2011. The procedures for completing the wetland and stream assessment, including not using the regional supplement and the approach to address stormwater management features were discussed with and agreed to by the Corps during the June 8, 2011 meeting.

On August 17, 2011, an on-site meeting was held with the Corps to review representative identified wetland and other WUS areas along the study area corridor. A formal jurisdictional determination was not completed at this point in time as part of the study scope of work. Therefore, all linear footage and acreage estimates within this report referencing jurisdictional features are subject to verification by the Corps.

Uplands tend to be graded down to the road level. Fill material was generally identified near stream crossings / bridges throughout the study area corridor. At the eastern end of the corridor due to the low elevation and generally flat terrain the existing highway was constructed on fill to promote drainage and limit flooding. Where the median has not been graded or is now concreted, drainage ditches line both sides of the eastbound and westbound lanes. Some of these drainage ditches were considered as potentially jurisdictional while others were not. East of the Lee Hall/Newport News Reservoir, drainage ditches (many jurisdictional pending determination by the Corps) and sound barriers are common, which have added to the altering of the natural systems.

A number of both stream and wetland systems were identified within and surrounding the interchanges, north and south of the mainline and within the median. Many of the stream systems are unnamed tributaries to the major systems along the corridor. In addition, a number of the streams and wetlands appear to have developed as a result of the original roadway construction, and the consequent drainage and other factors associated with the roadway. As well, many of the larger rivers/stream and wetland systems are currently spanned by bridges. All identified systems (subject to the Corps jurisdictional determination) are show on the mapping in **Appendix C**.

A total of 99.93 acres of wetlands and 148,493 linear feet of other WUS were identified within the study area corridor. The acreage and linear footage of tidal and non-tidal resources are summarized in **Table 3**. A total of 70.40 acres of non-tidal and 29.53 acres of tidal wetlands were identified. The tidal wetlands were associated with Queen Creek and Newmarket Creek. These two stream systems were the only tidal streams identified within the study area (4,467 linear feet). Considering non-tidal stream systems, 127,563 linear feet of perennial channel, 12,490 linear feet of intermittent channel, and 3,800 linear feet of ephemeral channel were identified within the study area. In addition, 173 linear feet of lacustrine resources were identified.



Table 3: Identified Wetlands and Other Waters of the United States within the Study Area

Resource	Wetlands (acres)	Other Waters of the United States (linear feet)
Total Identified Resources	99.93	148,493
Non-Tidal Systems	70.40	144,026
Tidal Systems	29.53	4,467

Bridges with pier supports currently span the tidal systems, in addition to many of the larger, non-tidal resources. Any improvements along these areas would include the widening of the existing bridges, limiting the potential permanent impacts to primarily impacts associated with pier work.

As summarized in **Tables 4, 5, and 6**, the median had the least amount of both wetlands and other WUS. The greatest amount of wetlands and greatest amount of other WUS were identified south and north of the mainline, respectively. Regarding tidal features, the least amount of resources were identified within the median (0.66 acres of wetlands and 98 linear feet of other waters), the greatest amount of wetlands (21.73 acres) were identified south of the mainline, and the greatest amount of other WUS (4,249 linear feet) was located north of the mainline. Tables summarizing the quantity of impact for each stream and wetland system located within the study area are included in **Appendix F.**

Table 4: Location of Identified Wetlands and Other Waters of the United States within the Study

Area

Location	Wetlands (acres)	Other Waters of the United States (linear feet)
North of Mainline	35.80	66,370
Median	18.09	19,275
South of Mainline	46.04	62,848

Table 5: Wetlands Identified within the Study Area

Classification	Acreage Located North of the Mainline	Acreage Located within the Median	Acreage Located South of the Mainline	Total Acreage
E2EM1P	7.14	0.66	21.73	29.53
PEM	11.60	0.22	11.28	23.10
PSS	2.74	0.06	1.92	4.72
PFO	14.32	17.15	11.11	42.58
			Grand Total	99.93

Palustrine systems are all non-tidal wetlands dominated by trees, shrubs, and persistent emergent herbaceous plants. Palustrine forested wetlands (PFO) were the most common types of wetlands identified within the study area (42.58 acres). These types of systems are non-tidal wetlands



characterized by the domination of woody vegetation greater than 20 feet in height with greater than 30% canopy cover. Many of these systems typically have an overstory of trees with an understory of young trees and shrubs and an herbaceous layer. All water regimes are potentially present, except subtidal and permanently flooded, are included. Estuarine intertidal emergent wetlands (E2EM) associated with Newmarket Creek and Queen Creek were the second most common type identified (29.53 acres). This large value is primarily due to the wide study area around the I-664 interchange near Newmarket Creek. These systems include deepwater tidal habitats and adjacent tidal wetlands that are usually semi-enclosed by land but have open, partly obstructed, or sporadic access to the ocean, with ocean-derived water at least occasionally diluted by freshwater runoff from the land. The upstream and landward limit is where ocean-derived salts measure less than 0.5 ppt during the period of average annual low flow.

Approximately 23.10 acres of palustrine emergent wetlands (PEM) were the identified within the study area. These non-tidal wetlands are characterized by erect, rooted, herbaceous hydrophytes, excluding mosses and lichens. This vegetation is present for most of the growing season in most years, and the systems are typically dominated by perennial plants. There is a variety of water regimes that influence the soil, vegetation and habitat characteristics. Palustrine scrub shrub wetlands (PSS) were the least common along the study corridor (4.72 acres). This non-tidal wetland type is generally defined by greater than 30% canopy cover of shrubs or small trees less than 20 feet in height. Plant species typically include true shrubs, young trees, and trees or shrubs that are small or stunted due to environmental conditions. All water regimes except subtidal and permanently flooded are potentially included in this system type.

Table 6: Other Waters of the United States Identified within the Study Area

Classification	North of the Mainline Linear Feet Located within the Med		Linear Feet Located South of the Mainline	Total Linear Feet
Ephemeral	326	682	2,792	3,800
L2UBHh (Lacustrine)	0	115	57	173
R1UB2 (Tidal)	4,249	98	120	4,467
R2UB1 (Non-tidal Perennial)	560	27	8,501	9,088
R2UB2 (Non-tidal Perennial)	50,481	16,654	37,304	104,439
R2UB3 (Non-tidal Perennial)	3,181	500	10,356	14,037
R4UB2 (Non-tidal Intermittent)	7,506	1,198	3,718	12,423
R4UB3 (Non-tidal Intermittent)	67	0	0	67
			Grand Total	148,493



Non-tidal perennial stream systems were the most common types of other WUS (127,563 linear feet) identified within the study area. A perennial stream is a system which has constant flow at all times with the possible exception of times of extreme drought. Non-tidal intermittent channels were the second most common other WUS identified (12,490 linear feet). An intermittent channel is defined as a system with flow varying based on a number of factors including groundwater table and the discharge from feeder systems. Approximately 4,467 linear feet of tidal systems were identified along Newmarket Creek and Queen Creek. These systems are influenced by the ebb and flow of the ocean tides. Ephemeral channels are those channels which are not influenced by the groundwater table but only have water flowing through them as the direct response to recent and local precipitation. Approximately 3,800 linear feet of ephemeral channels were identified within the study area. Approximately 173 linear feet of lacustrine system, associated with the Newport News/Lee Hall Reservoir were identities within the study area. Lacustrine systems are those systems which include area of open water greater than 20 acres or more that are 6.6 feet in depth. A number of jurisdictional ditches (pending determination by the Corps) were identified along the corridor. These systems included WUS 6N, WUS 7N, WUS 8N, WUS 10N, and WUS 13N.

The USM is a collaborative effort between the Corps (Norfolk District) and the VDEQ. The USM is a method to simply assess characteristics of a potentially impacted stream and determine the required compensatory mitigation for that system based, in part, on the impact type (e.g., filling, culverts, etc.). The USM is a four part process consisting of the following: 1) assign a Reach Condition Index (RCI) to the stream to be impacted; 2) assess the type or severity of impact; 3) determine the compensation requirement; and, 4) determine what types of and the amount of the various compensation practices that would satisfy the compensation requirement. To determine the RCI, the condition of the channel is assessed for the following four characteristics: channel condition, riparian buffer, in-stream habitat, and channel alteration. In following the USM, RCI scores can range from 0 (lowest condition) to 1.5 (highest condition).

For this study, representative stream channels were assessed using the USM to determine the RCI for that specific reach. Required compensatory mitigation requirements can not be determined at this time as the specific impact type and linear footages are not available. This determination would be completed as part of the permitting process for the project. The RCI scores for the assessed channels ranged from 0.5 (an ephemeral channel) to 1.5 (the Chickahominy River). The USM Form 1s are included in **Appendix D**. The RCI values for the assessed resources are included in the summary table in **Appendix E**.

The majority of both wetland and other WUS systems have been influenced to some degree by the roadway itself or the intense development along the corridor, particularly those systems in or near the Cities of Richmond, Newport News, and Hampton. Many of the systems have been heavily manipulated through past ditching or filling activities associated with the road development and previous improvements. In addition, a number of the channels appear to have developed from drainage from the roadway and a number of wetland systems appear to have developed through constraints associated with and drainage to the interchanges and median. Despite the high degree of previous disturbance, these systems may still provide ecological functions such as wildlife habitat, flood control, and water quality benefits such as nutrient uptake and sediment trapping.

Potential Impacts and Mitigation Measures

No-Build Alternative

The No-Build Alternative would not involve any project-related construction or changes to the natural environment. As a result, project-related environmental effects from the No-Build Alternative are not anticipated.



Build Alternatives

In accordance with the federal and state regulations governing streams and wetlands, efforts have been made to reduce the potential for impacts to jurisdictional WUS, including wetlands, wherever possible. However, because this study involves the widening of an existing corridor which currently crosses numerous stream and wetland systems, impacts are unavoidable. In addition, along the greatest areas of impacts and in areas where bridges already exist, the true footprint of the impact would be minimized due to the widening of the existing bridges. In these cases, the potential activity in surface waters may simply result from the installation of piers. Also, in many cases the impacts are the result of culvert extensions and not complete fill of the system itself. In addition, since the construction area for all Build Alternatives is similar, the difference in total impacts among the Alternatives is similar.

Tables 7, 8, and 9 summarize the potential impacts resulting from each Build Alternative to WUS, including wetlands, along the study area corridor. As shown below, the overall impacts associated with Build Alternatives are very similar. While all Build Alternatives result in very similar overall impacts, the highest amount of both wetland and stream channel tidal impacts would occur from Build Alternatives 1A/2A. The wetland acreages and stream linear footages listed in all summary tables in Section D represent the values associated with an overlay of each Build Alternative's construction footprint.

Table 7: Potential Impacts to Waters of the United States, Including Wetlands

Build Alternative	Wetlands (acres)	Other Waters of the United States (linear feet)
Alternatives 1A/2A	66.11	112,237
Alternatives 1B/2B	64.95	113,544
Alternative 3	66.73	112,516

Table 8: Potential Impacts to Non-Tidal Waters of the United States

	Table 6: Fotential impacts to Non-Tidal waters of the United States						
	Non-Tidal						
Build Alternative	PFO Wetlands (acres)	PSS Wetlands (acres)	PEM Wetlands (acre)	Perennial Channel (linear feet)	Intermittent Channel (linear feet)	Ephemeral Channel (linear feet)	Lacustrine System (linear feet)
Alternatives 1A/2A	19.74	3.09	15.27	97,148	8,764	3,139	173
Alternatives 1B/2B	19.94	2.39	14.86	98,300	9,064	3,075	173
Alternative 3	20.85	2.91	15.14	96,865	9,405	3,138	173

Table 9: Potential Impacts to Tidal Waters of the United States

	Tidal				
Build Alternative	E2EM1P Wetlands (acres)	Other Waters of the United States (linear feet)			
Alternatives 1A/2A	28.01	3,012			
Alternatives 1B/2B	27.76	2,932			
Alternative 3	27.83	2,936			



Tables summarizing the quantity of impact for each stream and wetland system for each Build Alternative are included in **Appendix F. Tables 10 through 15** provide a further breakdown of wetland and stream impacts per resource classification for each Build Alternative.

Table 10: Potential Impacts to Wetlands - Alternatives 1A & 2A

Classification	Acreage Located North of the Mainline	Acreage Located within the Median	Acreage Located South of the Mainline	Total Acreage	
E2EM1P	7.06	0.66	20.29	28.01	
PEM	9.69	0.22	5.36	15.27	
PSS	2.17	0.06	0.86	3.09	
PFO 8.72		4.75	6.27	19.74	
			Grand Total	66.11	

Table 11: Potential Impacts to Other Waters of the United States - Alternatives 1A & 2A

Classification	Linear Feet Located North of the Mainline	Located North of Located within		Total Linear Feet	
Ephemeral	326	380	2,433	3,139	
L2UBHh					
(Lacustrine)	0	115	57	173	
R1UB2					
(Tidal)	2,833	98	81	3,012	
R2UB1(Non-Tidal					
Perennial)	534	27	7,218	7,779	
R2UB2 (Non-Tidal					
Perennial)	43,549	5,088	30,665	79,302	
R2UB3 (Non-Tidal					
Perennial)	3,181	173	6,714	10,067	
R4UB2 (Non-Tidal					
Intermittent)	5,550	90	3,124	8,764	
R4UB3 (Non-Tidal					
Intermittent)	0	0	0	0	
			Grand Total	112,237	

Table 12: Potential Impacts to Wetlands - Alternatives 1B & 2B

Classification	Acreage Located North of the Mainline	Acreage Located within the Median Acreage Located South of the Mainline		Total Acreage	
E2EM1P	7.04	0.66	20.07	27.76	
PEM	9.69	0.22	4.95	14.86	
PSS	2.06	0.06	0.27	2.39	
PFO 8.64		5.84	5.46	19.94	
			Grand Total	64.95	



Table 13: Potential Impacts to Other Waters of the United States - Alternatives 1B & 2B

Classification	cation Located North Located within the Loca		Linear Feet Located South of the Mainline	Total Linear Feet	
Ephemeral	312	398	2,365	3,075	
L2UBHh (Lacustrine)	0	115 57		173	
R1UB2 (Tidal)	2,770	98	65	2,932	
R2UB1 (Non-tidal Perennial)	1 34 1 //		7,209	7,770	
R2UB2 (Non-tidal Perennial)	43,495	6,748	30,179	80,422	
R2UB3	33 3,181 239 6,687		6,687	10,107	
R4UB2	5,527	427	3,110	9,064	
R4UB3	0	0	0	0	
			Grand Total	113,544	

Table 14: Potential Impacts to Wetlands - Alternative 3

Classification	Acreage Located North of the Mainline	Acreage Located within the Median	Acreage Located South of the Mainline	Total Acreage
E2EM1P	7.04	0.66	20.13	27.83
PEM	PEM 9.73		5.19	15.14
PSS	2.13	0.06	0.72	2.91
PFO	8.72	6.47	5.66	20.85
	·		Grand Total	66.73

Table 15: Potential Impacts to Other Waters of the United States - Alternative 3

Classification	Linear Feet Located North of the Mainline	Linear Feet Located within the Median	Linear Feet Located South of the Mainline	Total Linear Feet	
Ephemeral	325	409	2,404	3,138	
L2UBHh (Lacustrine)	0	115	57	173	
R1UB2 (Tidal)	2,769	98	68	2,936	
R2UB1 (Non-tidal Perennial)	536	27	7,246	7,808	
R2UB2 (Non-tidal Perennial)	42,292	7,208	30,277	79,777	
R2UB3 (Non-tidal Perennial	3,181	275	5,824	9,280	
R4UB2 (Non-tidal Intermittent)	5,829	464	3,113	9,405	
R4UB3 (Non-tidal Intermittent)	0	0	0	0	
			Grand Total	112,516	



The mitigation measures for stream and wetland impacts would be identified for the Preferred Alternative during final design. These measures would include avoidance and minimization efforts to the greatest extent practicable. Some measures which may be considered include: the use and appropriate placement of erosion and sediment control measures and best management practices; the use of upgraded erosion and sediment controls in environmentally sensitive areas; bridging/spanning of streams and wetlands; alignment shifts around specific systems; the use of cofferdams; steepening of slopes and the use of retaining walls on steeper slopes; properly countersunk culverts; stream relocation to improve skew angle and shorten culverts if new culverts are necessary; and ensuring groundwater recharge/wetland hydrology maintenance through the location of outfalls and infiltration trenches. Following construction practices, any additional stormwater generated through new impervious surfaces would be treated through improved stormwater management systems.

Coordination with the Corps, VDEQ, and VMRC would be required during the permitting phase of the project to determine the jurisdictional limits of surface waters and to make a final determination of the need for and type of permits. Both temporary and permanent effects to jurisdictional wetland and stream systems from any of the Build Alternatives would require a permitting decision from these agencies. Based on the scale of the project, the multiple individual impact area crossings and the potential for tidal impacts it is anticipated that a Section 404 Individual Permit from the Corps, a Virginia Water Protection (VWP) Individual Permit from the VDEQ, and a Subaqueous Bottomlands Permit from the VMRC would be required. For VDOT projects, VMRC issues the VGP-1 permit for subaqueous bottom encroachments where the drainage area of the impact zone(s) exceeds five square miles. Wetland impacts are exempted for the State.

Compensatory mitigation would likely be required for permanent impacts to stream and wetlands resulting from the construction activities. Compensatory mitigation is typically required in the same or adjacent HUC within the same watershed and physiographic province as the impact. As part of the permitting process, mitigation options would be investigated using the various agency resources including the July 2004 Joint Corps and VDEQ *Recommendations for Wetland Compensatory Mitigation: Including Site Design, Permit Conditions, Performance Criteria, and Monitoring Criteria* and the associated *Mitigation Checklist*, as well as the March 2008 Offsite Mitigation Guidelines. Of greatest significance, on April 10, 2008, new regulations providing guidance for compensatory mitigation was jointly issued by the Corps and USEPA. The new mitigation rule, which became effective June 9, 2008, changed the federal permitting preference regarding how compensatory mitigation is accomplished for project impacts to jurisdictional surface waters. This rule does not change when compensation is required.

The new rule provides the following preference for compensatory mitigation options:

- 1. Purchase of compensatory mitigation bank credits.
- 2. Purchase of an approved in-lieu fee fund credits.
- 3. Watershed approach based mitigation by the permittee.
- 4. On-site mitigation/in-kind mitigation by the permittee.
- 5. Off-site mitigation/out-of-kind mitigation by the permittee.

Both the Corps and VDEQ have currently adopted this hierarchy of compensatory mitigation options for permanent impacts to jurisdictional surface waters. There are currently a number of compensatory mitigation banks that have the appropriate available credits for the potential impacts. The final compensatory mitigation option would be determined during the project's permitting process.

In addition, the compensatory mitigation requirements for both streams and wetlands would be determined for the selected Build Alternative during the permitting phase. The current typical compensatory mitigation to impact ratios for non-tidal forested, scrub-shrub, and emergent wetlands are 2:1, 1.5:1, and 1:1, respectively. The compensatory mitigation to impact ratio for tidal emergent wetlands



is determined on a case-by-case basis; however, 2:1 is typical for these systems. The approved assessment methodology to determine the required stream compensation would be completed as part of the compensatory mitigation plan. As detailed above, at the time of this document, the approved assessment methodology is the USM. All potentially impacted channels would need to be assessed and the USM methodology completed in full to determine the compensatory mitigation requirements for the project. Compensatory mitigation for tidal stream systems would be determined on a case-by-case basis. Compensatory mitigation is typically required for unavoidable stream impacts to greater than 300 linear feet of stream at a crossing. However, this determination would be made on a project-by-project basis and due to the scale of this specific project, this threshold may be waived. At this time, compensatory mitigation is not typically required for impacts to jurisdictional ditches. The requirements for compensation for jurisdictional ditch impacts would be determined during the permitting process. Compensatory mitigation is not typically required for open water impacts (e.g., piers in open waters) but this requirement would be reviewed on a case-by-case basis.

In accordance with the existing regulations and standard permit conditions, all temporary impacts would also be required to be restored to their original contours and re-vegetated with the same or similar species. Additional compensatory mitigation other than previously stated for temporary impacts is typically not required through the permitting process.

E. Water Quality

Methodology and Existing Conditions

State and federal law requires VDEQ to report to the USEPA, as well as the local citizens, the condition of the Commonwealth's water systems. Section 305(b) of the CWA requires each state to submit a biennial report to USEPA describing the quality of its navigable waters. The 305(b) report provides VDEQ's best overall assessment of water quality conditions in the State. The 305(b) process assesses six primary designated uses (identified below), as appropriate for a particular waterbody, based on the regulatory Water Quality Standards. These primary uses are further broken into sub-categories.

- Aquatic Life Use supports the propagation, growth, and protection of a balanced indigenous
 population of aquatic life which may be expected to inhabit a waterbody. In Chesapeake Bay
 waters (mainstem and tributaries), this use is divided into sub-uses that target specific aquatic life
 assemblages.
- Recreation Use supports swimming, boating, and other recreational activities.
- Fish Consumption Use supports game and marketable fish species that are safe for human health.
- Shellfishing Use supports the propagation and marketability of shellfish (clams, oysters, and mussels).
- Public Water Supply Use supports safe drinking water.
- Wildlife Use supports the propagation, growth, and protection of associated wildlife.

Virginia's Water Quality Standards define the water quality needed to support each of these uses by establishing the numeric criteria that physical and chemical data are assessed against. If a waterbody contains more of a pollutant than is allowed by the Water Quality Standards, it would not support one or more of its designated uses as described above. Such waters are considered to have an "impaired" quality. According to the State, "impairment" refers to an individual parameter or characteristic that



violates a Water Quality Standard. A system fails to support a designated use when it has one or more impairments.

To determine if the designated uses are being met, the VDEQ tests, or obtains data for, selected water systems (including rivers, lakes and tidal waters) for pollutants at more than 1,000 locations across the Commonwealth on an annual basis. The samples are tested for over 130 contaminants including levels of nutrients, solids, bacteria associated with human and animal wastes, toxic metals, some pesticides and harmful organic compounds. Field tests are also performed for dissolved oxygen, pH, temperature, salinity, and additional indications of water quality. Sediment samples are tested for the presence of pesticides and other harmful compounds including levels of nutrients, solids, bacteria associated with human and animal wastes, toxic metals, some pesticides and harmful organic compounds. Waters that do not meet standards are reported to the citizens of Virginia and the USEPA in *Virginia Water Quality Assessment 305(b)/303(d) Integrated Report*.

VDEQ has developed this impaired waters list in even years since 1992. The impaired waters list describes segments of streams, lakes and estuaries that exhibit violations of Water Quality Standards. The report details the pollutant responsible for the violations, and the suspected cause and source of the pollutant. All anthropogenically impaired waters in Virginia are placed on a federally mandated 303(d) impaired waters list. Waters that are impaired due to human activities require a plan to restore water quality and associated designated use(s). VDEQ schedules each of these waters for development of a Total Maximum Daily Load (TMDL), which is a reduction plan that defines the limit of a pollutant(s) that a water can receive and still meet water quality standards. A TMDL Implementation Plan is developed after a TMDL is approved by USEPA. Once fully implemented, the TMDL Implementation Plan would restore the impaired waters and maintain its water quality.

The type of water quality data or parameters collected is determined by the waterbody's classification and corresponding Water Quality Standards. The information gathered from the monitoring stations determines the "use support" status of waterbodies, or how well a waterbody supports its designated uses. The categories are divided into the following categories based on USEPA guidelines. VDEQ has included sub-categories to these federally mandated categories, as described in the "impaired waters" Categories 4 and 5 below.

- Category 1 Waters support one or more designated uses.
- Category 2 Available data and/or other information indicate that some, but not all of the designated uses are supported.
- Category 3 Insufficient data and/or information to determine whether any designated uses are met.
- Category 4 Waters are impaired or threatened but do not need a TMDL.
 - USEPA Category 4A water is impaired or threatened for one or more designated uses but does not require a TMDL because the TMDL for specific pollutant(s) is completed and USEPA approved.
 - USEPA Category 4B water is impaired or threatened for one or more designated uses but does not require the development of a TMDL because other pollution control requirements (such as VPDES limits under a compliance schedule) are reasonably expected to result in attainment of the Water Quality Standard by the next reporting period or permit cycle.



- USEPA Category 4C water is impaired or threatened for one or more designated uses but does not require a TMDL because the impairment is not caused by a pollutant and/or is determined to be caused by natural conditions.
- Category 5 Waters are impaired and do need a TMDL.
 - Virginia Category 5A a Water Quality Standard is not attained. The water is impaired or threatened for one or more designated uses by a pollutant(s) and requires a TMDL (303d list).
 - Virginia Category 5B the Water Quality Standard for shellfish use is not attained. One or more pollutants causing impairment require TMDL development.
 - Virginia Category 5C the Water Quality Standard is not attained due to "suspected" natural conditions. The water is impaired for one or more designated uses by a pollutant(s) and may require a TMDL (303d list). Water Quality Standards for these waters may be re-evaluated due to the presence of natural conditions.
 - Virginia Category 5D the Water Quality Standard is not attained where TMDLs for a pollutant(s) have been developed but one or more pollutants are still causing impairment requiring additional TMDL development.
 - Virginia Category 5E effluent limited facilities are not expected to meet compliance schedules by next permit cycle or reporting period.

The VDEQ released the *Final 2010 305(b)/303(d) Water Quality Assessment Integrated Report* (Integrated Report) on February 9, 2011. The 2010 Integrated Report is a summary of the water quality conditions in Virginia from January 1, 2003 through December 31, 2008.

As previously detailed, the study area corridor falls within three of the twelve major river basins in Virginia: the James River (Lower sub-basin), the York River, and the Chesapeake Bay/Atlantic and Small Coastal Basins. A number of stream systems and other waterbodies, including reservoirs, in the vicinity of and draining from the study area have been listed as impaired in the 2010 Integrated Report. As summarized in **Table 16**, of those listed, nine surface waters that fall within the study area corridor have been listed as impaired (Categories 4 and/or 5) waters. In addition, according to the 2010 Integrated Report, a number of the systems and tributaries both within and in the vicinity of the study area corridor are under Virginia Department of Health (VDH) Fish Consumption Advisories. These advisories result from elevated levels above the state standards for the listed contaminant potentially associated with human health concerns.

Of these nine Category 4 or 5 waters, the Cause Categories for these waters were identified as 4A, 5A, or 5C. According to the 2010 Integrated Report, a Category 4A water is a water that is impaired or threatened for one or more designated uses but does not require a TMDL because the TMDL for specific pollutant(s) is completed and USEPA approved. In addition, all Category 5 waters are considered impaired and likely needing a TMDL. While waters categorized as 5A, 5B, or 5D in the 2010 Impaired Waters List are waters that VDEQ believes need a TMDL study, Category 5C waters are believed to be impaired due to natural conditions, and further study of each water are needed to determine if a TMDL is applicable or if changes to Water Quality Standards are appropriate to reflect those natural conditions. However, 5C waters are still listed with TMDL development dates in the Impaired Waters List.



Table 16: VDEQ 2010 Impaired Waters (Categories 4 and 5) Intersecting the Study Area

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Basin	Water Name	Designated Use	Cause Category	Cause Name	
	Gillies Creek	Recreation	5A	Escherichia coli	
	Offices Creek	Aquatic Life	5A	рН	
	Stony Run	Recreation	5A	Escherichia coil	
	Rumley Marsh	Aquatic Life	5C	Dissolved Oxygen; pH	
	Diascund Creek	Recreation	5A	Escherichia coli; Dissolved Oxygen	
James	CICCK	Aquatic Life	5C	Dissolved Oxygen	
	Beaverdam Creek	Aquatic Life	5C	Dissolved Oxygen	
	Lee Hall (Newport	Aquatic Life	5A	Copper; Dissolved Oxygen	
	News)	Wildlife	5A	Copper	
	Reservoir	Fish Consumption	5A	Mercury & PCB in Fish Tissue	
	Queen Creek	Fish Consumption	5A	PCB in Fish Tissue	
		Recreation	4A	Enterococcus	
		Shellfishing	4A	Fecal Coliform	
York		Aquatic Life; Shallow- Water SAV	5A	Aquatic Plants (Macrophytes)	
		Aquatic Life; Open- Water Aquatic Life	5A	Dissolved Oxygen	
		Aquatic Life; Open- Water Aquatic Life		Dissolved Oxygen	
	Newmarket Creek – Lower	Aquatic Life; Shallow- Water SAV	5A	Aquatic Plants (Macrophytes)	
Chasanaslas	Cleek - Lower	Fish Consumption	5A	PCB in Fish Tissue	
Chesapeake Bay/		Recreation	4A	Enterococcus	
Atlantic/		Shellfishing	4A	Fecal Coliform	
Small Coastal		Aquatic Life; Open- Water Aquatic Life	5A	Dissolved Oxygen	
	Newmarket Creek – Upper	Aquatic Life; Shallow- Water SAV	5A	Aquatic Plants (Macrophytes)	
	Creek – Opper	Fish Consumption	5A	PCB in Fish Tissue	
		Recreation	4A	Enterococcus	
		Shellfishing	4A	Fecal Coliform	

Six systems, including one reservoir, in the James River basin were listed as impaired in the 2010 Integrated Report. Gillies Creek, Stony Run and Diascund Creek have been placed on the 303(d) list with an impaired use for Recreation for *Escherichia coli*. The sources of the *Escherichia coli* impairments for the three systems are listed as "Unknown". However, Combined Sewer Overflows are also listed for this impairment in Gillies Creek. Rumley Marsh, Diascund Creek, and Beaverdam Creek were all listed for Dissolved Oxygen (Recreation), with the source of this impairment stated as Natural Conditions – Water Quality Standards Use Attainability Analysis Needed. Levels of pH measured beyond the required standard were identified in Gillies Creek and Rumley Marsh, causing an impaired designated use for Aquatic Life. For Rumley Marsh, 2010 was the initial listing of this impaired use.



The Lee Hall Reservoir (also commonly referred to as the Newport News Reservoir) was listed for exceeding copper levels (for both the Aquatic Life and Wildlife designated uses). This impairment was initially listed for the reservoir in 2004. In addition, PCB and Mercury concentrations in the reservoir have exceeded state standards, resulting in the issuance of fish advisories from the VDH. This year (2010) was the first year these impairments have been listed for the reservoir. The reservoir was also listed for Dissolved Oxygen (Aquatic Life), with the initial listing for this impairment occurring in 2006. The source(s) of all the impairments for the reservoir are listed as "Unknown" in the 2010 Integrated Report.

Queen Creek, the only listed watercourse along the corridor in the York River Basin, was listed for *Enterococcus* (Recreation), Shellfishing (Fecal Coliform), Aquatic Life/Open-Water Aquatic Life (Dissolved Oxygen) and Aquatic Life/Shallow-Water Submerged Aquatic Vegetation (SAV) (Aquatic Plants [Macrophytes]). In addition, Queen Creek has posted a PCB Fish Consumption advisory based on the assessment activities. All source(s) of impairments are listed as "Unknown" with the exception of the Aquatic Life/Shallow-Water SAV designated use. These listed sources include Non-Point Source and Point Source and Combination of Stormwater Wet Weather Discharges, Industrial and Municipal Point Source Discharges, Loss of Riparian Habitat, Atmospheric Deposition of Nitrogen, Internal Nutrient Recycling; Agricultural Practices, Sediment Resuspension (Clean Sediment) and Sources Outside the state Jurisdiction or Borders. This system was initially listed in 1998 for 1998 (Shellfishing – Fecal Coliform). There are no new listed impairments in 2010.

In the Chesapeake Bay/Atlantic/Small Coastal Basins, both the upper and lower sections of Newmarket Creek have been listed for Aquatic Life/Open-Water Aquatic Life (Dissolved Oxygen), Aquatic Life/Shallow-Water SAV (Aquatic Plants [Macrophytes]), Recreation (*Enterococcus*), Shellfishing (Fecal Coliform), and Fish Consumption (PCB in Fish Tissue). The source(s) of the PCB in Fish Tissue and *Enterococcus* are listed as "Unknown". Sources for the Dissolved Oxygen and Aquatic Plants (Macrophytes) impairment are listed in the report and include Non-Point Source and Point Source and Combination of Stormwater Wet Weather Discharges, Loss of Riparian Habitat, Municipal and Industrial Point Source Discharges, Atmospheric Deposition of Nitrogen, Internal Nutrient Recycling, Agricultural Practices, and Sources Outside the State Jurisdiction or Borders. For both sections of Newmarket Creek, the systems were originally listed in 1998 (for Shellfishing - Fecal Coliform), and there were no new listed impairments in 2010.

A table providing a detailed summary, including the water name and location, designated use, cause group code, category and name, source of pollutant(s), date of initial listing, and TMDL schedule of the impaired waters (Categories 4 and 5) located within the study area corridor is included in **Appendix G**. These systems, as well as systems in the vicinity of the study area, are also depicted on the mapping included in **Appendix H**.

Potential Impacts and Mitigation Measures

No-Build Alternative

The No-Build Alternative would not involve any project-related construction or changes to the natural environment. As a result, project-related environmental effects from the No-Build Alternative are not anticipated.

Build Alternatives

All of the Build Alternatives have the potential to increase levels of certain contaminants within the affected surface waters. These increases would be expected to be minimized with the use of approved sediment and erosion control during construction and implementation of stormwater best management practices. However the Build Alternatives could still affect water quality to some degree, exacerbating problems within sub-watersheds where contaminant levels are already elevated.



Potential impacts during construction could include physical disturbances or alterations, accidental spills, and sediment releases that can affect aquatic life. During construction, wind and rain could severely erode large areas of soil exposed following the removal of vegetation, considerably increasing sediment load to receiving waters. While all of the Build Alternatives have the post-construction potential to affect existing surface waters to a degree, the relatively small amount of new impervious surfaces and related pollutants that the project would add, in addition to the improved stormwater management practices, would be expected to cause only minimal changes, if any, to the corridor water quality.

A number of the surface waters listed as "impaired" are designated, at least in part, due to *Escherichia coli, Enterococcus*, and Fecal Coliform. These parameters, in addition to PCB, Mercury, and Copper contamination, would not be affected by highway construction. Another major parameter of impairment in the listed streams is Dissolved Oxygen. Since Dissolved Oxygen concentrations can become adversely low following algal blooms resulting from nutrient loading, any use of nutrient-rich fertilizers or excessive stormwater discharges resulting from the road project could contribute to impairment of the systems. This could also lead to elevated levels of pH, which were causes of contamination in Gillies Creek and Rumley Marsh. The failure to meet the Designated Use for Aquatic Life/Shallow-Water SAV in Newmarket Creek (both the lower and upper sections) and Queen Creek may be increased through the roadway project due to nutrient loading or excessive stormwater discharges (as noted above) and through excessive clearing of existing vegetation.

After construction, impacts associated with the use of the roadway would be primarily based on the potential for contamination of surface waters by runoff from new impervious surfaces. These runoff constituents would likely include heavy metals, salt and associated materials, organic molecules, and nutrients. However, this runoff would be treated by improved stormwater management facilities. Therefore, potential impacts are expected to be minimal, if any.

As part of the construction practices, minimizing or restricting the use of nutrient-bearing (phosphorus and nitrogen) fertilizers, following the proper application of the appropriate fertilizer and/or utilizing appropriate stormwater management facilities that effectively prohibit nutrient loading of receiving waters for the Alternative crossings may be considered, as appropriate. These practices should be implemented not just in the vicinity of streams impaired due to low Dissolved Oxygen, but to all systems to prevent the systems from being listed as impaired in the future. These control measures would also assist in off-setting impairment due to changes in pH and reduced SAV. In addition, clearing practices should be limited to the greatest extent possible to reduce potential for impairment to the systems. Based on the impairments listed, any crossing in the vicinity of a waterway may include stormwater management plans designed specifically to address the particular condition. During construction, all appropriate erosion and sediment control measures would be employed and although impervious surface would increase runoff post-construction, all stormwater would be treated through improved stormwater management facilities.

F. Surface and Groundwater Supply

Methodology and Existing Conditions

The Coastal Plain region in Virginia is composed mostly of unconsolidated deposits, primarily alternating layers of sand, gravel, shell rock, silt, and clay. These extremely permeable layers hold substantial amounts of groundwater. Therefore, the pollution potential in the uppermost unconfined aquifer within this area is very high due to the high permeability and high population density and agricultural activities in the area.

A large portion of Virginia's groundwater use in this region occurs in the two separate groundwater systems: one shallow, one deep. In many areas, a shallow unconfined aquifer system lies above



relatively impermeable clay beds and is the source of water for hundreds of domestic and other small capacity wells. The principal source of major groundwater withdrawals is a deeper system of confined aquifers. The recharge area to these aquifers occurs many miles away where the formations outcrop but infiltration from the water table and a shallower confined aquifer also recharge the deeper confined aquifers. This allows for the passage of pollutants to these deeper regions.

The natural water quality in the Coastal Plain aquifers is high except in areas where saltwater, iron, and hydrogen sulfide occurs. In aquifers near a salt water interface, salt water may migrate west as aquifers are pumped. As a result, water from the deep aquifers near the lower York-James Peninsula generally contains high chloride concentrations, requiring treatment for domestic use. According to the USGS, more than 125 million gallons of water are pumped every day from the aquifers, supplying roughly one million people.

The USEPA defines a sole source aquifer as one which supplies at least 50% of the drinking water consumed in the area overlying the aquifer. According to the USEPA Sole Source Aquifer Virtual Aquifer Map, no sole source aquifers, as defined under Section 1424(e) of the Safe Drinking Water Act, have been designated in the study area or the immediate vicinity. As summarized below, there are a number of reservoirs that provide the population's drinking water.

Under the Ground Water Management Act of 1992, the VDEQ manages groundwater through a program regulating the withdrawals in certain areas called Ground Water Management Areas (GWMA). Currently, there are two GWMAs in the State, including the Eastern Virginia GWMA which comprises the area east of I-95 and south of the Mattaponi and York Rivers. From the City of Richmond/Henrico County border to the study termini in the City of Hampton, the study area corridor lies within the Eastern Virginia GWMA. In accordance with the Ground Water Management Act, any person or entity wishing to withdraw 300,000 or more gallons of groundwater per month in the GWMA must obtain a permit from the VDEQ. However, this project would not involve any water withdrawals.

Seven reservoirs are located in the vicinity of the study area corridor, with the study area bisecting one (Lee Hall/Newport News Reservoir) and intersecting with the upstream limits of Diascund Creek Reservoir. Reservoir information was obtained from various sources, including locality Geographic Information System (GIS) data, communication with localities, locality government websites and Google maps. **Table 17** provides a summary of the reservoirs located in the vicinity of the study area corridor. The locations of these reservoirs are identified on various mapping in this document including **Figure 1** and the mapping in **Appendix C**.

Diascund Creek Reservoir is located in New Kent County south of the study area corridor, near Exit 220 (West Point). Drainage along the study area corridor from approximately the New Kent County line to the Exit 227 (Toano) is to the reservoir. Major stream systems (and their smaller tributaries) that cross the study area corridor and draining to this reservoir include Diascund Creek, Beaverdam Creek, Wahrani Swamp, and Barnes Swamp. Little Creek Reservoir is located in James City County south of the study area corridor, near Exit 231 (Croaker/Norge). Drainage along the study area corridor flows northeast, away from the Little Creek Reservoir. Although located in the two Counties, the water itself in both of these reservoirs is owned by the City of Newport News.

Waller Mill Reservoir, which is surrounded by Waller Mill Park and is the City of Williamsburg's major source of treated waters, is located in York County, south of the mainline, east of Exit 234 (Lightfoot). The reservoir was created by damming the upstream section of Queen Creek. Systems within the study area boundary along this area drain northeast, away from the reservoir.



Skiffes Creek Reservoir is located in the City of Newport News, just south of the mainline near Exit 247 (Yorktown). Drainage from the study area is to the reservoir. The corridor directly crosses the Lee Hall Reservoir (also referred to as the Newport News Reservoir) east of Mile Marker 294. This reservoir, which is formed from the damming of the Warwick River, is surrounded by the Newport News City Park and is an important source of drinking water for the Hampton Roads Peninsula. The Harwoods Mill Reservoir is located in the City of Newport News north of the study area corridor, near Exit 256 (Victory Boulevard). This 265 acre impoundment is the terminal reservoir for the City of Newport News water supply system. Water is pumped into Harwoods Mill from Chickahominy River, and the Diascund Creek and Little Creek Reservoirs. Drainage from the study area corridor flows away from this reservoir. Big Bethel Reservoir is located in York County and the City of Newport News, north of the mainline, near Exit 258 (J Clyde Morris Boulevard). Several systems drain from the study area corridor to this reservoir, including Brick Kiln Creek.

Table 17: Reservoirs in the Vicinity of the Study Area

	Table 17: Reservoirs in the vicinity of the	c Study Arca
Reservoir Name	Reservoir Location	Drainage Flow from the Study Area Corridor
Diascund Creek Reservoir	New Kent County (near Exit 220, West Point), south of the corridor	South to the reservoir; corridor bisects upstream limits of reservoir
Little Creek Reservoir	James City County (near Exit 231, Croaker/Norge); south of the corridor	Northeast away from the reservoir
Waller Mill Reservoir	York County (east of Exit 234, Lightfoot); south of the corridor	Northeast away from the reservoir
Skiffes Creek Reservoir	City of Newport News (near Exit 247, Yorktown), south of the corridor	South to the reservoir
Lee Hall Reservoir/Newport News Reservoir	City of Newport News (near mile marker 249)	Study area corridor directly crosses the reservoir
Harwoods Mill Reservoir	City of Newport News (near Exist 256, Victory Boulevard), north of the corridor	South away from the reservoir
Big Bethel Reservoir	York County and the City of Newport News (near Exit 258, J Clyde Morris Boulevard), north of the corridor	Northeast to the reservoir

The VDH - Office of Drinking Water reviews projects for the proximity of the site to public drinking water sources. Through the project scoping process, the VDH provided the following information related to the proximity of public drinking water sources (groundwater wells, springs, and surface water intakes) to the study area corridor.

According to information provided by VDH, for the seven groundwater sources identified in Zone 1 in **Table 18**, only one public groundwater source is located within 100 feet of the existing edge of pavement along the study area corridor. This public groundwater well is owned by New Kent Farms, and is located north of the westbound exit ramp at Exit 211 (Talleysville) in New Kent County. The approximate location of this well is included in **Figure 3**. In addition, of the surface water intakes noted in the **Table 19**, no public surface water intake is located within 100 feet of the existing edge of pavement along the study area corridor.



The Safe Drinking Water Act (SDWA), as amended in 1996, expanded the protection from groundwater based public water supply systems to all public water supply systems, including surface water. The SDWA also required an assessment to evaluate every public water supply system's vulnerability or susceptibility to contamination. The SDWA also required Virginia to develop a Source Water Assessment Program and to submit the plan to the USEPA. This amendment included Virginia adopting a one mile wellhead protection zone around all groundwater public sources. The VDH received USEPA approval for their plan and completed that assessments and susceptibility evaluations on all public water supply systems in the Commonwealth in 2006.

According to the VDH-Office of Drinking Water, they do not manage or administer designated wellhead protection zones along the study area corridor. In addition, according to VDH, of the seven localities along the corridor, only New Kent County and James City County have water supply protection plans; however, they do not have designated protection zones.

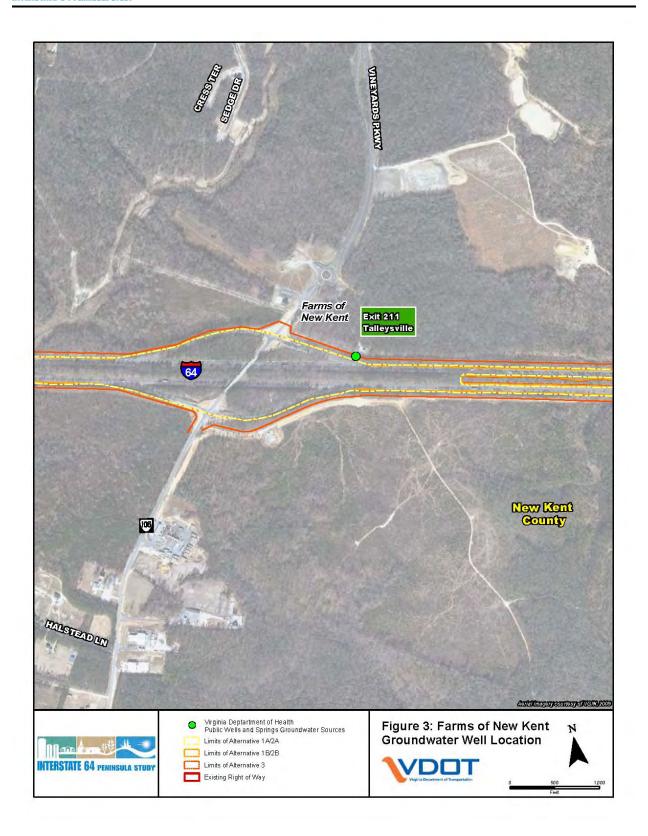
Table 18: VDH Groundwater Sources within the Study Localities

Location	City of Richmond	Henrico County	New Kent County	James City County	York County	City of Newport News	Total Wells
Zone 1 (wells within 1,000 feet)	0	0	3	3	1	0	7
Zone 2 (wells within 1 mile)	0	0	16	13	8	4	41
Total Wells in Locality	0	0	19	16	9	4	48

Table 19: VDH Surface Water Intakes within the Study Localities

Location	City of Richmond	Henrico County	New Kent County	James City County	York County	City of Newport News	Total Surface Water Intakes
Zone 1 (intake <5 mile into watershed)	0	0	1	0	2	2	5
Zone 2 (intake >5 miles into watershed)	0	0	1	1	0	0	2
Total Surface Water Intakes in Locality	0	0	2	1	2	2	7







Potential Impacts and Mitigation Measures

No-Build Alternative

The No-Build Alternative would not involve any project-related construction or changes to the natural environment. As a result, project-related environmental effects from the No-Build Alternative to either the groundwater or surface water resources are not anticipated.

Build Alternatives

Surface Waters

All of the Build Alternatives have the potential to increase levels of contaminants within the affected surface waters draining to the reservoirs. The four reservoirs either crossed by or receiving drainage from the study area corridor include Diascund Creek Reservoir, Skiffes Creek Reservoir, Lee Hall Reservoir/Newport News Reservoir, and Big Bethel Reservoir. The increases in contaminants would be expected to be minimized with the use of both the appropriate sediment and erosion control during construction and the implementation of best management practices.

Potential impacts during construction could include physical disturbances or alterations, accidental spills, and sediment releases that can affect aquatic life and water quality are potential impacts that could occur during construction activities. During construction, wind and rain could severely erode large areas of exposed soil, either through the removal of existing vegetation or staged stockpiles. This erosion could lead to an increased sediment load to surrounding surface waters. While all the Build Alternatives have the potential to affect existing surface waters to a degree, the relatively small amount of new impervious surfaces and related pollutants that the project would add, in addition to improved stormwater treatment facilities, would be expected to cause no or only minimal changes to the water quality of the surface waters surrounding the study area corridor.

Impacts associated with the use of the roadway following construction would be primarily based on the potential for contamination of surface waters by runoff from new impervious surfaces. These runoff constituents would likely include heavy metals, salt and associated materials, organic molecules, and nutrients. However, this runoff should be treated by improved stormwater management facilities. Therefore, potential impacts to the receiving waters are expected to be minimal, if any.

During construction, the potential for impacts to the reservoirs would be minimized through strict adherence to the required appropriate erosion and sediment control practices, which include best management practices such as silt fence, straw bales, check dams, sediment basins and other methods to capture potential sediment from exposed soils. In addition, the amount of clearing of existing vegetation would be minimized to the greatest extent possible and areas of exposed soils would be stabilized as soon as possible to prevent additional erosion. Following construction, the generated runoff would be treated in accordance with the state guidelines for stormwater management and then released to surface waters. Any crossing draining to a reservoir may include stormwater management plans designed specifically to address any potential impact to the surface water supply.

Groundwater

The Build Alternatives would be constructed on the surface, with no anticipated deep excavations, and are anticipated to have no or minor affects to groundwater in the aquifers along the corridor. Only small changes in the movements of the shallow groundwater table are likely to occur during grading and construction. In addition, the urbanized nature of the sections of the corridor with the greatest construction footprint make it unlikely that runoff from the post-construction interstate would reach the groundwater table. The generated runoff would be treated in accordance with the state guidelines for stormwater management and then released to surface waters.



The construction footprints of each Build Alternative would not impact the identified public groundwater supply well located north of the west bound exit ramp at Exit 211 (Talleysville) in New Kent County. It is possible that there are private drinking water wells within the vicinity of the study area. No determination was made for this study which properties utilize public water and those which utilize well water. Further investigations during the right of way acquisition would be necessary to make these determinations. However, potential impacts to any groundwater well resulting from any of the Build Alternatives are likely non-existent.

As noted by the VDH, potential impacts to public water distribution systems or sanitary sewage collection systems must be verified by the local utility prior to construction practices. Further investigations to determine the presence, operational status, and location of individual wells would be performed as part of property acquisition and right of way management for the construction project. Closures and/or relocation of the identified New Kent Farms public well (or any other identified well), if required, would be completed by following the Virginia Waterworks Regulation and other applicable VDOT or locality standard. Closures and relocation of private wells, if required, would be completed by using the Virginia Private Well Regulation and other applicable VDOT standard or locality standard.

Runoff generated both during and post-construction would not likely reach the groundwater table. In addition, the generated runoff would be treated in accordance with the state guidelines for stormwater management and then released to surface waters.

G. Chesapeake Bay Resource Protection Areas *Methodology and Existing Conditions*

The study area corridor is located within the Chesapeake Bay Watershed. As part of their commitment to protecting the Bay, localities have adopted the Chesapeake Bay Preservation Act (The Bay Act) into its local ordinance in 1990. The Bay Act offers guidelines and requirements to protect and improve the water that flows into the Chesapeake Bay. The vegetated riparian buffers located along the streams and wetlands are included as RPAs under the Bay Act. RPAs include the land area within 100 feet of a perennial stream bank or edge of wetlands adjacent to the perennial stream. RPAs are protected under both state law and local ordinances. In general, no development, land disturbance, or vegetation removal is allowed in an RPA without approval by the state and County. The Bay Act also designates Resource Management Areas (RMAs). RMAs include floodplains, highly erodible soils (including steep slopes), highly permeable soils, non-tidal wetlands not included in RPAs, and any other sensitive lands that either County feels are necessary to help protect the quality of water resources. Development is permitted within RMAs, but it must adhere to the criteria established in the county's comprehensive plan.

Potential Impacts and Mitigation Measures

According to the Division of Chesapeake Bay Local Assistance the construction, installation, operation, and maintenance of roadways and their appurtenant structures are conditionally exempt from the *Chesapeake Bay Preservation Area Designation and Management Regulations*, provided they are constructed in accordance with:

- Regulations promulgated pursuant to the Erosion and Sediment Control Law (§ 10.1-560 et. seq. of the Code of Virginia) and the Stormwater Management Act (§ 10.1-603.1 et. seq. of the Code of Virginia).
- An erosion and sediment control plan and a stormwater management plan approved by the VDCR, or local water quality protection criteria at least as stringent as the above state requirements.

Any improvement work associated with the project has the potential to affect RPA and RMA regions. Due to the regulation exemption stated above, the project is not under jurisdiction in terms of The Bay



Act. Therefore, provided that the guidance in the above section is followed, no additional avoidance or minimization techniques are necessary.

H. Floodplains

Methodology and Existing Conditions

Steep slopes typically separate the uplands from the bottom land along the region's streams. Narrow floodplains line the upper reaches of streams throughout most of the study area. Broader floodplains occur along the Chickahominy River, Boar Swamp, Rumley Marsh, Diascund Creek, Beaverdam Creek, Wahrani Swamp, Queen Creek, and Newmarket Creek. Dams have inundated the floodplains along Shiminoe Creek and the Warwick River in the study area.

Several federal regulations govern fill and construction in floodplains to ensure that proper consideration is given to the avoidance and mitigation of adverse floodplain effects. These regulations include Executive Order 11988, US Department of Transportation Order 5650.2, entitled the "Floodplain Management and Protection", and the National Flood Insurance Act of 1968. In Virginia, the VDCR is responsible for coordination of all state floodplain programs, and floodplains are also governed by local Flood Insurance Programs administered by localities and supervised by the Federal Emergency Management Agency (FEMA). The VDCR Floodplain Management Program and VDOT construction specifications for the roadway itself also address downstream floodplain and floodway effects.

The approximate locations of 100-year floodplain limits in the corridor are based on data from FEMA. The 100-year floodplain refers to the areas along or adjacent to a stream or body of water that are capable of storing or conveying floodwaters during a 100-year storm. The approximate locations of the 100-year floodplains in the corridor are shown on the mapping in **Appendix I.**

Within the study area boundary, FEMA designated 100-year floodplains are located alongGillies Creek and an unnamed tributary, Boar Swamp and an unnamed tributary, the Chickahominy River and an unnamed tributary, Higgins Swamp, Crump Swamp, Allens Run, Toe Ink Swamp and an unnamed tributary, Schiminoe Creek, Rumley Marsh, Diascund Creek and two unnamed tributaries, Beaverdam Creek, Wahrani Swamp, upper limits of Diascund Creek Reservoir, Barnes Swamp, Skimino Creek, Whiteman Swamp and an unnamed tributary, and Blows Mill Run. The total acreage of mapped 100-year floodplains within the study area corridor is 50.01 acres. The total acreage of floodplain for each stream channel is summarized in **Table 20.** Individual floodplain acreages within the corridor ranged from 0.12 acres (Barnes Swamp) to 14.96 acres (Chickahominy River). In addition to the Chickahominy River, Rumley Marsh and the upper limits of the Diascund Creek Reservoir each had five or greater acres of designated floodplain within the study area.

Potential Impacts and Mitigation Measures

No-Build Alternative

The No-Build Alternative would not involve any project-related construction or changes to the natural environment. As a result, project-related environmental effects from the No-Build Alternative are not anticipated.

Build Alternatives

The majority of the floodplain encroachments from the proposed Build Alternatives would be from the perpendicular crossing of floodplains, not from longitudinal (parallel) encroachments which were avoided. These longitudinal crossings have been avoided because they would result in more floodplain fill, reducing conveyance and floodplain storage.



Table 20: FEMA 100-year Floodplains Located within the Study Area

Stream Name	Map No.	Acreage in Study Area
Unnamed tributary to Gillies Creek	4	0.95
Gillies Creek	4	3.76
Boar Swamp	8	0.67
Unnamed tributary to Boar Swamp	8	0.56
Chickahominy River	9	14.96
Higgins Swamp	9	2.79
Unnamed Tributary to the Chickahominy River	10	0.21
Crump Swamp	11	0.55
Unnamed Tributary to Toe Ink Swamp	11	1.42
Allens Run	12	0.36
Toe Ink Swamp	12	1.10
Schiminoe Creek	13	0.84
Rumley Marsh	14	5.00
Diascund Creek	15	1.71
Unnamed Tributary to Diascund Creek	16	0.64
Unnamed Tributary to Diascund Creek	16	0.38
Beaverdam Creek	19	4.77
Wahrani Swamp	19	0.69
Upper Limits of Diascund Creek Reservoir	20	5.55
Barnes Swamp	20	0.12
Skimino Creek	25	0.18
Whiteman Swamp	30	1.01
King Creek	31	1.05
Blows Mill Run	33	0.76
	Grand Total	50.01

Tables 21 and 22 summarize the potential specific encroachments (expressed as area in acres crossed by the construction footprint) into FEMA-designated 100-year floodplains for each Build Alternative and for each floodplain system. The approximate locations of the 100-year floodplain crossing for each Build Alternative are shown on the mapping in **Appendix I.** All of the Build Alternatives would affect each identified 100-year non-tidal floodplain to some degree. Cumulatively, the impacts would be least with Alternatives 1B/2B and greatest with Alternatives 1A/2A. Placement of a substantial amount of fill is not anticipated in any of the floodplains. It is expected that the majority of encroachments would result from minimal cut/fill activities and the construction of bridges crossing the systems.

Table 21: Potential Impacts to FEMA 100-year Floodplains

Build Alternative	Potential Encroachment (acres)
Alternatives 1A/2A	21.08
Alternatives 1B/2B	17.56
Alternative 3	20.80



Table 22: Potential Impacts to FEMA 100-year Floodplains for Individual Stream Systems

Table 22: Potential impacts to FEMA 100-year Floodplains for Individual Stream Systems					
Stream Name	Map No.	Acreage Impacted by Alternatives 1A/2A	Acreage Impacted by Alternatives 1B/2B	Acreage Impacted by Alternative 3	
Unnamed tributary to Gillies Creek	4	0.82	0.82	0.82	
Gillies Creek	4	2.47	1.95	2.42	
Boar Swamp	8	0.49	0.39	0.45	
Unnamed tributary to Boar Swamp	8	0.46	0.34	0.46	
Chickahominy River	9	10.81	8.26	9.68	
Higgins Swamp	9	0.87	0.00	0.41	
Unnamed Tributary to the Chickahominy River	10	0.00	0.00	0.00	
Crump Swamp	11	0.17	0.19	0.22	
Unnamed Tributary to Toe Ink Swamp	11	0.18	0.20	0.28	
Allens Run	12	0.12	0.12	0.15	
Toe Ink Swamp	12	0.74	0.72	0.74	
Schiminoe Creek	13	0.14	0.15	0.19	
Rumley Marsh	14	0.17	0.32	0.45	
Diascund Creek	15	0.24	0.34	0.37	
Unnamed Tributary to Diascund Creek	16	0.15	0.18	0.20	
Unnamed Tributary to Diascund Creek	16	0.24	0.15	0.16	
Beaverdam Creek	19	0.55	0.62	0.84	
Wahrani Swamp	19	0.07	0.12	0.14	
Upper Limits of Diascund Creek Reservoir	20	0.31	0.62	0.74	
Barnes Swamp	20	0.00	0.00	0.00	
Skimino Creek	25	0.03	0.03	0.02	
Whiteman Swamp	30	1.01	1.01	1.01	
King Creek	31	1.05	1.05	1.05	
Blows Mill Run	33	0.00	0.00	0.00	
Gran	d Totals	21.08	17.56	20.80	

The potential acres of floodplain impacts for each Build Alternative are tentative estimates, as the engineered cut/fill calculations are preliminary and may be subject to change. In addition, the estimates are based on the footprint of the area, and not necessarily a direct crossing or impact to the floodplain. Many of these "crossings" would actually consist of the widening of existing bridges, thus reducing the actual impact acreage.

Individual impacts to any one floodplain would be relatively small in both size and severity. Future design would focus on avoiding and minimizing floodplain encroachment to ensure that the design is consistent with Executive 11998 and FHWA policy as set forth in 23 CFR 650. Hydraulic and hydrologic studies would be performed to determine if any floodplain encroachments would have negative effects on storage areas for floodwaters or alter flooding characteristics. Techniques that would be investigated to further minimize or avoid impacts may include alignment shift to ensure the narrowest possible crossing and bridging of floodwaters to further reduce encroachment and allow for unrestricted passage of floodwaters. At proposed bridge crossings, the minimum number of piers to ensure structural stability should be placed within floodways. Feasible construction methods that would not require the placement of construction causeways would be evaluated during the design phase. Should it become necessary, fill



placed for temporary construction causeways or work bridges would be removed and preconstruction floodplain conditions would be restored immediately following construction. Breastwalls and fill placed within floodplains for bridge abutments would be minimized.

All construction occurring within the FEMA designated 100-year floodplain must comply with the VDOT floodplain construction requirements which does not allow any change to the surface water elevation. These requirements consider structural evaluations, fill levels, and grading elevations. In accordance with the VDOT requirements, no change in surface water elevation would be permissible as part of the project final design and construction. Avoidance and minimization efforts, including the bridging/spanning of these systems, would be followed to the greatest extent practicable. In addition to mitigation measures designed to reduce the amount of floodplain encroachment by Alternatives, VDOT's highway construction specifications require implementation of stormwater management practices to address concerns such as post-development runoff associated with storm events and downstream channel capacity. These standards require that stormwater management facilities be designed to reduce stormwater flows to pre-construction conditions for up to a 10-year storm event. Also, during final design, a hydraulic study would be conducted that would ensure that no substantial increase in downstream flooding would occur.

Also, indirect impacts may include increased sedimentation entering the systems from disturbed floodplains as a result of the construction activities. To minimize indirect impacts to the floodplain, the appropriate erosion and sediment control measures, in accordance with VDCR standards, should be implemented and maintained. Hydrology and hydraulic analyses may be necessary to determine if there would be a rise in normal water surface elevation at the areas of potential encroachment, in which case FEMA may require a revision to the FIRMs during final design.

I. Wild and Scenic Rivers

Methodology and Existing Conditions

The Wild and Scenic Rivers Act of 1968 is a federal act adopted for specific free-flowing rivers that have outstanding natural, cultural, or recreational features. The Act classifies designated rivers as Wild, Scenic, or Recreational. Wild river areas are those rivers or sections of rivers that are free of impoundments and generally inaccessible except by trail, with watersheds or shorelines essentially primitive and waters unpolluted. These represent areas of primitive America. Scenic river areas are those rivers or sections of rivers that are free of impoundments, with shorelines or watersheds still largely primitive and shorelines largely undeveloped, but still accessible in places by roads. Recreational river areas are those rivers or sections of rivers that are readily accessible by road or railroad, that may have some development along their shorelines, and that may have undergone some impoundment or diversion in the past.

All rivers classified under the Act must first be listed on the National Rivers Inventory (NRI). The NRI is a federal list that includes rivers that are free-flowing and have one or more "outstandingly remarkable values." Under provisions of the Act, if a federal action compromises the designation of a Wild and Scenic River or forecloses the possibility of future designation (of a NRI river) under the Act, implementation of the federal action must be coordinated with the U.S. Department of Interior. According to the USFWS Wild and Scenic Rivers list (2011), there are no Wild, Scenic, or Recreational Rivers designated under the federal Act that exist within the study area. There are also no rivers within the study area listed in the NRI.

The Virginia Scenic Rivers Program's (established under the Commonwealth of Virginia Scenic Rivers Act) intent is to identify, designate, and help protect rivers and streams that possess outstanding scenic, recreational, historic, and natural characteristics of Statewide significance for future generations. The Commonwealth of Virginia Scenic Rivers Act affords protection to waters of Statewide importance. The



VDCR oversees the Commonwealth's Scenic Rivers Program. Based on comments received from VDCR, there are no systems within the study area corridor listed as a Scenic River. While the section of the Chickahominy River from Route 360 to the New Kent County line is listed as a Scenic River, the section of the Chickahominy River crossing the study area corridor was identified as a potential Scenic River.

Potential Impacts and Mitigation Measures

Since there are no federally designated systems in the study area, the proposed project poses no direct or indirect impacts to Wild, Scenic, or Recreational rivers and no avoidance or minimization techniques are necessary.

There are no state listed Scenic Rivers within the study area corridor. The VDCR commented that the Chickahominy River is a potential Scenic River. The No-Build Alternative would have no impact to the Chickahominy River. VDCR recommended that any impacts to the river crossing by the Build Alternatives be mitigated using native plants to stabilize land disturbance in the study area. In addition, the existing crossing consists of a span bridge, which would likely be widened as part of the improvements associated with all of the Build Alternatives, thereby, reducing any potential effects on the system.

J. Threatened, and Endangered Species

Methodology and Existing Conditions

The USFWS and the National Marine Fisheries Service (NMFS) regulate and protect federally listed threatened and endangered species under the Endangered Species Act (ESA) of 1973 with the primary goal of conserving and recovering listed species. The ESA, with few exceptions, prohibits activities affecting threatened and endangered species unless authorized by a permit. The legal federal status of a species is determined by the USFWS and the NMFS. This status is used for all animals listed as endangered or threatened by the United States government and receiving protection under the federal ESA. Listed federally endangered (FE) species are those taxon threatened with extinction throughout all or a substantial portion of its range. Listed federally threatened (FT) species are taxon likely to become endangered in the foreseeable future.

In addition to the federal oversight, threatened and endangered species are also regulated at the state level. The Virginia Department of Game and Inland Fisheries (VDGIF) has adopted the federal list as well as a state list of endangered and threatened species, with the primary focus of managing Virginia's wildlife to maintain optimum populations of all species and conserve biodiversity. In addition, through a Memorandum of Agreement established between the VDCR and Virginia Department of Agriculture and Consumer Services (VDACS), the VDCR represents VDACS in comments regarding potential impacts on state-listed threatened and endangered plants and insect species. The legal state status is determined by the VDGIF (all animals except insects) and the VDACS (plants and insects). A state endangered (SE) species is defined as a species that is in danger of extinction throughout all or a substantial portion of its range. A state threatened (ST) species is defined as a species that is likely to become endangered within the foreseeable future.

As part of the project scoping process, comments were requested from the USFWS and NMFS to determine the presence of federal threatened or endangered species and with the VDGIF, VDCR, and VDACS for the identification of state threatened and endangered species. Comments from the agencies and additional information related to threatened and endangered species are included in **Appendix J**. No comments have been received from the USFWS, NMFS, or VDGIF. However, as detailed below, various database searches and reviews have been conducted for both threatened and endangered species.



The study identified ten federal and state threatened and/or endangered species or their habitat located within a two mile radius of the study area corridor. Most of these species were listed with numerous occurrences throughout the corridor. These species are listed in **Table 23**, and the mapping in **Appendix K** shows the location of these resources along the corridor. This summary only includes species which have been documented/confirmed through the review process within the two mile radius of the center line of the study area, in addition to the assessed potential habitat areas for small whorled pogonia conducted as part of the I-64 Study.

The information generated from the resources listed below, in addition to other natural resource agency documents and information, was used to develop a Species Conclusion Table for the identified species. This information is included in **Appendix J**.

The following sections provide additional details regarding the resource reviews, agency coordination, and identified species.

1. VDCR Comments

The VDCR-DNH commented that, according to its search in the agency's Biotic Data System, numerous natural heritage resources have been documented within two miles of the study area corridor. Natural heritage resources are defined by the agency as the habitat or rare, threatened, or endangered plant and animal species, unique or exemplary natural communities, and significant geologic formations. The table generated by the agency is included in **Appendix J**. VDCR-DNH specifically noted the potential for the following two plants to occur in the study area: Small whorled pogonia (*Isotria medeoloides*) which is currently classified as threatened by the USFWS and as endangered by the VDACS, and Swamp pink (*Helonias bullata*), which is currently classified as threatened by the USFWS and as endangered by the VDACS. Through the scoping letter response, VDCR noted that, within a two mile radius of the corridor, Small whorled pogonia was noted in three instances, with one of those occurrences at Ware Creek, and Swamp pink was noted in one instance at Broadwater Creek.

Table 23: Threatened and Endangered Species Mapped within a Two Mile Radius of the Study Area

Common Name	Scientific Name	Legal Status
Rafinesque's eastern big-eared bat	Corynorhinus rafinesquii macrotis	SE
Peregrine falcon	Falco peregrinus	ST
Canebrake rattlesnake	Crotalus horridus	SE
Mabee's salamander	Ambystoma mabeei	ST
Eastern tiger salamander	Ambystoma tigrinum tigrinum	SE
Loggerhead sea turtle	Caretta caretta	FT / ST
Bald eagle	Haliaeetus leucocephalus	ST
Small whorled pogonia	Isotria medeoloides	FT / SE
Swamp pink	Helonias bullata	FT / SE
Harper's fimbristylis	Fimbristylis perpusilla	SE

A summary of the listed plant and animals provided by VDCR is included in **Table 24**. This table lists the common and scientific names, the federal and state listing status, the number of occurrences identified within a two mile radius of the corridor, and the Global and state ranks of each species.



Table 24: VDCR Listed Threatened and Endangered Species within a Two Mile Radius of the Study Area

Common Name	Scientific Name	Global Rank	State Rank	Legal Status	Number of Occurrences
Bald eagle	Haliaeetus leucocephalus	G5	S2S3B, S3N	ST	7
Canebrake rattlesnake	Crotalus horridus (Coastal Plain population)	G4	S 1	SE	5
Mabee's salamander	Ambystoma mabeei	G4	S1S2	ST	5
Eastern tiger salamander	Ambystoma tigrinum	G5	S 1	SE	1
Harper's fimbristylis	Fimbristylis perpusilla	G2	S 1	SE	1
Small whorled pogonia	Isotria medeoloides	G2	S2	FT/SE	3
Swamp Pink	Helonias bullata	G3	S2S3	FT/SE	1
Peregrine falcon	Falco peregrinus	G4	S1B, S2N	ST	1

Global ranks are assigned by a consensus of the network of natural heritage programs, scientific experts, and NatureServe (a non-profit conservation organization) to designate the range wide rarity of a species or subspecies. The ranks are assigned after considering a suite of factors including the number of occurrences (populations), number of individuals, and severity of threats to the species and its habitats. Global ranks found in the Rare Plant and Animal Lists identified for the I-64 Study are as follows:

- **G2** Very rare and imperiled with 6 to 20 occurrences or few remaining individuals; or because of some factor(s) making it vulnerable to extinction.
- **G3** Either very rare and local throughout its range or found locally (even abundantly at some of its locations) in a restricted range; or vulnerable to extinction because of other factors. Usually fewer than 100 occurrences are documented.
- **G4 -** Common and apparently secure globally, although it may be rare in parts of its range, especially at the periphery.
- **G5** Very common and demonstrably secure globally, although it may be rare in parts of its range, especially at the periphery.

State ranks are assigned in a similar manner to global ranks, with values that range from S1-S5, but consider only factors within the political boundaries of Virginia. State ranks found in the Rare Plant and Animal Lists within a two mile radius of the I-64 study area are as follows:

- **S1** Extremely rare and critically imperiled with 5 or fewer occurrences or very few remaining individuals in Virginia; or because of some factor(s) making it especially vulnerable to extirpation in Virginia.
- **S2** Very rare and imperiled with 6 to 20 occurrences or few remaining individuals in Virginia; or because of some factor(s) making it vulnerable to extirpation in Virginia.



- **S3** Rare to uncommon in Virginia with between 20 and 100 occurrences; may have fewer occurrences if found to be common or abundant at some of these locations; may be somewhat vulnerable to extirpation in Virginia.
- **S_B** Breeding status of an animal (primarily used for birds) in Virginia; these species typically inhabit Virginia only during the breeding season.
- S_B/S_N Breeding and nonbreeding status of an animal (primarily used for birds) in Virginia

2. VDACS Comments

In response to the project scoping request, VDACS commented that although "unlikely", there is the possibility that endangered plants or insects could occur in the vicinity of the I-64 corridor. The agency noted that while these species were found in the localities along the study area, it is not known if they are located within the study area boundary. The species with the greatest potential for occurring along the study area corridor include Small whorled pogonia, Swamp pink, and New Jersey rush (*Juncus caesariensis*).

3. USFWS Information, Planning, and Conservation On-Line System

While no official comments were received from the USFWS to date, McCormick Taylor conducted the USFWS Information, Planning, and Conservation (IPaC) on-line system for the study area corridor. Through the use of the USFWS IPaC on-line system, several federal threatened or endangered species were identified within the study area boundary. These species included Small whorled pogonia (*Isotria medeoloides*), classified as threatened in 1994 and occurring in Henrico, New Kent, James City and York Counties; Swamp pink (*Helonias bullata*), classified as threatened in 1988 and occurring in the City of Richmond and Henrico and New Kent Counties; Piping plover (*Charadrius melodus*), classified as threatened in 1986 and occurring in the City of Hampton, and Sensitive joint-vetch (*Aeschynomene virginica*), classified as threatened in 1992 and occurring in York County. However, the exact locations of these occurrences were not identified. The IPaC species list and information is included in **Appendix J.**

4. Center for Conservation Biology Bald Eagle Nest Locator

Both the VDGIF and the VDCR recommends contacting the Center for Conservation Biology (CCB) at the College of William and Mary to obtain the updated information regarding Bald eagle (*Haliaeetus leucocephalus*) issues. Additionally, McCormick Taylor conducted a Bald eagle nest locator search using the CCB on-line system. Bald eagles are currently de-listed under the federal ESA; however, they are still recognized as a threatened species at the state level and are protected by the federal Bald and Golden Eagle Protection Act (Eagle Act) (16 U.S.C. §668-668d) and the Migratory Bird Treaty Act (MBT Act) (16 U.S.C. §703-712).

The CCB's nest locator was used to determine the approximate location of eagle's nests throughout the study area corridor. A total of eleven nests were found to be within a two mile radius of the study area. However, no nests were located within 660 feet of the study area corridor, with the closest nest (Nest Code NK0702 south of the mainline near mile marker 222 in New Kent County) located approximately 1,450 feet from the study area boundary. Nests located within the 660 foot radius considered the nest protection zone, would elevate the review and protective measures required by the agencies. A summary of the CCB's nest location results are included in the table below and included on the mapping in **Appendix K**.



Table 25:	CCB Bald I	Eagle Nest Loc	ations within a	a Two Mile R	Radius of the Study Area

County	Nest Code	Status
New Kent	NK0701	Active / Occupied
New Kent	NK0702	Active / Occupied
James City	JC0704	Active / Occupied
James City	JC0805	Active / Occupied
James City	JC1107	Active / Occupied
James City	JC0401	Active / Occupied
James City	JC0703	Active / Occupied
James City	JC1108	Recently Active
York	YK1103	Active / Occupied
York	YK0204	Active / Occupied
York	YK0703	Active / Occupied

Bald eagle concentrations areas are also located along the James River and the river's tributaries in the vicinity of the project corridor.

5. VDGIF Virginia Fish and Wildlife Information Service Database

In addition to requesting threatened and endangered species information as detailed above, the federal and state threatened and endangered species were also mapped using the Virginia Fish and Wildlife Information Service (VFWIS) database maintained by VDGIF.

The location of listed state and federal threatened and endangered species (animal only) identified within a two mile radius of the corridor generated from the VFWIS is included on the mapping in **Appendix K** and summarized in **Table 26**. This summary only includes species which have been documented/confirmed within the two mile radius of the center line of the study area corridor.

Table 26: VFWIS Database Documented Threatened and Endangered Species within a Two Mile Radius of the Study Area

Common Name	Scientific Name	Legal Status	TIER	Feature Count
Rafinesque's eastern big-eared bat	Corynorhinus rafinesquii macrotis	SE	I	1
Peregrine falcon	Falco peregrinus	ST	I	3
Canebrake rattlesnake	Crotalus horridus	SE	II	30
Mabee's salamander	Ambystoma mabeei	ST	II	55
Eastern tiger salamander	Ambystoma tigrinum tigrinum	SE	II	1
Loggerhead sea turtle	Caretta caretta	FTSE	I	4

Through analysis of the VDGIF VFWIS data, six species were identified as either state or federally threatened or endangered. Three species are considered Tier I and three species are considered Tier II. As indicated in the VDGIF Virginia's Comprehensive Wildlife Conservation Strategy Plan (2005), Tier 1 and Tier II species are defined as the following:

Tier I - Critical conservation need. Faces an extremely high risk of extinction or extirpation. Populations of these species are at critically low levels, face immediate threat(s), or occur within an extremely limited range. Intense and immediate management action is needed.



Tier II - Very high conservation need. Has a high risk of extinction or extirpation. Populations of these species are at very low levels, face real threat(s), or occur within a very limited distribution. Immediate management is needed for stabilization and recovery.

Bald eagles (which are listed as a Tier II species) are not included in this section, but are discussed in Section J.4.

As shown on the mapping in **Appendix K**, of the species identified, the Mabee's salamander (near Exit 243 - Busch Gardens and Exit 250 - Fort Eustis, and Mile Marker 261) and the Canebrake rattlesnake (near Exit 256 - Victory Boulevard and from Exits 258 - J Clyde Morris Boulevard to 261 - Hampton Roads Center Parkway) are located in the immediate vicinity of the study area corridor.

6. Species Profiles

The following provides general summaries of the major state or federal threatened or endangered species documented by the agencies (either through database searches or written correspondence) within a two mile radius of the centerline of the study area corridor. The general location of the documented species is included on the mapping in $\bf Appendix~\bf K$.

Small whorled pogonia (Isotria medeoloides) - Federal Threatened/State Endangered

The small whorled pogonia was listed as FE for protection under the Endangered Species Act on September 9, 1982 and was reclassified from endangered to threatened on October 6, 1994 (USFWS 1982, 1994). The Small whorled pogonia is listed as state-endangered by the Commonwealth of Virginia. In Virginia, most populations occur in the coastal plain and piedmont. Small whorled pogonia has been documented in 21 counties (and one city), including James City County, New Kent County, York County, and the City of Williamsburg (USFWS 2012). Through their response as part of the scoping process, VDCR indicated that small whorled pogonia was noted in three instances within a two mile radius of the study area corridor, with one of those indicated at Ware Creek.

Small whorled pogonia typically occurs on mesic sites in mixed-deciduous or mixed-deciduous coniferous forests that are generally in second- or third-growth successional stages. Most occupied sites have been cutover in the past and allowed to regenerate for at least several decades. Occupied sites typically have sparse to moderate ground cover, a relatively open understory, and proximity to long persisting canopy breaks associated with logging roads, streams, and large tree falls. Direct destruction, as well as habitat loss and alteration are principle reasons for the species' decline.

As part of this study, EEE Consulting, Inc. conducted a reconnaissance level habitat evaluation for the FT, SE Small whorled pogonia within the study area corridor. Potential habitat was identified using a combination of desktop review of relevant data resources, windshield reconnaissance conducted from a vehicle, and pedestrian spot checks of the highest quality habitat areas. Of the fifteen areas identified as the potential highest quality habitat areas, only the southeast area of Exit 238 (Colonial Williamsburg) was determined to be of high potential habitat. The other fourteen areas were either determined to be of medium (13 areas) or low (1 area) quality. The full report and mapping showing the location of the field assessed areas and their classifications are included in **Appendix L**.

Swamp pink (Helonias bullata) – Federal Threatened/State Endangered

Swamp pink inhabits groundwater-influenced, perennially saturated, nutrient-poor headwater wetlands and is sensitive to hydrologic alterations to its habitat. The plant is commonly associated with some evergreens, including Pitch pine, Atlantic white cedar, American larch, Black spruce, Red spruce, and with Red maple. It often grows on hummocks formed by trees, shrubs, and sphagnum moss. The hummocks keep the roots moist but not submerged. Through their response as part of the scoping



process, VDCR indicated that within a two mile radius of the corridor, Swamp pink was noted in one instance at Broadwater Creek.

The major direct threat to this species is habitat loss. Indirect threats result from activities that affect the hydrologic regime including such upslope activities as timber harvesting, land clearing and development, and agriculture. Downstream threats to the hydrology of a swamp pink habitat arise from flooding caused by road crossings with culverts that become blocked and beaver activity.

Piping plover (Charadrius melodus) - Federal Threatened/State Threatened

The Piping plover was listed as federal threatened in Virginia in 1986 and is currently listed as state threatened in Virginia. The Piping plover is a small, inconspicuous shorebird with a sand-colored back, narrow black neck ring, white belly, orange legs and a small orange and black bill.

This species is considered native to Virginia. Piping plover is known to occur in Accomack, the City of Hampton, Northampton, City of Portsmouth, and City of Virginia Beach. Virginia is part of this population's southern breeding range and since 1986 has supported a relatively stable number of nesting pairs. The Piping plover lives the majority of its life on open sandy beaches or rocky shores, often in high, dry sections away from water. Piping plovers typically nest on sparsely vegetated ocean-facing beaches, sand flats and washovers. Since the late 1990's, 100% of the breeding activity in Virginia has occurred on the Eastern Shore's barrier islands. Piping plovers have many natural enemies such as raccoons, foxes, crows, gulls and other birds and mammals. Storms and spring high tides often wash out a portion of the nests and/or drown flightless chicks. In addition, the prevalence of pets and increased pedestrian and off-road vehicle traffic on nesting beaches reduce the success of nesting pairs.

Piping plover was identified as potentially occurring within the vicinity of the study area through the IPaC database. While the Piping plover is considered state threatened, the VDGIF VFWIS data did not indicate the presence of the bird within a two mile radius of the corridor.

Sensitive joint-vetch (Aeschynomene virginica) – Federal Threatened/State Endangered

Sensitive joint-vetch is an annual legume native to the eastern United States. In Virginia, populations are found along the Potomac, Mattaponi, Pamunkey, Rappahannock, Chickahominy, and James Rivers and their tributaries. This plant usually attains a height of three to six feet in a single growing season, but may grow as tall as eight feet. The flowers are yellow, streaked with red and the fruit is a pod, turning dark brown when ripe. The species is known to occur in Charles City, Chesterfield, Essex, Henrico, James City, King and Queen, King William, New Kent, Richmond, Stafford, Surry, and Westmoreland Counties, primarily along the Potomac, Rappahanock, Mattaponi, Pamunkey, Chickahominy, and James Rivers. It is currently listed as a FE and SE species.

Sensitive joint-vetch occurs in fresh to slightly brackish tidal river systems, within the intertidal zone where populations are flooded twice daily. It typically occurs at the outer fringe of marshes or shores; its presence in marsh interiors may be a result of nutrient deficiencies, ice scouring, or muskrat herbivory. The Sensitive joint-vetch is found in locations where plant diversity is high and annual species are prevalent. Bare to sparsely vegetated substrates appear to be a habitat feature of critical importance for establishment and growth of this species. Plants flower from July through September and into October in some years. Fruits are produced from July through late October, concurrent with flowering. Direct impact and habitat destruction are some of the highest threats to this species.

Sensitive joint-vetch was identified as potentially occurring within the vicinity of the study area through the IPaC database. While the plant is considered SE, it was not identified within a two mile radius of the study area corridor through the state agency information review and coordination efforts.



Bald eagle (Haliaeetus leucocephalus) – State Threatened

Bald eagles are currently de-listed under the federal ESA; however, they are still recognized as a threatened species at the state level and are protected by the federal Bald and Golden Eagle Protection Act (Eagle Act) (16 U.S.C. §668-668d) and the Migratory Bird Treaty Act (MBT Act) (16 U.S.C. §703-712). A large raptor, the Bald eagle has a wingspread of about 7 feet. Adults have a dark brown body and wings, white head and tail, and a yellow beak. Juveniles are mostly brown with white mottling on the body, tail, and undersides of wings. Adult plumage usually is obtained by the 6th year. In flight, the Bald eagle often soars or glides with the wings held at a right angle to the body.

The Bald eagle is not overly common to the Coastal Plain and Piedmont regions, remaining relatively close to large bodies of water. However, they are more common in summer and winter in the Chesapeake Bay region and surrounding counties. The Bald eagle prefers habitats near seacoasts, rivers, large lakes, oceans, and other large bodies of open water with an abundance of fish. The Bald eagle requires old-growth and mature stands of coniferous or hardwood trees for perching, roosting, and nesting. Selected trees must have good visibility, an open structure, and proximity to prey, but the height or species of tree is not as important as an abundance of comparatively large trees surrounding the body of water. Forests used for nesting should have a canopy cover of no more than 60%, and no less than 20%, and be in close proximity to water.

While the Bald eagle may be sensitive to human activity, it has been known to quickly adjust to constant noise associated with transportation activity. Since the banning of pesticides, the species has made extensive recovery across the United States. The current primary threat to the species is habitat fragmentation and destruction.

Rafinesque's eastern big-eared bat (*Corynorhinus rafinesquii macrotis*) – State Endangered The Rafinesque's eastern big-eared bat was designated as a SE species in 1987 and listed as a federal candidate in 1994. This is a medium sized bat, with the dorsal hair gray-brown with black bases, and the ventral hair whitish-yellowish with black bases. The fur is long and shaggy and it has huge ears up to twice the length of the head connected across the forehead. There is a glandular mass on either side of the

muzzle, and elongated nostril openings. The total length (male smaller than female) is 80-110 mm, with a wingspread from 265-301 mm, and a weight of 7.9-13.6 grams.

The bat is incidental in Virginia because it has adapted to temperate, arboreal zones found only in the extreme southeast. This bat is rare in Virginia and particularly susceptible to human disturbance. Both subspecies are at the edge of their ranges in Virginia, so their occurrence here is tenuous at best. They are uncommon to rare throughout their range, and both seem to be declining. They prefer roosting sites near mature forests and adjacent to rivers and other permanent bodies of water; manmade structures that are most often used have few openings to the attic and have tin roofs, type of structures may have been influence by the socio-economics of the area (eg. types of houses built); they prefer structures with low light levels. The attics of structures were used more due to higher temperatures during gestation and early growth periods. More closed canopy forest surround occupied sites than the unoccupied ones; tree cavities or other alternate roosts are important to avoid predators and fulfill thermoregulatory needs; tree roosts may be better winter roosts.

Peregrine falcon (Falco peregrinus) - State Threatened

Due to recovery success, the Peregrine falcon has been federally delisted; however, the bird is still listed as ST. Through the scoping process, VDCR indicated that the bird was noted within a two mile radius of the study area corridor.

The Peregrine falcon is characterized by long pointed wings having a distinct sickle-shaped silhouette. Also unique to this species is the notched beak that is used to kill prey by severing the spinal column at



the neck. The falcon is a crow-sized bird, weighing just over two pounds with a wing span of approximately 3 feet. An adult peregrine has a dark grey back and crown, dark bars or streaks on a pale chest and abdomen, and heavy malar (cheek) stripes on the side of the face. Immature peregrines are buff colored in front and have dark brown backs; adults are white or buff in front and bluish-gray on their backs. Females and males are identical appearance; however, the female can be a third larger than the male. They typically nest on the side of cliffs, or if in cities, on the roofs of large buildings.

Canebrake rattlesnake (Crotalus horridus) – State Endangered

The Canebrake rattlesnake is a large venomous snake reaching a maximum length in Virginia of about 5.5 feet. As the only rattlesnake found in southeastern Virginia, it is easily identified by its distinctive black tail and rattle. The Canebrake is a physically distinct variant of the timber rattlesnake (*Crotalus horridus*) which ranges from New England to Minnesota and south to Florida and Texas. In Virginia, Canebrakes occur only as two populations in the southeastern corner of the state. On the Lower Peninsula they occur in the Cities of Hampton and Newport News, and York County; and south of the James River they are still found in Isle of Wight County, and in the Cities of Suffolk, Chesapeake, and Virginia Beach.

Mature hardwood forests are the preferred habitat of Canebrake rattlesnakes, but the snakes also are found in mixed hardwood-pine forests, cane thickets, and in the ridges and glades of swamps. They prefer areas with numerous logs and a substantial layer of leaves and humus. Canebrakes overwinter in the bases of hollow trees and stumps and in the underground tunnels resulting from stump and root decomposition. Habitat destruction or modification, and persecution by humans, are the primary threats to canebrake rattlesnakes.

Through the scoping process, VDCR indicated that the Canebrake rattlesnake (Coastal Plain population) was noted in five instances within a two mile radius of the study area corridor.

Mabee's salamander (Ambystoma mabee) - State Threatened

The Mabee's salamander was listed as a ST species in 1987. This is a relatively small species, with adults ranging from 8-12 centimeters, with a small head and long slender toes. The coloration is dark browngray to black with silvery white flecks that are abundant on the sides, but sparse on the back. The belly is light gray or gray-brown with a few flecks.

Known populations are low in number and tend to be isolated. Their range is restricted to the lower Coastal Plain of the Carolinas and Virginia. This species is known to occur in six localities in the coastal plain in extreme southeastern Virginia: one each in the Cities of Hampton and Suffolk and the counties of York, Southampton, Gloucester, and Isle of Wight. It is also found in the City of Newport News. The species is considered highly threatened, primarily by urbanization through the destruction of the sensitive habitat areas.

The species are found in savannas in burrows at the edges of bogs or ponds and in low wet woods and swamps. Breeding sites in Virginia are fish-free vernal ponds or ephemeral coastal plain sinkholes up to 1.5 meters deep, with surrounding forests generally composed of hardwoods mixed with pine. It is also found in low areas adjacent to coastal rivers and pine savannas, and in bogs, ponds, low wet woods, and swamps.

Eastern tiger salamander (Ambystoma tigrinum tigrinum) – State Endangered

The Eastern tiger salamander was listed as a SE species in 1987. This is Virginia's largest mole salamander reaching a maximum total length of 33-35 centimeters. It is a robust species with a broad head with relatively small eyes and an extremely long tail comprising approximately half of the total length. The back is dark brown to black with olive-yellow to brownish-yellow spots or blotches on the



back, sides, and belly. The blotches continue laterally and blend into the olive-yellow center creating a jagged- edged lateral line.

According to VDGIF, this native Virginia species may be more abundant than it appears due to its reclusive nature, although it is very restricted in Virginia. Four Virginia sites are known: one each from York, Mathews, Hanover, and Augusta Counties. However, potential breeding habitat around the York County site has been destroyed and the Hanover County site was known to have a large fish population and is probably extirpated. Therefore, this species can be considered extant in only two sites in Virginia – Mathews and Augusta Counties.

Breeding habitats include limestone sinkhole ponds and Coastal Plain vernal pools associated with wetlands. The terrestrial habitat is only generally described as that with a substrate suitable for burrowing, or sandy areas near shallow pools, chiefly in pine savannas. Unique habitat associations include springs and seeps, vernal pools, bottomland hardwoods and freshwater wetlands. They may inhabit any type of woodland or marshy grassland and are found in leaf letter, debris and humus.

Loggerhead sea turtle (Caretta caretta) – Federal Threatened/State Threatened

This large sea turtle has a carapace that is heart shaped, without striations on the surface, and brown to reddish brown in color. The plastron (lower shell) is hingeless, smaller than the carapace (upper shell), and cream to yellowish in color. Star-shaped light and dark streaks may be present on the carapace. The top of the head, the neck, and the front of the fore-flippers are reddish brown. The snout is short and the upper jaw is yellowish brown. The entire undersurface, side of the neck, and parts of the flippers are cream to yellow.

The Loggerhead is the most abundant sea turtle in Virginia's coastal waters. It is found only in salt water, in the Chesapeake Bay from Baltimore south, in all the major rivers along Virginia's coast, and into channels between barrier islands. This species is a wanderer which prefers moderately deep bays, and has been found in streams, marshes and many miles into the sea. The Chesapeake Bay is an important summer foraging area for subadults between the ages of 5 and 15 years. Nearly all nesting sites are on barrier islands in the United States. Nesting habitat is a sand beach that is high enough that it is not inundated by high tides nor soaked by groundwater rising from below. The Loggerhead forages in the bay and its estuaries primarily for horseshoe crabs. It would also consume other crustaceans, sea grasses, sponges, fish, mollusks, and snails.

According to VDGIF, there have been known occurrences of the Loggerhead sea turtle in York County and the Cities of Hampton, Norfolk, and Newport News.

Potential Impacts and Mitigation Measures

No-Build Alternative

The No-Build Alternative would not involve any project-related construction or changes to the natural environment. As a result, project-related environmental effects from the No-Build Alternative are not anticipated.

Build Alternatives

All of the Build Alternatives have the potential to affect threatened or endangered species or habitats along the study area corridor. The habitat of two species, the Mabee's salamander (near mile markers 244 and 260.5) and the Canebrake rattlesnake (near mile markers 256.5 and 258.5), was identified within the immediate vicinity of the study area. Each Build Alternative intersects the identified mapped habitat areas for these species. For projects affecting the Mabee's salamander, the VDGIF typically recommends maintaining an undisturbed naturally vegetated buffer of at least 300 meters around the identified habitat pond. In addition, any impact to the habitat (pond) automatically infers an impact to the species. For the



Canebrake rattlesnake, recommendations may include practices such as education requirements for the construction contractors and the installation of passageways under road systems. The potential presence of both species would require close coordination with the regulatory agencies and potential survey/assessment and design considerations.

The study also identified areas of potential habitat for the small whorled pogonia within the Alternative limits. As a federally listed threatened plant, prior to the issuance of a permit, the permittee must demonstrate that the species would not be harmed. A habitat survey conducted by a certified specialist would likely be required for this species as part of the project permitting process. While habitat surveys can be performed throughout the year, the detailed species survey, which must be conducted by a USFWS approved professional, must be completed between May 25th and July 15th of a given year and submitted to the agencies for their review and recommendations.

Eleven Bald eagle nests were identified within the two mile radius of the study area corridor, which require special coordination with the regulatory agencies, with possible construction time-of-year restrictions. However, all of the nest locations were located outside of the 660-foot nest protection zone, and there are no anticipated impacts to this species.

One occurrence of the Peregrine falcon was identified near the western study termini, in downtown Richmond. The buffered limits of the habitat are approximately 350 feet from the study area corridor. The VDGIF typically recommends a time-of-year restriction for construction activities within 600 vertical feet of the nest. Therefore, there is not an anticipated impact to this species.

The presence of federal and state threatened or endangered species, including those listed above, in the vicinity of the study area requires special consideration and coordination with various federal and state agencies at all stages of the project. Through the coordination with these agencies, potential impacts to target species and their habitats can be evaluated and avoided by implementing various practices as part of the project design. Examples of mitigation measures to avoid impacts to threatened and endangered species and their habitats which may be employed include shifting alignment to avoid potential areas, spanning/bridging resources and the use of bottomless arch culverts, countersinking of culverts, limiting clearing of existing vegetation to the greatest extent possible, strict adherence to erosion and sediment control guidelines and the implementation of stormwater best management practices, and adherence to maintaining applicable buffer widths to a species habitat. In addition, as noted above, construction time-of-year restrictions may be required for a given species.

Every attempt should be made to incorporate the preliminary recommendations into the design as much as possible. However, certain recommendations may not be practicable. Specific agency coordination should conducted during the final design and permitting stage of the project at which time more detailed agency recommendations would be determined.

As the project progresses, additional coordination would be required with the appropriate agencies for all species identified within the two mile radius of the study area corridor. If impacts cannot be avoided, time-of-year restrictions for construction may be required and these restrictions would be determined through the permitting process. In addition, a Section 7 consultation (in accordance with the ESA) may be required for a species if impacts can not be avoided. Also, habitat assessments and species surveys may be required to determine the presence of a threatened or endangered plant species or habitat. These species surveys must be completed by an agency certified or approved specialist, and may have restrictions on time-of-year when the surveys can be conducted.



K. Terrestrial and Aquatic Habitat and Wildlife

Methodology and Existing Conditions

The presence of federal and state identified habitat areas or specific wildlife resources in the vicinity of the study area require special consideration and coordination with the various federal and state agencies throughout project development. Although parklands and other natural areas are present throughout the corridor, sections of the corridor, particularly near the Cities of Richmond, Newport News, and Hampton, are highly urbanized where most natural resources have been altered during years of landscape manipulation for development. However, within the central section of the corridor, there are a number of undisturbed and/or highly naturalized areas in the vicinity of the study area. Despite the many years of disturbance that has diminished the extent and quality of the natural habitat within the corridor, there remains a number of natural resources that enhance the area. Many of these resources, summarized below, are found throughout the corridor and are regulated by a number of different federal and state agencies.

A variety of upland forest communities and diverse tidal and freshwater wetlands and stream systems are found in the Coastal Plain physiographic province in Virginia. The upland forests that originally covered much of the Virginia Coastal Plain have been extensively cleared or altered, making it difficult to determine which species and natural communities were once naturally prevalent. Much of the contemporary forest consists of successional or silvicultural stands of loblolly pine (*Pinus taeda*) and secondary pine-hardwood forests that have developed after repeated timbering or agricultural abandonment. The most mature remnant stands on mesic uplands are typically characterized by associations of American beech (*Fagus grandifolia*), several oaks (*Quercus* spp.), and American holly (*Ilex opaca var. opaca*). Patches of drier oak-dominated forest and steep bluffs with dense forests of chestnut oak (*Quercus montana*), beech, and mountain-laurel (*Kalmia latifolia*) are fairly common in the dissected inner Coastal Plain, especially north of the James River.

Streams and wetlands of the Coastal Plain are extensive and support a great variety of natural communities. The diversity of wetlands in this region spans a range of freshwater to saline, lunar-tidal estuaries; tidal and palustrine swamps; non-riverine, groundwater-saturated flats; seasonally flooded ponds and depressions; seepage slope wetlands; and various tidal and non-tidal aquatic habitats. Tidal Freshwater Marshes and Tidal Hardwood Swamps occur only along the James River and estuarine rivers to the north.

Specific terrestrial and aquatic habitat and wildlife conditions and concerns are noted throughout this report, and some features are expanded below. The majority of the study area is located within the existing, previously disturbed right of way of the roadway corridor. Within the study area, there are a number of wetlands and other WUS systems that were identified within the study area boundary through either a desktop review or field analysis as detailed in Section D above. As noted in Section L (below), due to the mode of transport by various types of vehicles traveling the corridor, both aquatic and terrestrial exotic and invasive species are very common along the roadway.

The following are specific terrestrial and aquatic habitat and wildlife resources reviewed by federal and state agencies in Virginia.

1. Anadromous Fish Use Areas

Anadromous fish are those migratory fish species which spend most of their lives in the sea and migrate to fresh water to breed. One of VDGIF's roles is to document both confirmed and potential Anadromous Fish Use Areas throughout Virginia. Anadromous fish have historically played an important economic role in Virginia. According to VDGIF, over the past few decades, monitoring has noted that anadromous fish populations such as shad and herring are severely depressed. The Commonwealth is actively addressing this decline and taking steps to restore the migratory pathways of the species. Through these



efforts, the Commonwealth is hopeful that the anadromous fish populations eventually return to, or near, historic levels with fish passage, supplemental stocking, and a harvest moratorium all contributing to the recovery. This population increase would have important recreational and commercial impacts. Many of these species also contribute to the food chain as forage for predatory fish and provide a marine-based energy source to freshwater systems.

The VDGIF maintains a database that identifies stream reaches that are confirmed or potential migration pathways, spawning grounds, or summer areas for anadromous fish. The species included in the VDGIF assessment are Alewife (*Alosa pseudoharengus*), Blueback herring (*Alosa aestivalis*), American shad (*Alosa sapidissima*), Hickory shad (*Alosa mediocris*), Striped bass (*Morone saxatilis*), and some populations of Yellow perch (*Perca flavescens*). Upstream boundaries are established at either migratory impediments, such as dams, or where habitat becomes unsuitable.

Based on information generated from the VFWIS, the VDGIF has identified the following (summarized in **Table 27**) Confirmed and Potential Anadromous Fish Use Area designations within a two mile radius of the study area corridor. These were identified due to the documented occurrence of anadromous and/or semi-anadromous fish species within, and/or adjacent, to various portions of the study area. The Potential and Confirmed Anadromous Fish Use Areas are included on the mapping in **Appendix K**.

Table 27: VFWIS Documented Anadromous Fish Use Areas within a Two Mile Radius of the Study Area

Status	Major River Basin	Study Area Corridor Locality	Stream Name (VDGIF ID)	Confirmed Species
		James City	Diascund Creek	Blueback herring, Striped bass, Yellow perch
	James	Richmond, Henrico County	James River (2)	American shad, Blueback herring, Striped bass, Yellow perch
		York County	Halfway Creek	Yellow perch
Confirmed	Confirmed	James City County, Newport News, Hampton	James River 1	Alewife, American shad, Blueback herring, Hickory shad, Striped bass, Yellow perch
		James City County	France Swamp	Yellow perch
	York	James City County	Ware Creek	Alewife, Blueback herring
	TOIK	York County	York River	Alewife, American shad, Blueback herring, Hickory shad, Striped bass, Yellow perch
		York County	Jones Millpond Creek	
	York	York County	King Creek	
	TOIK	York County	Queen Creek	
Potential	Potential	York County	Carter Creek	
1 Otential		York County	Skimino Creek	
		Newport News	Warwick River	
	James City County, Newport News Skiffes Creek			



The NMFS NOAA division also oversees anadromous and diadromous fish resources. This organization has not provided any official comments to date. However, based on information on the divisions website (http://www.nmfs.noaa.gov/pr/species/fish/), both Alewife and Blueback herring were listed as both a Candidate Species and a Species of Concern. A Candidate Species is a species that is undergoing a status review that NMFS has announced in a *Federal Register* notice, and is being considered for listing under the ESA as an endangered or a threatened species, but not yet the subject of a proposed rule. A Species of Concern is a species which the agency has some concerns regarding status and threats, but for which insufficient information is available to indicate a need to list the species under the ESA.

In addition to the database search, direct coordination was also initiated with the NMFS NOAA staff to discuss the potential for species to be located within the vicinity of the project corridor which were not yet included in the database. The Atlantic sturgeon (*Acipenser oxyrhinchus oxyrhinchus*) was listed as FE on February 6, 2012. However, this species has not yet been included in the agencies database. Through communication with the NMFS NOAA staff, this species has been identified within the York River and it's tributaries.

2. Colonial Water Birds

According to the CCB, Colonial Water Birds (also referred to as Colonial Wading Birds or Colonial Nesting Birds) include herons, egrets, ibises, gulls, terns, skimmers, cormorants, and pelicans. These birds share the unusual characteristic of nesting in dense assemblages, with the result of this behavior being that they typically breed in very few locations. The loss of these breeding areas may have profound consequences on a population level. In addition, due to their position in the aquatic food web, they are considered to be good indicators of ecosystem health. The most substantial threats to Colonial Water Birds include human disturbance, predation, habitat loss, and contaminants. Protection of sensitive colonies clearly depends on the availability of timely information of the birds locations. Development of strategic management plans to protect these species and breeding areas requires a broader understanding of population trends. Both the VDCR and VDGIF comment on a project's effect on this resource.

Through the project scoping process, the VDCR identified one natural heritage resource denoted as an Animal Assemblage within a two mile radius of the study area corridor, as listed in the table in **Appendix J**. This Animal Assemblage was a Colonial Wading Bird Colony (with a Global rank of G5 and a state rank of S2) located at Beaverdam Creek.

A review of the VDGIF database identified a number of Colonial Water Bird designations within the two mile radius of the study area corridor. However, there were no colonies within the immediate vicinity of the corridor. The identified colonies were predominantly great blue heron (*Ardea herodias*) while great egret (*Ardea alba*) colonies were also fairly common. Six great blue heron colonies are located within a half mile of the study area corridor (south of the mainline near mile markers 217.5 and 221.5; north of the mainline near mile markers 221, 223.5, 229, and 229.5). Only one of these colonies is located within 500 feet of the study area (north of the mainline at mile marker 229.5). The colonies were found primarily along the Chickahominy River and France Swamp, but also noted along Beaverdam Creek, Diascund Creek, and Wahrani Swamp. Yellow-crowned night heron (*Nyctanassa violacea*) colonies were identified in smaller numbers, and a single least tern (*Sternula antillarum*) colony was identified within the vicinity of the study area. The least tern colony is located within a half mile of the study area south of the mainline near mile marker 256. The Colonial Water Bird designations located within a two mile radius of the study area corridor are included on the mapping in **Appendix K.**

3. Essential Fish Habitat

The Magnuson-Stevens Fishery Conservation and Management Act (as amended by the Sustainable Fisheries Act of 1996) require all federal agencies to consult with the NMFS, NOAA division, on all on all actions or propose actions that are permitted, funded or undertaken by the federal agency which may



adversely affect essential fish habitat (EFH). Any federal agency that takes an action that could adversely affect EFH by reducing the quantity or quality of habitat must work with NMFS to identify impacts and steps for conserving the habitat and reducing the impact of that action. As defined by NOAA, EFH includes all types of aquatic habitat—wetlands, coral reefs, seagrasses, rivers—where fish spawn, breed, feed, or grow to maturity. The review for EFH considers all lifecycle stages including adults, juvenile, larvae, and eggs.

The NOAA EFH on-line mapping systems were used to identify potential regulated resources within the vicinity of the study area corridor. Official comments from NMFS have not been received for this study.

According to NOAA's EFH Mapper v2.0 and EFH data inventory, one NOAA Habitat Area of Particular Concern (HAPC) was designated within the study area corridor. HAPCs are discrete subsets of EFH that provide extremely important ecological functions or are especially vulnerable to degradation. These areas are rare, particularly susceptible to human-induced degradation, especially ecologically important, or located in an environmentally stressed area. The HAPC designation does not confer additional protection or restrictions upon an area, but can help prioritize conservation efforts and federal actions with potential adverse impacts to HAPC would be more carefully scrutinized during the consultation process and would be subject to more stringent EFH conservation recommendations. According to NOAA's EFH Mapper v2.0 and EFH data inventory, a HAPC is designated for the Sandbar shark (Carcharhinus plumbeus) for all stages of the lifecycle throughout the eastern part of the corridor, from approximately just west of the Queen Creek crossing to the project termini in the City of Hampton. A number of additional EFH designations are identified in the vicinity of the project corridor according to the NOAA Guide to EFH Designations in the Northeastern United States on-line mapping system (http://www.nero.noaa.gov/hcd/index2a.htm). This guide provides a geographic species list of EFH designations completed by the New England Fishery Management Council, Mid-Atlantic Fishery Management Council, South Atlantic Fishery Management Council, and the NMF in the Northeastern United States. Species with designated EFH for at least one life cycle stage within the vicinity of the corridor include: Windowpane flounder (Scophthalmus aguosus), Bluefish (Pomatomus saltatrix), Atlantic butterfish (Peprilus triacanthus), Summer flounder (Paralichthys dentatus), Black sea bass (Centropristis striata), King mackerel (Scomberomorus cavalla), Spanish mackerel (Scomberomorus maculatus), Cobia (Rachycentron canadum), Red drum (Sciaenops occelatus), Dusky shark (Carcharhinus plumbeus), and Sandbar shark (Carcharhinus plumbeus). The database identified EFH habitat for all species listed above throughout the corridor, with the exception of the Windowpane flounder and the Dusky shark, whose EFH habitat is limited to approximately east of Williamsburg. A HAPC was also indentified in this database for the Sandbar shark, as noted above.

NOAA EFH Areas Protected from Fishing (APF) are areas in which the NMFS and the regional fishery management councils have used the EFH provisions established in Section 303(a)(7) of the Magnuson-Stevens Fishery Conservation and Management Act to prevent, mitigate, or minimize adverse effects from fishing on EFH. NMFS has not prohibited fishing in there areas, but steps such as anchoring restorations and gear prohibitions, have been taken to minimize the impact that fisheries have on EFH. According to NOAA's EFH Mapper v2.0 and EFH data inventory, while the James River and the York River are designated as Southern Fishing Management Areas to Hopewell and West Point, respectively, no EFH APF are designated for any waterway within the study area.

4. Natural Communities

The VDCR identifies resources considered natural heritage resources across the state. The VDCR identified a number of Natural Communities (which are considered natural heritage resources) within a two mile radius of the study area corridor. These Natural Communities, as listed in the table in **Appendix J**, include Mesic Mixed Hardwood Forest, Basic Mesic Forest, Piedmont/Coastal Plain Oak - Beech/Heath Forest, Coastal Plain Dry Calcareous Forest/Woodland, Oak/Heath Forest, Coastal Plain



Depression Wetland, Tidal Freshwater Marsh, Tidal Oligohaline Marsh, Coastal Plain/Piedmont Basic Seepage Swamp, and Non-Riverine Flatwood/Swamp. These natural community types may be located throughout the project corridor.

The Grafton Ponds Natural Area Preserve, which is owned by the City of Newport News but is under VDCR jurisdiction, is located in the study vicinity, but not within the study area corridor. The 375 acre Grafton Ponds Natural Area Preserve is located west of Exit 250, approximately 2,600 feet north of the mainline.

Grafton Ponds are listed as a Coastal Plain Depression Wetland Natural Community by the VDCR. While this Natural Community type has not yet been ranked by the state, according to the VDCR, Grafton Ponds represent Virginia's best remaining example of a coastal plain pond complex, and the state considers these rare wetland complexes as areas deserving high levels of protection from development. The features are formed from the dissolution of underlying calcareous marine deposits within the Yorktown formation. While the systems themselves are considered rare, they support several locally-rare or ST species including Harper's fimbristylis, Mabee's salamander, Pond spice, Cuthbert turtlehead, and Barking treefrog.

5. Submerged Aquatic Vegetation

The Virginia Institute of Marine Science (VIMS) at the College of William and Mary monitors and maintains a database for the presence and health of SAV in the Chesapeake Bay and its watershed. The organization also reviews projects for potential impacts to SAV resulting from that project. SAV beds filter polluted runoff, provide food for waterfowl, and provide habitat for blue crabs, juvenile rockfish, and other aquatic species. SAV beds not only indicate the presence of high water quality, their establishment helps to improve water quality in the area.

As part of the Annual SAV Monitoring Program, since 2001 VIMS has been orthorectifying aerial images that cover SAV beds. According to the VIMS SAV 2011 Interactive Map, while there are SAV beds documented in the James River and York River, and several major tributaries to these systems including the Chickahominy River, there are no SAV beds within the vicinity of the study area corridor.

To date VIMS has not provided comments as part of the scoping process for this project. In addition, no other agency or database search has provided information regarding SAV along the study area corridor.

6. Trout Waters, Threatened and Endangered Waters, Shellfish Areas

The VDGIF also tracks the presence of and reviews projects for impacts to trout, threatened and endangered waters, and shellfish areas throughout Virginia. Threatened and endangered waters are streams and rivers that contain documented occurrences of federal or state listed threatened or endangered species and their associated habitat. Trout waters include documented wild trout streams, stocked trout waters or recreational trout fisheries.

According to VDGIF VFWIS data, there are no trout waters, threatened or endangered waters, or shellfish areas in the vicinity of the study area.

Potential Impacts and Mitigation Measures

No-Build Alternative

The No-Build Alternative would not involve any project-related construction or changes to the natural environment. As a result, project-related environmental effects from the No-Build Alternative are not anticipated.



Build Alternatives

All of the Build Alternatives have the potential to impact terrestrial and aquatic habitat or species along the study area corridor. Extensive coordination with the different agencies should continue throughout all stages of project development to reduce potential impacts to these resources. In addition, avoidance and minimization of potential impacts to the natural environment and wildlife should be considered throughout the design and construction phases of the project. Permitting of the project would also address avoidance, minimization, and compensatory mitigation measures, as needed.

All of the Build Alternatives specifically have the potential to impact unique wildlife resources including Anadromous Fish Use Areas, EFH, and Colonial Water Birds. However, as specifically discussed below, the impacts would be negligible following the measures outlined in the following sections.

Terrestrial Wildlife and Habitat

Because the Build Alternatives consist of widening along an existing corridor, the proposed activities would not likely affect any substantial forest resource. Because the proposed Build Alternatives follow an existing highway corridor, and much of the corridor is already within an urbanized or developed area, impacts to terrestrial habitat would be limited to the displacement of small sections of remaining, often disjunct, non-contiguous tracts of forests. The existing corridor poses a barrier to wildlife movements that would not be substantially altered by the proposed Alternatives. The threat of mortality or injury to wildlife within the corridor would persist but would not likely increase in any measurable amount due to the improvements.

Potential exists for temporary impacts to wildlife with the displacement of vegetated cover within the construction footprint. The mechanical removal of cover would cause animal migration away from the disturbance resulting in temporary decrease in habitat usage by mostly common edge-dwelling species. Construction activities may also result in wildlife mortality. Foraging behaviors and wildlife use may also be associated with slope stabilization practices, but would only be on a temporary basis.

VDCR Natural Communities noted above are not anticipated to be impacted by any of the Build Alternatives to any measurable degree.

As part of the construction practices, the removal of existing vegetation should be avoided to the greatest extent practicable to minimize potential impacts to the terrestrial system. In addition, all measures to reduce the construction footprint, in general, should be followed as part of the final design. Cut and fill should be minimized to the greatest extent practical to ensure structural stability of the roadway and associated structures. Particularly in areas of environmental concern, steeper than conventional slopes should be considered as part of the design. In addition, the implementation of best management practices for erosion and sediment control and the abatement of pollution loading would minimize potential impacts to adjoining habitats and communities.

To avoid attraction of species to the edge of the roadway, VDOT should consider excluding landscaping options which intentionally provide wildlife habitat or attract wildlife, such as those species with high feeding values. Where feasible, passageways for terrestrial wildlife should be provided and maintained beneath proposed bridges and any elevated structures to help minimize effects of wildlife corridor bisection. Fencing should also be considered to minimize motorized collisions with wildlife and to help direct wildlife towards any maintained passageways.

Additional measures to prevent the colonization of invasive species are discussed in Section L.



Aquatic Wildlife and Habitat

All of the Build Alternatives would reduce aquatic habitat within the corridor to a small degree. The extension of culverts could lead to the direct loss of fish and macroinvertebrates within the construction zone and would permanently alter the available habitat in the impacted areas. However, these areas would likely be colonized again, following the construction activities. There is the potential for increased water quality degradation from stormwater runoff due to the increase in impervious surface affecting overall water quality. However, the relatively small impervious impact that may occur is unlikely to affect the aquatic habitat or the makeup of biological communities to any appreciable degree and best management practices would be employed to reduce potential impacts.

The presence of natural areas and federal and state listed natural habitat and unique wildlife resources in the vicinity of the study requires special consideration and coordination with various federal and state agencies. Through the coordination with these agencies, potential impacts to target species and their habitats can be evaluated and avoided by implementing various practices as part of the project design. Examples of mitigation measures which may be employed to avoid impacts to wildlife and their habitats include shifting alignment to avoid potential areas, spanning/bridging resources and the use of bottomless arch culverts, countersinking of culverts, limiting clearing of existing vegetation to the greatest extent possible, the strict adherence to erosion and sediment control guidelines and the implementation of stormwater best management practices, and the adherence to maintaining applicable buffer widths to a species habitat.

In general, if impacts cannot be avoided, time-of-year restrictions for construction may be required and these restrictions would be determined through the permitting process. Also, habitat assessments and species surveys may be required to determine the presence of a threatened or endangered plant species. These species surveys must be completed by an agency certified or approved specialist, and may have restrictions on the time-of-year when the surveys can be conducted. Recommendations and practices for specific resources are detailed below.

All Build Alternatives cross Queen Creek near mile marker 239.5. However, the VDGIF has identified this system as a potential anadromous fish use area, and not a confirmed area. Through the permitting process, the VDGIF may recommend for anadromous fish use areas (or their tributaries which cross the study area corridor) the following time-of-year construction restrictions (meaning no in-stream work is permitted during these dates during a given year): 1) James River and tributaries time-of-year restriction from February 15th to June 30th; and 2) York River and tributaries time-of-year restriction of February 15th through June 15th. In addition to potential time-of-year construction restrictions to minimize impacts to anadromous fish resources, the VDGIF also typically recommends the following activities: using non-erodible cofferdams to isolate the construction area; blocking no more than 50% of the streamflow at any given time; stockpiling excavated material in a manner that prevents reentry into the stream; revegetating barren areas with native vegetation; and implementing strict erosion and sediment control measures. In regards to stream crossings, the agency recommends clear-span bridges. If, however, clear-span bridges are not feasible, they suggest that the culverts should be countersunk at least six inches below the stream bed or, alternatively, bottomless culverts should be installed to allow passage of aquatic organisms.

VDCR Natural Communities, including the Grafton Pond Natural Area Preserve are not anticipated to be impacted by any of the Build Alternatives to any measurable degree. The agency may require a survey of the area for the presence of Grafton ponds or species associated with these systems. The agency would likely recommend avoiding any direct impact to these resources, and if a pond is identified in the vicinity of the study area corridor, providing a buffer area from the resource. In addition, the agency would likely recommend the strict adherence to erosion and sediment control measures. These recommendations would be provided during the permitting phase of the project.



As noted above, several EFH and one HAPC are noted for the corridor. In order to minimize impacts to these resources, the NMFS may require specific time-of-year construction restrictions which would limit construction activities within a specific channel, the strict adherence to erosion and sediment control measures, the immediate stabilization and restoration of disturbed areas, and mitigation measures such as the use of bubble curtains to reduce sound/pressure waves which may potentially negatively impact a fish species. A formal consultation with the agency may also be required. The agency's formal recommendations would be made during the permitting process for the project.

No Build Alternative directly impacts any Colonial Water Bird resource. According to the VDGIF, line of sight distance is the primary factor in determining potential impacts of a construction project to Colonial Water Birds. One half mile is the standard line of sight distance reviewed by the agencies. As the distance decreases, noise may also become a factor. As noted above, six Great blue heron colonies are located within a half mile of the study area corridor, with one of these colonies located within 500 feet of the study area. In addition, a single Least tern colony is located within half mile of the corridor, south of the mainline. Through the permitting process, the VDCR and VDGIF may recommend a number of specific practices to minimize and mitigate for potential impacts to these resources. Typical requirements include the direct avoidance of a colony, shifting the alignment away from the resource to reduce the distance of the construction to the colony, and the strict adherence to erosion and sediment control measures. Surveys and time-of-year restrictions for construction practices may also be required. For a Great blue heron, VDGIF typically recommends a time-of-year restriction from February 15th through July 31st for construction within 0.25 mile of a rookery or within 0.5 mile of a rookery if the project involves high density activity. In addition, the agency typically recommends perpetually maintaining an undisturbed naturally vegetated buffer of at least 500 feet around the rookery.

Additional measures to prevent the colonization of invasive species are discussed in Section L.

L. Invasive Species

As defined by VDCR, an invasive species is a non-native (alien, exotic, or non-indigenous) plant, animal, or disease that causes or is likely to cause ecological and economic harm to the natural system. The threat of invasive species to Virginia's natural communities has greatly increased over the years due to a number of factors including rapid globalization, international trade activity, and increased travel between different states and regions within Virginia. Introduction of an invasive species to a natural habitat can either be intentional (such as ornamental plants for gardens, erosion control, food for both livestock and people, pets, etc.) or accidental (species in ship ballast water, shipping crates, mixed in with plant materials from other parts of the world, and attached to travelers' vehicles and personal belongings).

1. Invasive Plant Species

Methodology and Existing Conditions

The VDCR-DNH, in association with the Virginia Native Plant Society, have identified and listed invasive plant species that threaten Virginia's natural populations. To date, they have listed over 100 plant species that threaten or potentially threaten natural areas, parks, and other lands. Invasive species are also classified by levels of invasiveness, including High, Medium, and Occasional based on a number of factors including the cumulative impact on natural areas, the potential to disperse and invade natural areas, distribution and abundance, difficulty of management, and impacts on other species. Highly invasive plant species generally disrupt ecosystem processes and cause major alterations in plant community and overall structure. They can easily establish in undisturbed habitats and would colonize disturbed areas rapidly under the appropriate conditions. While plants with medium and low invasiveness can become management problems, they tend to have minor adverse effects to the natural system and are more easily managed.



Using the DCR-DNH information, **Table 28** includes plant species that are considered highly invasive and are common to the general area of the study corridor. These species have the potential to become established in the study area corridor, particularly in disturbed areas generated during roadway construction.

Table 28: Potential Highly Invasive Plant Species along the Study Area

Layer	Common Name	Scientific Name
Tree	Tree-of-heaven	Ailanthus altissima
	Autumn olive	Elaegnus umbellate
Shrub	Chinese privet	Ligustrum sinense
	Multiflora rose	Rosa multiflora
	Japanese honeysuckle	Lonicera japonica
Vine	Kudzu vine	Pueraria montana
	Oriental bittersweet	Celastrus orbiculata
	Aneilema	Murdannia keisak
	Wine berry	Rubus phoenicolasius
	Canada thistle	Cirsium arvense
	Chinese yam	Dioscorea oppositifolia
	Common reed	Phragmites australis
	Japanese knotweed	Polygonum cuspidatume
	Japanese stilt grass	Microstegium vimineum
Herbaceous	Johnson grass	Sorghum halepense
Herbaceous	Spotted knapweed	Centaurea biebersteinii
	Lesser celandine	Ranunculus ficaria
	Cogon Grass	Imperata cylindrica
	Purple Loosestrife	Lythrum salicaria
	Parrot feather	Myriophyllum aquaticum
	European water milfoil	Myriophyllum spicatum
	Alligator Weed	Alternanthera philoxeroides
	Hydrilla	Hydrilla verticillata

The highly disturbed nature of highway corridors, in addition to the easy mode of transport by the vehicles traveling the corridor, including vehicles from other regions (both local and national), allows for the establishment of exotic and invasive species. As summarized in **Table 29**, stands of several aquatic and terrestrial invasive, non-native, exotic, or "nuisance" plant species were identified within the study area including, Tree-of-heaven (*Ailanthus altissima*), Japanese stiltgrass (*Microstegium vimineum*), Common reed (*Phragmites australis*), and Common dodder (*Cuscuta gronovii*). The primary invasive species identified within the study area was Japanese stiltgrass (*Microstegium vimineum*).

Table 29: Invasive, Non-Native, Exotic, or Nuisance Plant Species Identified Along the Study Area

Location	Common Name	Scientific Name
West of Mile Marker 196; North of	Japanese stiltgrass	Microstegium vimineum*
Mainline	Japanese sungrass	Microsiegium vimineum
East of Mile Marker 204; South of Mainline	Japanese stiltgrass	Microstegium vimineum*
East of Mile Marker 208; South of Mainline	Japanese stiltgrass	Microstegium vimineum*
East of Mile Marker 212; South of Mainline	Japanese stiltgrass	Microstegium vimineum*
East of Mile Marker 221; South of Mainline	Japanese stiltgrass	Microstegium vimineum*



Location	Common Name	Scientific Name
West of Mile Marker 222; South of Mainline	Japanese stiltgrass	Microstegium vimineum*
Exit 234; Southwest Cloverleaf	Tree-of-heaven	Ailanthus altissima*
West of Mile Marker 247; North of Mainline	Common dodder	Cuscuta gronovii
East of Mile Marker 228; South of Mainline	Japanese stiltgrass	Microstegium vimineum*
East of Mile Marker 229; South of Mainline	Japanese stiltgrass	Microstegium vimineum*
West of Mile Marker 249; South of Mainline	Japanese stiltgrass	Microstegium vimineum *
East of Mile Marker 257; South of Mainline	Japanese stiltgrass	Microstegium vimineum*
Mile Marker 260.5;North of Mainline	Common reed	Phragmites australis*
East of Mile Marker 260; North of Mainline	Common reed	Phragmites australis*
East of Mile Marker 262; North of Mainline	Common reed	Phragmites australis*
East of Mile Marker 264; North of Mainline	Common reed	Phragmites australis *

^{*} Species listed on the VDCR Invasive Alien Plant Species of Virginia List

Potential Impacts and Mitigation Measures

No-Build Alternative

The No-Build Alternative would not involve any project-related construction or changes to the natural environment. As a result, project-related environmental effects from the No-Build Alternative are not anticipated.

Build Alternatives

Because the majority of the additional roadway associated with all of the Build Alternatives would be located within the existing disturbed corridor, the likelihood of an increase in the prevalence of invasive species would be expected to be minimal. However, because the clearing of vegetated areas would be necessary for this project, there would be opportunity for invasive species to become established due to extra light penetrating the forest canopy in addition to disturbed soils. In order to minimize opportunities for invasive species to become established, steps would be taken to limit the removal of native species throughout the corridor during construction. Contract bid packages could include special provision for managing invasive species that are specific to the appropriate sections of VDOT *Road and Bridge Specifications*. While the newly established right of way is vulnerable to colonization by invasive plant species from the existing highway and adjacent property, implementing special construction provisions would reduce the potential for establishment. No specific mitigation measures are required.

2. Invasive Animal Species

Methodology and Existing Conditions

A number of both aquatic and terrestrial animal species threaten the native plant and animal communities in Virginia. The following listing includes common species that could affect the study area if encountered within construction limits. None of these species were directly observed during field investigations.

The Virginia Administrative Code 4VAC15-20-160 (VDGIF) designates the following as nuisance species in Virginia: House mouse (*Mus musculus*); Norway rat (*Rattus norvegicus*); Black rat (*Rattus rattus*); Coyote (Canis latrans); Nutria (*Myocastor coypus*); Woodchuck (*Marmota monax*); European starling (*Sturnus vulgaris*); English (house) sparrow (*Passer domesticus*); Pigeon (Rock Dove) (*Columba livia*); and other non-native species as defined in the Migratory Bird Treaty Reform Act of 2004 and



regulated under 50 CFR 10.13. In addition, the DCR-DNH has identified a number of invasive species which threaten Virginia's wildlife and plant systems such as the Emerald ash borer (*Agrilus planipennis*), Northern snakehead fish (*Channa argus*), Rapa welk (*Rapana venosa*), and the Imported fire ant (*Solenopsis invicta*). These species are listed as established in Virginia.

The DCR-DNH have also identified Zebra mussel (*Dreissena polymorpha*), Sirex woodwasp (*Sirex noctilio F.*), Rusty crayfish (*Orconectes rusticus*), and Chinese mitten crab (*Eriocheir sinensis*) as species that may threaten Virginia's wildlife and plant systems; however, they are not identified as well established in the Commonwealth.

Potential Impacts and Mitigation Measures

No-Build Alternative

The No-Build Alternative would not involve any project-related construction or changes to the natural environment. As a result, project-related environmental effects from the No-Build Alternative are not anticipated.

Build Alternatives

Because the Build Alternatives would involve limited widening along an existing disturbed corridor, the addition of invasive animal species is expected to be minimal due to the project. Contract bid packages should include special provision for managing invasive species that are specific to the appropriate sections of VDOT *Road and Bridge Specifications*. No specific mitigation measures are required.

M. Navigation

Methodology and Existing Conditions

Through the scoping process, the United States Coast Guard (USCG) identified two bridge crossings which may require a detailed review by their agency. These areas included the bridges over Queen Creek east of Exit 238 (Colonial Williamsburg) in York County and Newmarket Creek near the study termini in the City of Hampton. The agency requested information concerning the number and type of vessels that utilize these two waterways in the vicinity of the bridges.

According to the information provided from the VDGIF Boating Division, for the City of Hampton, there are 4,299 boats listed as being "primarily used" in the City and 421 Personal Water Crafts (PWCs) registered from the City. For York County, there are 3,064 boats listed as being "primarily used" in the County, and 468 PWCs registered from the County.

According to the NOAA Tide Chart No. 12243, the vertical clearance of the Queen Creek bridges is 15 feet and the horizontal clearance is 40 feet. Queen Creek is approximately 4.5 feet deep at this location. There is no NOAA tide information for Newmarket Creek based on the system's inland location. `However, based on VDOT bridge inspection reports, the vertical clearance is less than 6 feet, with the water depth less than 4 feet at this location. The horizontal clearance is approximately 40 feet.

Through discussions with the local VDGIF Conservation Police Officer, local marina owners, and the staff of Bluebird Gap Farm in the City of Hampton (which is a park located just downstream of the I-64 Newmarket Creek bridge), the vessel traffic is minimal in both areas, consisting of small, flat-bottom vessels such as canoes and kayaks. Occasionally, there may be a small john boat utilizing the area but this occurrence is very infrequent.

For Queen Creek, this area is highly limited in use based on the tides and depth of the water, and the vertical clearance of the bridge. Most of the traffic stops downstream, at the docks/facilities at Queens Lake. The area at the bridge and upstream is primarily used by local citizens, in either canoes or kayaks



who are boating for sightseeing/fishing purposes. Small john boats are occasionally observed in the area, particularly during duck hunting season.

While many larger vessels utilize the Back River, these boats can not venture upstream to access Newmarket Creek. In comparison to Queen Creek, Newmarket Creek is even less utilized by vessels. Boats that do enter Newmarket Creek, including the smaller boats such as canoes and kayaks, tend to stop at Air Power Park near Mercury Boulevard. This limited use is not only due to the tides and the limited depth of water for the entire reach, but also due to the major impediments within the channel. These impediments include utility crossings and protective features at Armistead Avenue and a large weir that is located just downstream of I-64, at the confluence of Coliseum Lake. This weir spans nearly the entire channel.

Potential Impacts and Mitigation Measures

No-Build Alternative

The No-Build Alternative would not involve any project-related construction or changes to the natural environment. As a result, project-related environmental effects from the No-Build Alternative are not anticipated.

Build Alternatives

The USCG requires a bridge permit for the construction of a new bridge or causeway, or reconstruction or modification of an existing bridge or causeway across navigable waters of the United States. This authority is derived under the General Bridge Act of 1946, as amended, the Rivers and Harbors Act of 1899, as amended, and the Act of March 23, 1906, as amended, all require that the location and plans of bridges and causeways across the navigable waters of the United States be submitted to and approved by the Secretary of Transportation prior to construction. The purpose of the Bridge Permit is to preserve the public right of navigation and to prevent interference with interstate and foreign commerce.

For all of the Build Alternatives, the USCG would review the proposed bridges over Queen Creek in York County and Newmarket Creek in the City of Hampton. As outlined above, vessel use at these crossing is extremely low and limited to small vessels such as canoes and kayaks.

At this time, it is expected that the new bridges would be of the same elevation as the existing; however, this would be determined as part of the final design of the project. Based on the likely design and the limited use of small vessels, a bridge permit from the USCG is not anticipated; however, this determination would be made by the USCG during the permitting process.

III. Regulatory Anticipated Permits and Clearances

The construction of any of the Build Alternatives would require coordination with and approval/clearances from a number of different regulatory and advisory agencies during the final design and permitting phase of the project. Anticipated primary federal, state, and local, natural resources related permits, approvals, and clearances for any of the Build Alternatives are summarized below. These review and coordination efforts are also discussed in Section II of this memorandum.

A. Water Related Permits and Clearances

The USEPA has regulatory oversight of the Corps CWA permitting. In addition, under the NEPA regulations and CEQ Guidelines, the USEPA is also charged with review responsibilities of NEPA documents to ensure proposed activities utilizing federal funds are, in part, protecting water quality and special aquatic sites including sanctuaries and refuges, wetlands, mudflats, vegetated shallows, and riffle and pool complexes, as defined in the USEPA's 404(b)(1) Guidelines for Specification of Disposal Sites for Dredged or Fill Material (33 U.S. Code Annotated §1344 *et seq.*; 40 CFR 230). The Corps applies the



USEPA Section 404(b) (1) Guidelines rather than deferring to the USEPA's review of their application. Therefore, the USEPA Guidelines establish a presumption against filling special aquatic sites by prohibiting the discharge of dredged or fill material into waters if there is a practicable alternative to the proposed discharge which would have less adverse impact on the aquatic ecosystem. During permit coordination with regulatory agencies, an alternatives analysis is often required generally because the Guidelines contain a presumption that less damaging alternatives are presumed to be available.

The Corps administers regulations for activities affecting waters of the United States and navigable waters pursuant to Section 404 of the Clean Water Act of 1977, as amended, and Section 10 of the Rivers and Harbors Act of 1899, respectively. Section 9 of the Rivers and Harbor Act prohibits the construction of any obstruction, including dams, bridges, and causeways, across any navigable waterway without the approval of the Corps or USCG. Under the Corps regulations (33 CFR 329) as applied to the study area, navigable waters are determined by the District Engineer and are made for all waters that are "presently used or have been used in the past, or may be susceptible for use to transport interstate or foreign commerce". The Corps general definition of navigable waters of the United States is "those waters subject to the ebb and flow of the tide shoreward to the mean high water mark and/or are presently used, or have been used in the past, or may be susceptible for use to transport interstate or foreign commerce. A determination of navigability, once made, applies laterally over the entire surface of the waterbody, and is not extinguished by later actions or events which impede or destroy navigable capacity." This includes, by definition, all tidal waterbodies including streams/rivers and wetlands.

In addition to the Corps regulatory oversight, several state agencies have jurisdiction over surface waters. The VDEQ administers the Virginia Water Protection Permit program (9 VAC 25-210), Section 401 of the CWA, and the State Water Control Law for activities affecting jurisdictional wetlands, streams, and other water bodies. In July 2000, the VDEQ authority was modified by the Virginia General Assembly to develop a non-tidal wetlands program and to provide regulations to protect fish and wildlife resources. Section 401 of the CWA requires any applicant for a federal license or permit for any activity that may result in a discharge into waters to obtain a certification that discharge will not adversely affect water quality from the state in which the discharge will occur. Section 401 requires certification by Virginia that prospective permits comply with the state's applicable effluent limitations and water quality standards. While waters that are considered "isolated" do not fall under federal CWA permitting, they are regulated under the VDEQ.

The VMRC is authorized to permit activities in, on or over state-owned subaqueous lands in Virginia (Code of Virginia Chapter 2, Title 62.1). Through this regulatory framework permitted activities include building, dumping, or otherwise trespassing upon or over, encroach upon, take or use any material from the beds of the bays, oceans, and jurisdictional rivers, streams, or creeks. In addition, the VMRC is responsible for managing and regulating the use of Virginia's tidal wetlands and coastal primary sand dunes in conjunction with Virginia's local wetlands boards, where established. The VMRC also protects and regulates those areas designated as non-vegetated and vegetated tidal wetlands and state-owned subaqueous bottom land.

Virginia's Waters of the United States, including wetlands, are also regulated under the Virginia Wetlands Act and through Subtitle III of Title 28.2 of the Code of Virginia. Through this framework, the County's Local Wetlands Board regulates activities in tidal wetlands within their Counties. However, because this project is a government project, the local wetlands boards do not have jurisdiction over impacts to tidal wetlands and has deferred all jurisdictions regarding this project to the state (VMRC).

The federal and state guidelines require that no discharge of dredged or fill material in waters of the United States be permitted unless appropriate and practicable steps have been taken to minimize adverse impacts associated with the discharge. Additional federal and state guidance and policy documentation



assist in defining the requirements for mitigation (which includes avoidance, minimization, and compensation). Compliance with these requirements is an essential environmental safeguard to ensure that CWA objectives for the protection of streams and wetlands are achieved.

Prior to the development of the final design, a jurisdictional determination must be obtained by the Corps. Once this determination is prepared, the type of and quantity of impacts to jurisdictional surface waters can be assessed and permitted. The mitigation measures for these stream and wetland impacts would be identified for any of the Build Alternatives during the final design. These measures would include avoidance and minimization efforts to the greatest extent practicable, including but not limited to the following practices:

- The use and appropriate placement of erosion and sediment control measures and best management practices.
- The use of upgraded erosion and sediment controls in environmentally sensitive areas.
- Bridging/spanning of streams and wetlands.
- Alignment shifts around specific systems.
- The use of cofferdams; steepening of slopes and the use of retaining walls on steeper slopes.
- Bottomless arch culverts and properly countersunk culverts.
- Stream relocation to improve skew angle and shorten culverts if new culverts are necessary.
- Ensuring groundwater recharge/wetland hydrology maintenance through the location of outfalls and infiltration trenches.

Following construction practices, any additional stormwater generated through new impervious surfaces would be treated through improved stormwater management systems.

The federal and state permit programs rely on the use of compensated mitigation to offset unavoidable aquatic impacts by replacing lost functions with replicated functions elsewhere. Appropriate mitigation is determined by the agencies and is conducted on a case-by-case basis; however, the process is based on established policies, guidelines, and regulations.

Compensatory mitigation would likely be required for permanent impacts to stream and wetlands resulting from the project activities. Compensatory mitigation is typically required in the same or adjacent HUC within the same watershed and physiographic province as the impact. As part of the permitting process, mitigation options would be investigated using the various agency resources including the July 2004 Joint Corps and the VDEQ *Recommendations for Wetland Compensatory Mitigation:*Including Site Design, Permit Conditions, Performance Criteria, and Monitoring Criteria and the associated Mitigation Checklist, as well as the March 2008 Offsite Mitigation Guidelines. Of greatest significance, on April 10, 2008, new regulations providing guidance for compensatory mitigation was jointly issued by the Corps and the USEPA. The new mitigation rule, which became effective June 9, 2008, changed the federal permitting preference regarding how compensatory mitigation is accomplished for project impacts to jurisdictional surface waters. This rule does not change when compensation is required.

The new rule provides the following preference for compensatory mitigation options:

- 1. Purchase of compensatory mitigation bank credits.
- 2. Purchase of an approved in-lieu fee fund credits.
- 3. Watershed approach based mitigation by the permittee.
- 4. On-site mitigation/in-kind mitigation by the permittee.
- 5. Off-site mitigation/out-of-kind mitigation by the permittee.



Both the Corps and the VDEQ have currently adopted this hierarchy of compensatory mitigation options for permanent impacts to jurisdictional surface waters. There are currently a number of compensatory mitigation banks that have the appropriate available credits for the potential impacts. The final compensatory mitigation option would be determined during the project's permitting process.

The compensatory mitigation requirements for both streams and wetlands would be determined for the selected Build Alternative during the permitting phase. The current typical compensatory mitigation to impact ratios for non-tidal forested, scrub-shrub, and emergent wetlands are 2:1, 1.5:1, and 1:1, respectively. The compensatory mitigation to impact ratio for tidal emergent wetlands is determined on a case-by-case basis; however, 2:1 is typical for these systems.

Compensatory mitigation is not typically required for open water impacts (e.g., piers in open waters) but this requirement would be reviewed on a case-by-case basis. In addition, compensatory mitigation is typically required for unavoidable stream impacts to greater than 300 linear feet of stream at a crossing. However, this determination would be made on a project-by-project basis and due to the scale of this specific project, this threshold may be waived. The approved assessment methodology to determine the required stream compensation would be completed as part of the compensatory mitigation plan. As detailed above, at the time of this document, the approved assessment methodology is the USM. All potentially impacted channels would need to be assessed and the USM methodology completed in full to determine the compensatory mitigation requirements for the project. Compensatory mitigation for tidal stream systems would be determined on a case-by-case basis. At this time, compensatory mitigation is not typically required for impacts to jurisdictional ditches. The requirements for compensation for jurisdictional ditch impacts would be determined during the permitting process.

In accordance with the existing regulations and standard permit conditions, all temporary impacts would also be required to be restored to their original contours and re-vegetated with the same or similar species. Additional compensatory mitigation other than previously stated for temporary impacts is typically not required through the permitting process.

To continue the permitting process detailed above, the Joint Permit Application (JPA) must be prepared and submitted for agency review. It is important to have the defined construction limits finalized prior to completing the permit application to ensure that the appropriate impacts are addressed, thus avoiding the need to change either the permit application or the actual issued permit in the future if changes occur. Any changes after the initial JPA submittal would increase the agencies' review times and may require a modification to a permit if the permit is already issued. This is of particular importance since the actual amount of land disturbance and/or impacts determines the type of permit(s), and subsequent requirements, necessary. The VMRC serves as the "clearinghouse" for the JPAs, distributing the applications to the appropriate regulatory and advisory agencies.

The study team contacted the federal and state permitting agencies to discuss this project and the permits necessary for any potential impacts or activities. Coordination with the Corps, VDEQ, and VMRC would be required during the permitting phase of the project to determine the jurisdictional limits of surface waters and to make a final determination of the need for and type of permits. Both temporary and permanent impacts to jurisdictional wetland and stream systems from any of the Build Alternatives would require a permitting decision from these agencies. While the permit type(s) and requirements can not be determined until the JPA is submitted and reviewed, based on the scale of the project, the multiple individual impact area crossings and the potential for tidal impacts, it is anticipated that the permits to be issued for this project include a Section 404 Individual Permit from the Corps, a Virginia Water Protection Individual Permit from the VDEQ (which serves as the Section 401 certification), and a subaqueous bottomland permit from the VMRC (Virginia General Permit #1 if project is pursued by the VDOT) for any impacts to systems with drainage areas greater than five square miles. Wetland impacts



are exempted for the state led projects by this agency. If impacts occur to navigable waters (including channels and wetlands associated with Queen Creek and Newmarket Creek) permitting would require compliance with Section 10 of the Rivers and Harbors Act. These permits can typically take between three to nine months to obtain from the date of the completed application. This timeframe is dependant on the complexity of the project, the extent of the impacts, the type of actual permit required, and, often, the schedules of the regulators.

There are nine surface waters intersecting the study area corridor that have been listed as VDEQ impaired waters (Categories 4 and/or 5) on the VDEQ 2010 303(d) list. A number of additional listed stream channels are located in the vicinity of the study area. Appropriate regulations and requirements including the strict adherence to appropriate erosion and sediment control measures, the appropriate use of fertilizers, limiting clearing practices, and the implementation of stormwater management plans designed specifically to address the particular condition, as appropriate, would need to be followed as part of construction.

While the potential impacts to any groundwater well resulting from any of the Build Alternatives are likely non-existent, as noted by the VDH, potential impacts to public water distribution systems or sanitary sewage collection systems must be verified by the local utility prior to construction practices. Further investigations to determine the presence, operational status, and location of individual wells would be performed as part of property acquisition and right of way management for the construction project. Closures and/or relocation of any well, if required, would be completed by following the Virginia Waterworks Regulation and other applicable VDOT or locality standard. Closures and relocations of private wells, if required, would be completed by using the Virginia Private Well Regulation and other applicable VDOT standard or locality standard.

B. Habitat and Species Permits and Clearances

Additional federal and state agencies have statutory responsibility by serving as resource and commenting entities in the permit review process. Their involvement, for the most part, is established through the JPA process. Their general involvement in the regulatory and permitting process is summarized in the following sections.

As detailed below, a number of federal and state agencies regulate and protect listed threatened and endangered species. Due to the presence of federal and state listed threatened and endangered species and/or habitat documented within the vicinity of the study area, construction time-of-year restrictions may be required. These restrictions would be determined through the permitting process. Also, habitat assessments and species surveys may be required to determine the presence of a threatened or endangered species or habitat. These species surveys must be completed by an agency certified or approved specialist, and may have restrictions on time-of-year when the surveys can be conducted. Additional design or construction considerations, such as the use of bubble curtains, maintaining construction buffer widths, etc., may also be requested or required by the agencies.

The USFWS and the NMFS regulate and protect federally listed threatened and endangered species under the ESA of 1973 with the primary goal of conserving and recovering listed species. The ESA, with few exceptions, prohibits activities affecting threatened and endangered species unless authorized by a permit. The legal federal status of a species is determined by the USFWS and the NMFS. In addition to threatened and endangered species coordination, the NMFS would also provide comments regarding EFH for the study area corridor. Coordination with both federal agencies would continue as the project moves forward to the design phase.

In addition to the federal oversight, threatened and endangered species are also regulated at the state level by a number of different agencies and organizations. The agencies have adopted the federal list as well as



a state list of endangered and threatened species, with the primary focus of managing Virginia's wildlife to maintain optimum populations of all species and conserve biodiversity. Coordination with these agencies is conducted through the JPA process.

The VDGIF implements regulations to protect the game and freshwater fisheries of the Commonwealth, and during permit coordination, determines likely impacts on game, and fish and wildlife resources and habitats, and state-listed threatened and endangered animal species (exclusive of insects). The VDGIF also issues recommendations for mitigation measures for projects in order to avoid, minimize, and mitigate for impacts to natural resources. The VDGIF has the authority to limit construction in and around trout streams and other streams used by anadromous fish or threatened and endangered species by recommending certain time-of-year restrictions to protect spawning, fry dispersal, and or fish stocking activities, and has special powers to prevent and control aquatic invasive species.

The VDACS is charged with the conservation, protection, and management of endangered and threatened species of plants and insects (*Endangered Plant and Insect Species Act, Va. Code, Chapter 39 §3.1-1020 through 1030*, as amended). The Virginia Endangered Plant and Insect Species Program cooperates with the USFWS, the VDCR, and other agencies and organizations on the recovery, protection, or conservation of listed threatened or endangered species and designated plant and insect species that are rare throughout their worldwide ranges. In those instances where recovery plans are available, adherence to the plans is followed to the extent possible. Under a Memorandum of Agreement established between the VDACS and the VDCR, the VDCR represents the VDACS in comments regarding potential impacts on state-listed and endangered plant and insect species.

The VDCR is charged with conserving Virginia's natural and recreational resources. The Department has five programmatic divisions which manage state parks, soil and water conservation, natural heritage, recreation planning, dam safety, and floodplain management. Also included are oversight regulations by advisory bodies including the Board of Conservation and Recreation, Virginia Cave Board, Board on Conservation and Development of Public Beaches, and the Virginia Soil and Water Conservation Board. Within this agency, the Natural Heritage Program's mission is to conserve Virginia's biodiversity through inventory, protection, and stewardship, as enacted in the 1989 Virginia Natural Area Preserves Act (Va. Code §10.1-209 through 217). The VDCR's DNH is designated to conduct a statewide biological inventory, maintain a statewide database for conservation planning and project review to enhance land protection for the conservation of biodiversity, and the protection and ecological management of natural heritage resources (the habitats of rare, threatened, and endangered species, significant natural communities, geologic sites, and other natural features). This mission is carried out through implementation of four major programs: Inventory, Natural Area Protection (includes project review), and Ecological Management.

Both the VDGIF and the VDCR recommends contacting the CCB at the College of William and Mary to obtain the updated information regarding Bald eagle (*Haliaeetus leucocephalus*) issues. Although Bald eagles are currently de-listed under the federal ESA, they are still recognized as a threatened species at the state level and are protected by the federal Bald and Golden Eagle Protection Act (Eagle Act) (16 U.S.C. §668-668d) and the Migratory Bird Treaty Act (MBT Act) (16 U.S.C. §703-712).

While VIMS can provide technical advisory services to other federal and state agencies for tidal and non-tidal wetlands and marine fisheries issues, they would specifically provide comments regarding SAV issues.

C. Erosion and Sediment Control

Virginia is an authorized state under the federal National Pollutant Discharge Elimination stormwater permitting programs. The VDCR administers the Virginia Pollutant Discharge Elimination System



permitting program for the control of stormwater discharges from municipal separate storm sewer systems and land disturbing activities under the Virginia Stormwater Management Regulations (4VAC3-20). Assuming the project is pursued by the VDOT, the land-disturbing activities of greater than 2,500 square feet must comply with the most current version of the VDOT erosion and sediment control annual specifications approved by the VDCR Control Law (VESCL) and Regulations (VESCR) and the most current version of the *Virginia Erosion & Sediment Control Handbook*. All regulated land-disturbing activities must have a project specific erosion and sediment control plan developed in accordance with the VDCR approved VDOT erosion and sediment control annual specifications. All regulated land-disturbing activities associated with the project, including on and off site access roads, staging areas, borrow areas, stockpiles, and soil intentionally transported from the project must be covered by the project specific erosion and sediment control plan.

If the project is not VDOT pursued, the operator or owner of construction activities involving land disturbing activities equal to or greater than 2,500 square feet in areas designated as subject to the Chesapeake Bay Preservation Area Designation and Management Regulations adopted pursuant to the Chesapeake Bay Preservation Act are required to register for coverage under the VDCR General Permit for Discharges of Stormwater from Construction Activities and develop a project specific stormwater pollution prevention plan (SWPP). The SWPPP must be prepared prior to submission of the registration statement for coverage under the general permit and the SWPPP must address water quality and quantity in accordance with the Virginia Stormwater Management Program Permit Regulations. Any additional coordination with the counties would be required to ensure compliance with their individual regulations, including the obtainment of a County land disturbance permit, if necessary.

Although the study area corridor is located within the Chesapeake Bay Watershed, since this is a roadway project it is exempt from the commitments of the Chesapeake Bay Preservation Act regarding construction activities within the RPAs and RMAs. This exemption is contingent upon the adherence to the appropriate erosion and sediment control standards.

D. Navigation

As noted above, the USCG requires a bridge permit for the construction of a new bridge or causeway, or reconstruction or maintenance of an existing bridge or causeway across navigable waters of the United States. This authority is derived under the General Bridge Act of 1946, as amended, the Rivers and Harbors Act of 1899, as amended, and the Act of March 23, 1906, as amended, all require that the location and plans of bridges and causeways across the navigable waters of the United States be submitted to and approved by the Secretary of Transportation prior to construction. The purpose of the Bridge Permit is to preserve the public right of navigation and to prevent interference with interstate and foreign commerce. The USCG will likely review the proposed bridges associated with all of the Build Alternatives over Queen Creek in York County and Newmarket Creek in the City of Hampton. As outlined in Section M above, vessel use at these crossing is extremely low and limited to small vessels such as canoes and kayaks.

As part of the review process, and if deemed necessary, the USCG would notify all property owners a half mile up and down stream of each bridge site to issue a public notice. The agency would then assess the public's responses and then may do an Advance Approval or possibly a permit for the potential bridge site if required. At this time, it is expected that the new bridges would be of the same elevation as the existing; however, this would be determined as part of the final design of the project.

E. Coastal Zone Management Act

The Coastal Zone Management Act of 1972 enabled the Commonwealth of Virginia to develop the Virginia Coastal Zone Management Program (VCZMP) in 1986. The focus of the CZMP is to create more vital and sustainable coastal communities and ecosystems by using a network of state laws and



policies. Because the study area is located east of the fall line, all localities located within the study area are covered under Virginia's CZMP.

The Virginia CZMP is known as a "networked program", which means that to manage Virginia's coastal resources, the program relies on a network of state agencies and local governments to administer the enforceable laws and regulations that protect our wetlands, dunes, subaqueous lands, fisheries, and air and water quality – within the Virginia Coastal Zone area. The agencies involved in the CZMP include: VDEQ, VDCR, VMRC, VDGIF, VDH, VDACS, Virginia Department of Forestry, Virginia Department of Historic Resources, Virginia Department of Mines, Minerals, and Energy, VDOT, Virginia Economic Development Partnership, and VIMS.

These agencies administer the enforceable laws, regulations and advisory policies that protect coastal resources including, in part, tidal and non-tidal wetlands, fisheries, subaqueous lands, dunes and beaches, point source air pollution, point source and non-point source water pollution, shoreline sanitation, coastal lands, spawning/nursery/feeding grounds, coastal primary sand dunes, barrier islands, significant wildlife habitat areas, significant public recreation areas, significant sand and gravel resource deposits, underwater historic resources, highly erodible/high hazard areas, and waterfront development area. Several of this project's relevant coastal zone management resources are addressed in detail in other sections of this document.

Projects that are located within the Coastal Zone Management Area (CZMA) in Virginia which are, at least in part, federally-funded or require federal approval must undergo a federal consistency certification process. The goal of this process is to ensure that projects are designed to avoid and/or minimize impacts to specific coastal resources as identified by several enforceable policies related to fisheries, subaqueous lands, tidal and non-tidal wetlands, dunes, non-point and point source pollution control, shoreline sanitation, air pollution, and land management. In Virginia, the VDEQ is responsible for coordinating the Commonwealth's review of federal consistency determination and certification with the cooperating agencies and responding to the appropriate federal agency or applicant. All member agencies of the VCZMP would be notified of the proposed project through the JPA permitting process and the document review. While the JPA process required for the Sections 401 and 404 of the CWA and VMRC permits (described above) would address all resources and requirements associated with the CZMA Program, the completion of the CZMA checklist may also be required.



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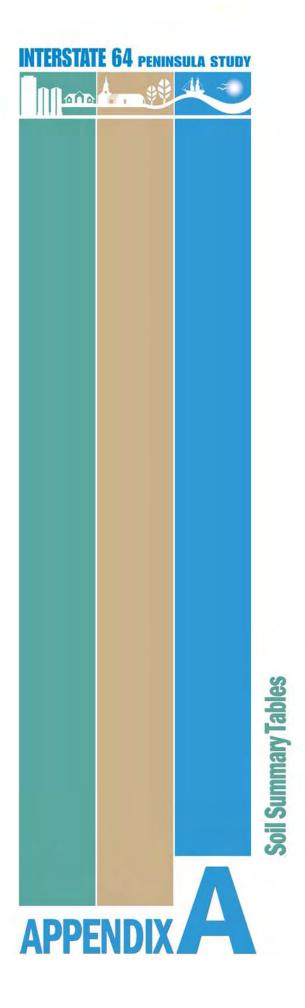


Table A1: City of Richmond Soils along the Project Corridor

	Table A1. City of Rich			Water	
Map Symbol	Map Unit Name	Drainage Class	Erosion Factor (K)	Table Depth (cm)	Hydric Soil
39	Udorthents, loamy, borrow pits	Not Rated	Not Rated	Not Rated	No
40	Udorthents-Dumps complex, pits	Not Rated	Not Rated	Not Rated	No
41	Urban land	Not Rated	Not Rated	Not Rated	No
16B	Edgehill-Urban land complex, 2 to 6 percent slopes	Well drained	.20	Not Rated	No
21A	Johnston mucky loam, 0 to 3 percent slopes, frequently flooded	Very poorly drained	.17	0	Yes
44E	Wateree-Wedowee complex, 20 to 45 percent slopes	Well drained	.24	Not Rated	No
5A	Atlee-Urban land complex, 0 to 4 percent slopes	Moderately well drained	.37	61	No
CaD2	Caroline very fine sandy loam, 10 to 15 percent slopes, eroded	Well drained	.43	120	No
GP	Gravel pit	Not Rated	Not Rated	Not Rated	No
KeA	Kempsville fine sandy loam, 0 to 2 percent slopes	Well drained	.32	Not Rated	No
Kn	Kinston and Mantachie soils	Somewhat poorly drained	.37	15	Yes
Ly	Lynchburg fine sandy loam	Somewhat poorly drained	.24	31	Yes
UE	Udorthents, loamy	Not Rated	Not Rated	Not Rated	No
UR	Urban land	Not Rated	Not Rated	Not Rated	No

Table A2: Henrico County Soils along the Project Corridor

Map Symbol	Map Unit Name	Drainage Class	Erosion Factor	Water Table Depth (cm)	Hydric Soil
40	Udorthents-Dumps complex, pits	Not Rated	Not Rated	Not Rated	No
41	Urban land	Not Rated	Not Rated	Not Rated	No
24A	Nawney silt loam, 0 to 2 percent slopes, frequently flooded	Very poorly drained	.32	8	Yes
5A	Atlee-Urban land complex, 0 to 4 percent slopes	Moderately well drained	.37	61	No
At	Atlee very fine sandy loam	Moderately well drained	.37	61	No
Ве	Bertie fine sandy loam	Somewhat poorly drained	.28	38	Yes
CaB2	Caroline very fine sandy loam, 2 to 6 percent slopes, eroded	Well drained	.43	120	No
CaC2	Caroline very fine sandy loam, 6 to 10 percent slopes, eroded	Well drained	.43	120	No
CaD2	Caroline very fine sandy loam, 10 to 15 percent slopes, eroded	Well drained	.43	120	No
CbC3	Caroline clay loam, 2 to 10 percent slopes, severely eroded	Well drained	.24	120	No
Ck	Chewacla silt loam, clayey substratum	Somewhat poorly drained	.37	60	Yes
Cm	Chewacla and Riverview soils	Somewhat poorly drained	.37	60	Yes
Ср	Coxville silt loam	Poorly drained	.37	15	Yes
DuB2	Duplin very fine sandy loam, 2 to 6 percent slopes, eroded	Moderately well drained	.49	60	No
DuC2	Duplin very fine sandy loam, 6 to 10 percent slopes, eroded	Moderately well drained	.49	60	No

Map Symbol	Map Unit Name	Drainage Class	Erosion Factor	Water Table Depth (cm)	Hydric Soil
DuD2	Duplin very fine sandy loam, 10 to 15 percent slopes, eroded	Moderately well drained	.49	60	No
DwC3	Duplin clay loam, 2 to 10 percent slopes, severely eroded	Moderately well drained	.24	60	No
Fo	Forestdale silt loam	Poorly drained	.43	15	Yes
GP	Gravel pit	Not Rated	Not Rated	Not Rated	No
KaA	Kalmia fine sandy loam, 0 to 2 percent slopes	Well drained	.32	175	No
KeA	Kempsville fine sandy loam, 0 to 2 percent slopes	Well drained	.32	Not Rated	No
KeB	Kempsville fine sandy loam, 2 to 6 percent slopes	Well drained	.32	Not Rated	No
KeC2	Kempsville fine sandy loam, 2 to 10 percent slopes, eroded	Well drained	.32	Not Rated	No
KfB	Kempsville fine sandy loam, flooded, 2 to 6 percent slopes	Well drained	.32	153	No
KgA	Kempsville very fine sandy loam, clayey substratum, 0 to 2 percent slopes	Well drained	.49	Not Rated	No
KgB	Kempsville very fine sandy loam, clayey substratum, 2 to 6 percent slopes	Well drained	.49	Not Rated	No
KgC2	Kempsville very fine sandy loam, clayey substratum, 6 to 10 percent slopes, eroded	Well drained	.49	Not Rated	No
Km	Kinston silt loam	Poorly drained	.37	15	Yes
Kn	Kinston and Mantachie soils	Somewhat poorly drained	.37	15	Yes
Ly	Lynchburg fine sandy loam	Somewhat poorly drained	.24	31	Yes

Map Symbol	Map Unit Name	Drainage Class	Erosion Factor	Water Table Depth (cm)	Hydric Soil
Мс	Mantachie-Chastain complex	Somewhat poorly drained	.28	15	No
NoA	Norfolk fine sandy loam, 0 to 2 percent slopes	Well drained	.32	153	No
NoB	Norfolk fine sandy loam, 2 to 6 percent slopes	Well drained	.32	153	No
NoC	Norfolk fine sandy loam, 6 to 10 percent slopes	Well drained	.32	153	No
OUD	Ochrepts and Udults, sloping	Moderately well drained	.32	76	No
OUF	Ochrepts and Udults, steep	Moderately well drained	.32	76	No
Ra	Rains very fine sandy loam	Poorly drained	.37	15	No
RuA	Ruston fine sandy loam, 0 to 2 percent slopes	Well drained	.28	Not Rated	No
Td	Tetotum loam, flooded	Moderately well drained	.32	38	No
Те	Tetotum fine sandy loam	Moderately well drained	.32	38	No
UD	Udorthents, clayey	Not Rated	Not Rated	Not Rated	No
UE	Udorthents, loamy	Not Rated	Not Rated	Not Rated	No
UR	Urban land	Not Rated	Not Rated	Not Rated	No
W	Water	Not Rated	Not Rated	Not Rated	No

Table A3: New Kent County Soils along the Project Corridor

Table A3: New Kent County Soils along the Project Corridor						
Map Symbol	Map Unit Name	Drainage Class	Erosion Factor	Water Table Depth (cm)	Hydric Soil	
17	Johnston complex	Very poorly drained	.17	0	Yes	
10B	Craven loam, 2 to 6 percent slopes	Moderately well drained	.32	76	No	
10C	Craven loam, 6 to 10 percent slopes	Moderately well drained	.32	76	No	
11B	Craven-Caroline complex, 2 to 6 percent slopes	Moderately well drained	.32	76	No	
12B	Craven-Uchee complex, 2 to 6 percent slopes	Moderately well drained	.32	76	No	
14A	Dragston fine sandy loam, 0 to 2 percent slopes	Somewhat poorly drained	.20	53	Yes	
15B	Emporia fine sandy loam, 2 to 6 percent slopes	Well drained	.28	114	No	
15F	Emporia complex, 25 to 50 percent slopes	Well drained	.28	114	Yes	
16A	Johnston mucky loam, 0 to 2 percent slopes, frequently flooded	Very poorly drained	.17	0	Yes	
17B	Kempsville fine sandy loam, 2 to 6 percent slopes	Well drained	.28	Not Rated	No	
18B	Kempsville gravelly fine sandy loam, 2 to 6 percent slopes	Well drained	.28	Not Rated	No	
19B	Kempsville-Emporia complex, 2 to 6 percent slopes	Well drained	.28	114	No	
19C	Kempsville-Emporia complex, 6 to 10 percent slopes	Well drained	.28	114	No	
1A	Altavista fine sandy loam, 0 to 2 percent slopes	Moderately well drained	.24	61	No	

Map Symbol	Map Unit Name	Drainage Class	Erosion Factor	Water Table Depth (cm)	Hydric Soil
20B	Kempsville-Suffolk complex, 2 to 6 percent slopes	Well drained	.28	Not Rated	No
21A	Lanexa mucky silty clay, 0 to 1 percent slopes, frequently flooded	Very poorly drained	.32	0	Yes
23A	Munden sandy loam, 0 to 2 percent slopes	Moderately well drained	.20	61	No
24A	Nawney silt loam, 0 to 2 percent slopes, frequently flooded	Very poorly drained	.32	8	Yes
25A	Nawney silt loam, 0 to 2 percent slopes, ponded	Very poorly drained	.32	0	Yes
26D	Nevarc-Remlik complex, 6 to 15 percent slopes	Moderately well drained	.37	69	No
26E	Nevarc-Remlik complex, 15 to 25 percent slopes	Moderately well drained	.37	69	No
26F	Nevarc-Remlik complex, 25 to 60 percent slopes	Moderately well drained	.37	69	No
29B	Orangeburg fine sandy loam, 2 to 6 percent slopes	Well drained	.20	Not Rated	No
31A	Roanoke silt loam, 0 to 2 percent slopes	Poorly drained	.37	15	Yes
33A	Slagle fine sandy loam, 0 to 2 percent slopes	Moderately well drained	.28	69	No
34B	Slagle-Emporia complex, 2 to 6 percent slopes	Moderately well drained	.28	69	No
36B	Suffolk fine sandy loam, 2 to 6 percent slopes	Well drained	.20	Not Rated	No
39A	Tomotley loam, 0 to 2 percent slopes	Poorly drained	.24	15	Yes

Map Symbol	Map Unit Name	Drainage Class	Erosion Factor	Water Table Depth (cm)	Hydric Soil
3A	Augusta fine sandy loam, 0 to 2 percent slopes	Somewhat poorly drained	.20	46	Yes
41B	Udorthents, loamy, gently sloping	Not Rated	Not Rated	Not Rated	No
6B	Caroline loam, 2 to 6 percent slopes	Well drained	.43	91	No
7B	Caroline-Emporia complex, 2 to 6 percent slopes	Well drained	.43	91	No
7C	Caroline-Emporia complex, 6 to 10 percent slopes	Well drained	.43	91	No
8A	Catpoint fine sand, 0 to 4 percent slopes	Somewhat excessively drained	.10	153	No
Km	Kinston silt loam	Poorly drained	.37	15	Yes
W	Water	Not Rated	Not Rated	Not Rated	No

Table A4: James City County Soils along the Project Corridor

Map Symbol	Map Unit Name	Drainage Class	Erosion Factor	Water Table Depth (cm)	Hydric Soil
5	Bethera silt loam	Poorly drained	.28	0	Yes
17	Johnston complex	Very poorly drained	.17	0	Yes
35	Udorthents, loamy	Not Rated	Not Rated	Not Rated	No
11B	Craven-Uchee complex, 2 to 6 percent slopes	Moderately well drained	.32	76	No
11C	Craven-Uchee complex, 6 to 10 percent slopes	Moderately well drained	.32	76	No
14B	Emporia fine sandy loam, 2 to 6 percent slopes	Well drained	.28	114	No
15D	Emporia complex, 10 to 15 percent slopes	Well drained	.28	114	Yes
15E	Emporia complex, 15 to 25 percent slopes	Well drained	.28	114	Yes
15F	Emporia complex, 25 to 50 percent slopes	Well drained	.28	114	Yes
16A	Johnston mucky loam, 0 to 2 percent slopes, frequently flooded	Very poorly drained	.17	0	Yes
16D	Nevarc-Uchee complex, 15 to 50 percent slopes	Moderately well drained	.10	61	No
19B	Kempsville-Emporia fine sandy loams, 2 to 6 percent slopes	Well drained	.28	114	No
20B	Kenansville loamy fine sand, 2 to 6 percent slopes	Well drained	.15	150	No
21B	Slagle-Urban land complex, 2 to 6 percent slopes	Moderately well drained	.28	61	No
25B	Norfolk fine sandy loam, 2 to 6 percent slopes	Well drained	.28	153	No

Map Symbol	Map Unit Name	Drainage Class	Erosion Factor	Water Table Depth (cm)	Hydric Soil
26F	Nevarc-Remlik complex, 25 to 60 percent slopes	Moderately well drained	.37	69	No
29A	Slagle fine sandy loam, 0 to 2 percent slopes	Moderately well drained	.28	69	No
29B	Slagle fine sandy loam, 2 to 6 percent slopes	Moderately well drained	.28	69	No
31B	Suffolk fine sandy loam, 2 to 6 percent slopes	Well drained	.20	Not Rated	No
34B	Uchee loamy fine sand, 2 to 6 percent slopes	Well drained	.10	130	No
8B	Caroline fine sandy loam, 2 to 6 percent slopes	Well drained	.43	120	No
DAM	Dam	Not Rated	Not Rated	Not Rated	No
NOTCOM	Not Complete	Not Rated	Not Rated	Not Rated	No
W	Water	Not Rated	Not Rated	Not Rated	No

Table A5: York County Soils along the Project Corridor

Map Symbol	Map Unit Name	Drainage Class	Erosion Factor	Water Table Depth (cm)	Hydric Soil
6	Bohicket muck	Very poorly drained	.28	0	Yes
8	Chickahominy-Urban land complex, 0 to 2 percent slopes	Poorly drained	.37	8	No
17	Johnston complex	Very poorly drained	.17	0	Yes
26	Udorthents-Dumps complex	Not Rated	Not Rated	Not Rated	No
28	Yemassee-Urban land complex, 0 to 2 percent slopes	Somewhat poorly drained	.24	30	No
35	Udorthents, loamy	Not Rated	Not Rated	Not Rated	No
11B	Craven-Uchee complex, 2 to 6 percent slopes	Moderately well drained	.32	76	No
11C	Craven-Uchee complex, 6 to 10 percent slopes	Moderately well drained	.32	76	No
14B	Emporia fine sandy loam, 2 to 6 percent slopes	Well drained	.28	114	No
14C	Emporia fine sandy loam, 6 to 10 percent slopes	Well drained	.28	114	No
15D	Emporia complex, 10 to 15 percent slopes	Well drained	.28	114	Yes
15E	Emporia complex, 15 to 25 percent slopes	Well drained	.28	114	Yes
15F	Emporia complex, 25 to 50 percent slopes	Well drained	.28	114	Yes
16D	Nevarc-Uchee complex, 15 to 50 percent slopes	Moderately well drained	.10	61	No
18B	Kempsville fine sandy loam, 2 to 6 percent slopes	Well drained	.28	Not Rated	No
19B	Kempsville-Emporia fine sandy	Well	.28	114	No

Map Symbol	Map Unit Name	Drainage Class	Erosion Factor	Water Table Depth (cm)	Hydric Soil
	loams, 2 to 6 percent slopes	drained			
21B	Slagle-Urban land complex, 2 to 6 percent slopes	Moderately well drained	.28	61	No
29A	Slagle fine sandy loam, 0 to 2 percent slopes	Moderately well drained	.28	69	No
29B	Slagle fine sandy loam, 2 to 6 percent slopes	Moderately well drained	.28	69	No
31B	Suffolk fine sandy loam, 2 to 6 percent slopes	Well drained	.20	Not Rated	No
34B	Uchee loamy fine sand, 2 to 6 percent slopes	Well drained	.10	130	No
34C	Uchee loamy fine sand, 6 to 10 percent slopes	Well drained	.10	130	No
8B	Caroline fine sandy loam, 2 to 6 percent slopes	Well drained	.43	120	No
NOTCOM	Not Complete	Not Rated	Not Rated	Not Rated	No
W	Water	Not Rated	Not Rated	Not Rated	No

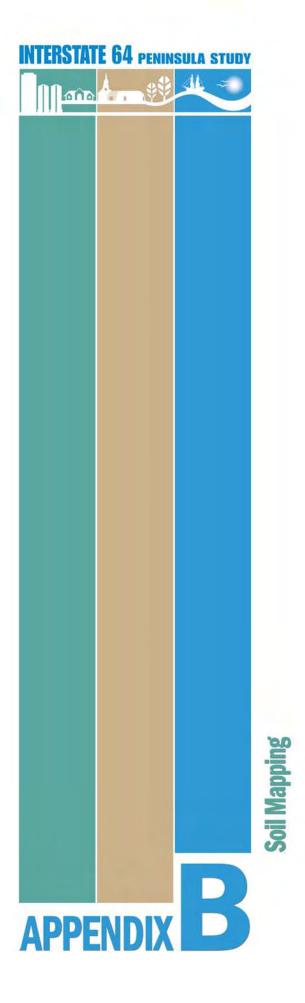
Table A6: City of Newport News Soils along the Project Corridor

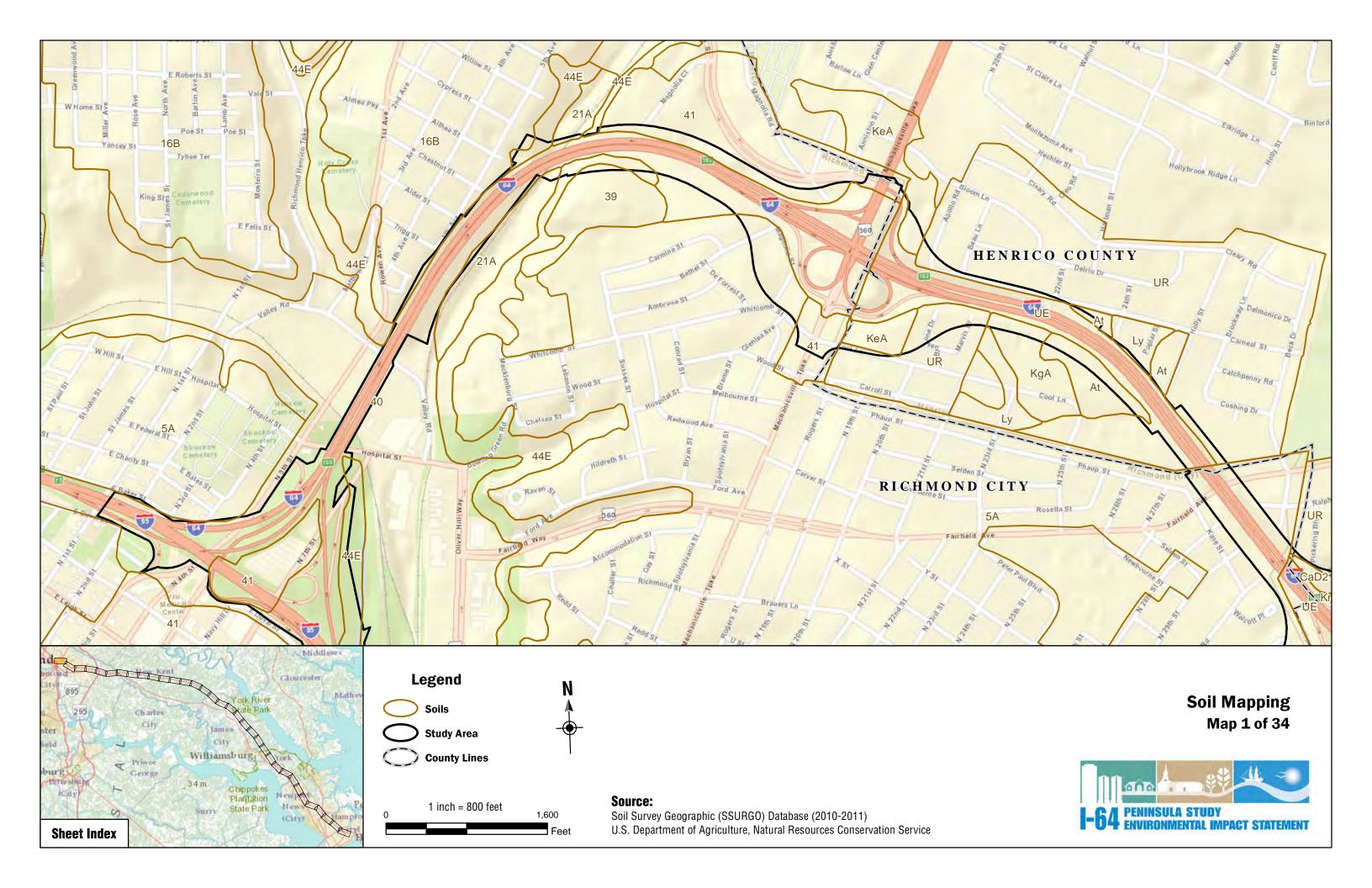
Table A6: City of Newport News Soils along the Project Corridor						
Map Symbol	Map Unit Name	Drainage Class	Erosion Factor	Water Table Depth (cm)	Hydric Soil	
1	Altavista-Urban land complex, 0 to 3 percent slopes	Moderately well drained	.24	61	No	
2	Augusta-Urban land complex, 0 to 2 percent slopes	Somewhat poorly drained	.20	46	No	
5	Bethera-Urban land complex, 0 to 2 percent slopes	Poorly drained	.28	0	No	
8	Chickahominy-Urban land complex, 0 to 2 percent slopes	Poorly drained	.37	8	No	
10	Dragston-Urban land complex, 0 to 2 percent slopes	Somewhat poorly drained	.20	53	No	
12	Johnston silt loam, 0 to 2 percent slopes, frequently flooded	Very poorly drained	.17	0	No	
17	Newflat-Urban land complex, 0 to 2 percent slopes	Somewhat poorly drained	.37	31	No	
22	State-Urban land complex, 0 to 3 percent slopes	Well drained	.28	150	No	
23	Suffolk fine sandy loam, 2 to 6 percent slopes	Well drained	.10	Not Rated	No	
24	Tomotley-Urban land complex, 0 to 2 percent slopes	Poorly drained	.20	15	No	
25	Uchee loamy fine sand, 2 to 6 percent slopes	Well drained	.10	122	No	
26	Udorthents-Dumps complex	Not Rated	Not Rated	Not Rated	No	
27	Urban land	Not Rated	Not Rated	150	No	
28	Yemassee-Urban land complex, 0 to 2 percent slopes	Somewhat poorly drained	.24	30	No	
16C	Nevarc-Uchee complex, 6 to 15 percent slopes	Moderately well drained	.10	61	No	

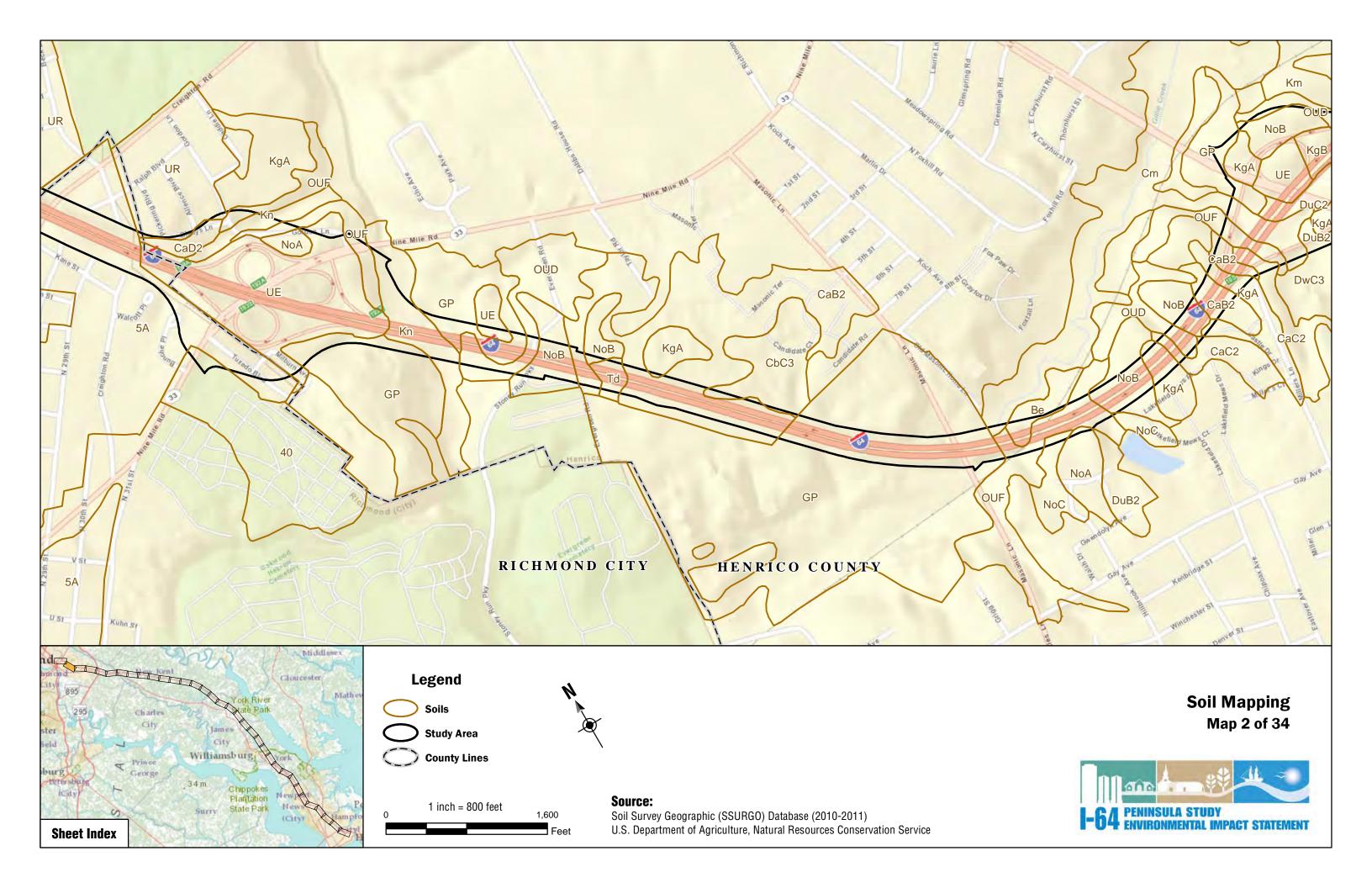
Map Symbol	Map Unit Name	Drainage Class	Erosion Factor	Water Table Depth (cm)	Hydric Soil
16D	Nevarc-Uchee complex, 15 to 50 percent slopes	Moderately well drained	.10	61	No
21A	Slagle-Urban land complex, 0 to 2 percent slopes	Moderately well drained	.28	61	Yes
21B	Slagle-Urban land complex, 2 to 6 percent slopes	Moderately well drained	.28	61	No
9A	Craven-Urban land complex, 0 to 2 percent slopes	Moderately well drained	.32	76	Yes
9B	Craven-Urban land complex, 2 to 6 percent slopes	Moderately well drained	.32	76	No
NOTCOM	Not Complete	Not Rated	Not Rated	Not Rated	No
W	Water	Not Rated	Not Rated	Not Rated	No

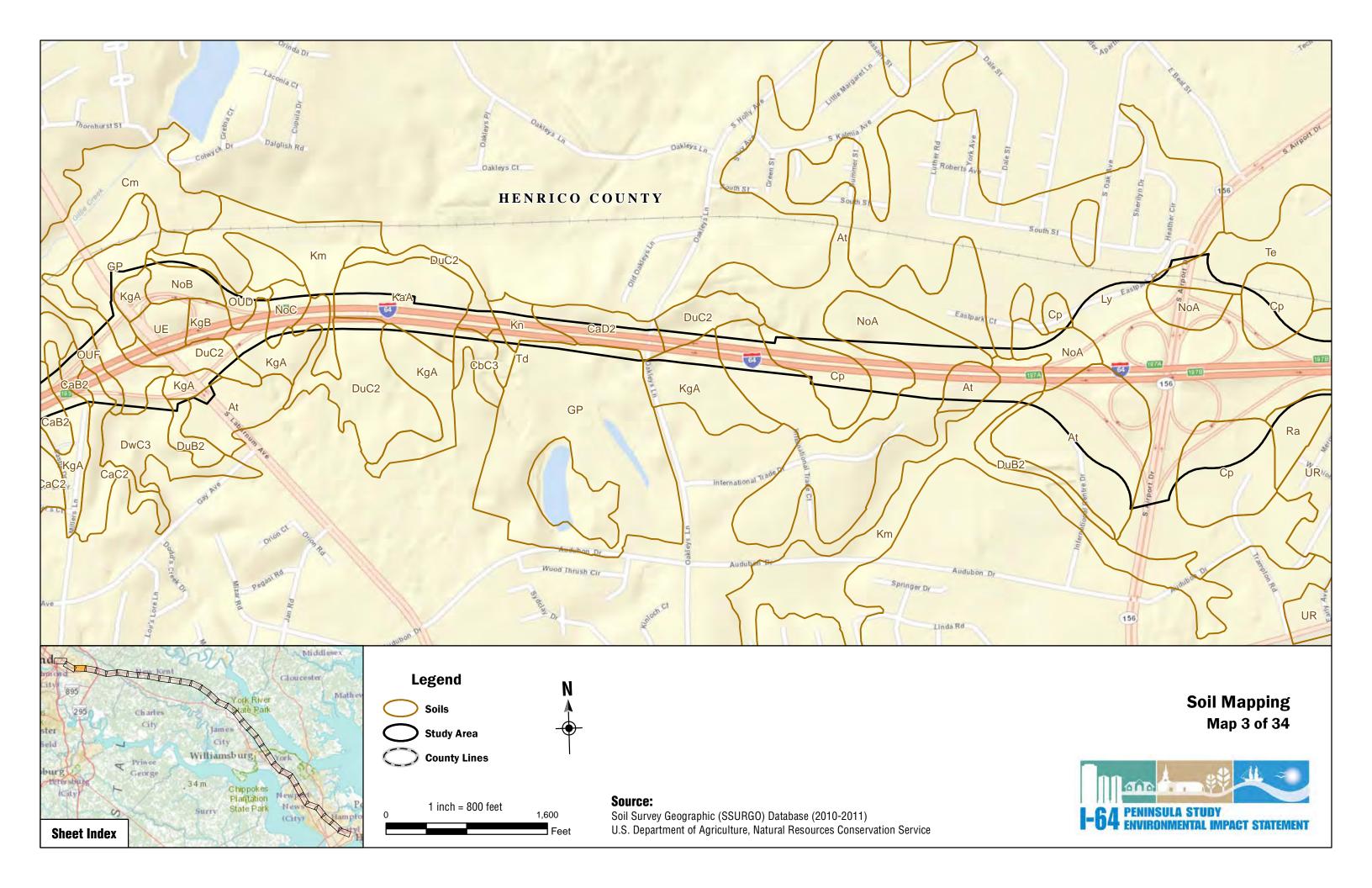
Table A7: City of Hampton Soils along the Project Corridor

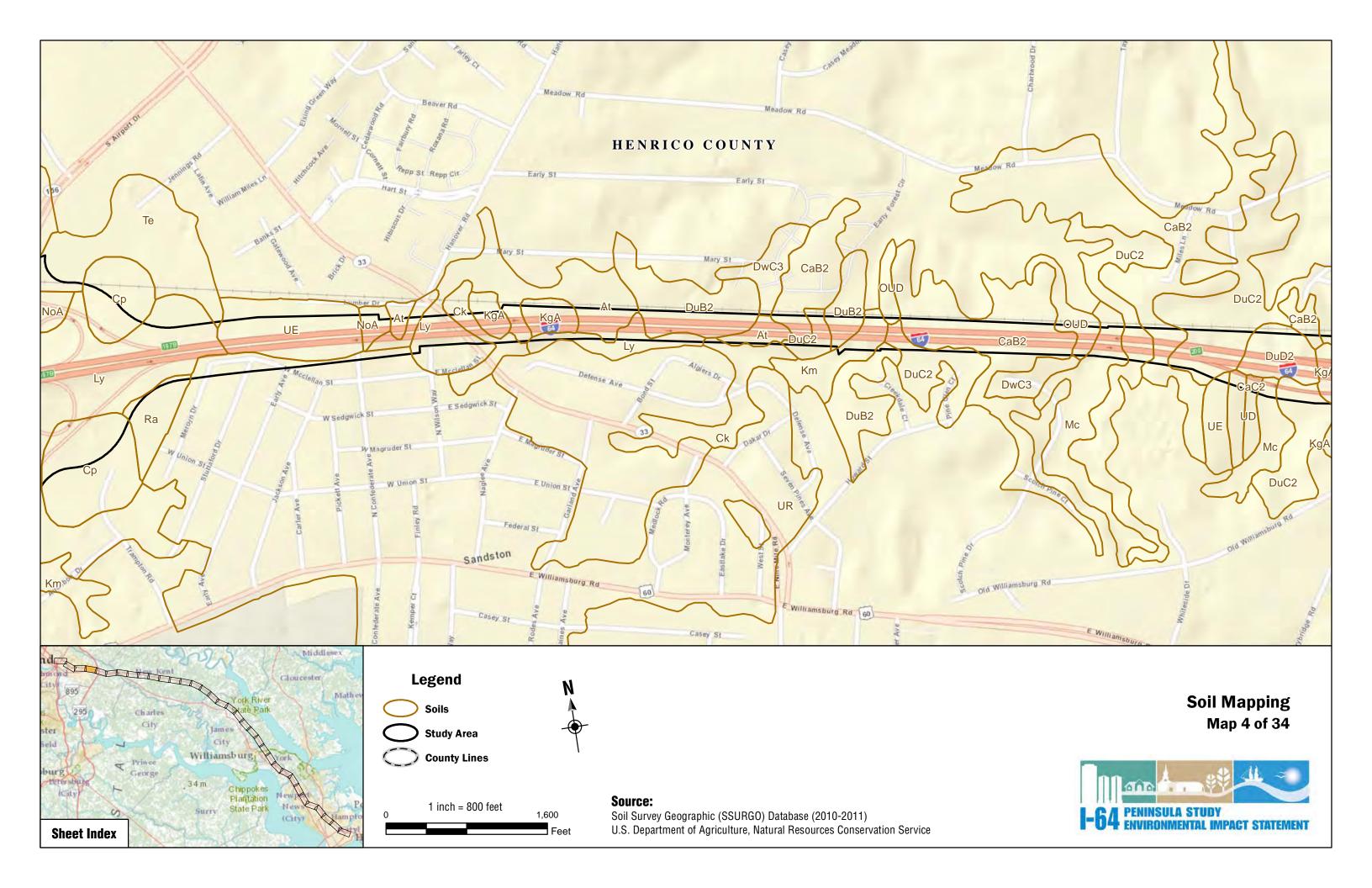
Table A7: City of Hampton Soils along the Project Corridor								
Map Symbol	Map Unit Name	Drainage Class	Erosion Factor	Water Table Depth (cm)	Hydric Soil			
1	Altavista-Urban land complex, 0 to 3 percent slopes	Moderately well drained	.24	61	No			
6	Bohicket muck, 0 to 1 percent slopes, very frequently flooded	Very poorly drained	.28	0	No			
8	Chickahominy-Urban land complex, 0 to 2 percent slopes	Poorly drained	.37	8	No			
10	Dragston-Urban land complex, 0 to 2 percent slopes	Somewhat poorly drained	.20	53	No			
15	Munden-Urban land complex, 0 to 3 percent slopes	Moderately well drained	.17	61	No			
18	Nimmo-Urban land complex, 0 to 2 percent slopes	Poorly drained	.20	15	No			
20	Seabrook-Urban land complex, 0 to 2 percent slopes	Moderately well drained	.10	76	No			
24	Tomotley-Urban land complex, 0 to 2 percent slopes	Poorly drained	.20	15	No			
26	Udorthents-Dumps complex	Not Rated	Not Rated	Not Rated	No			
27	Urban land	Not Rated	Not Rated	150	No			
W	Water	Not Rated	Not Rated	Not Rated	No			

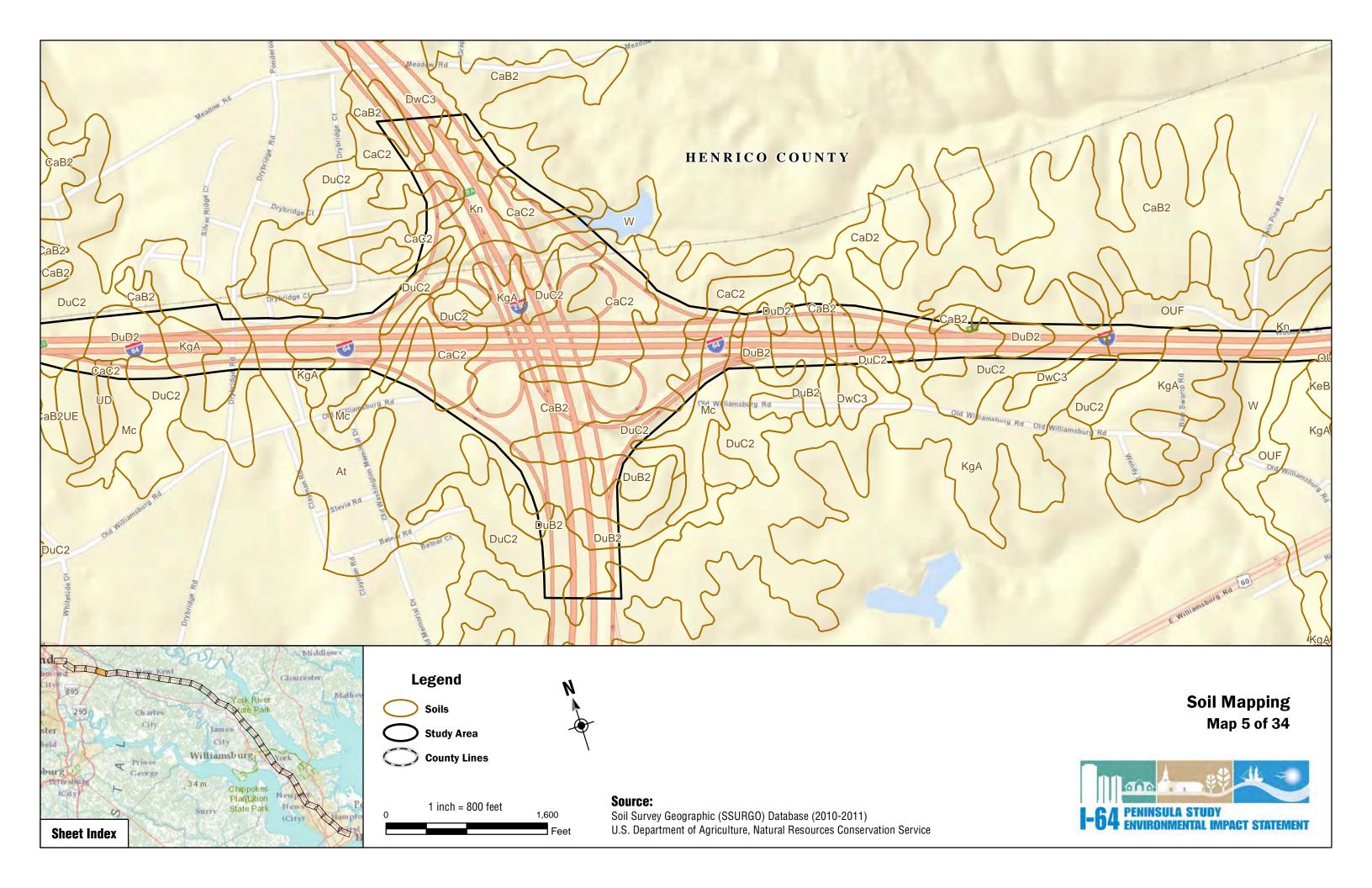


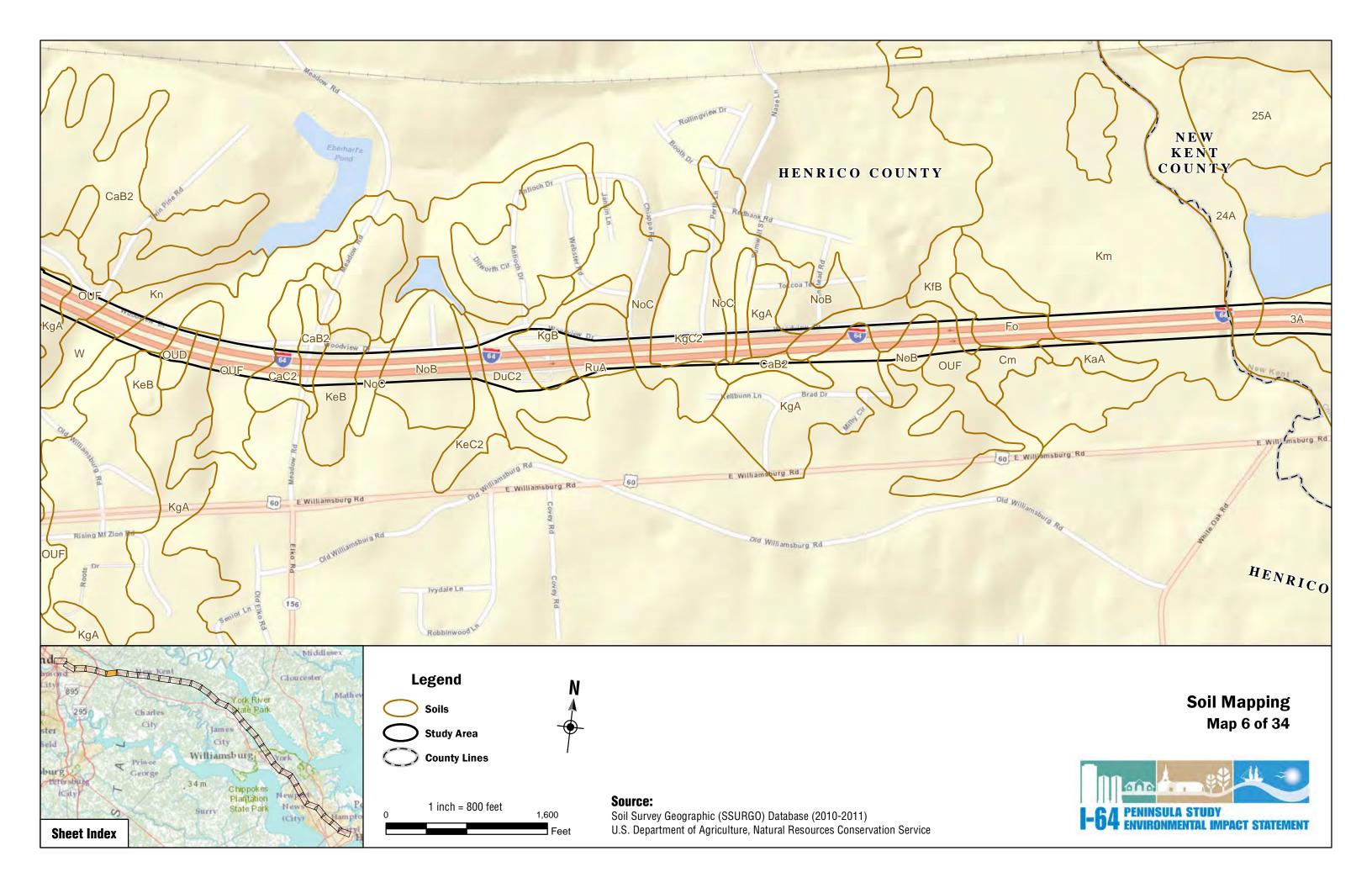


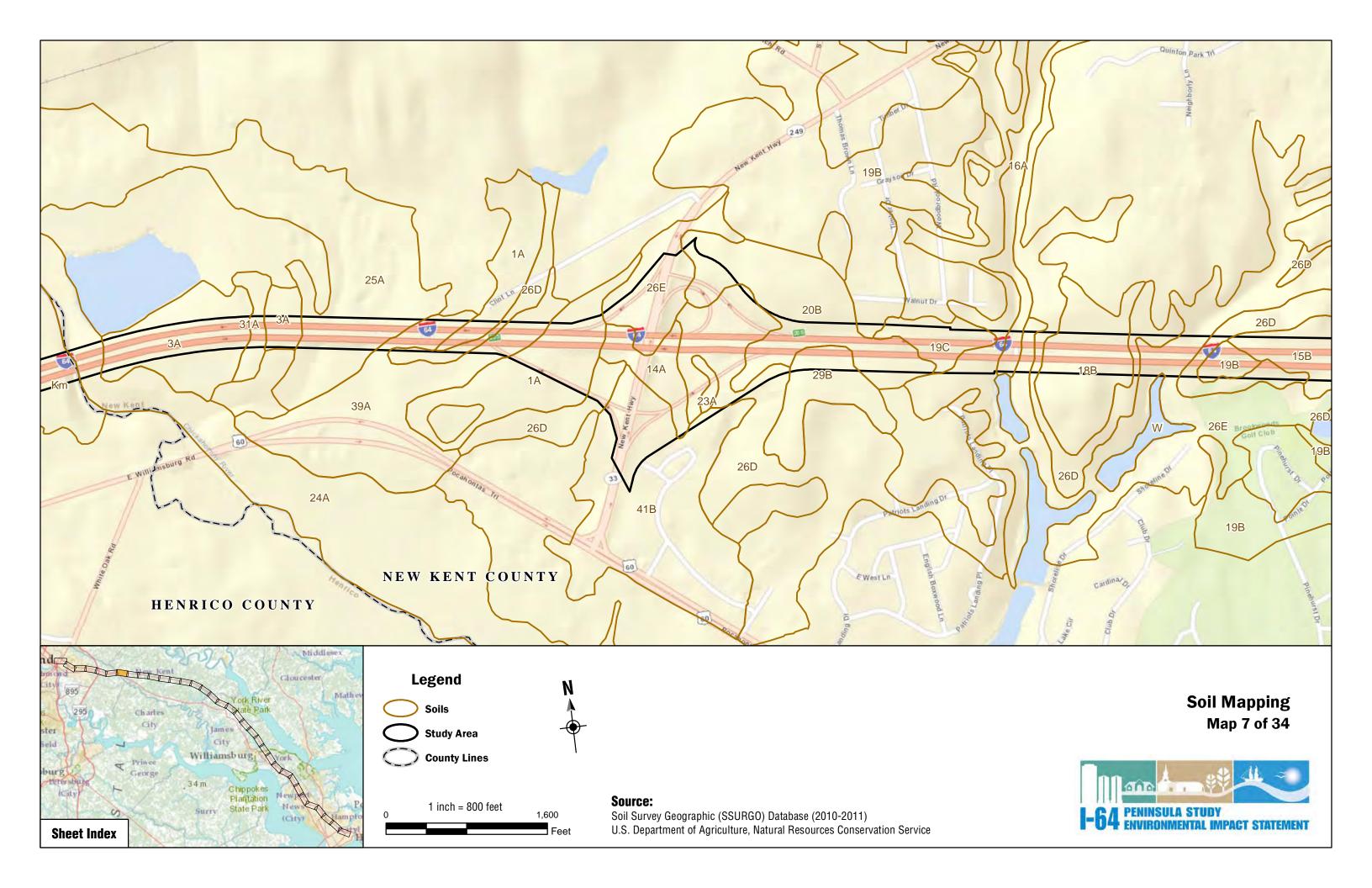


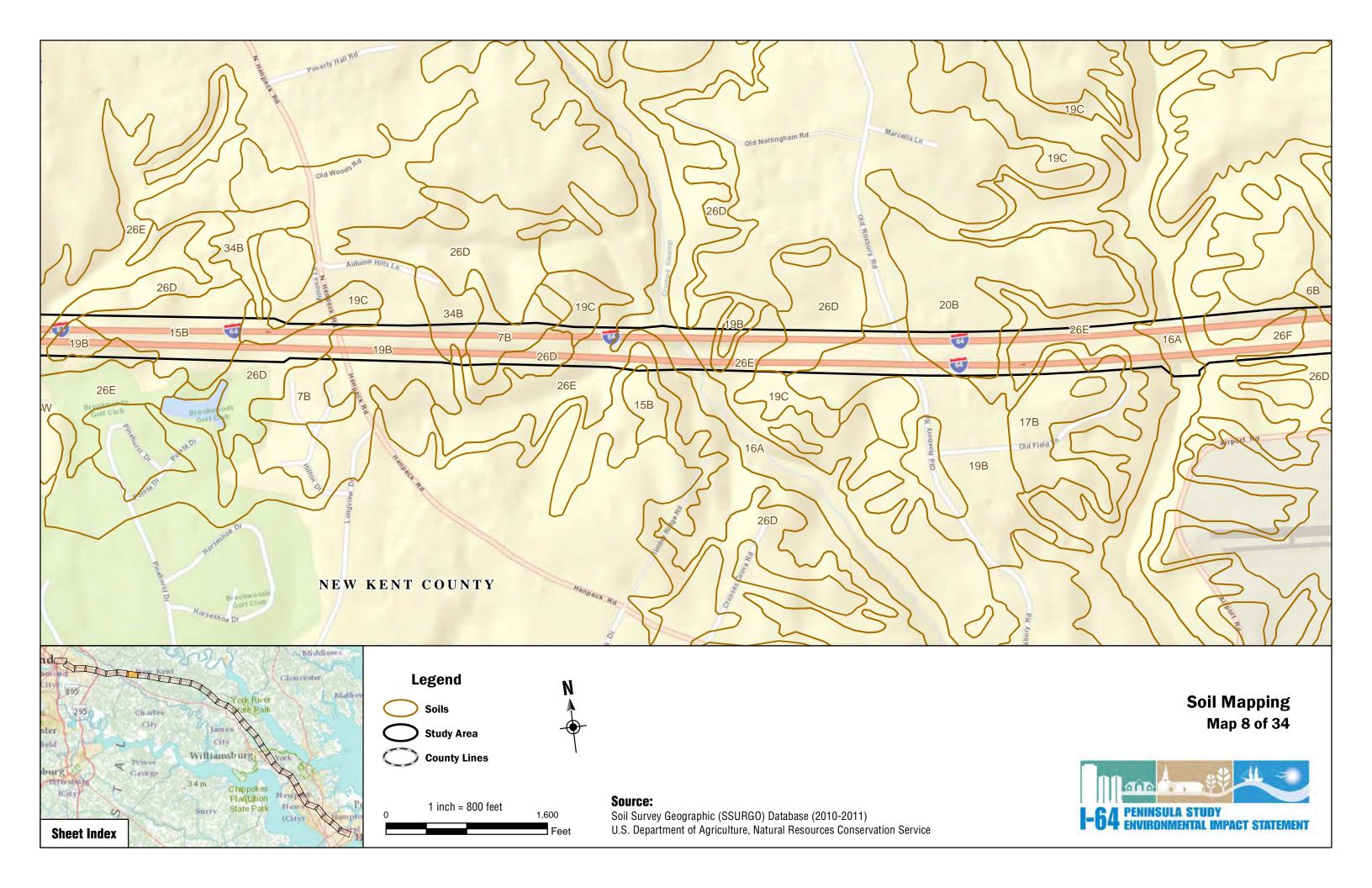


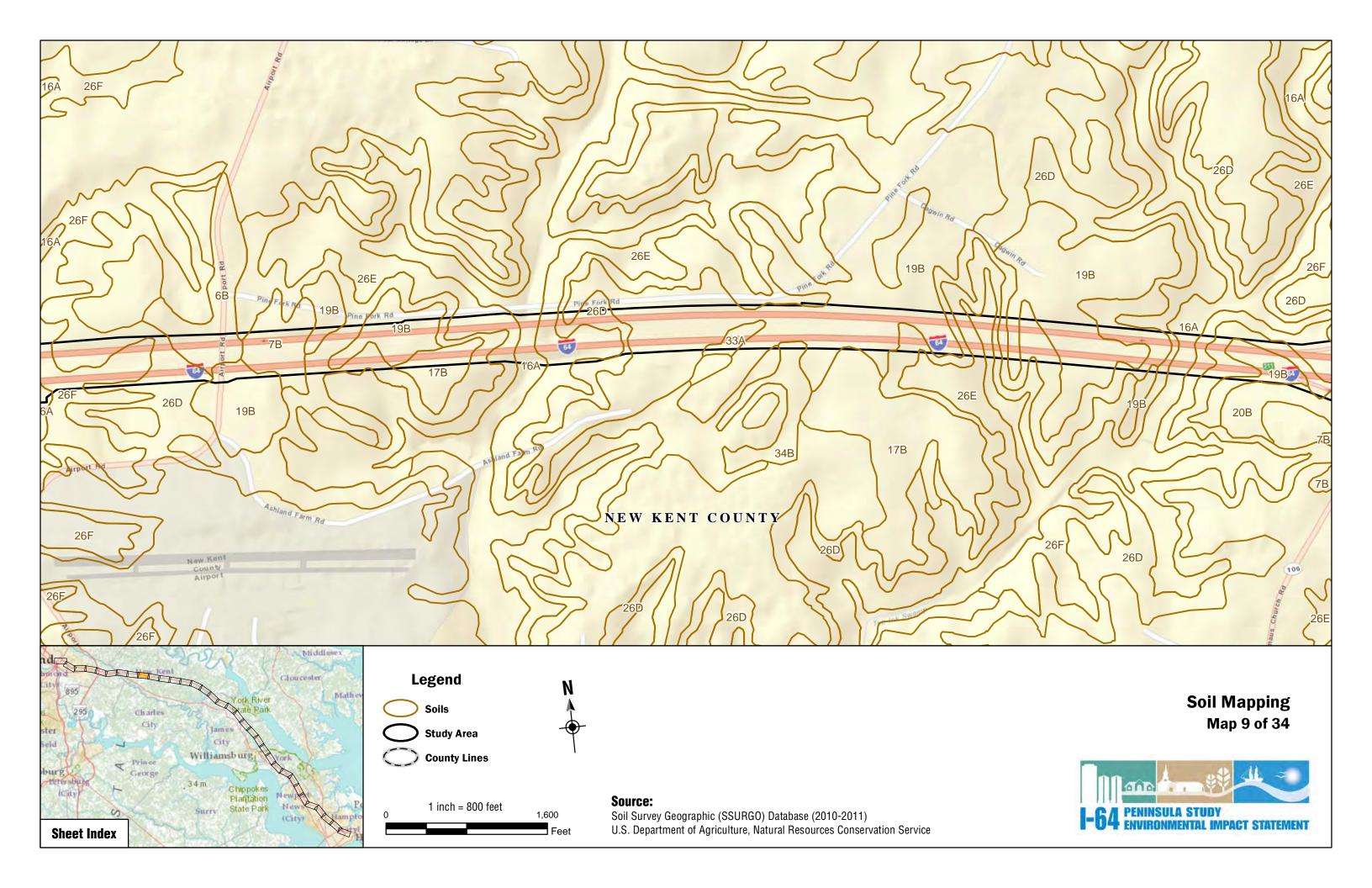


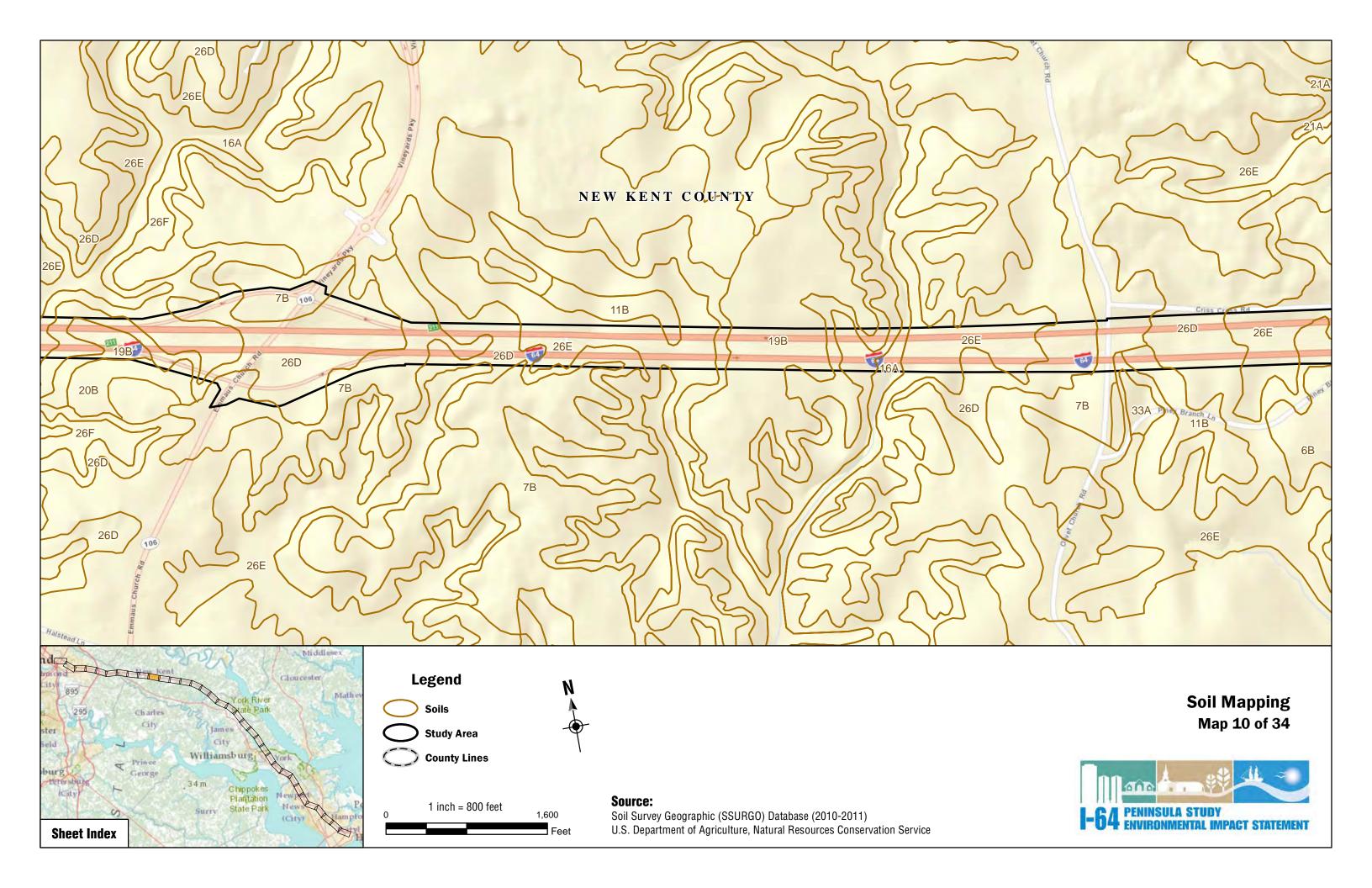


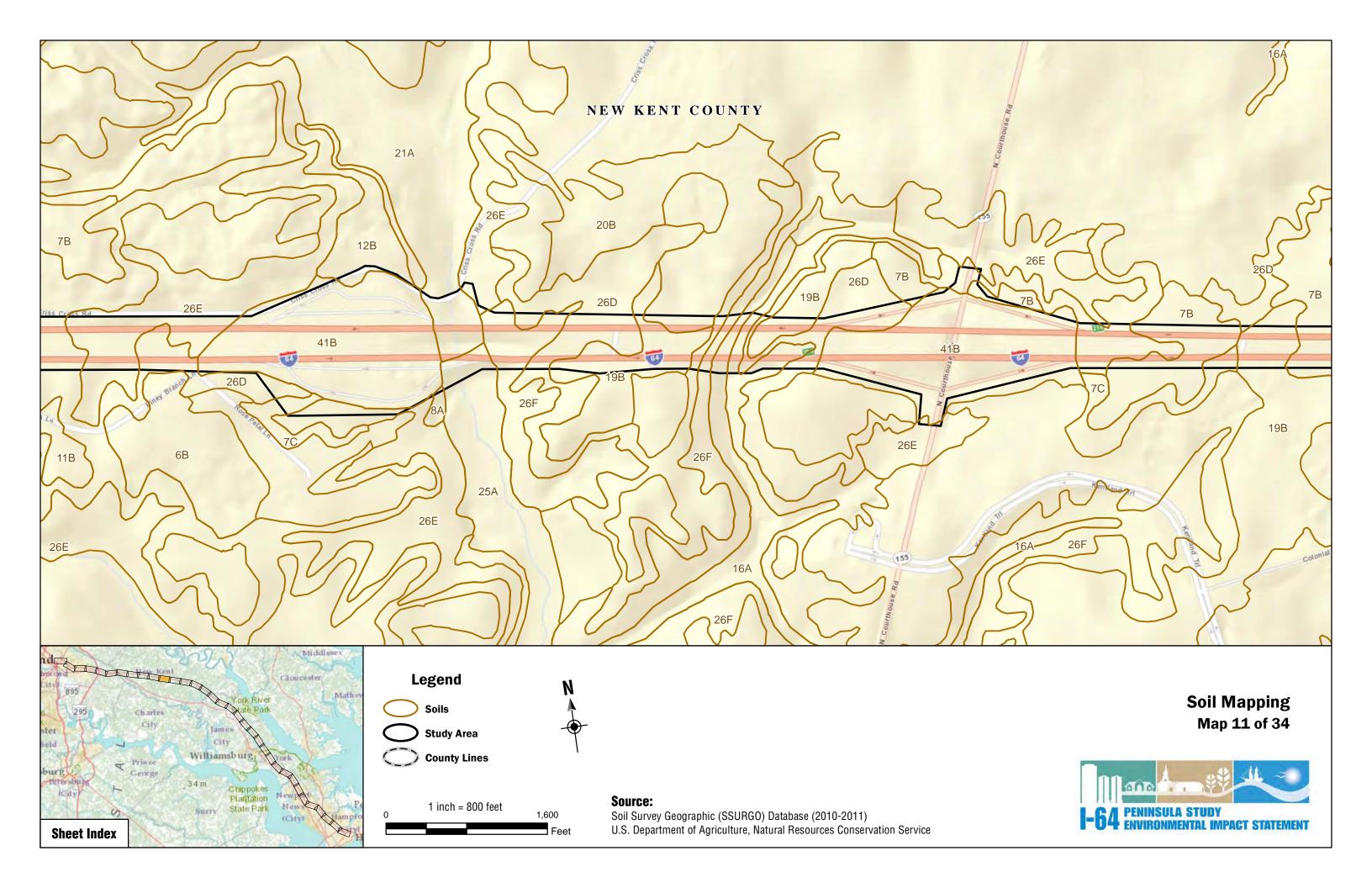


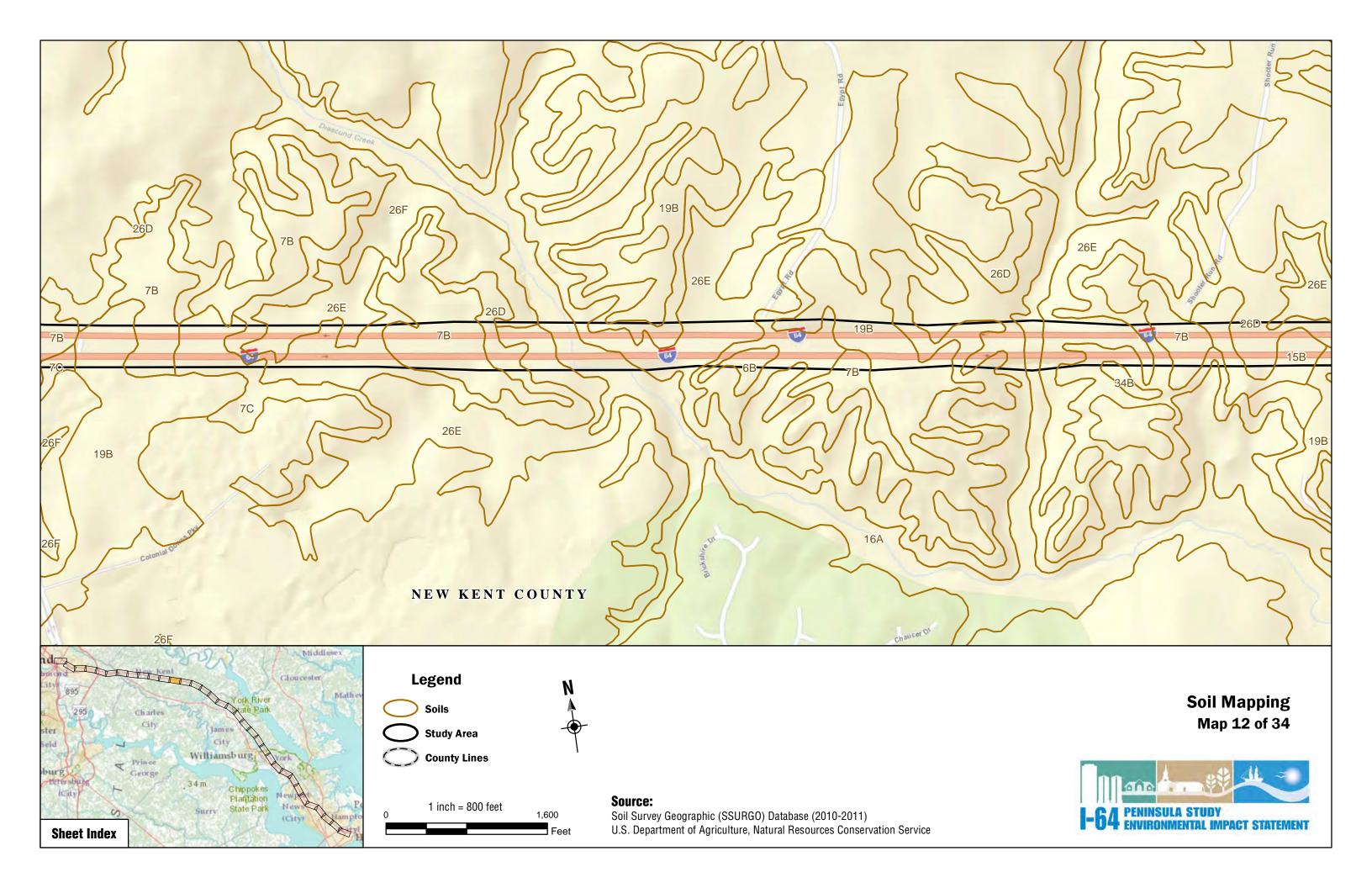


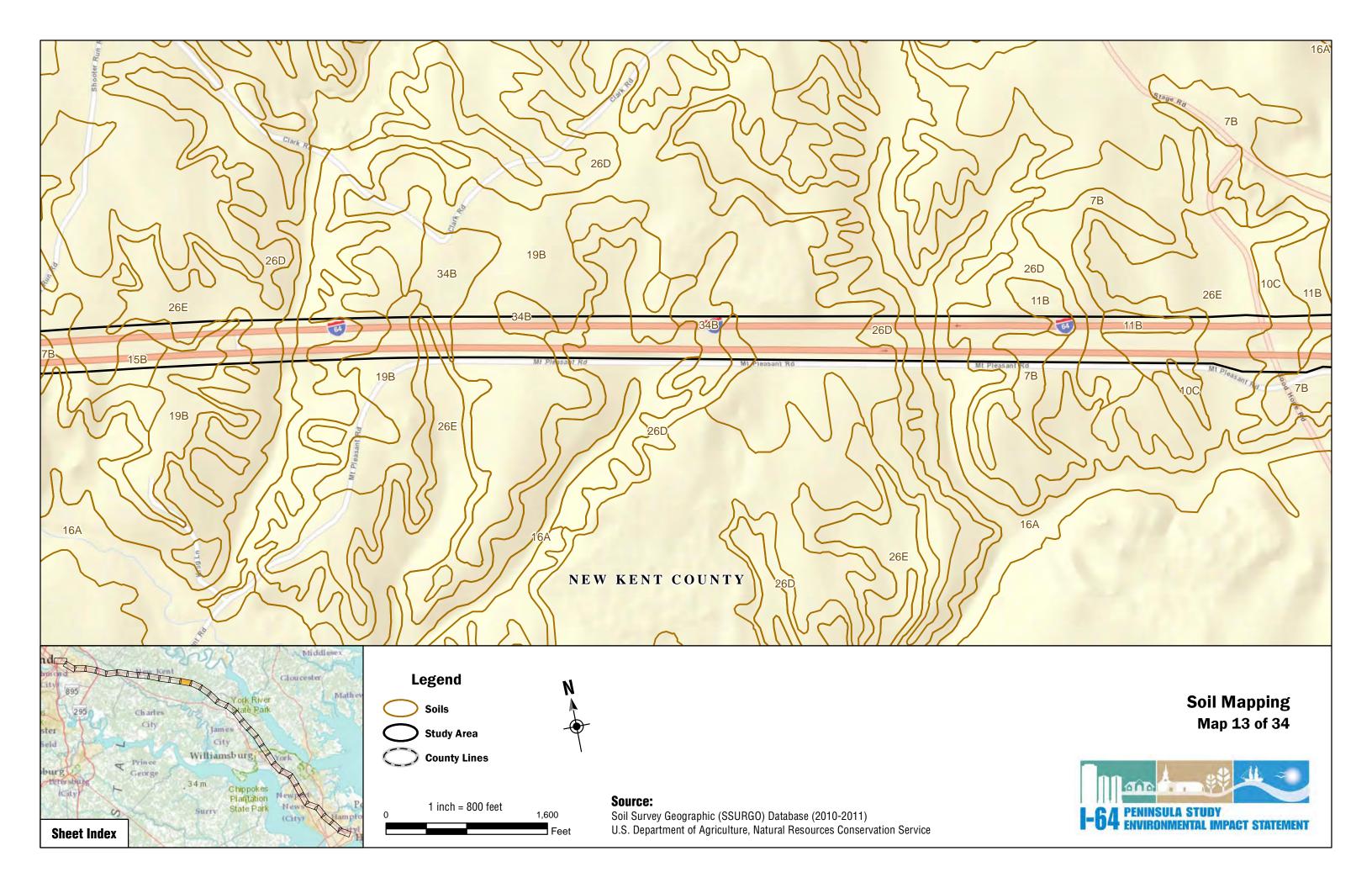


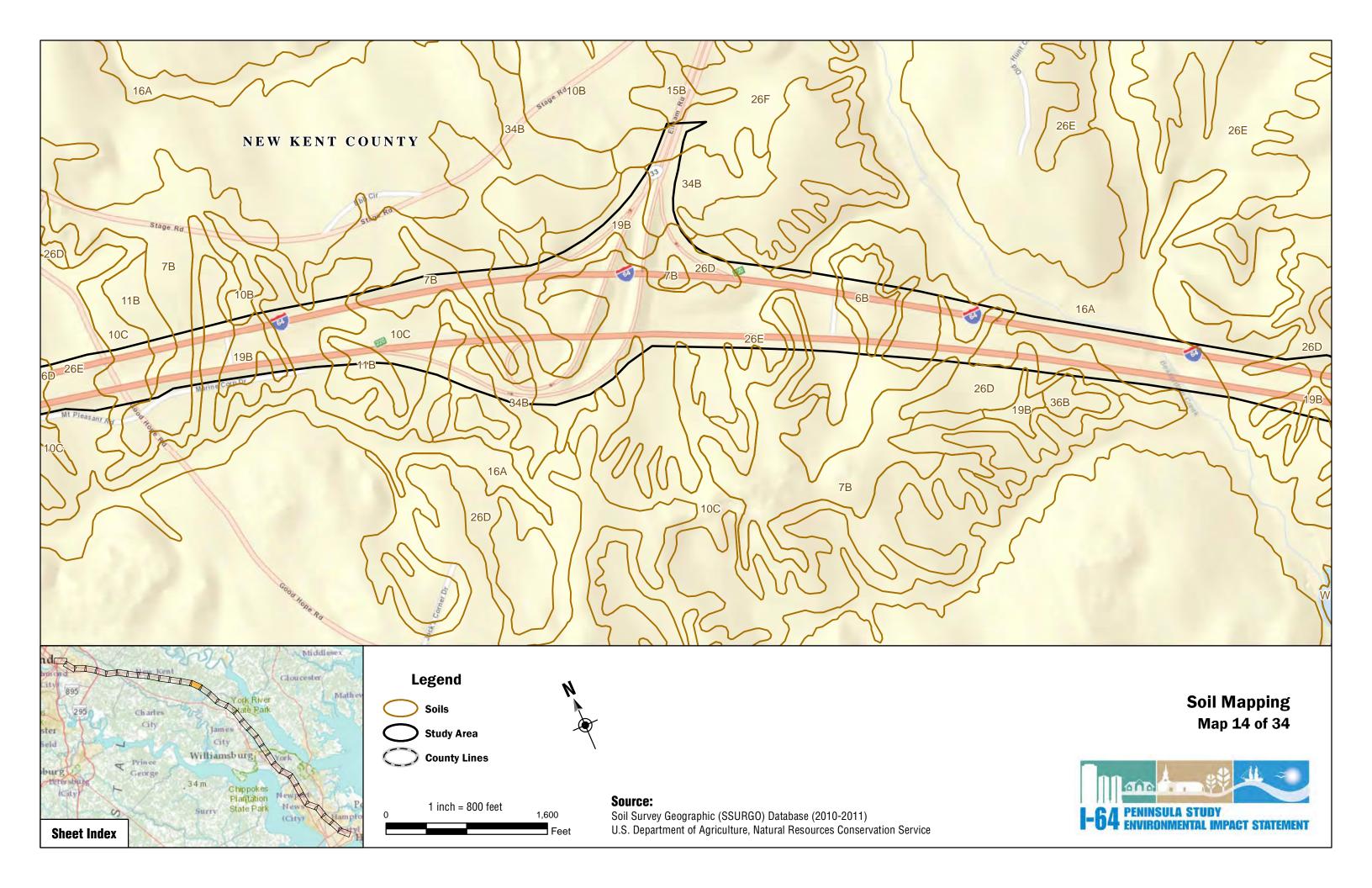


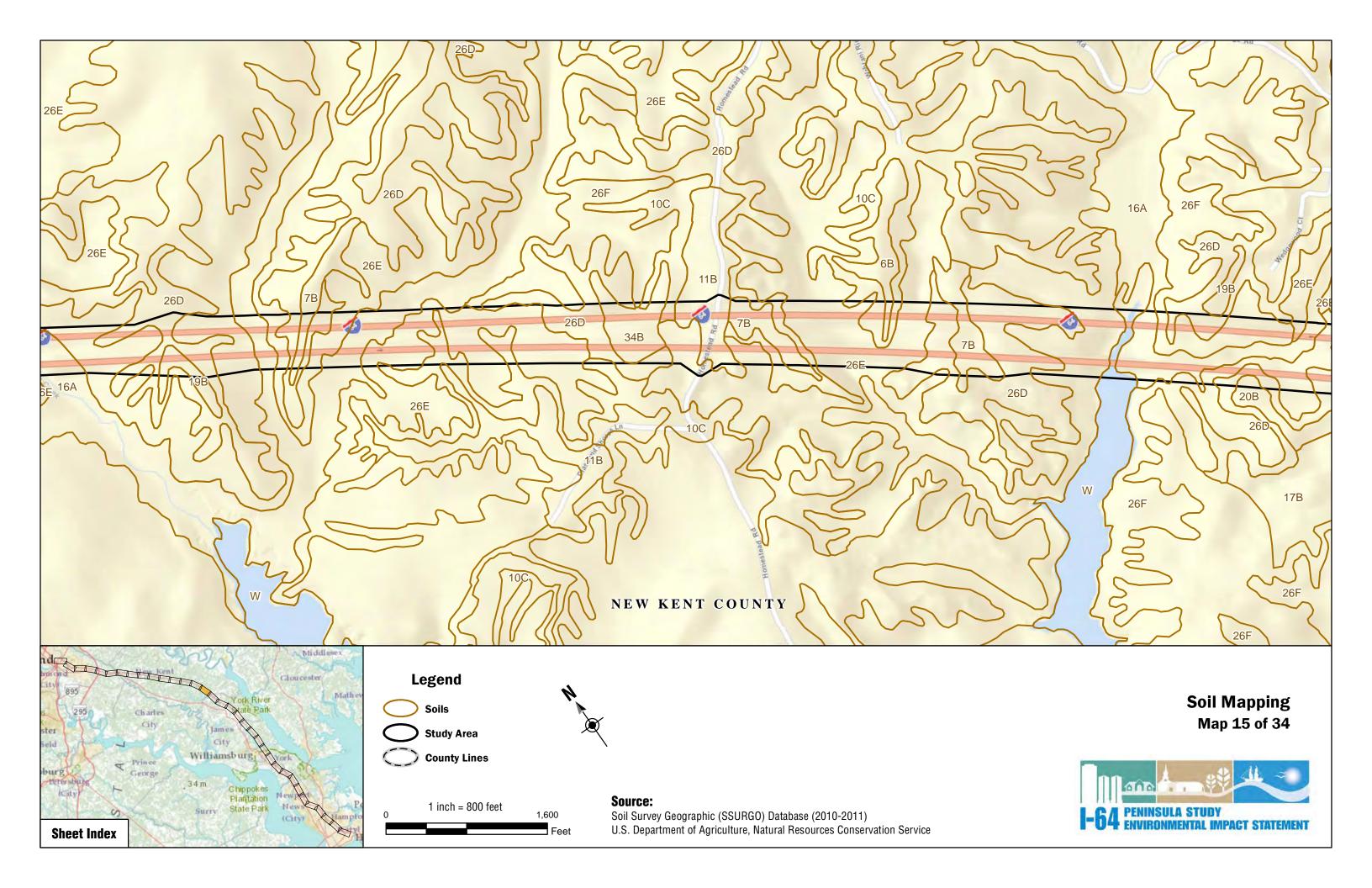


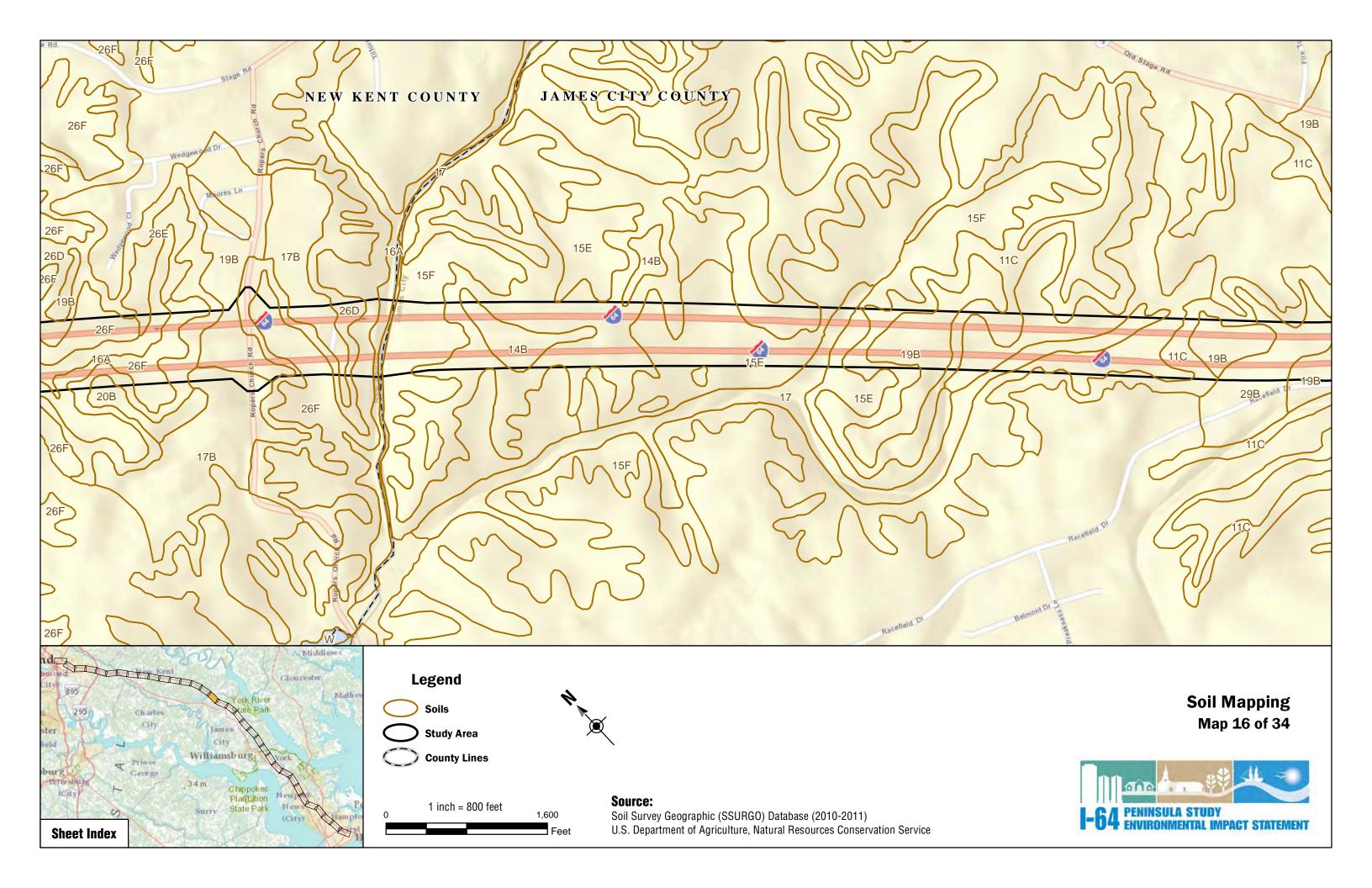


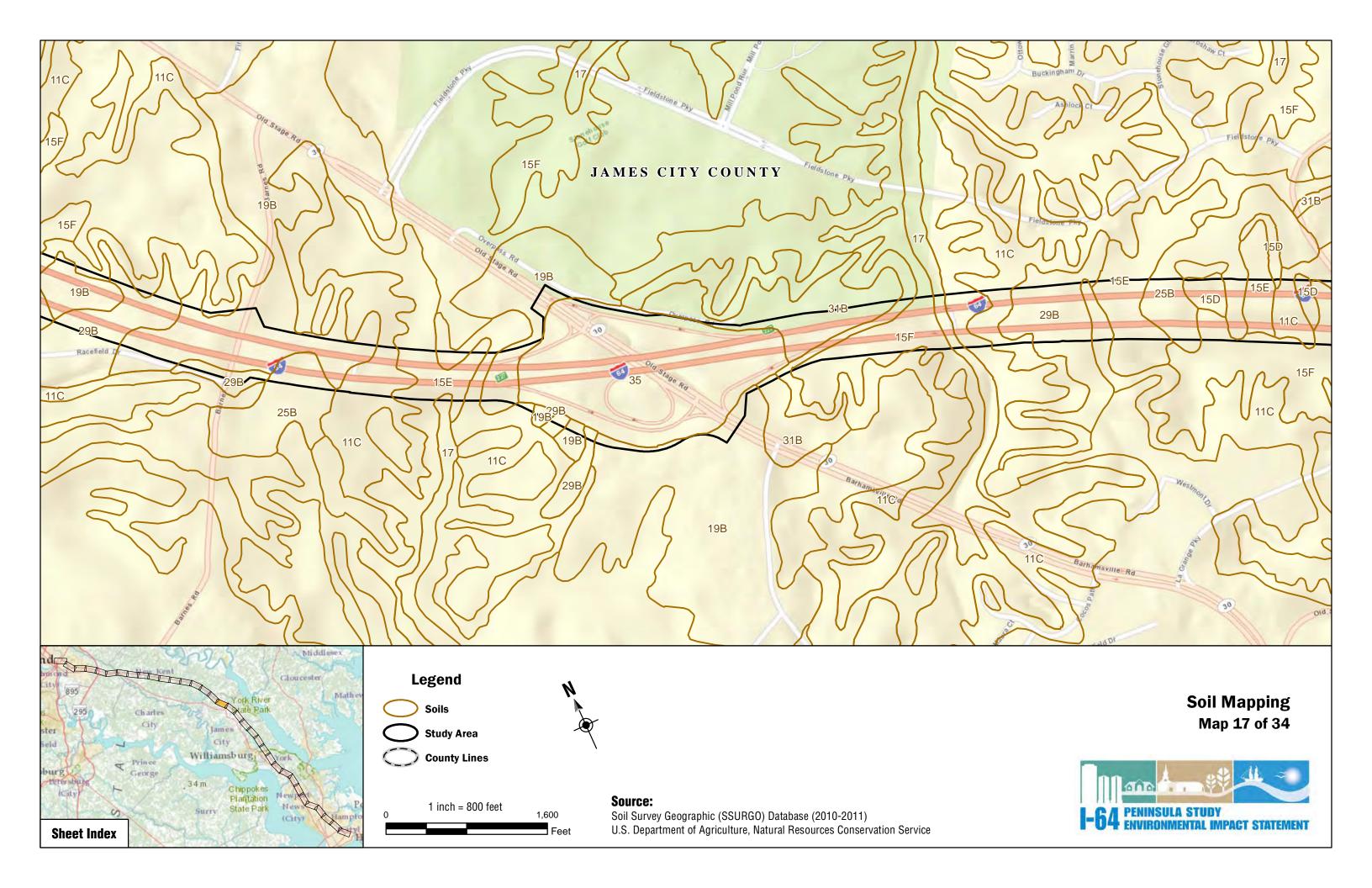


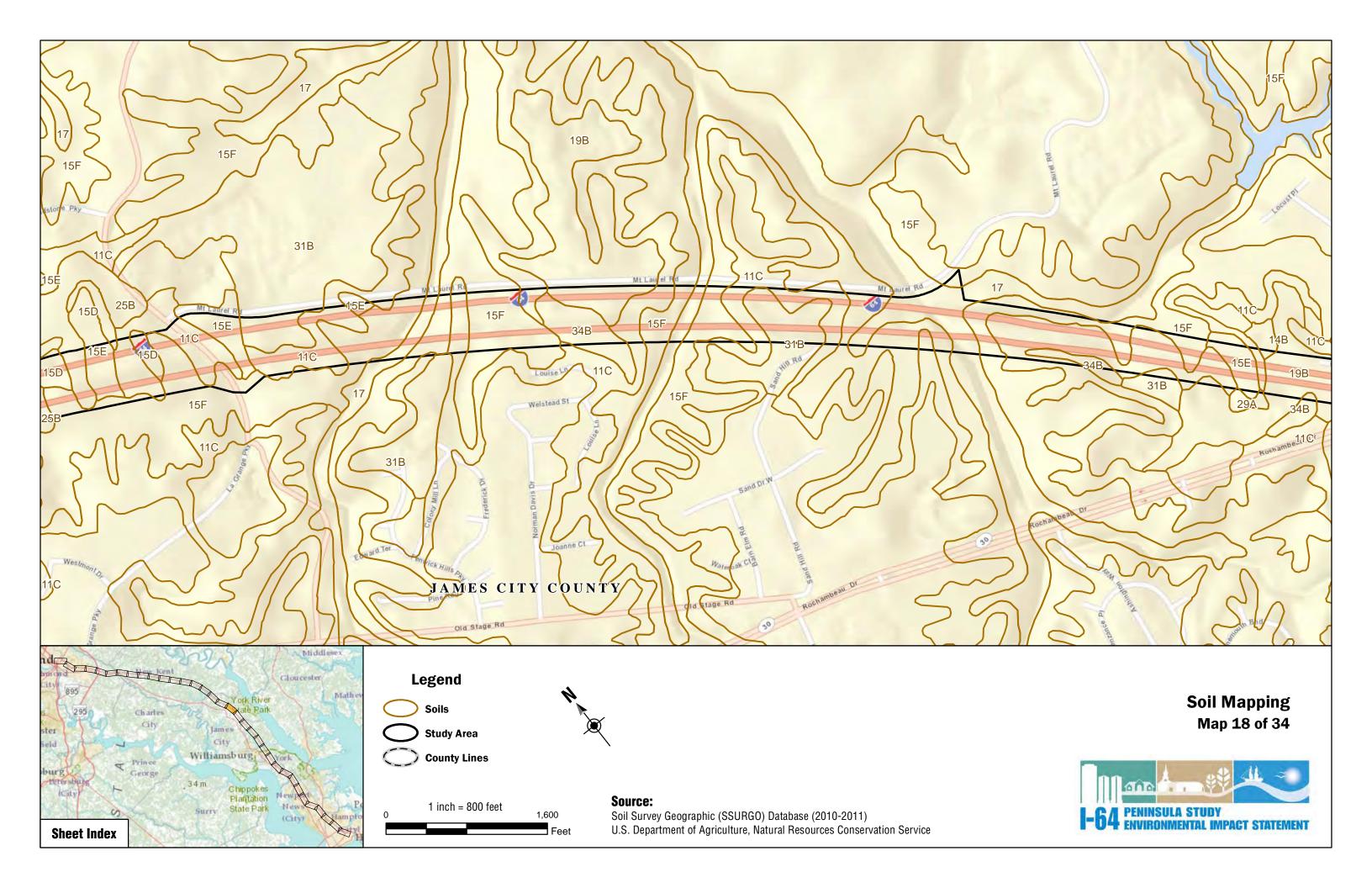


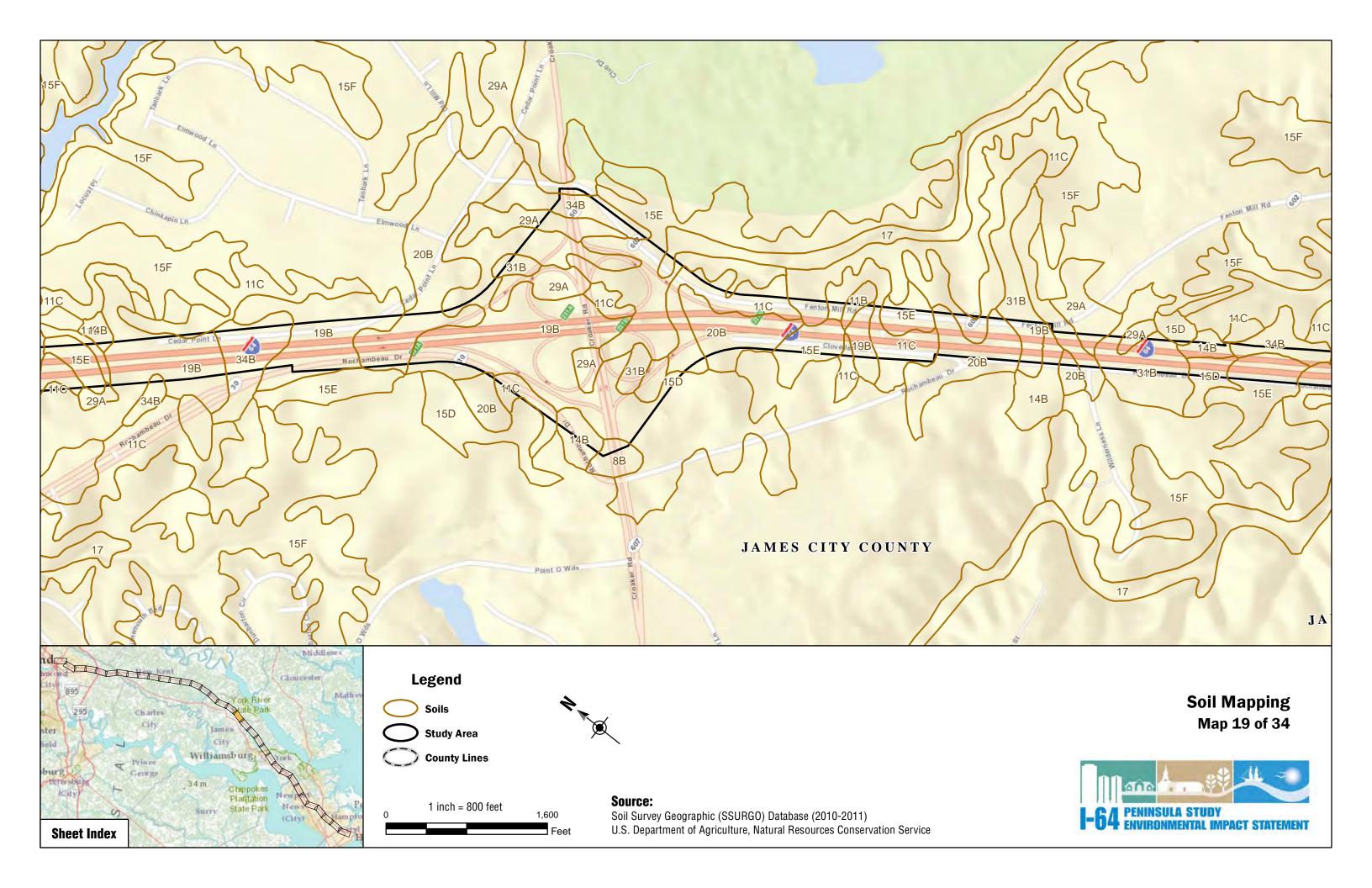


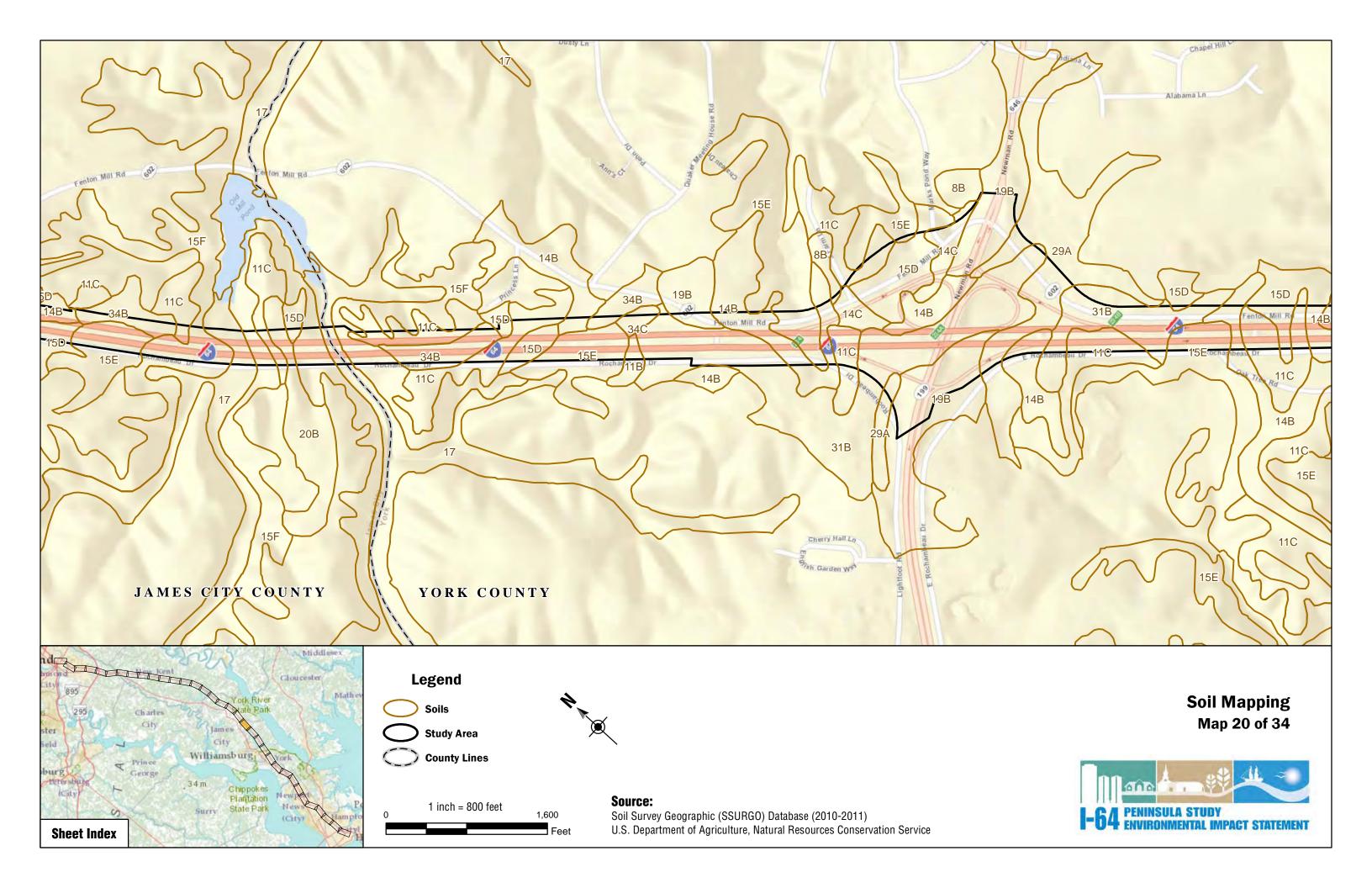


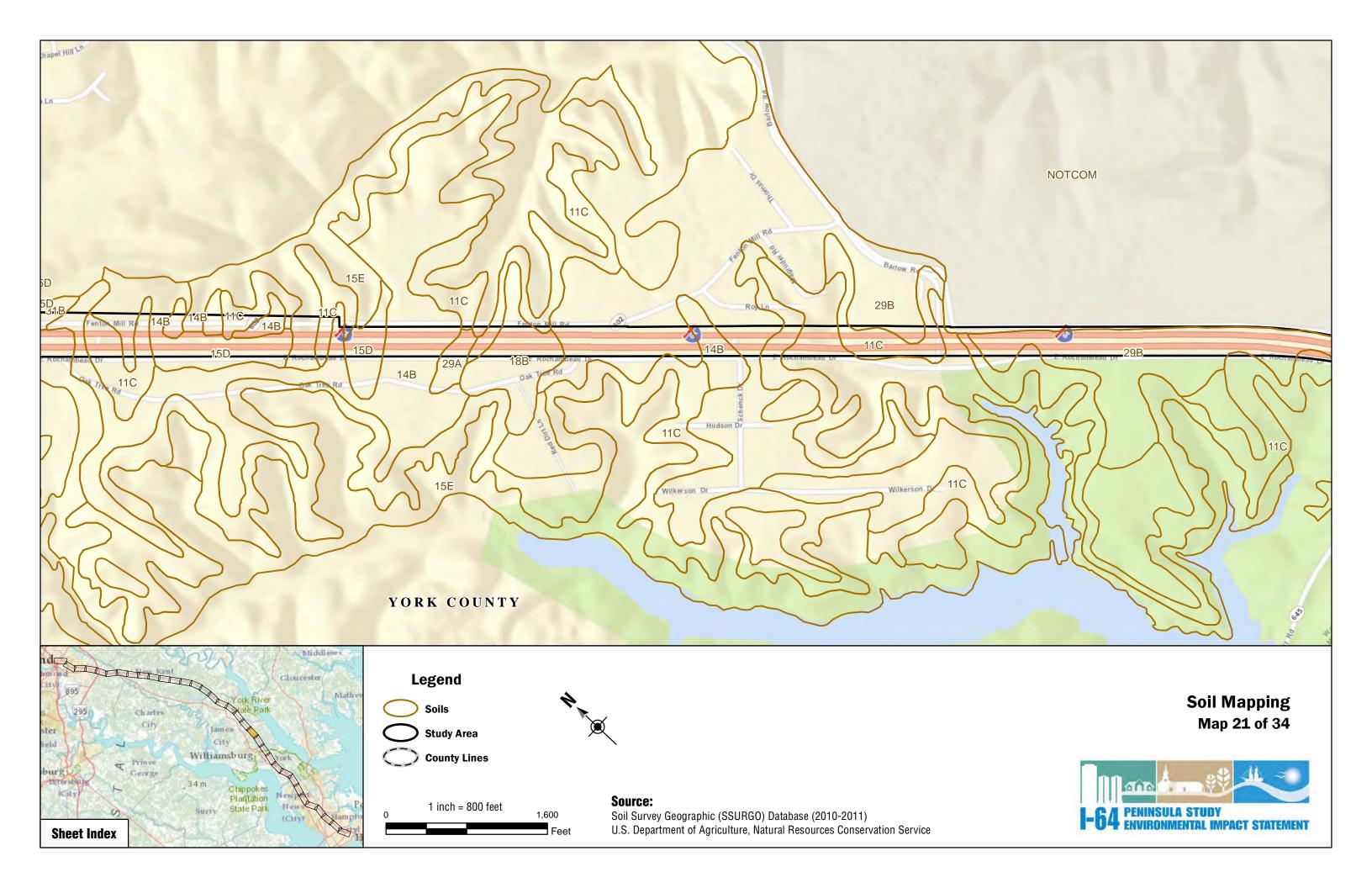


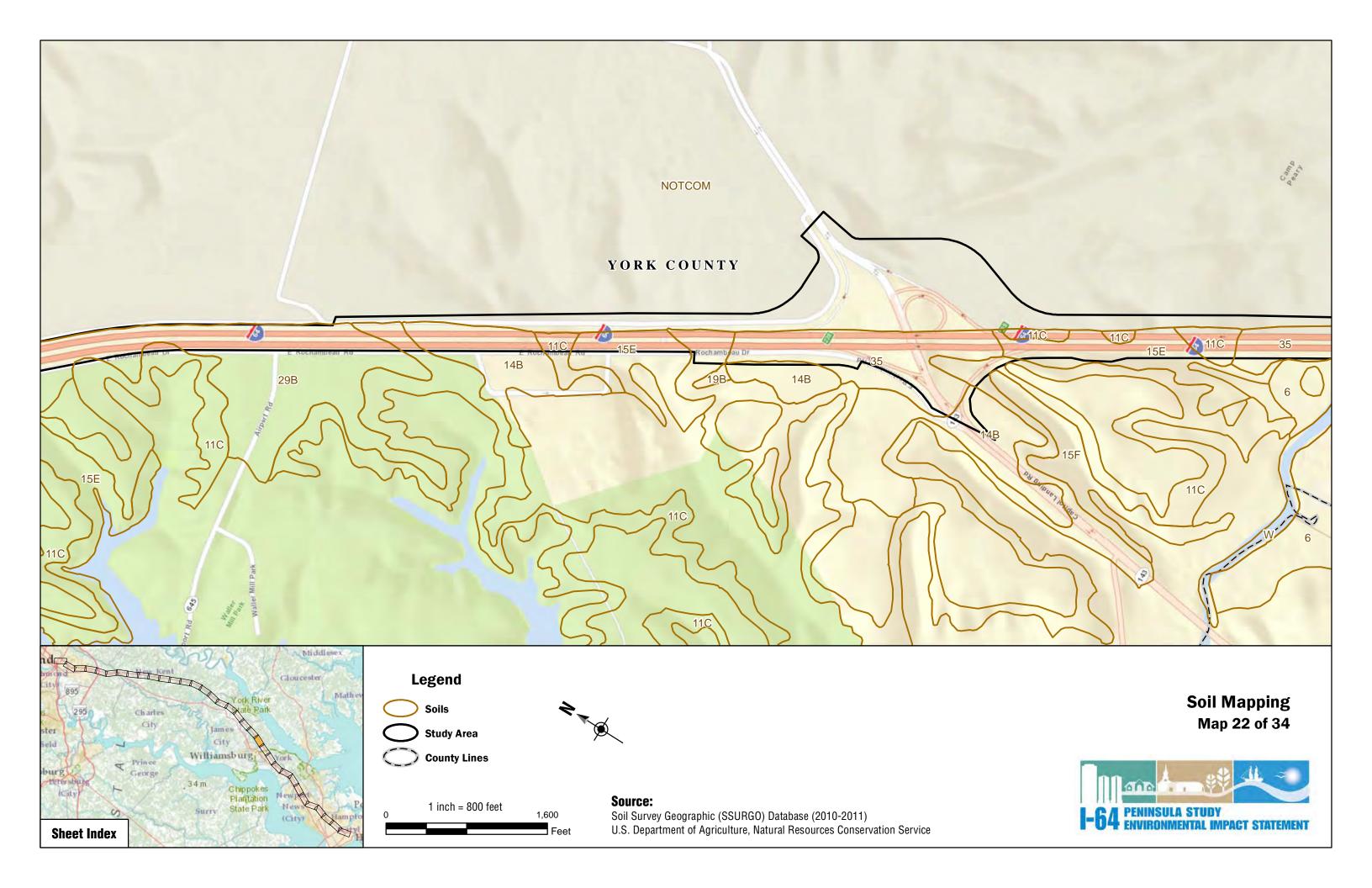


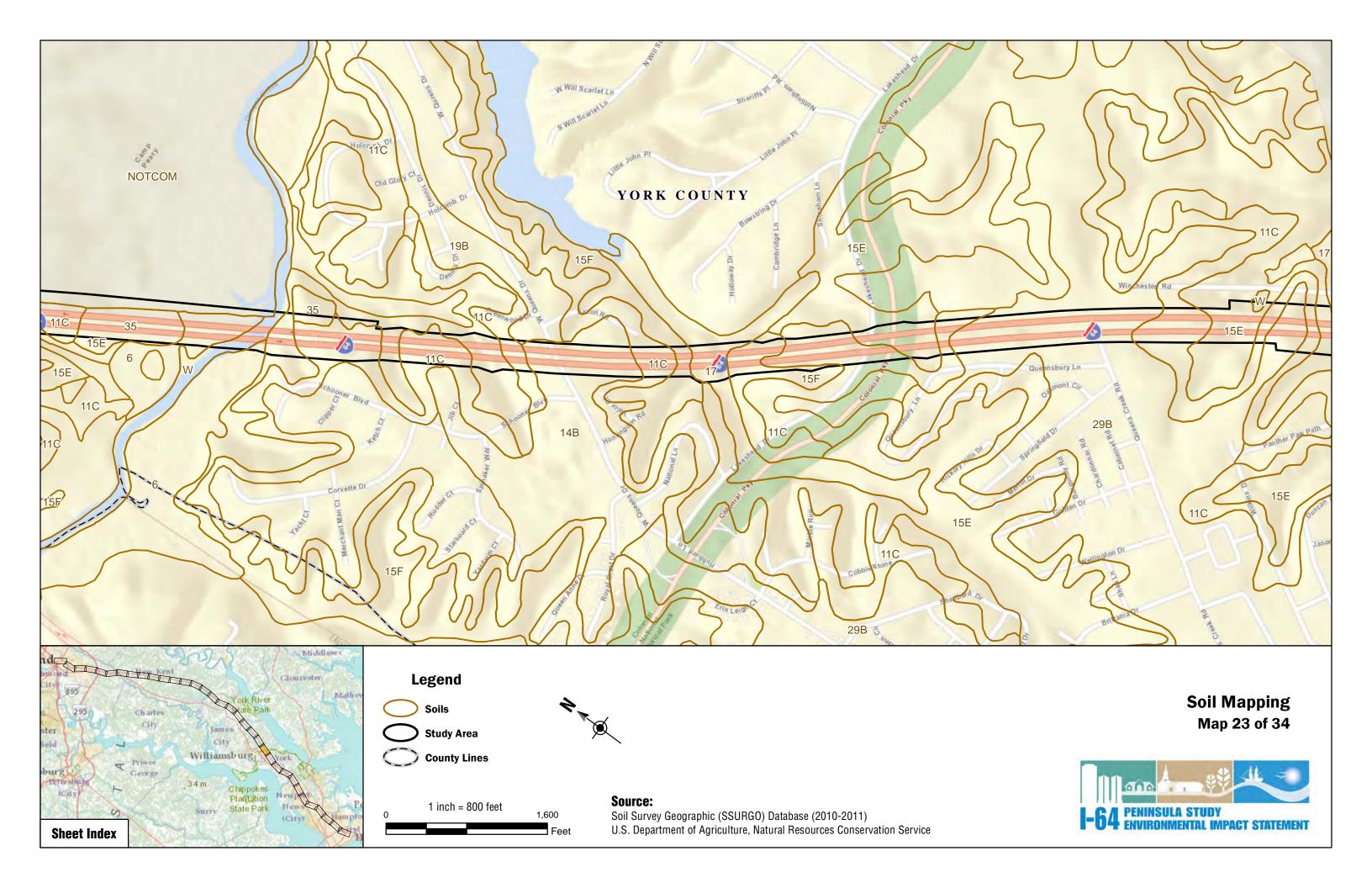


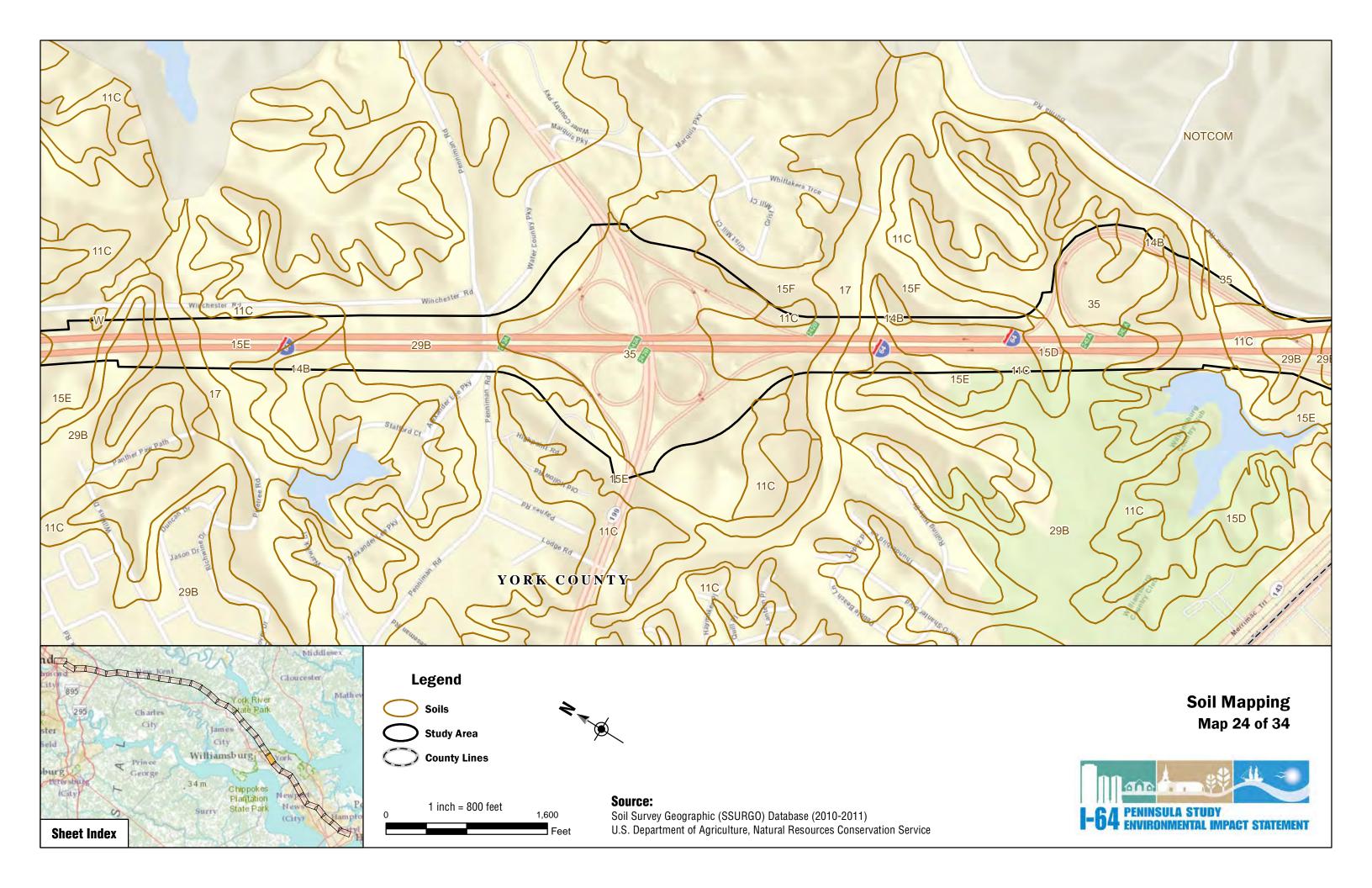


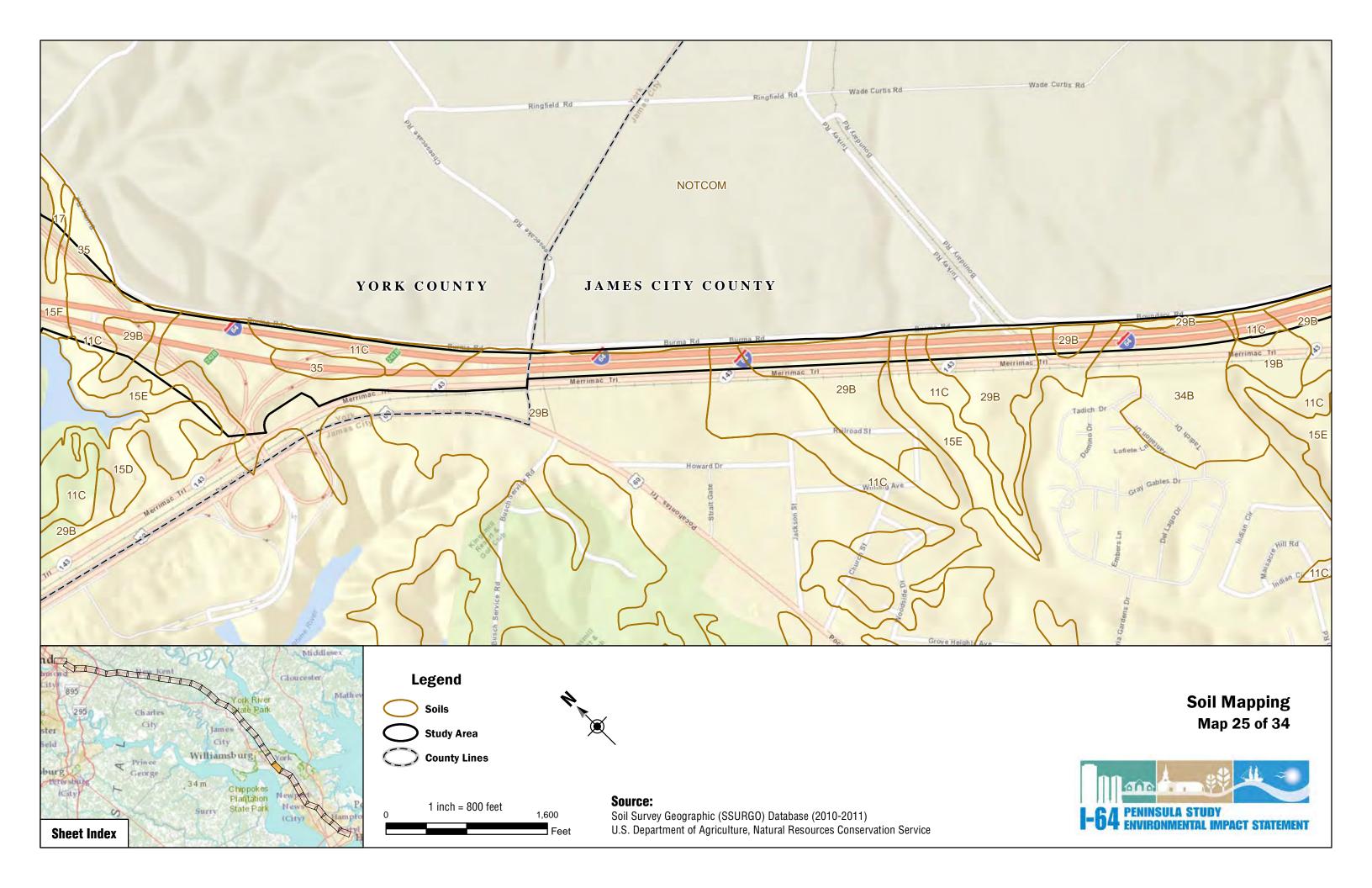


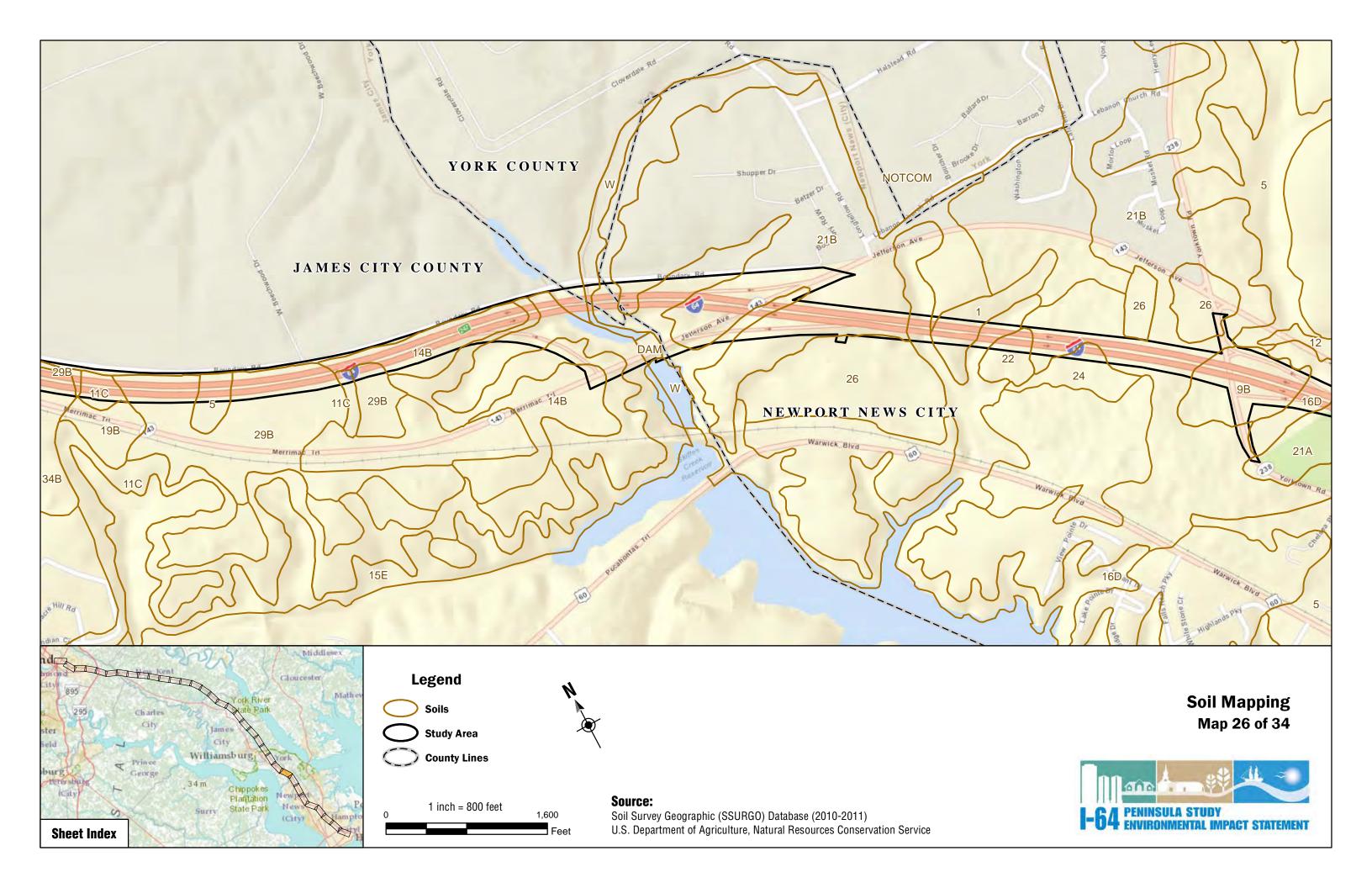


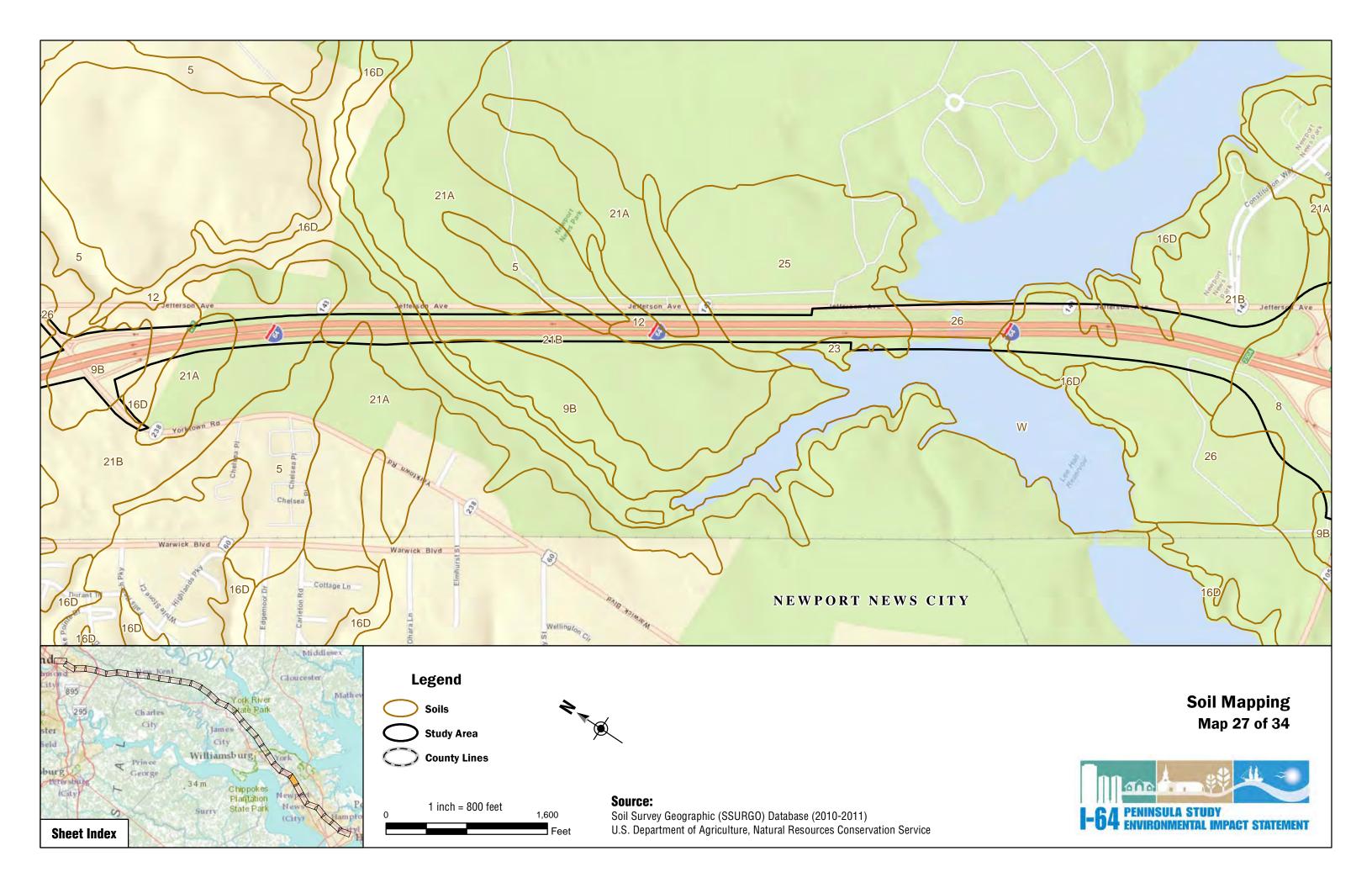


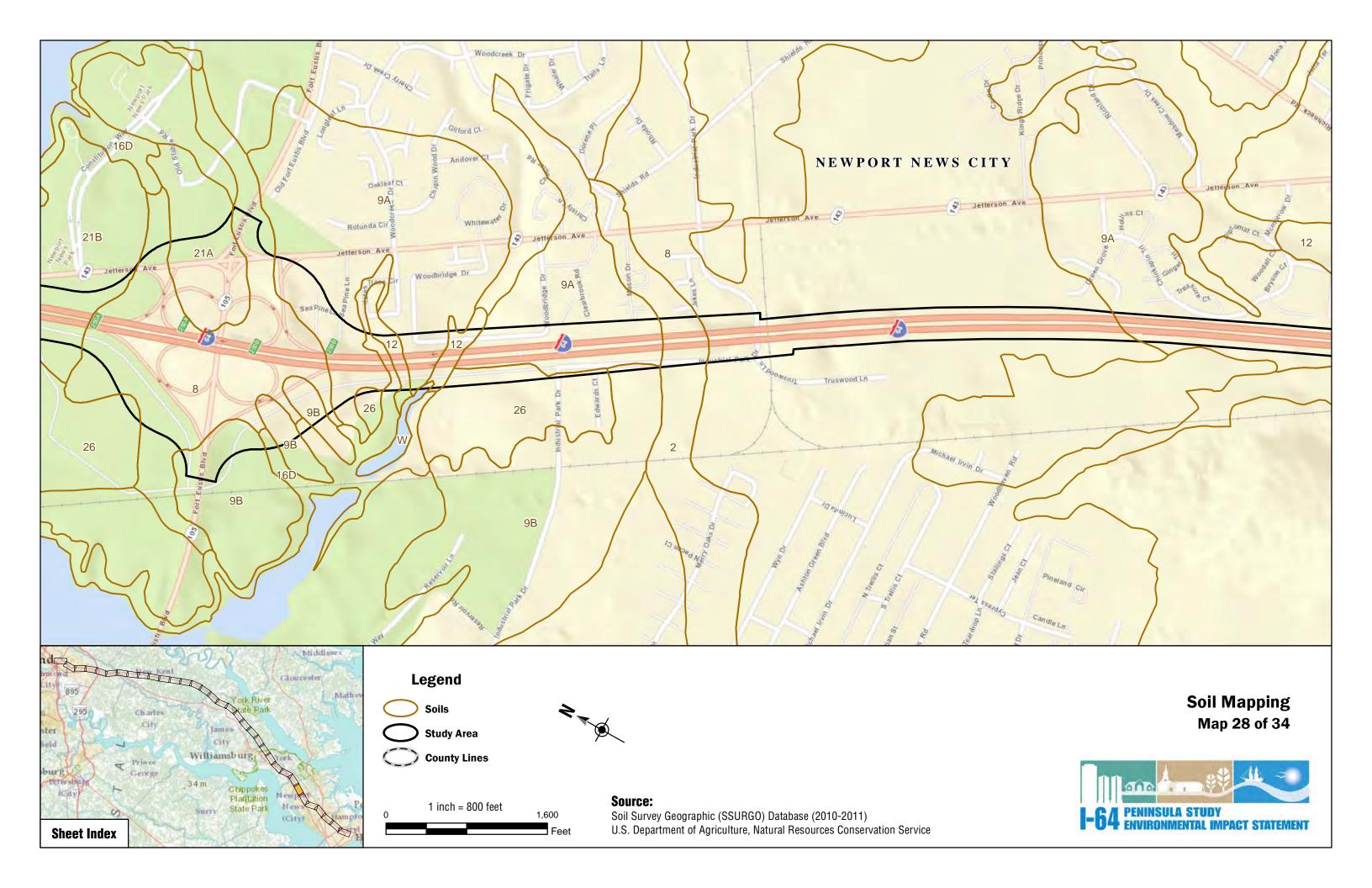


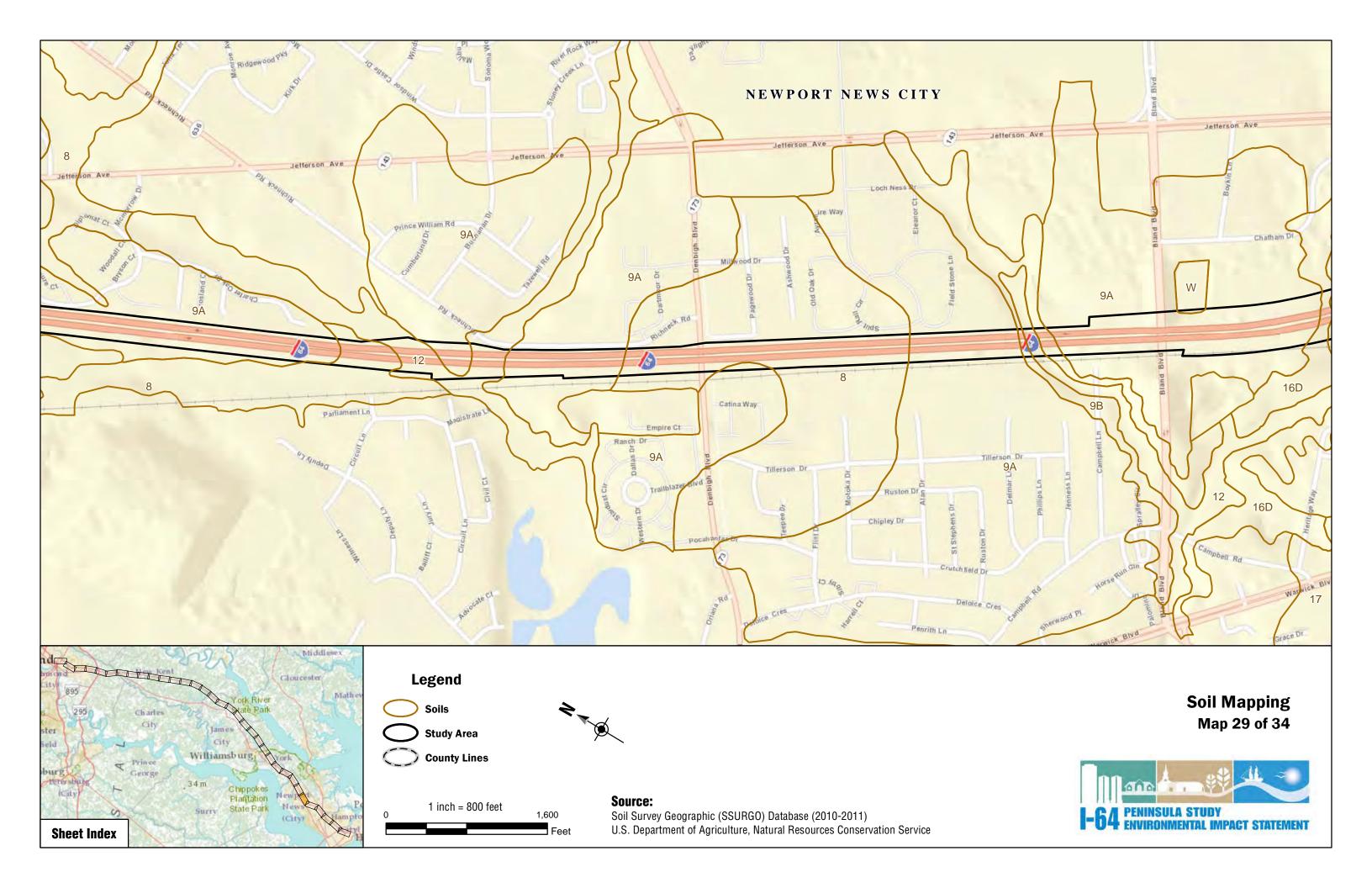


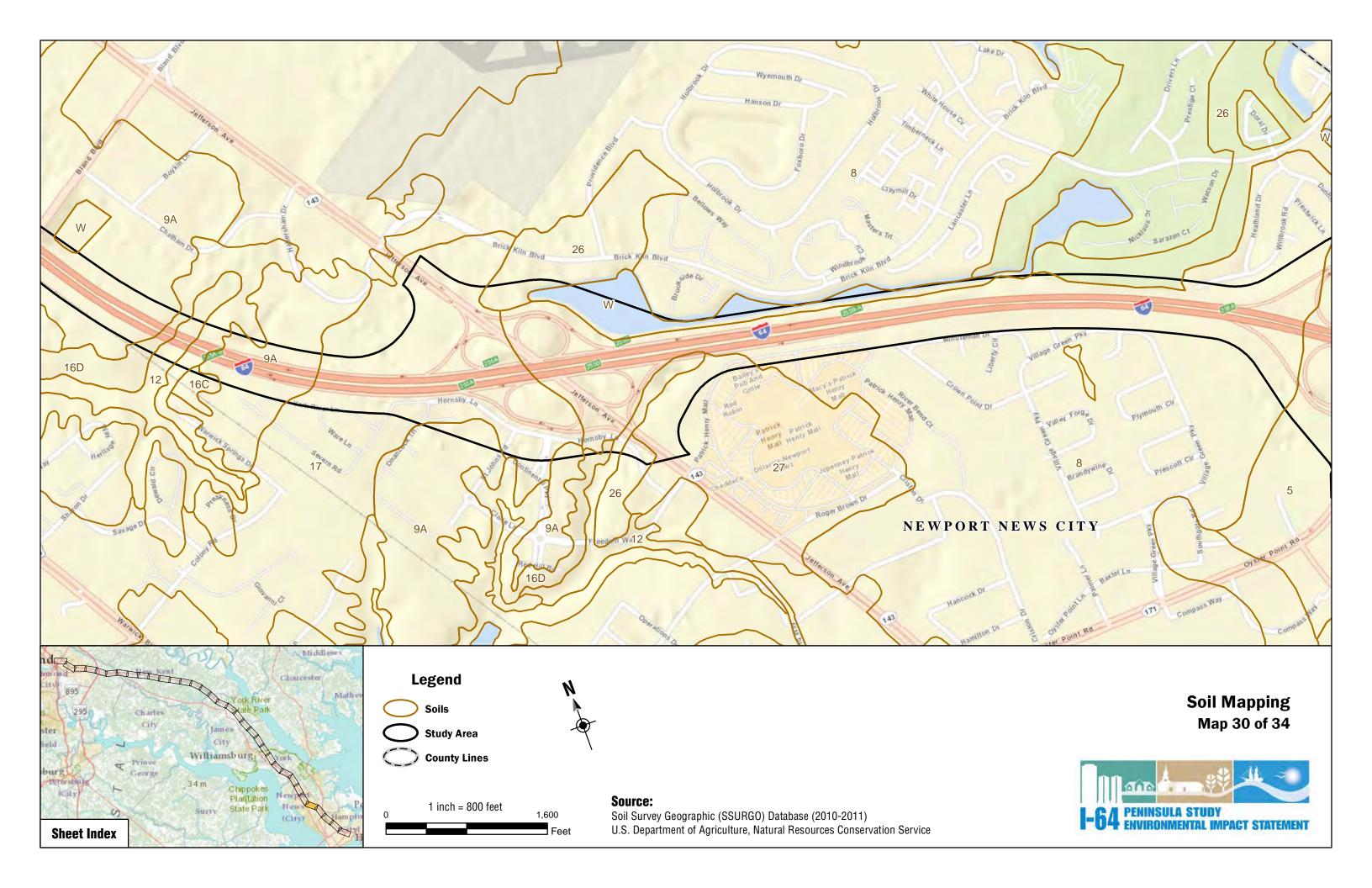


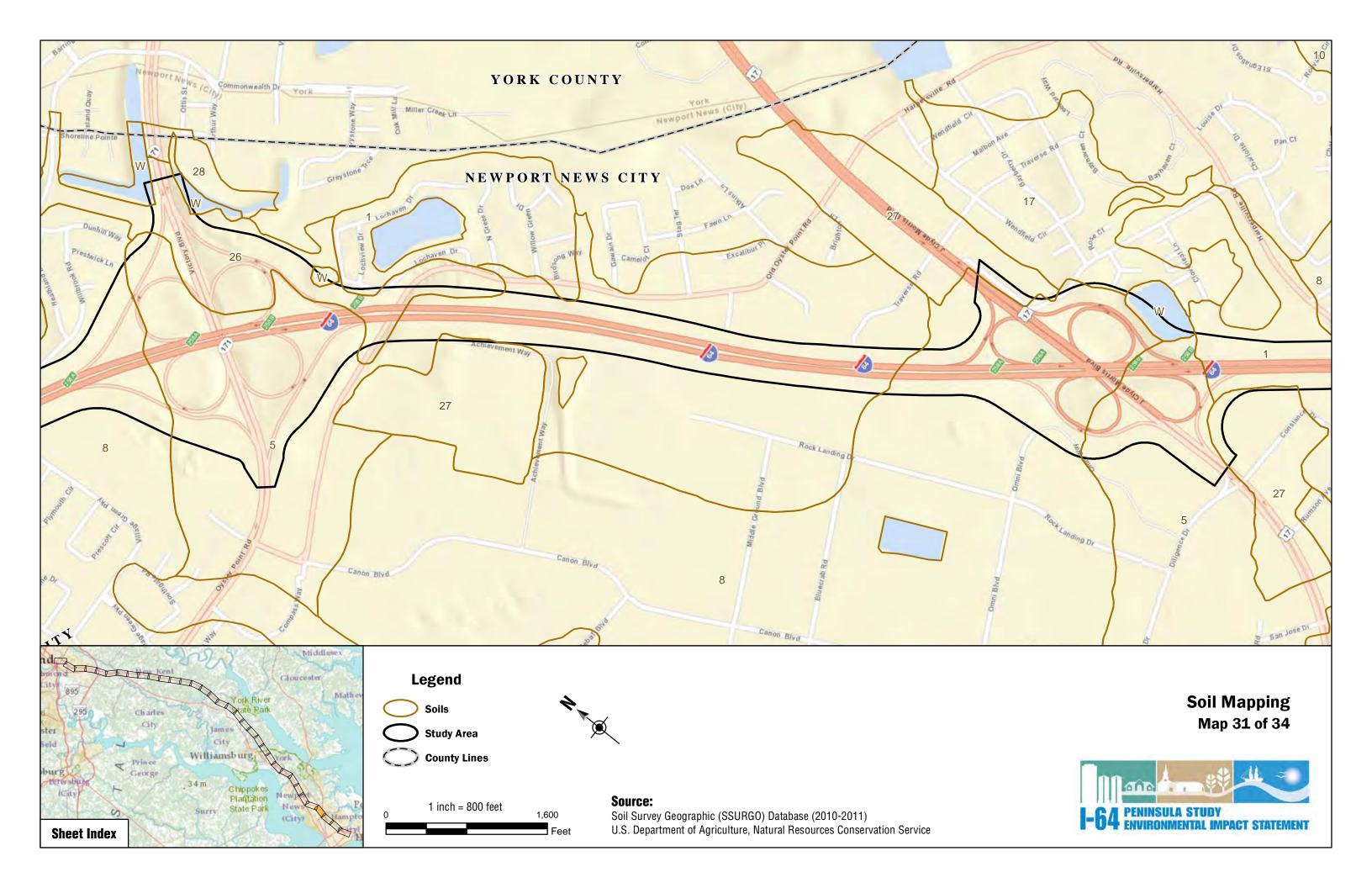


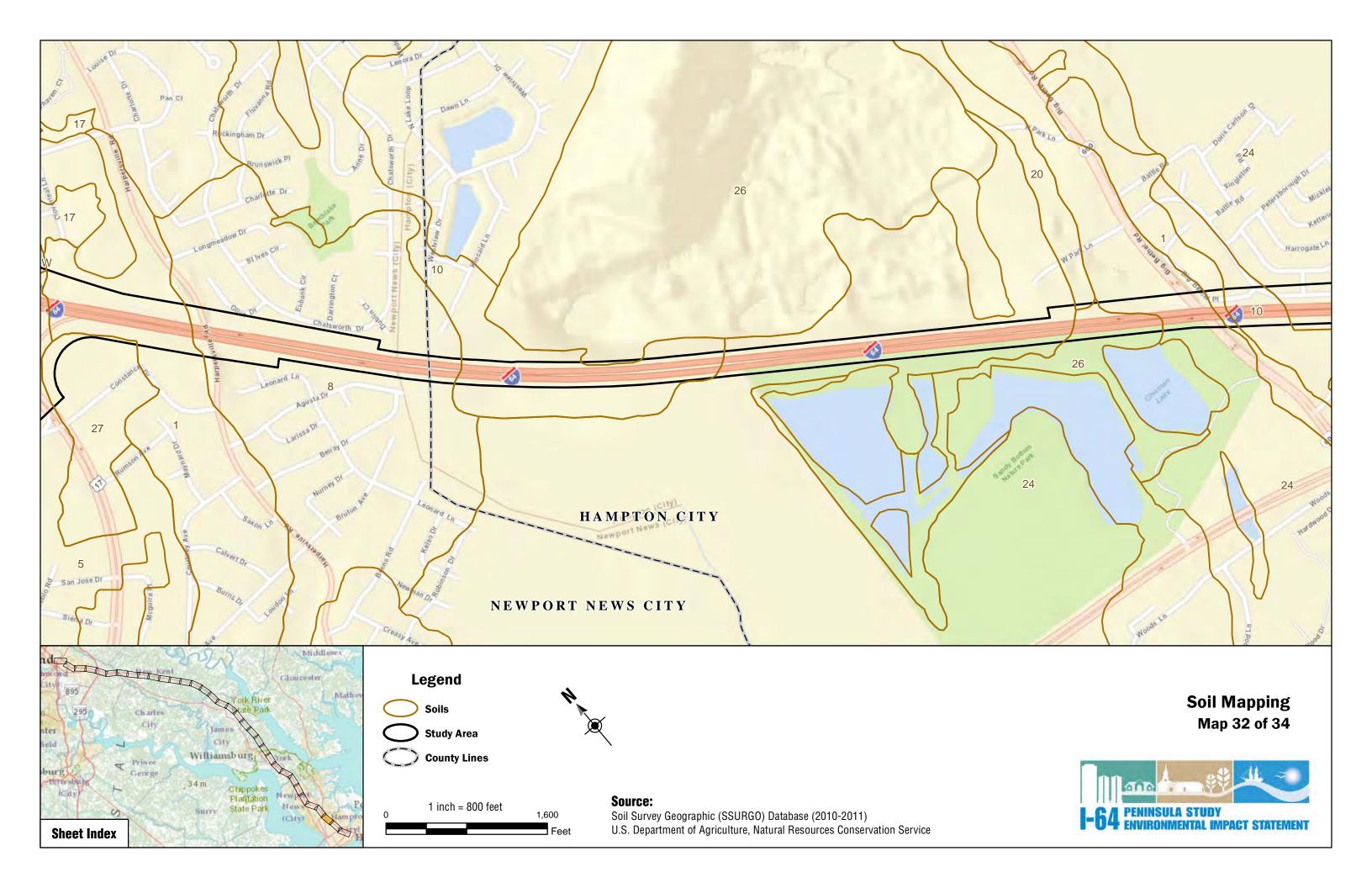


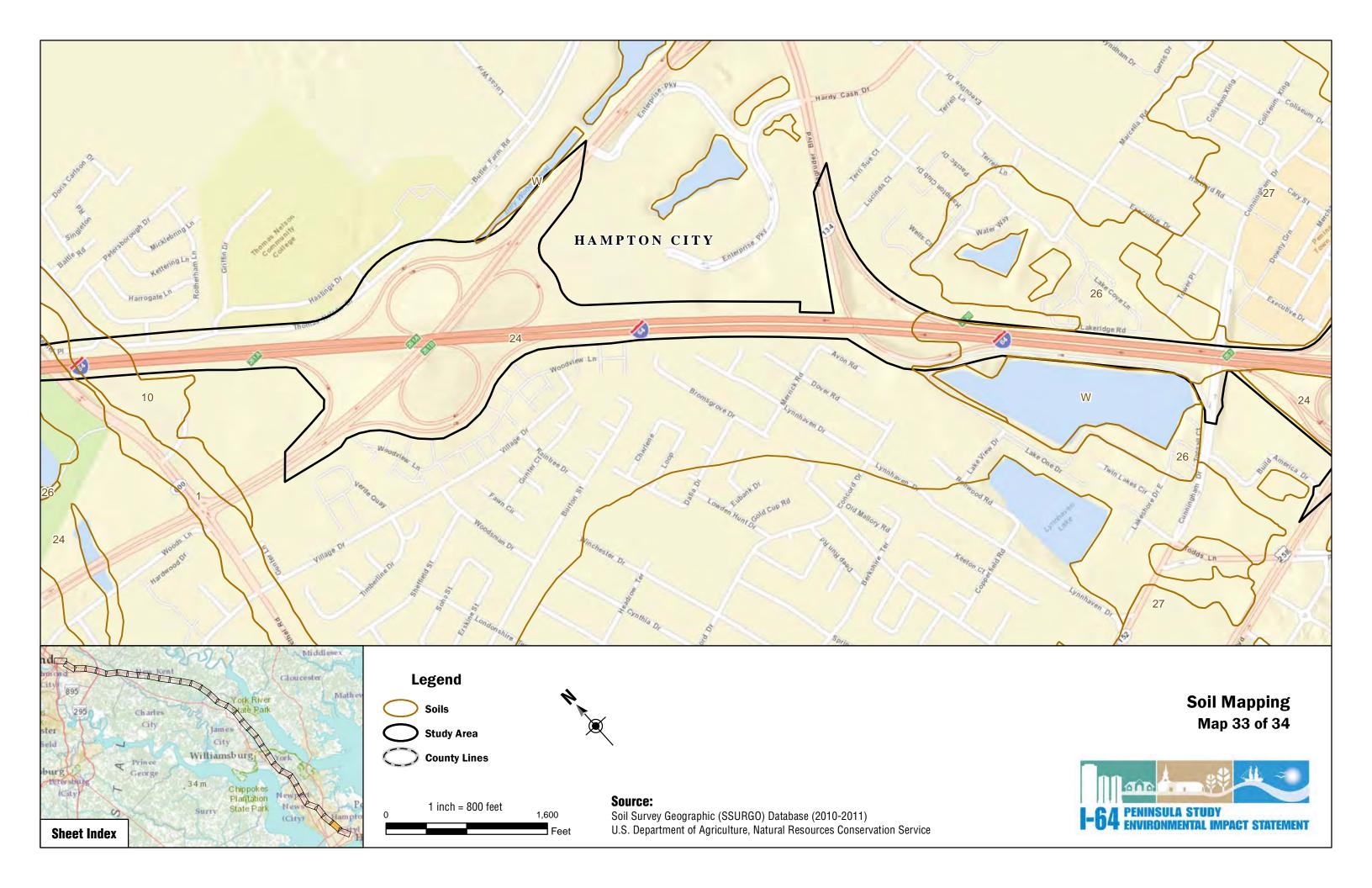


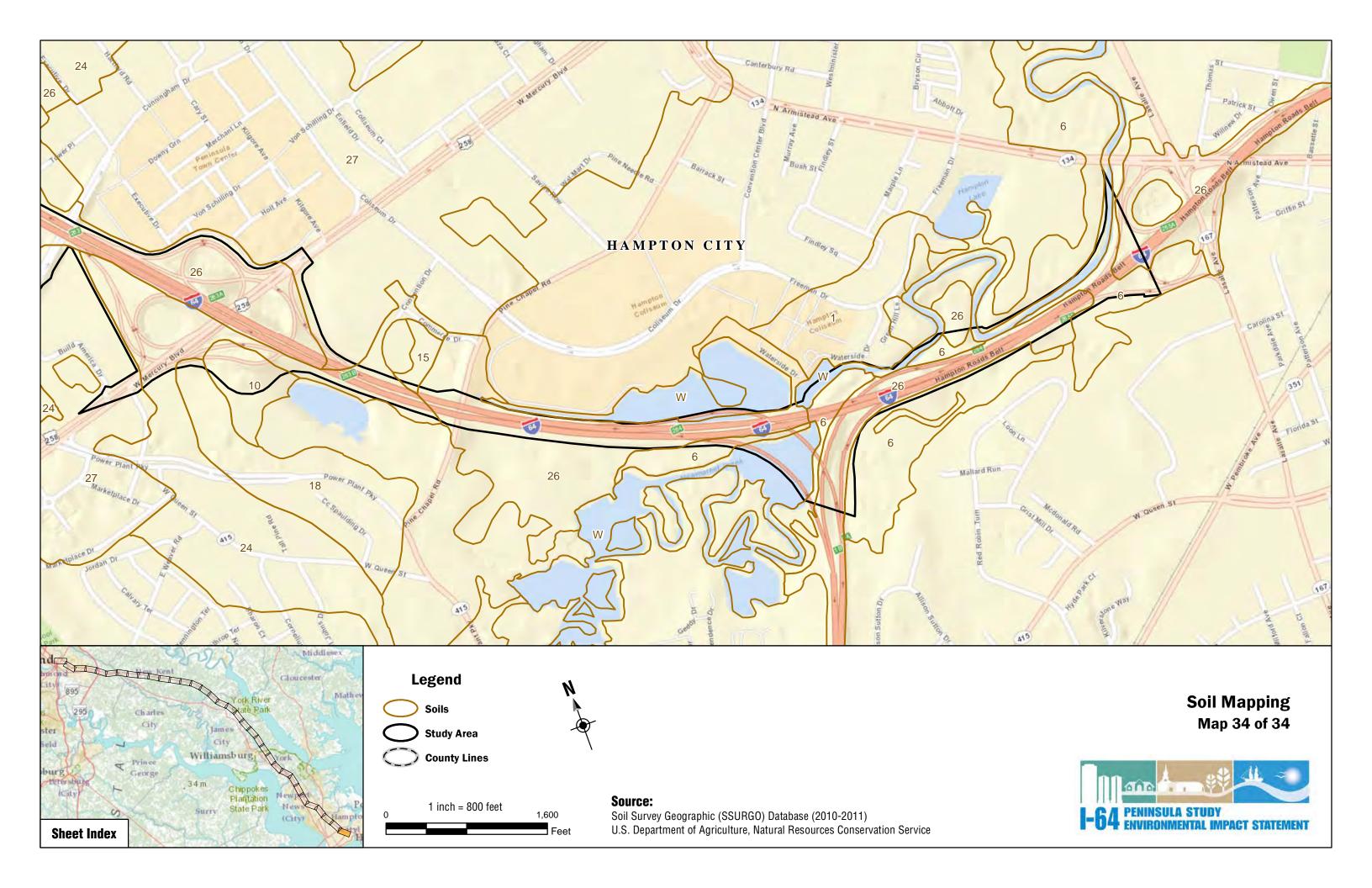


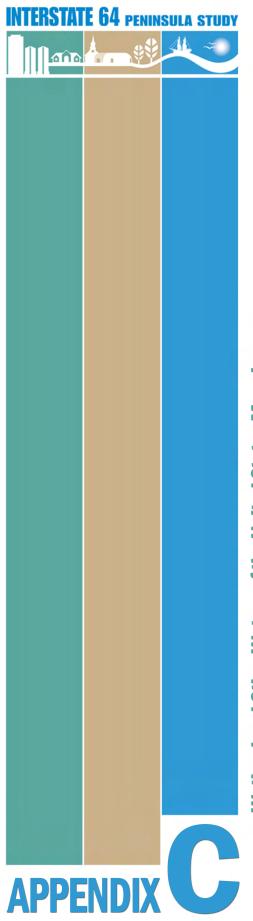




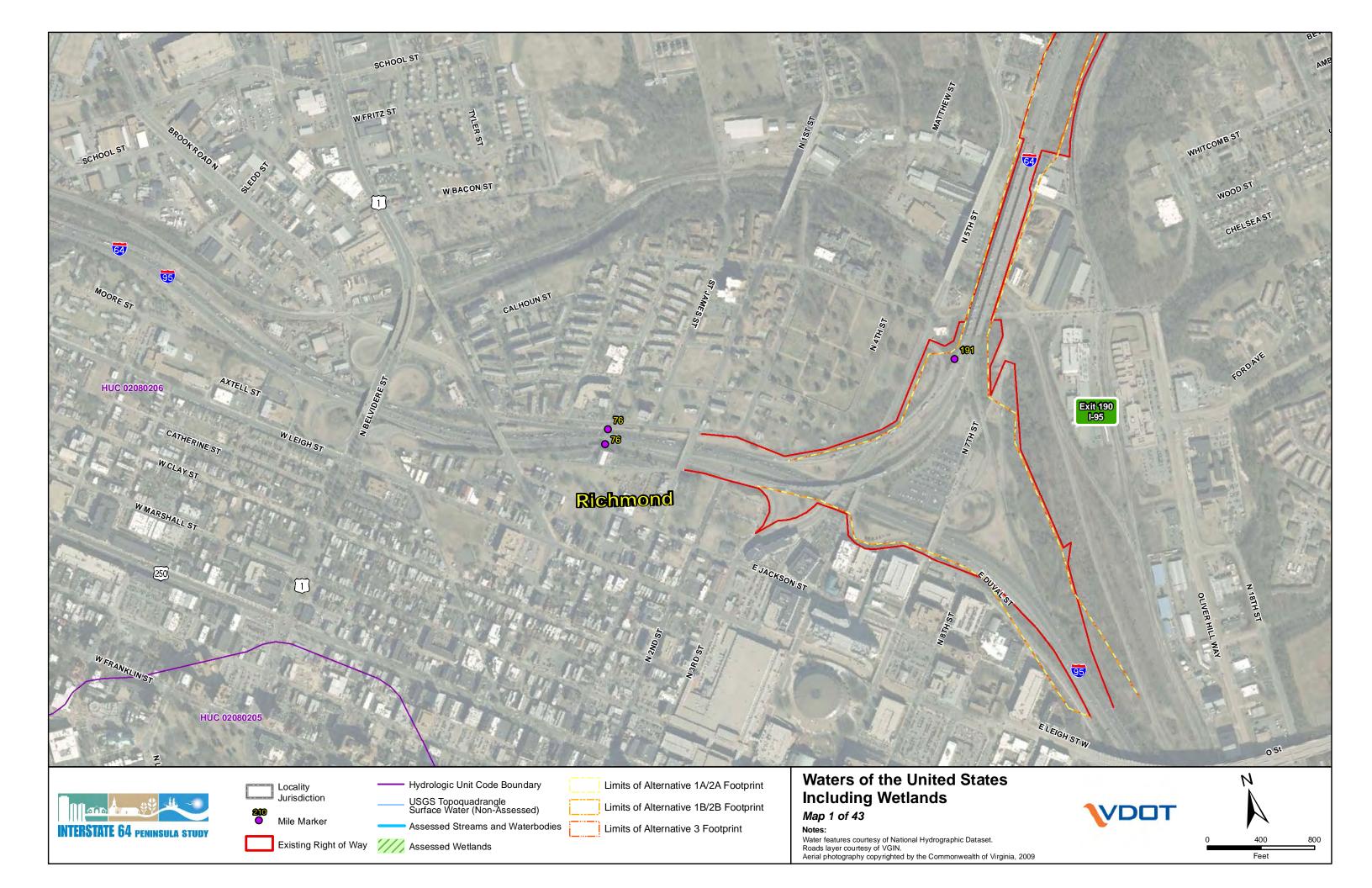


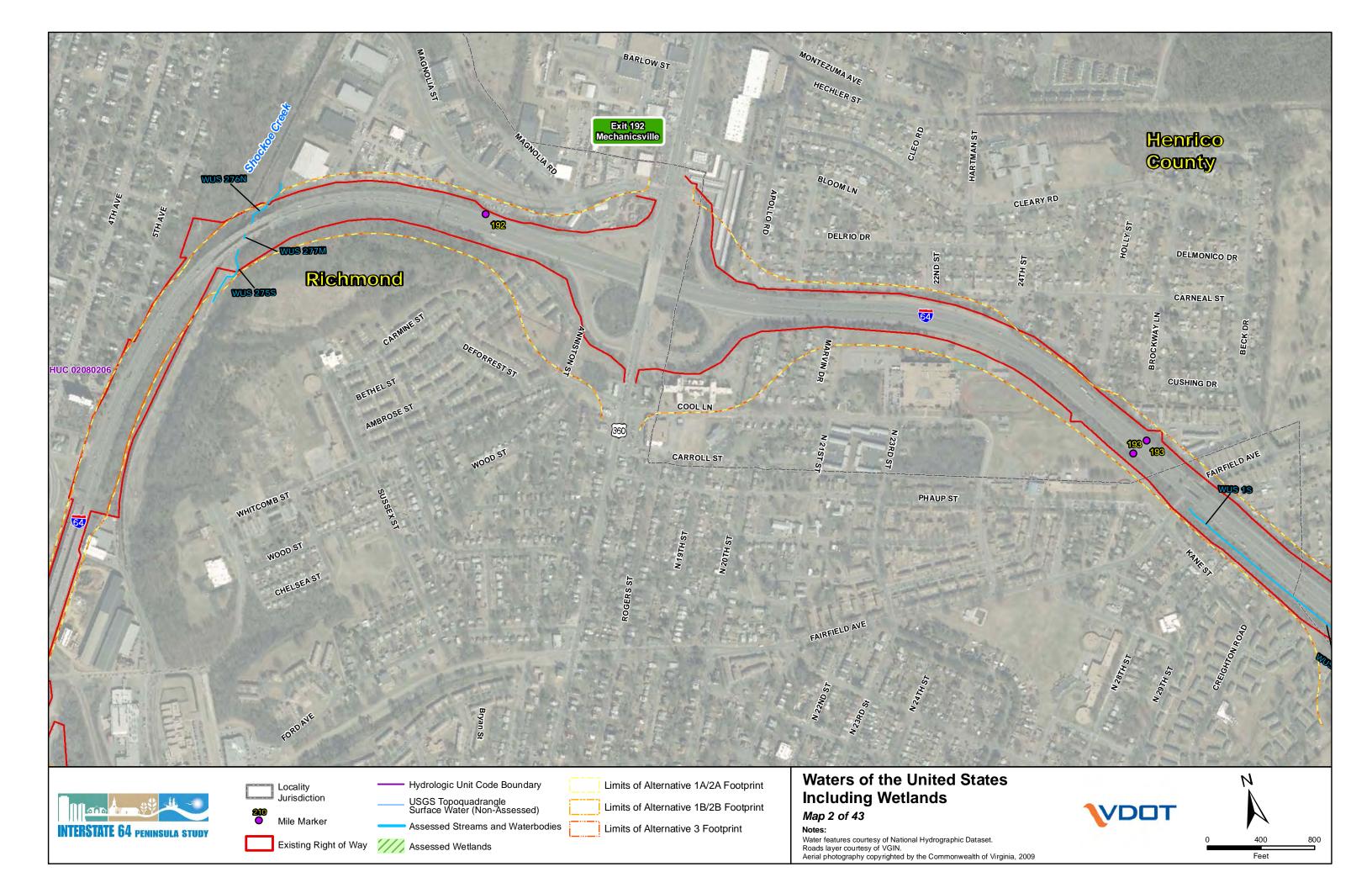


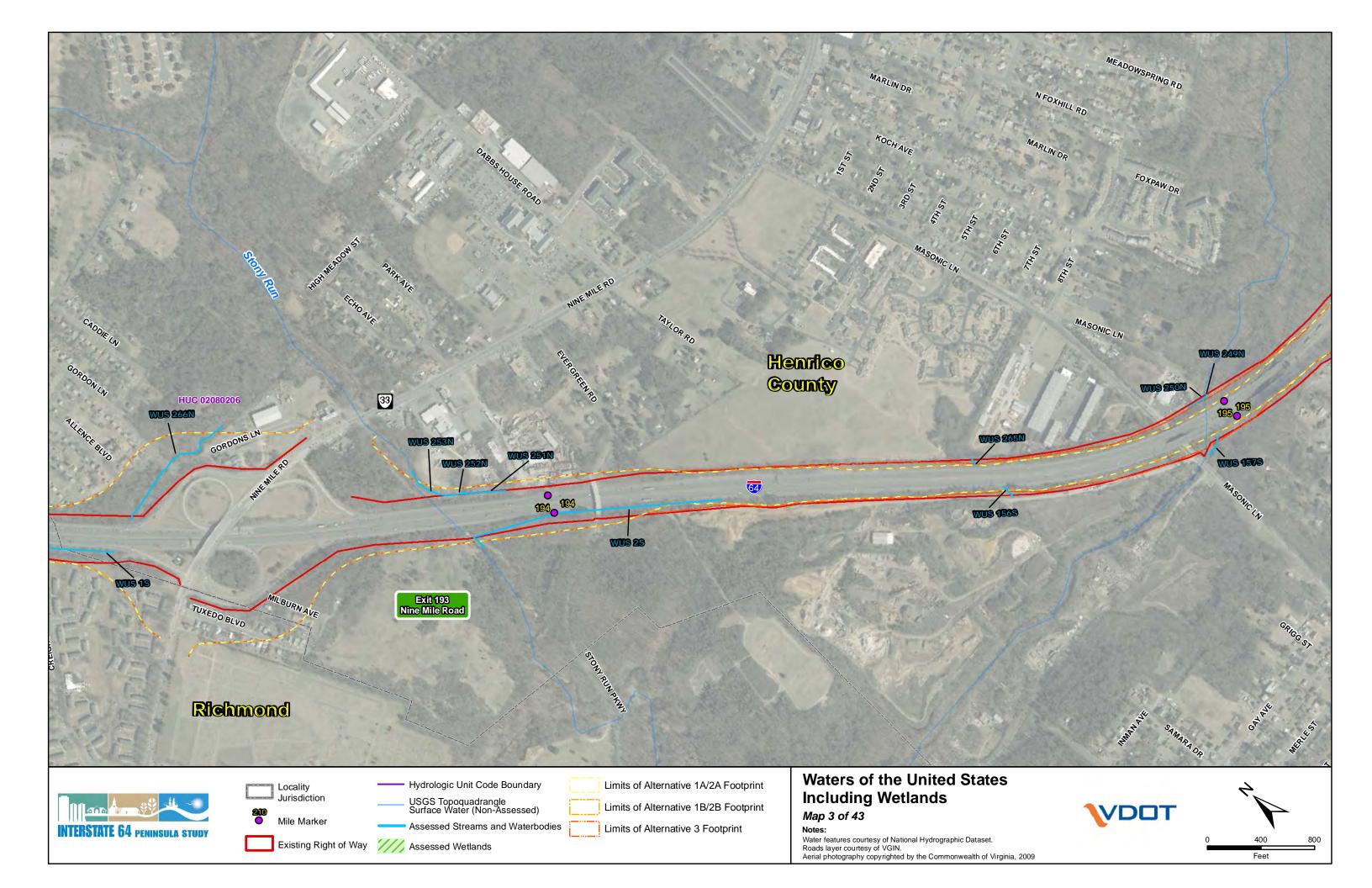


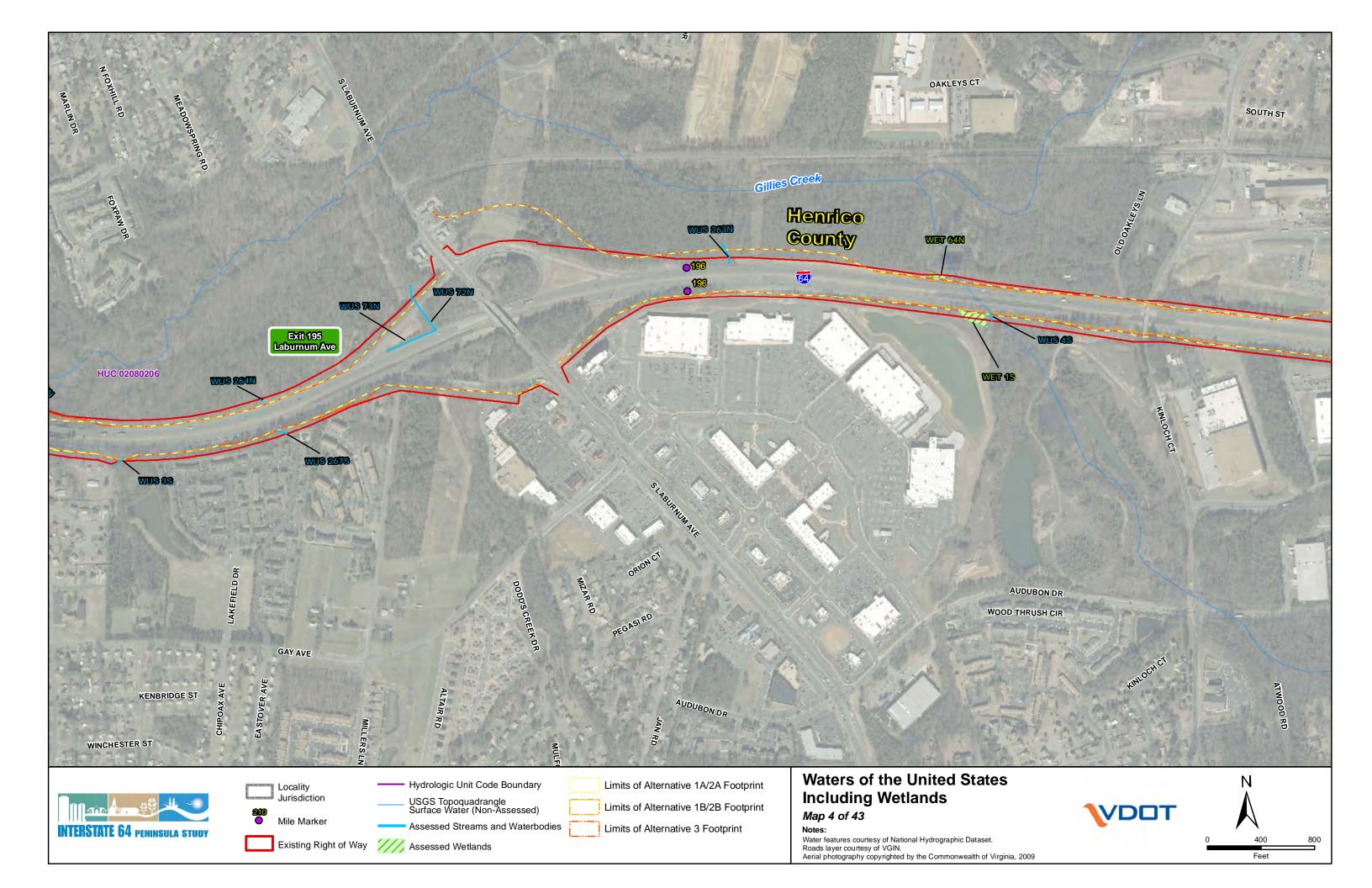


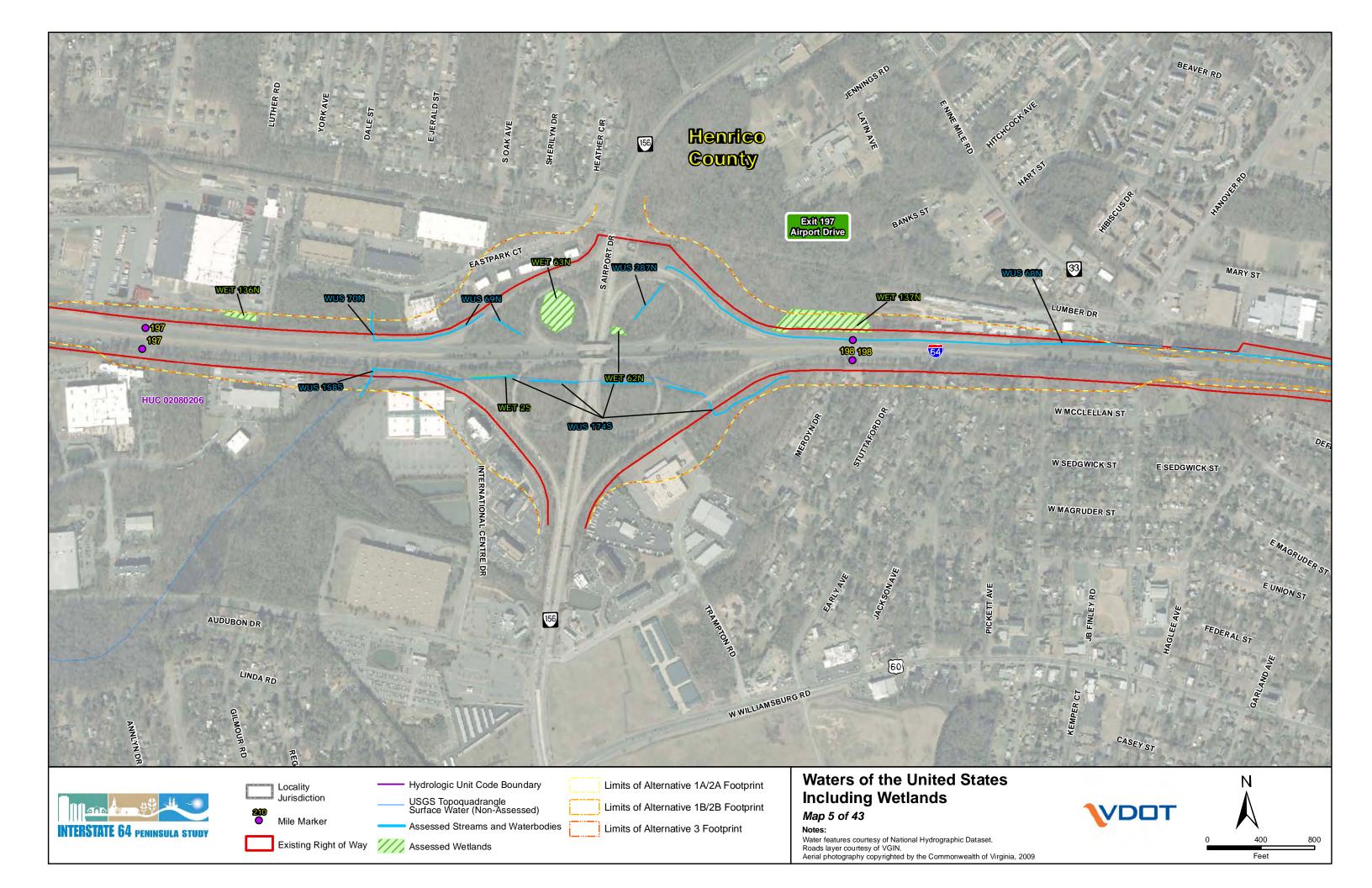
Wetland and Other Waters of the United States Mapping

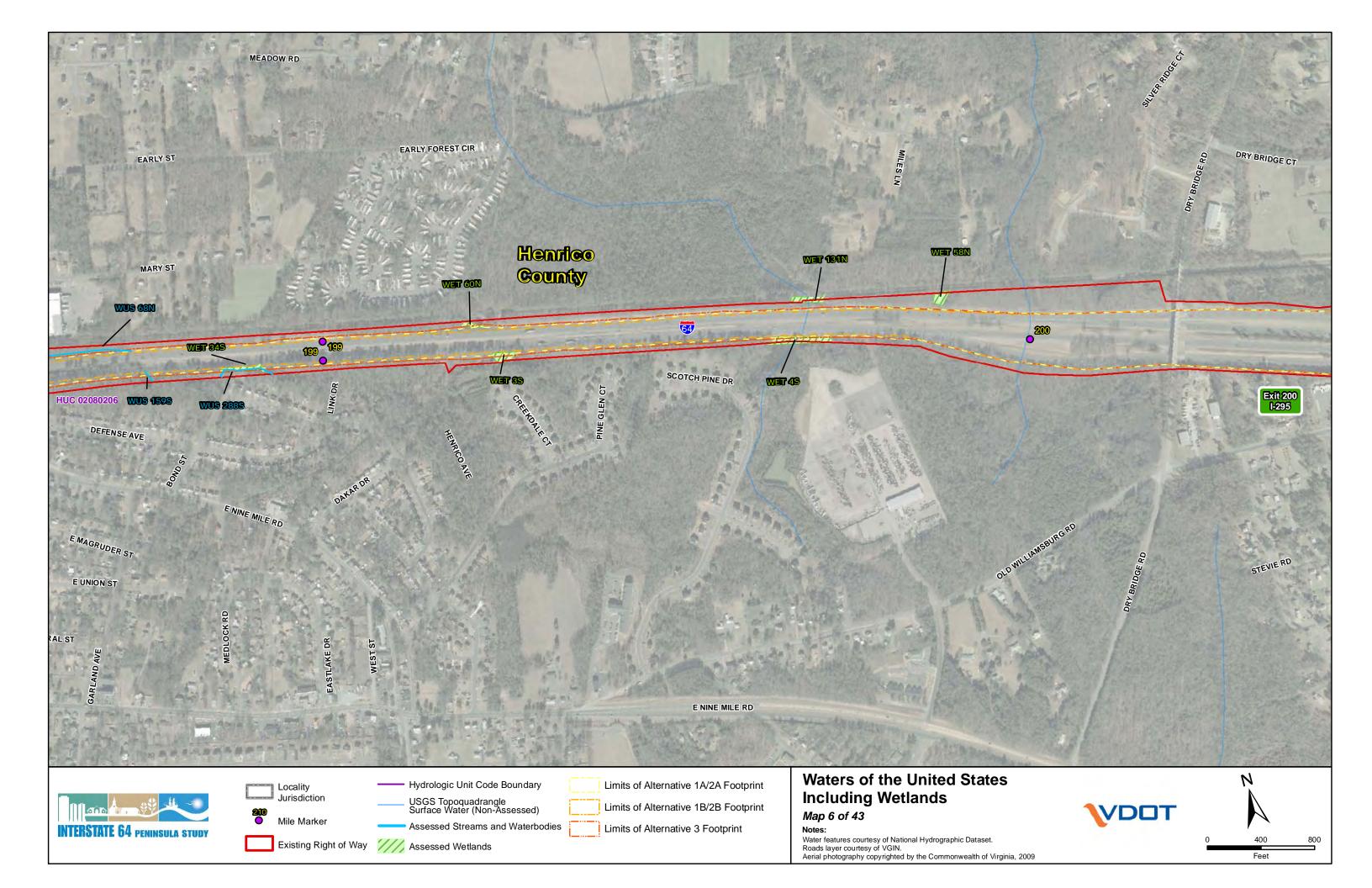


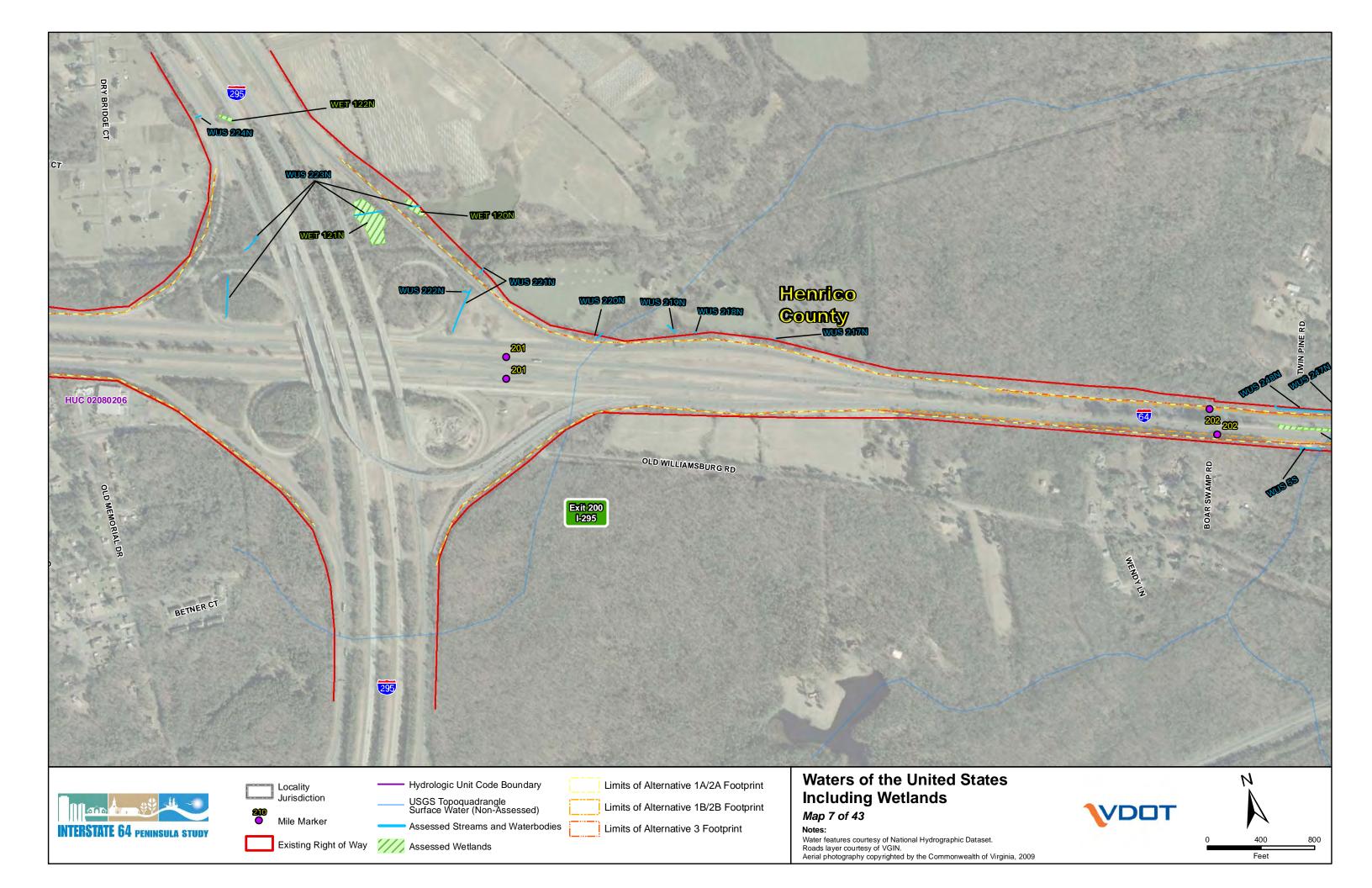


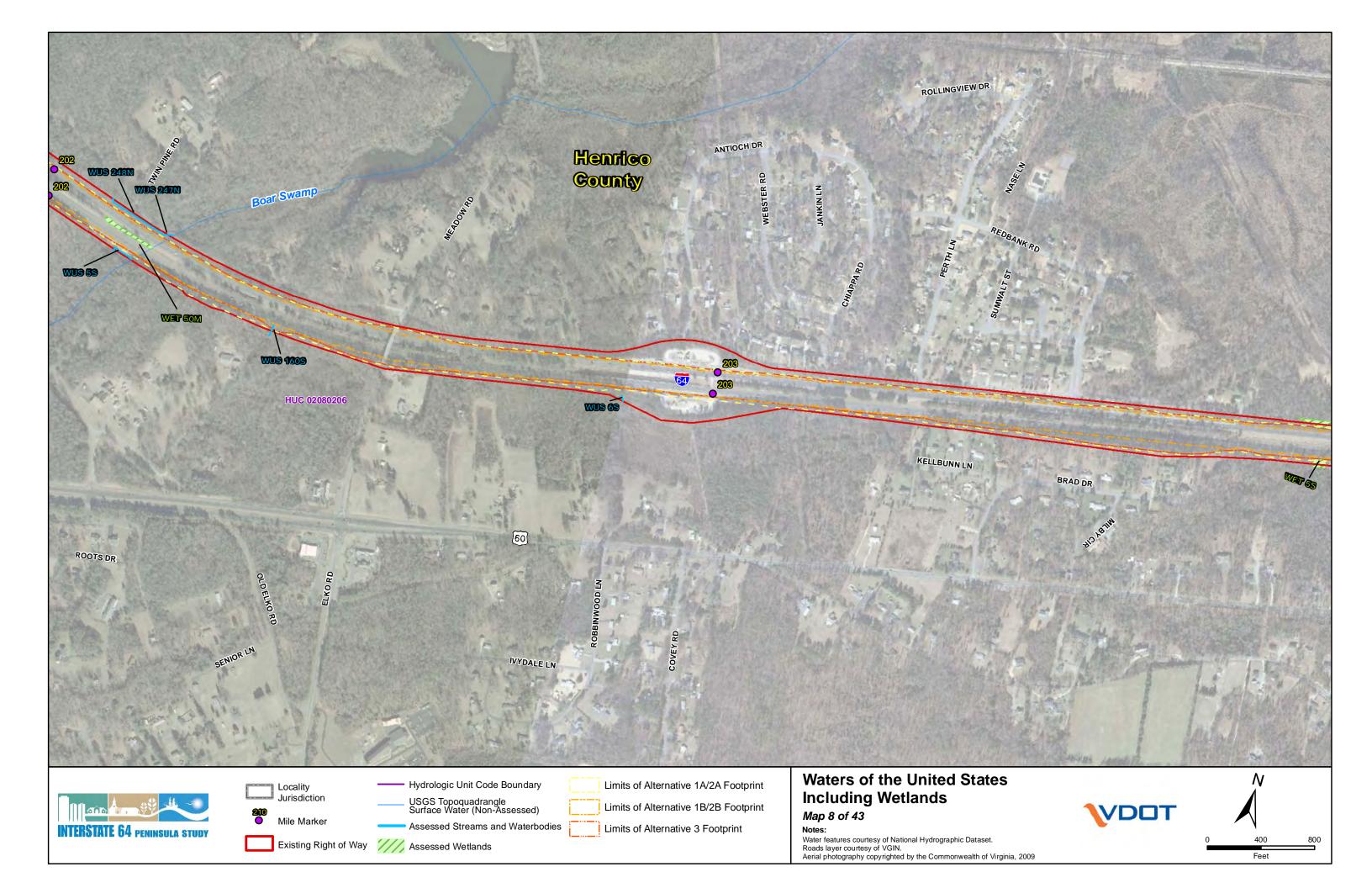


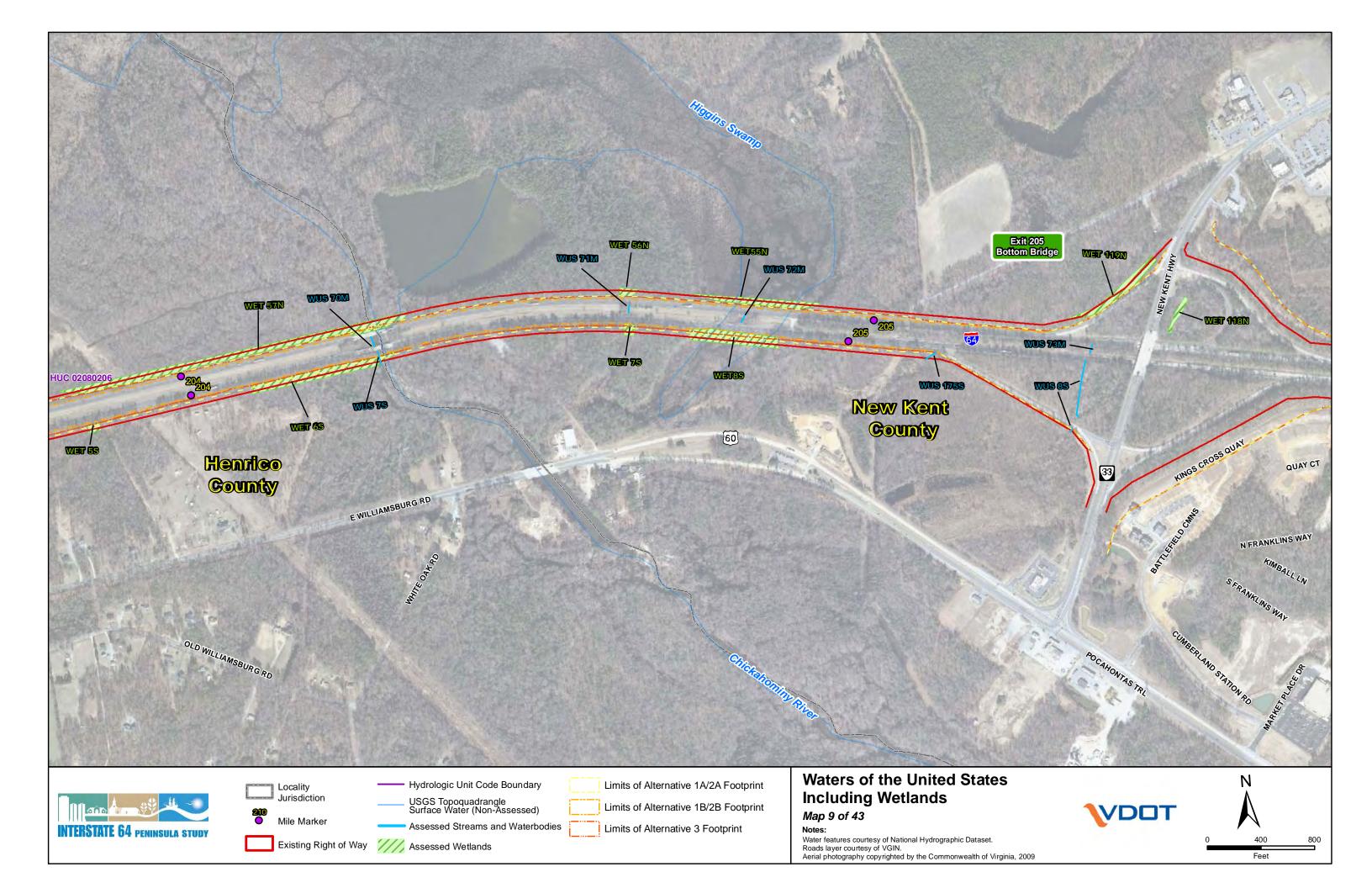


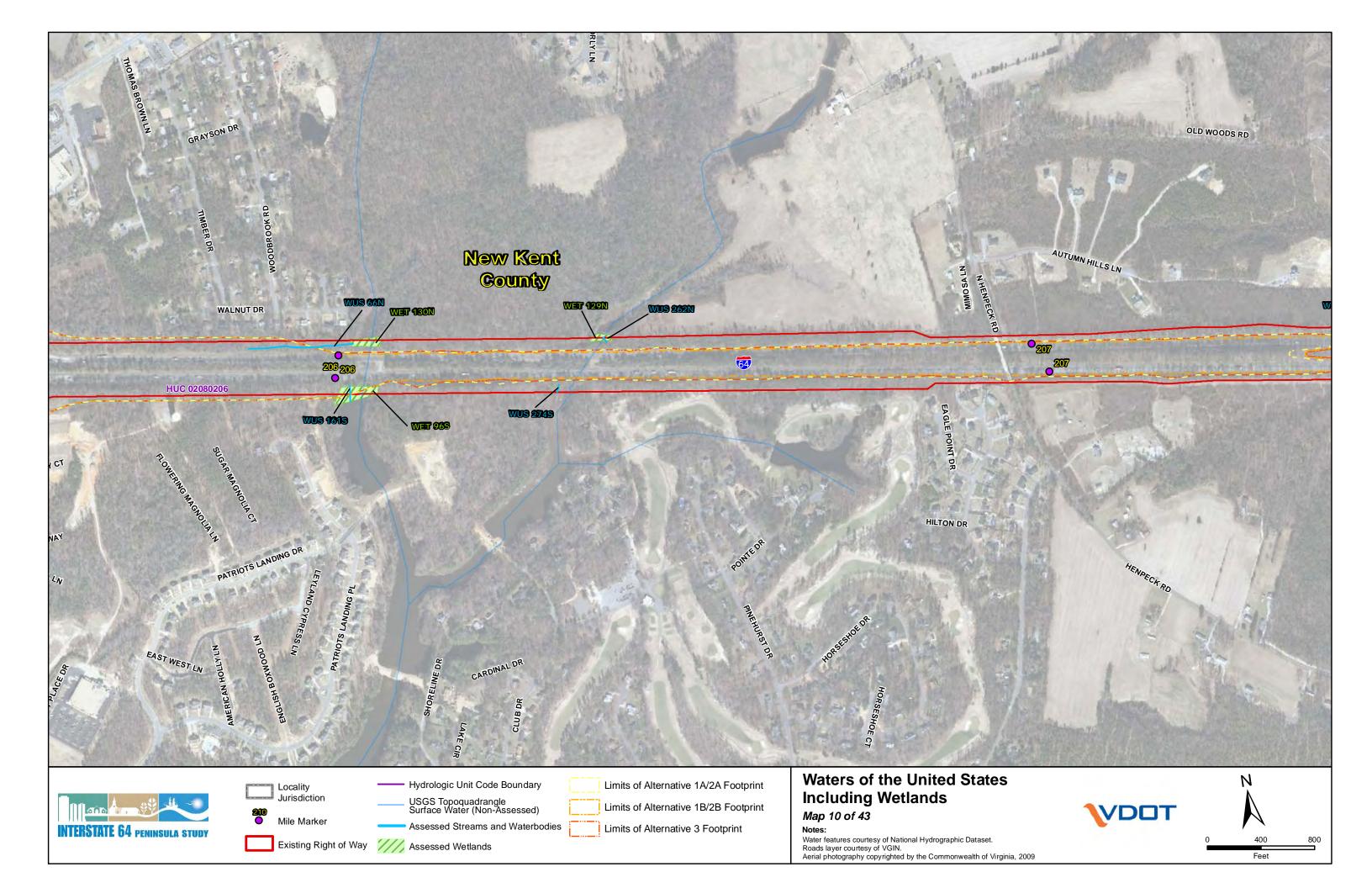


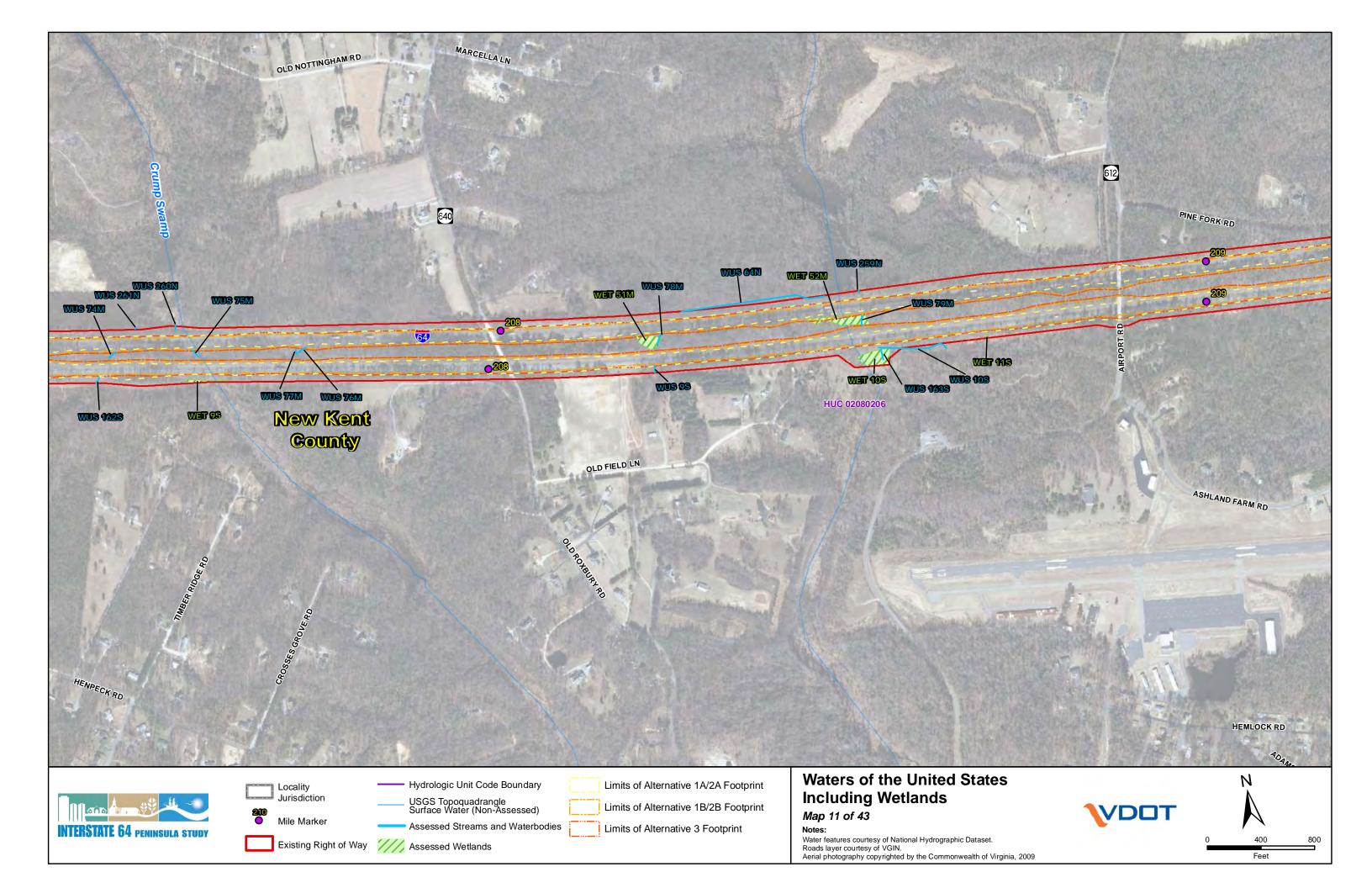


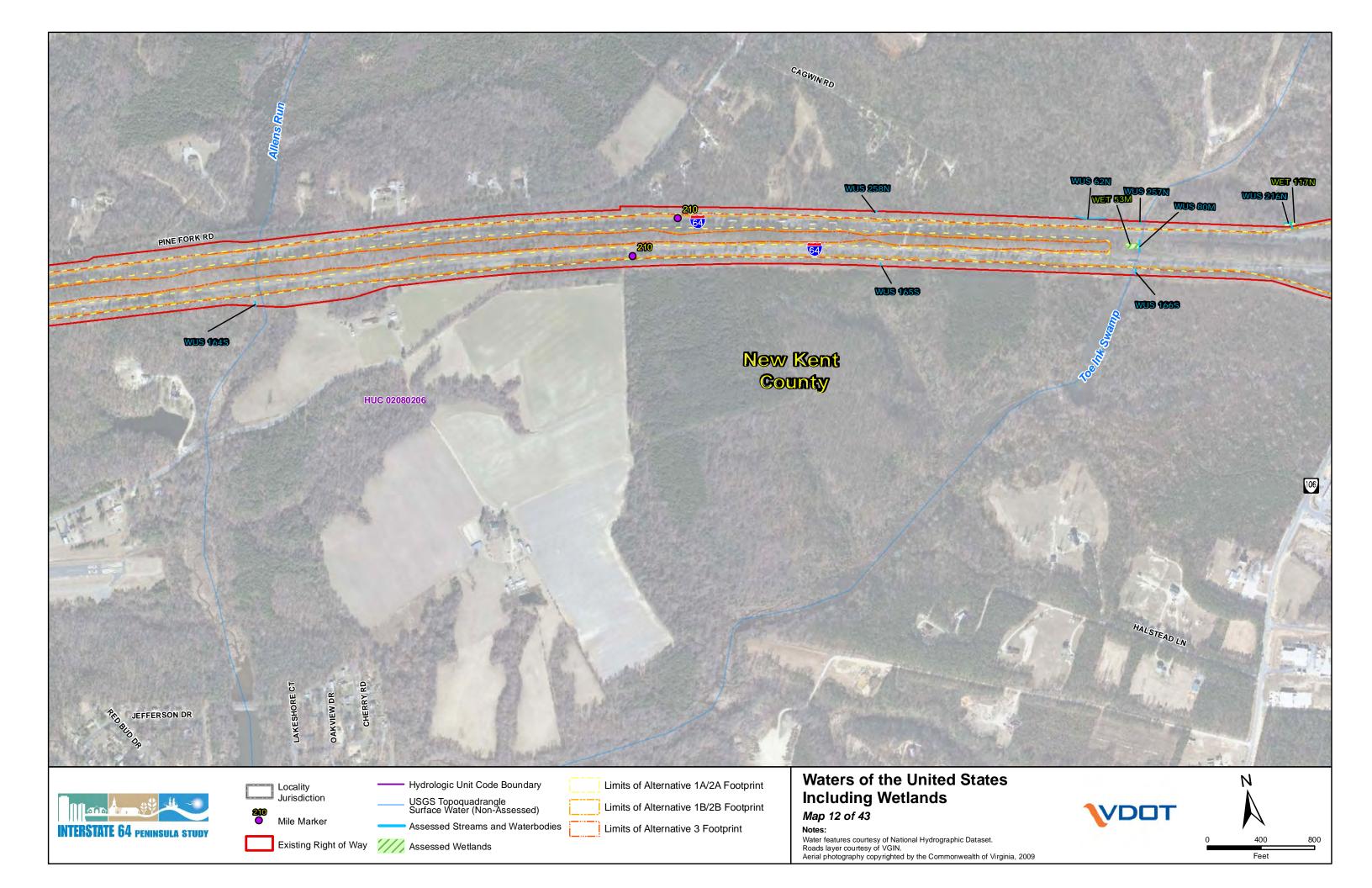


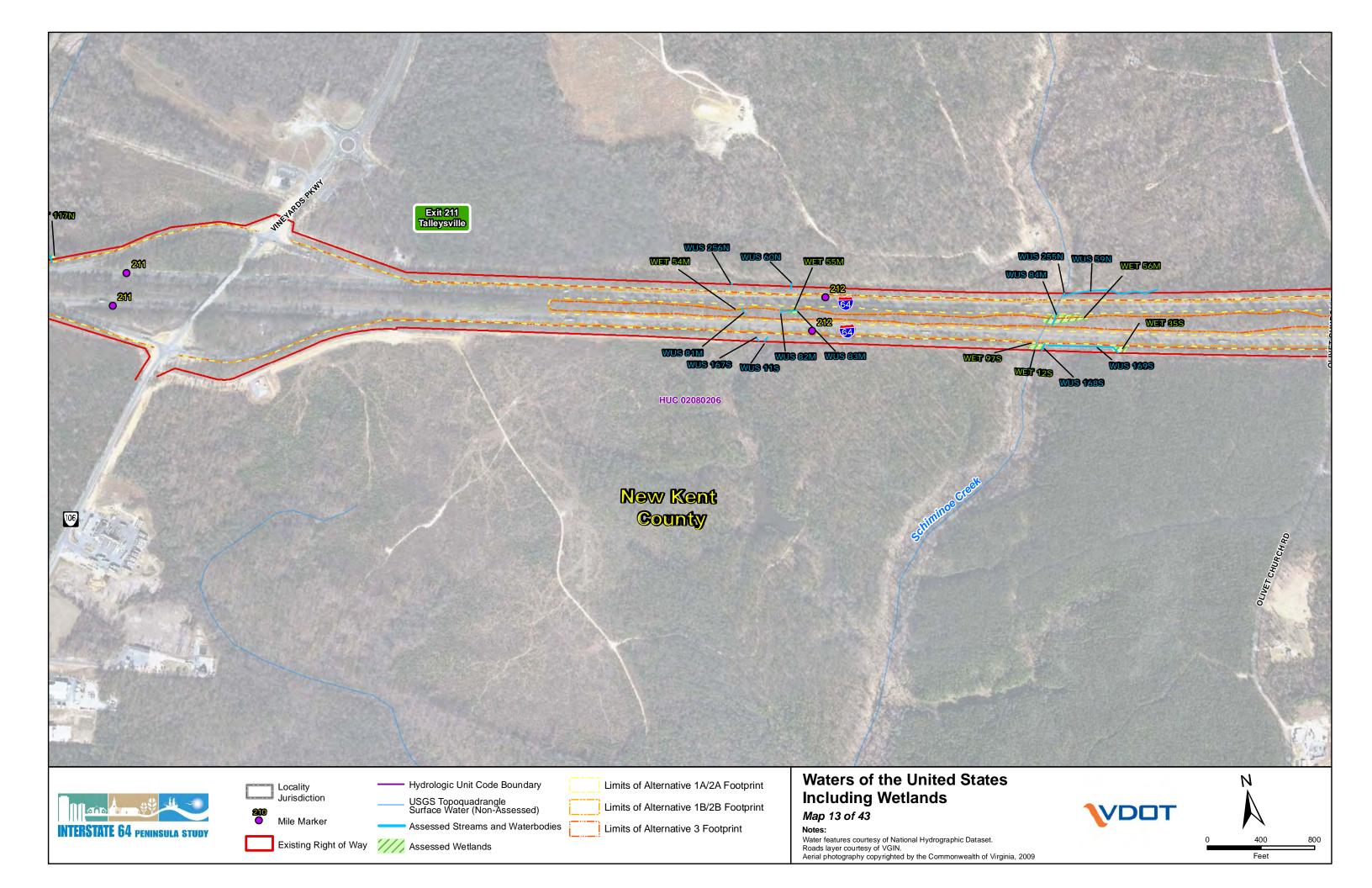


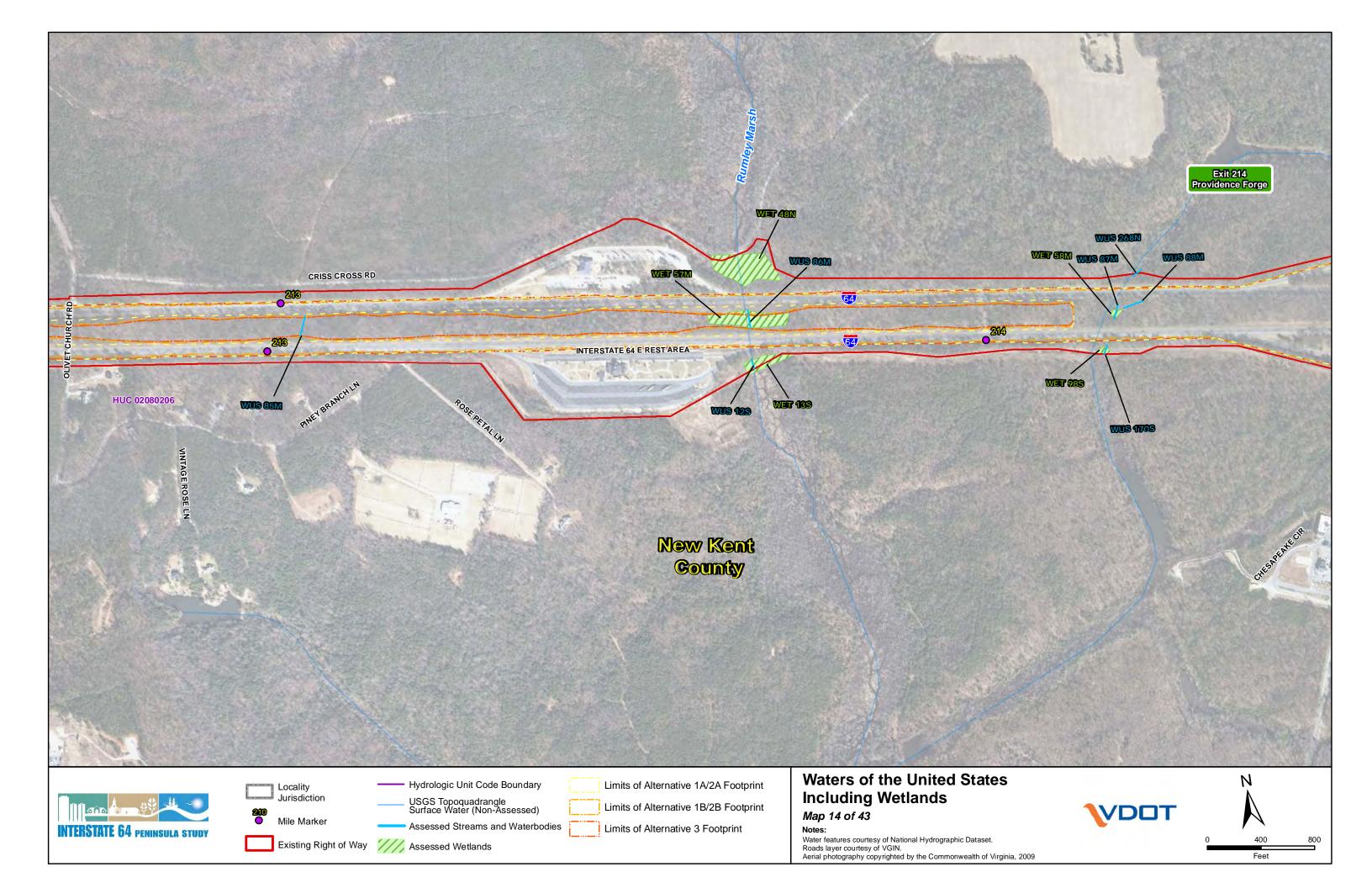


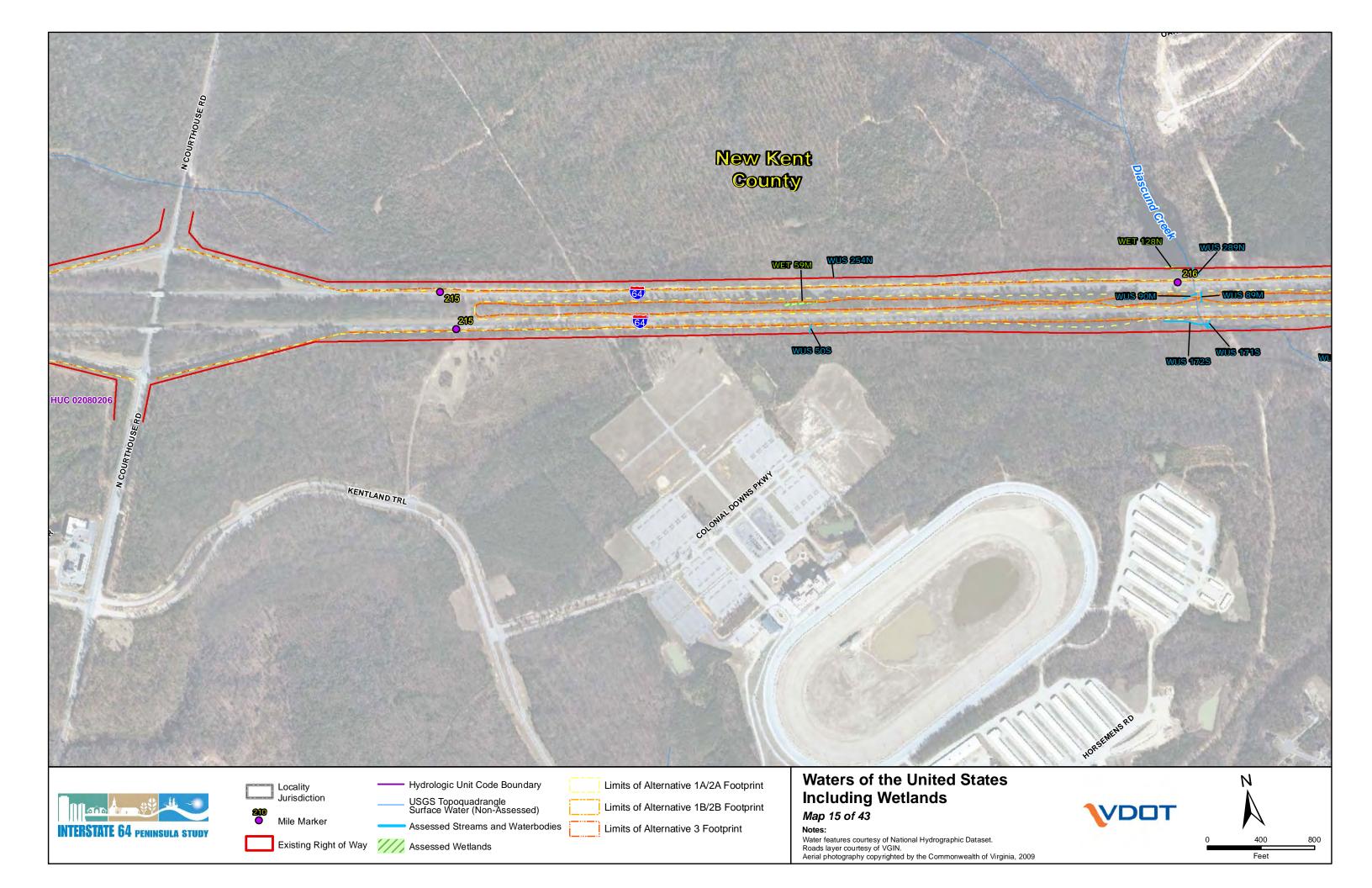


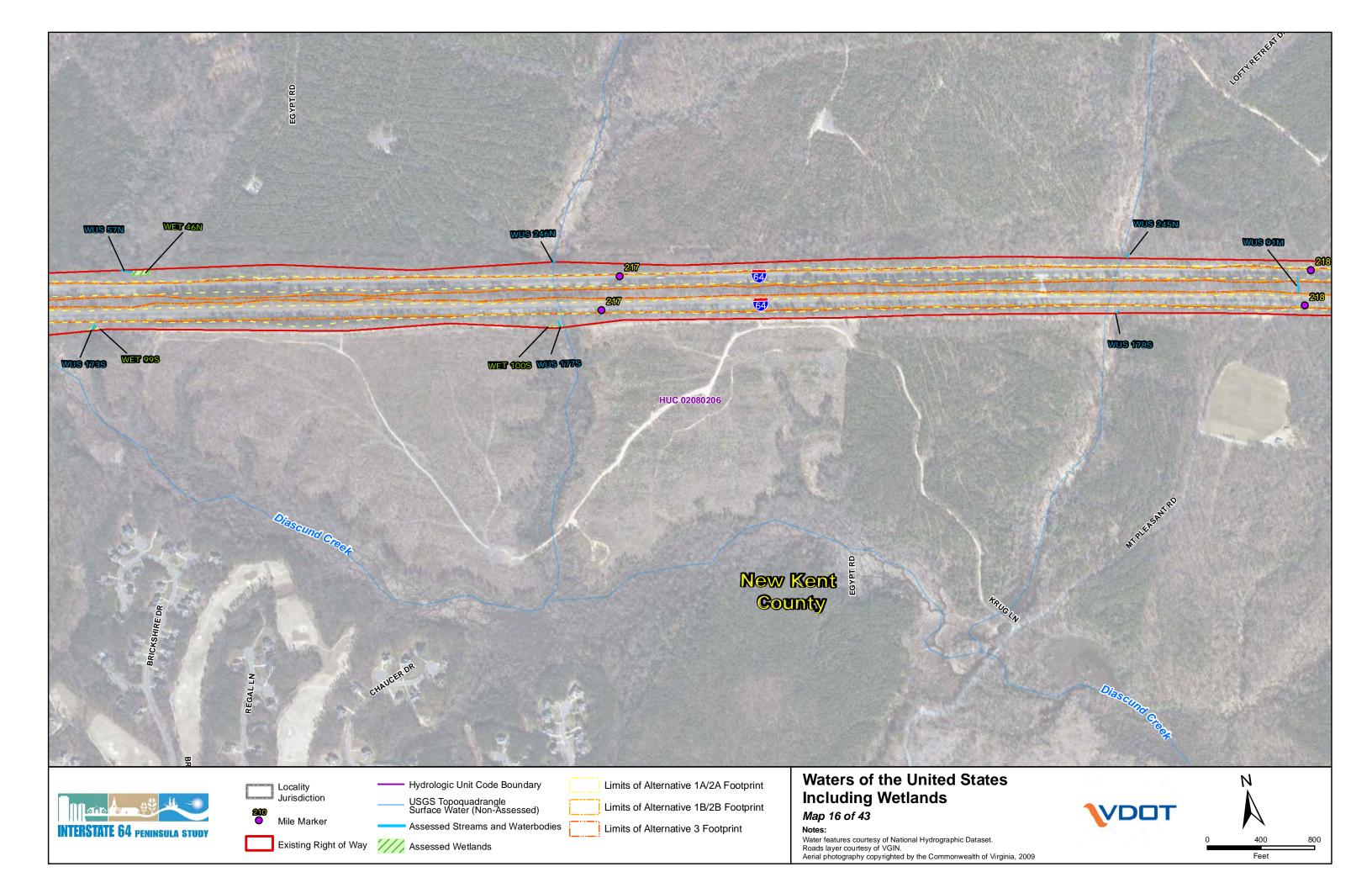


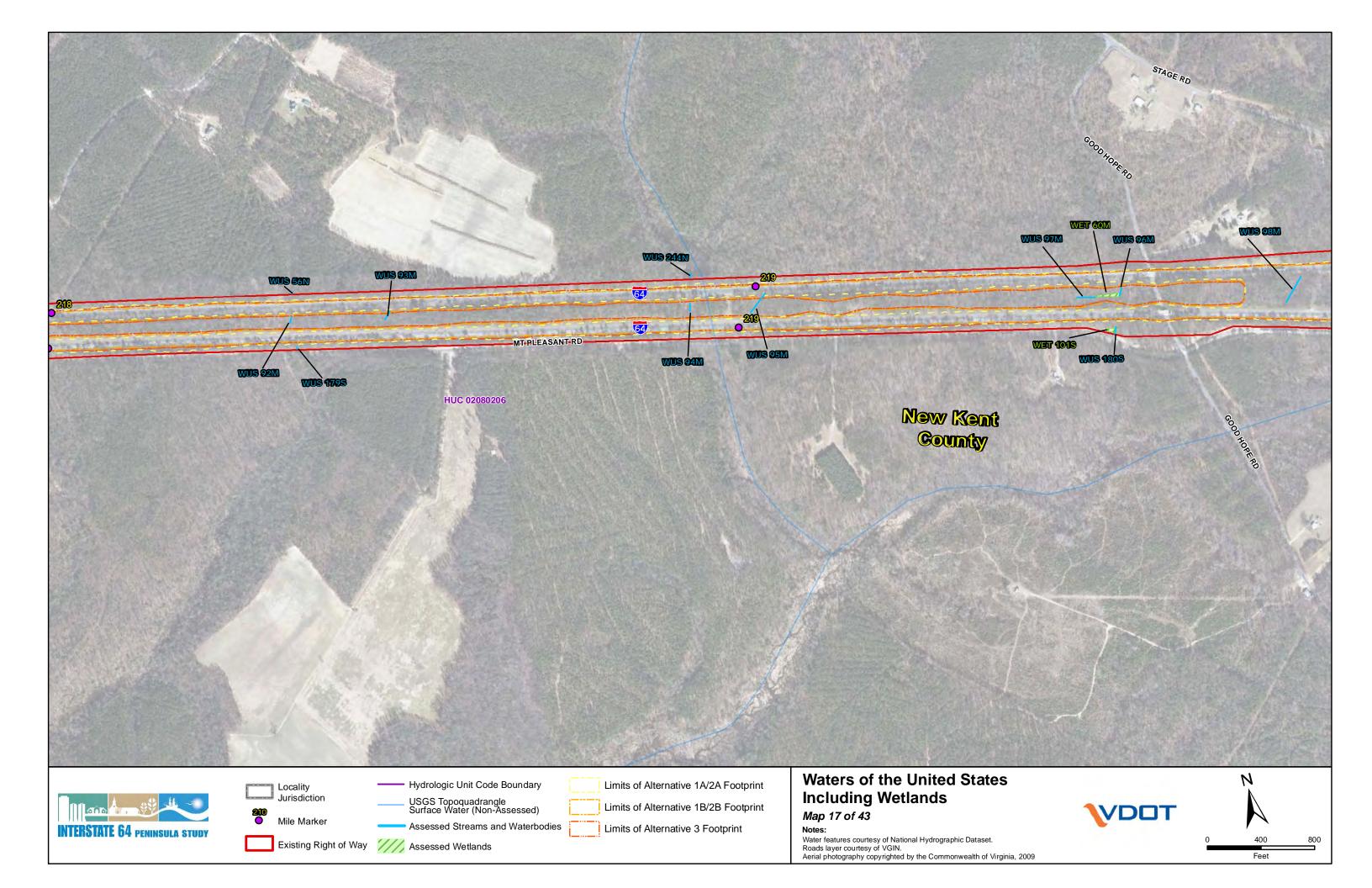


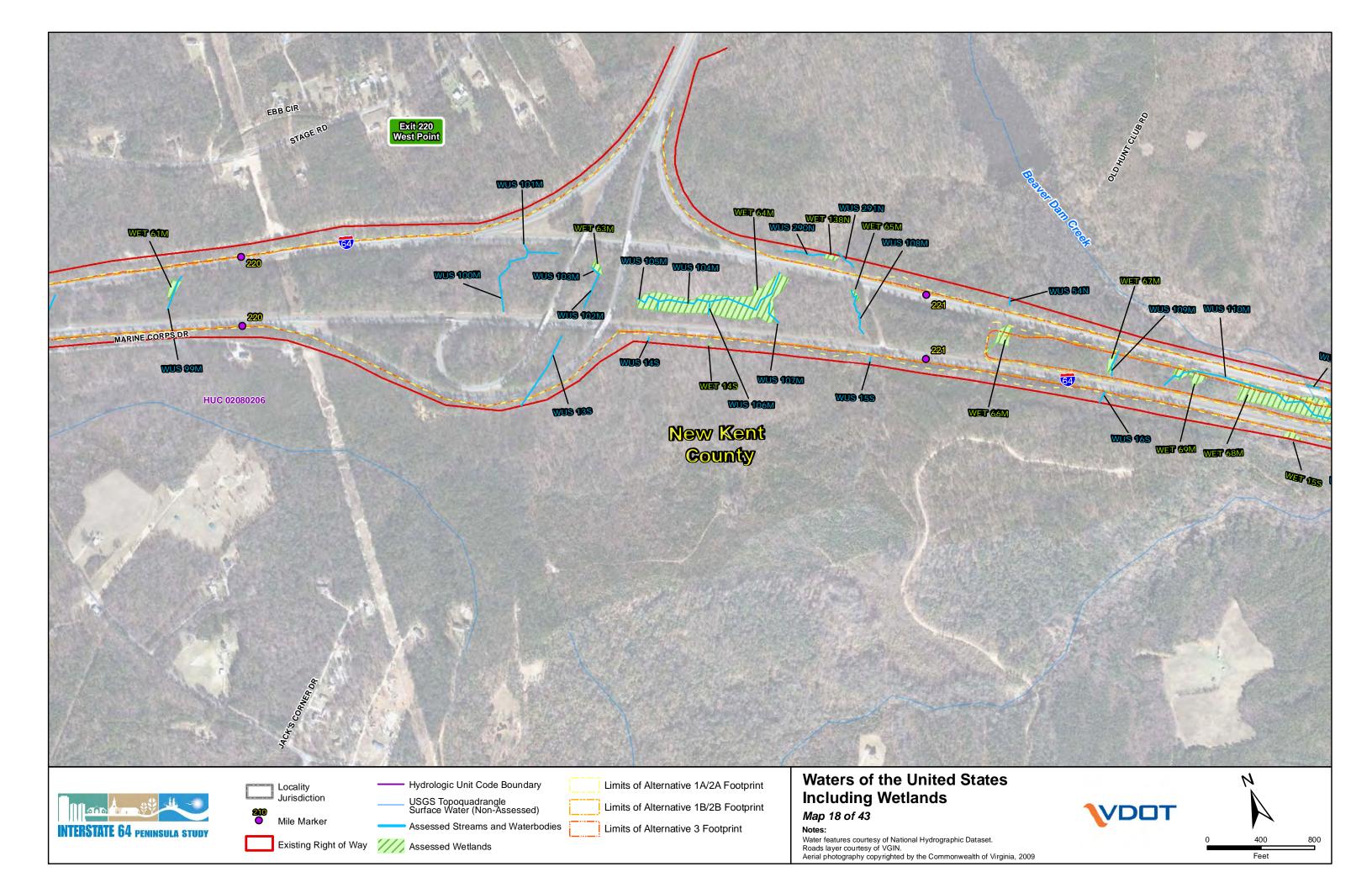


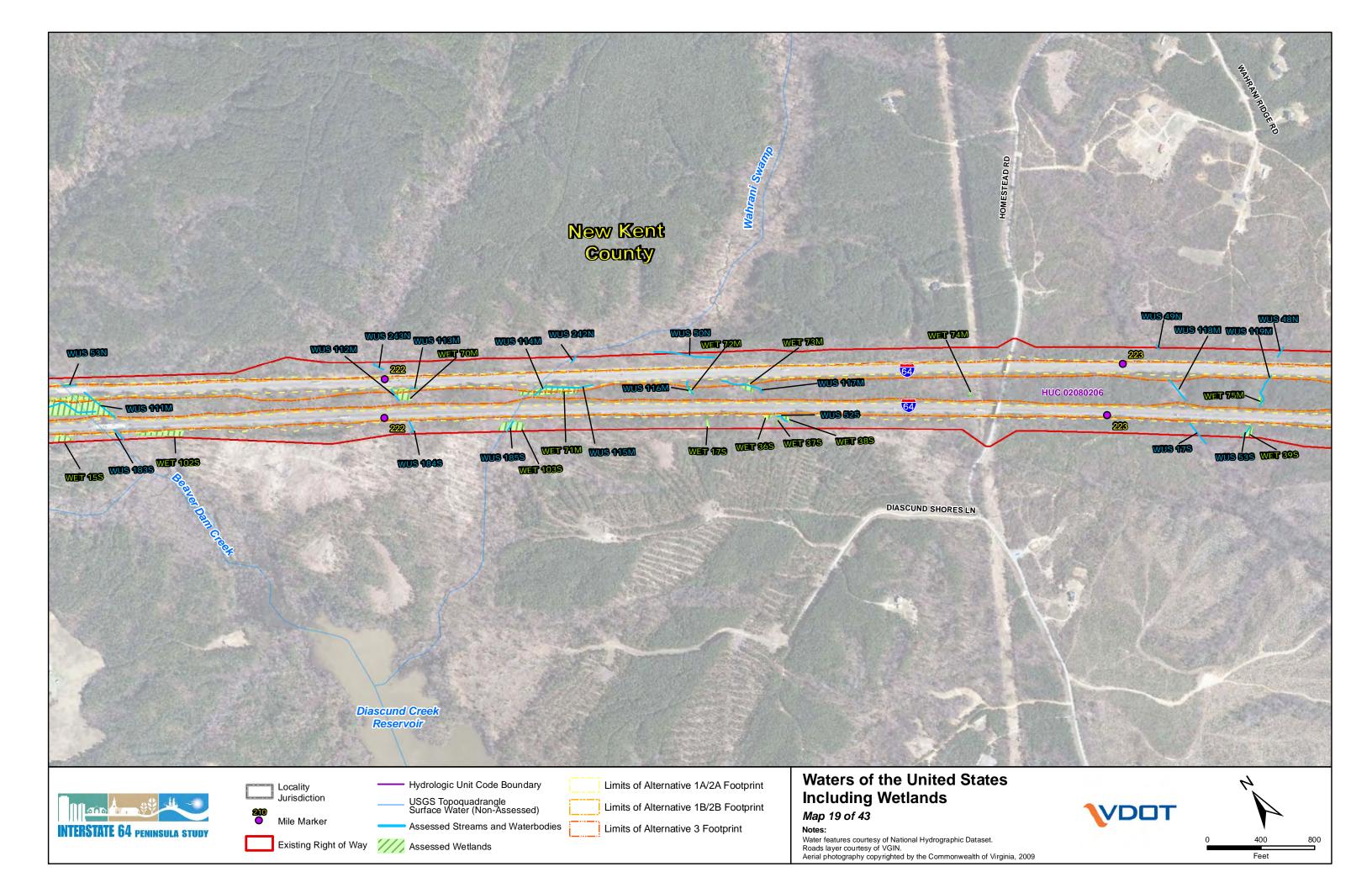


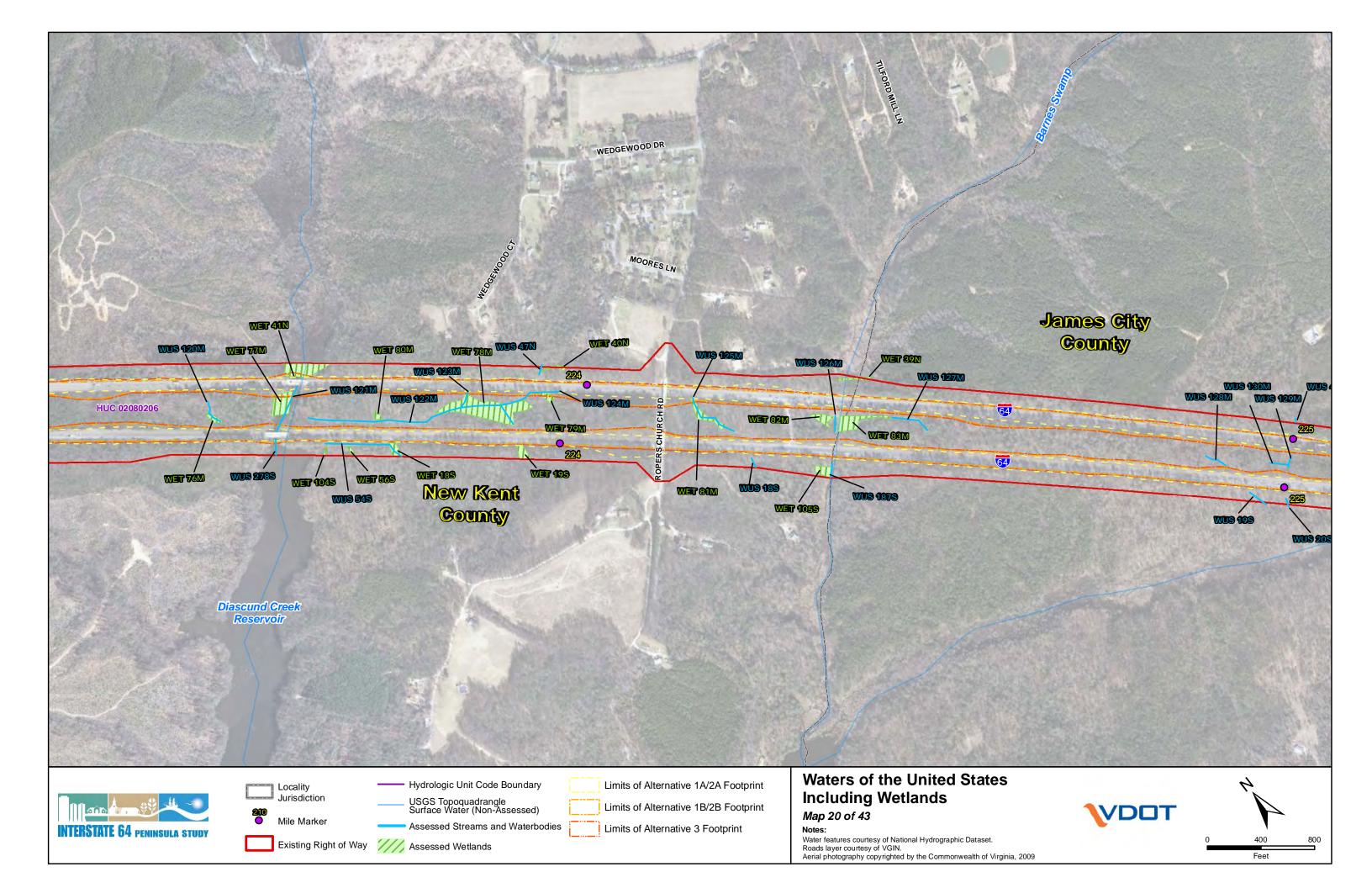


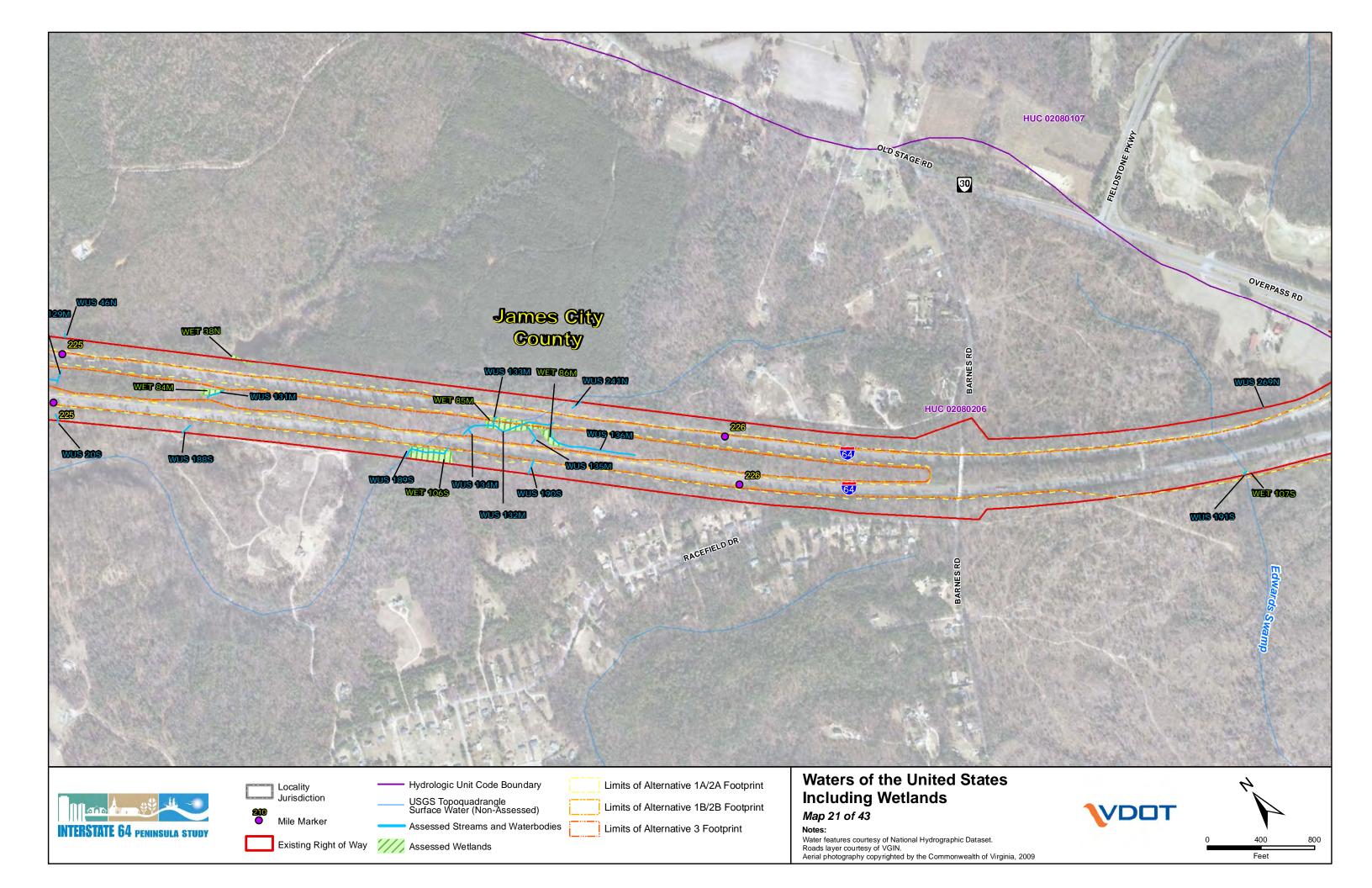


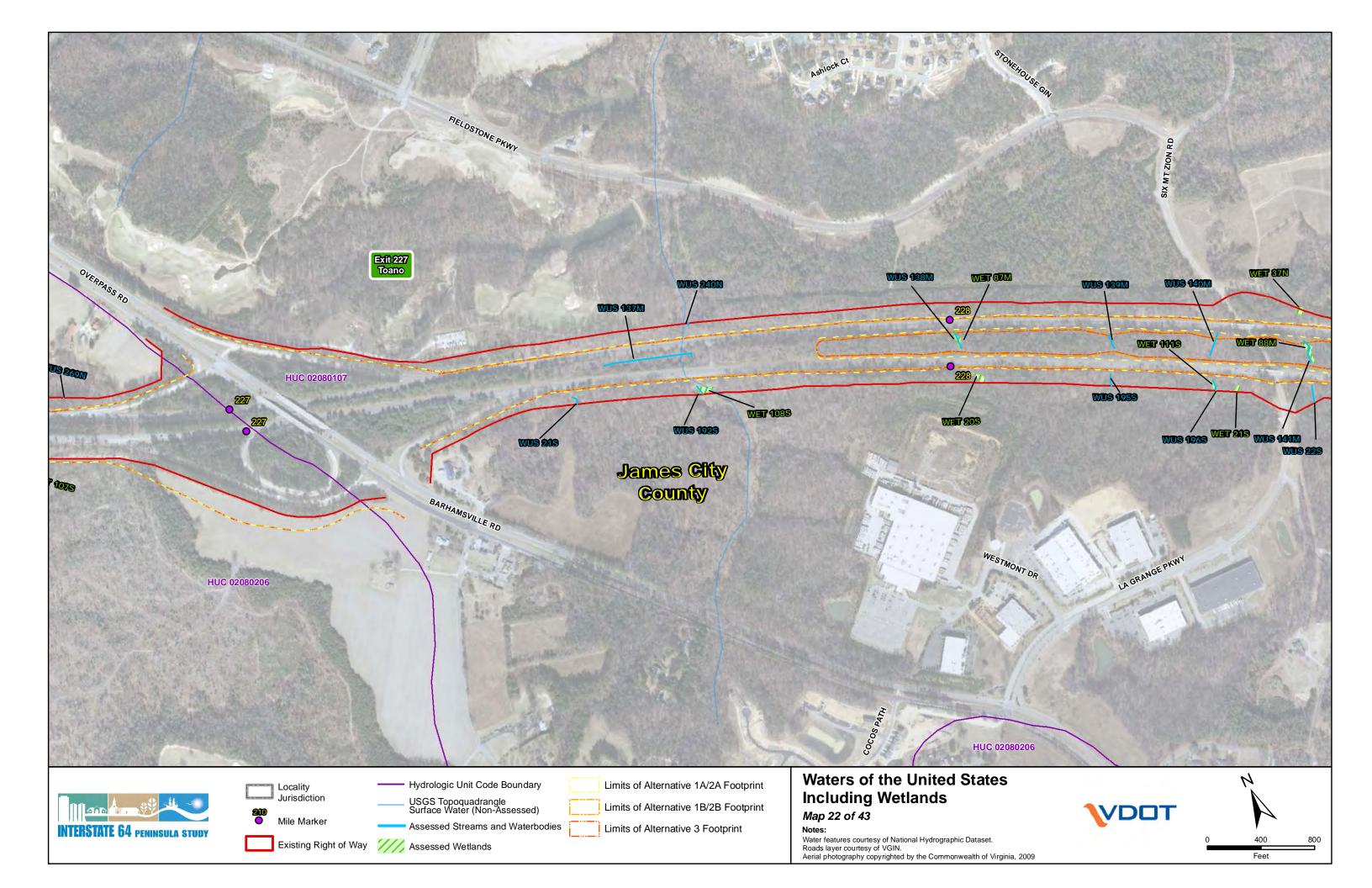


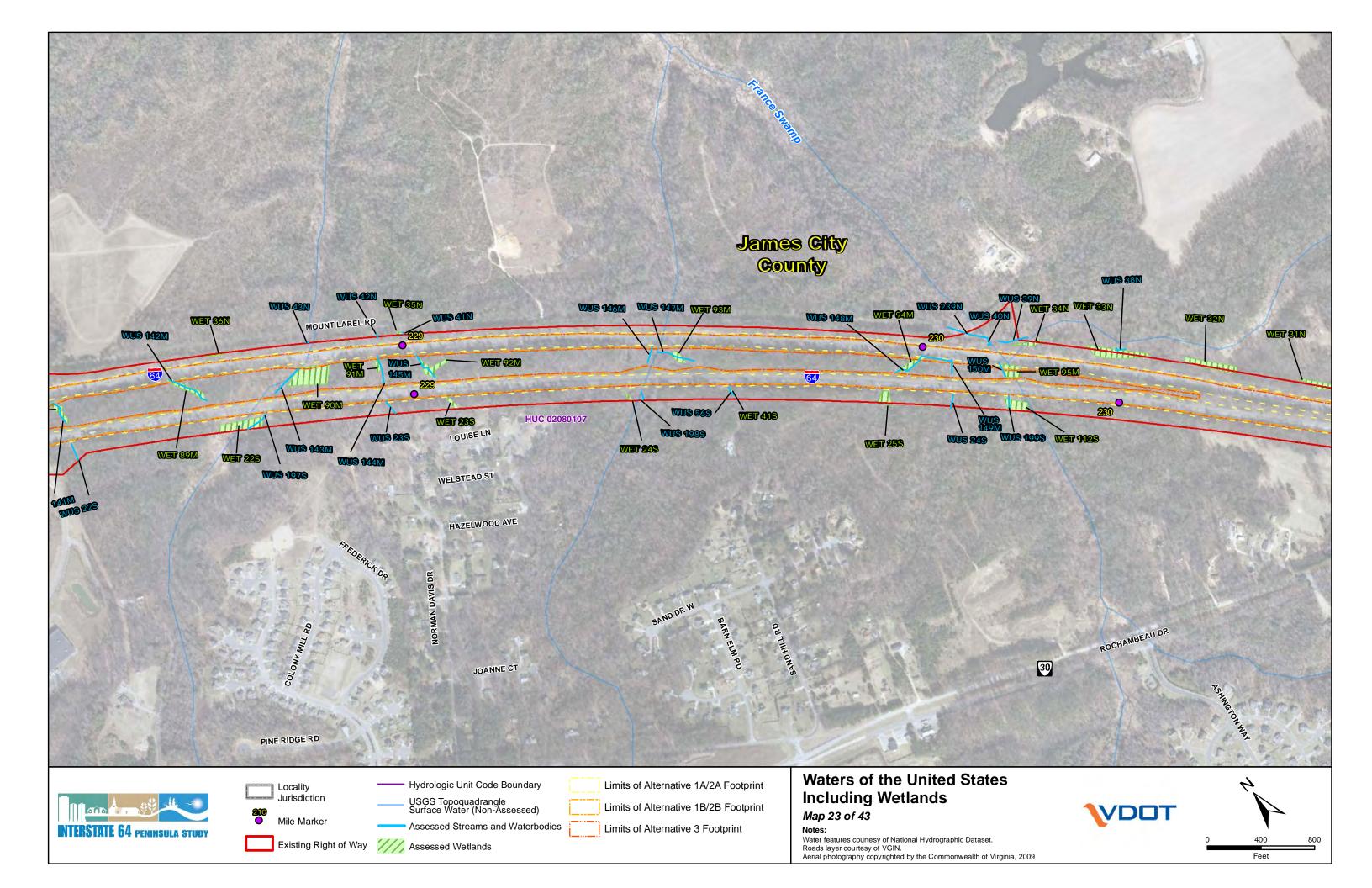


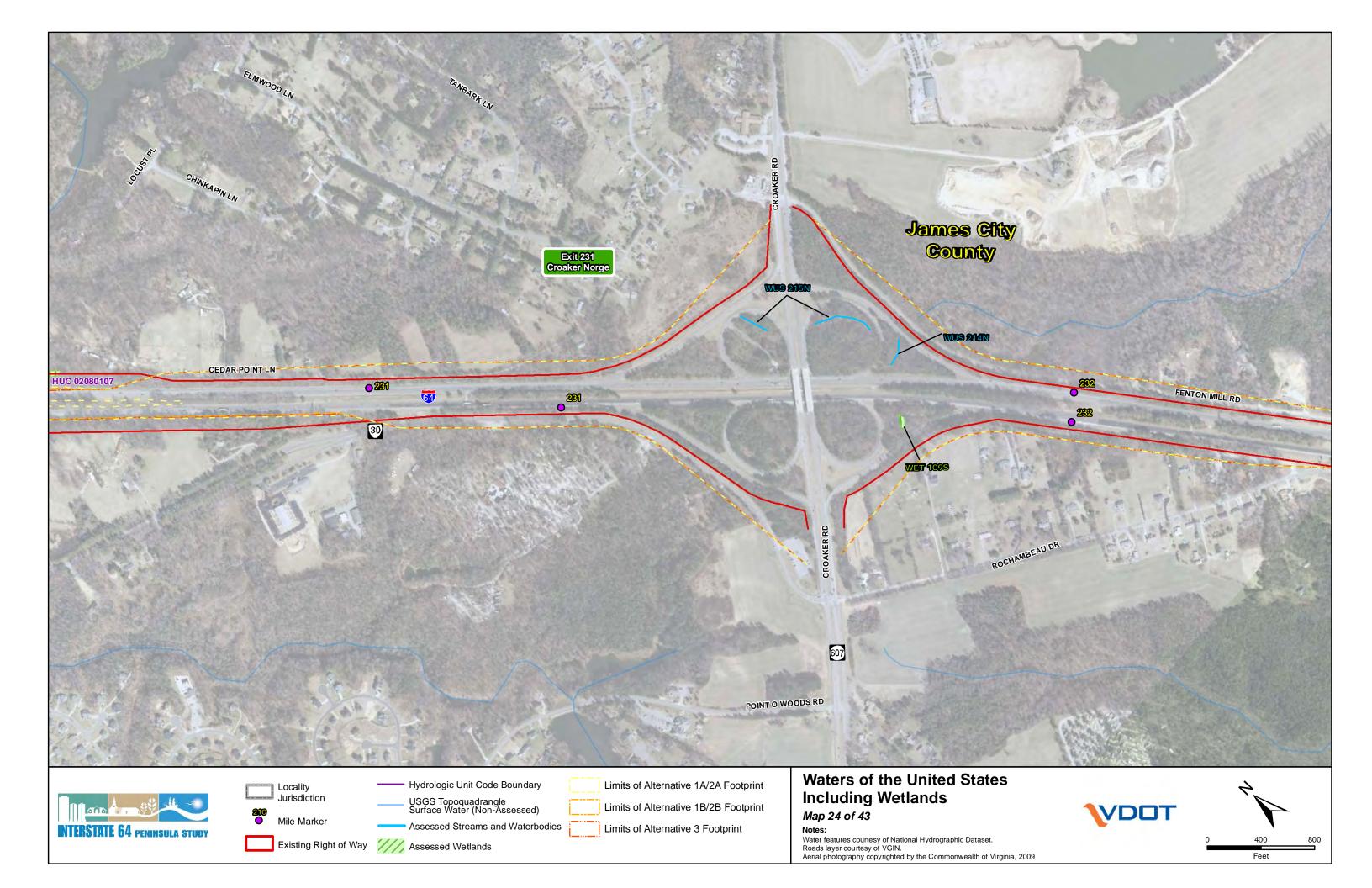


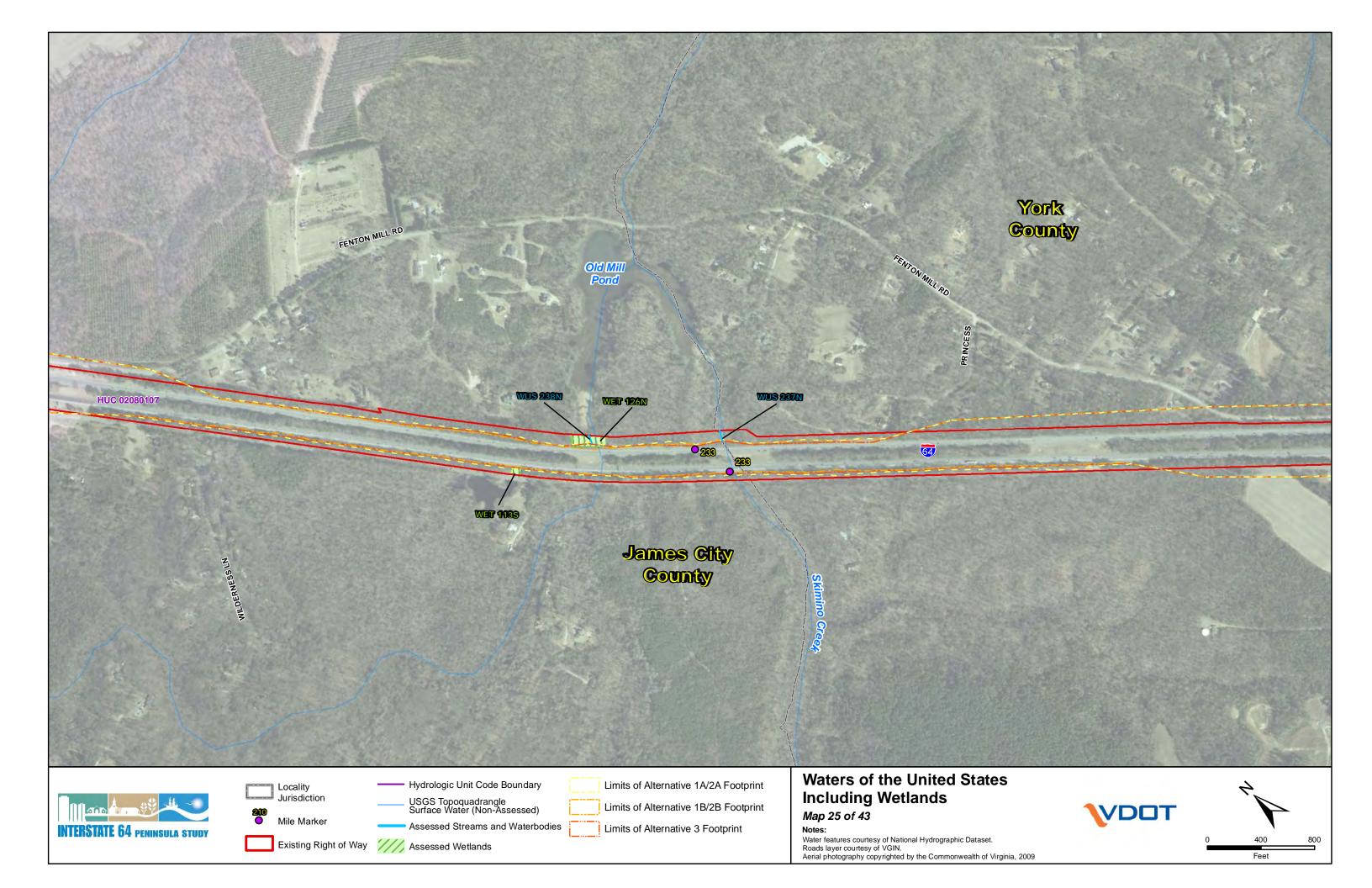


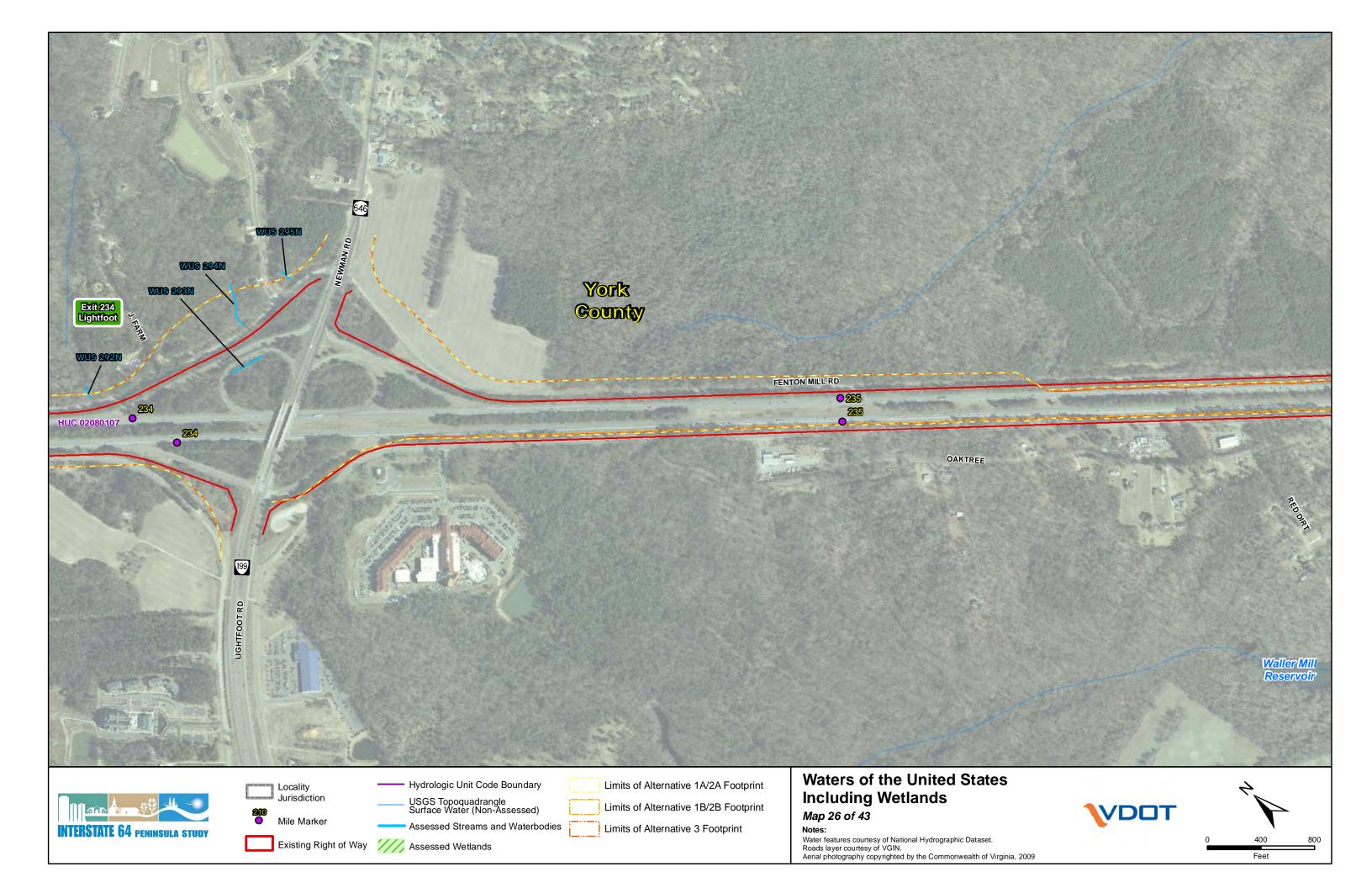


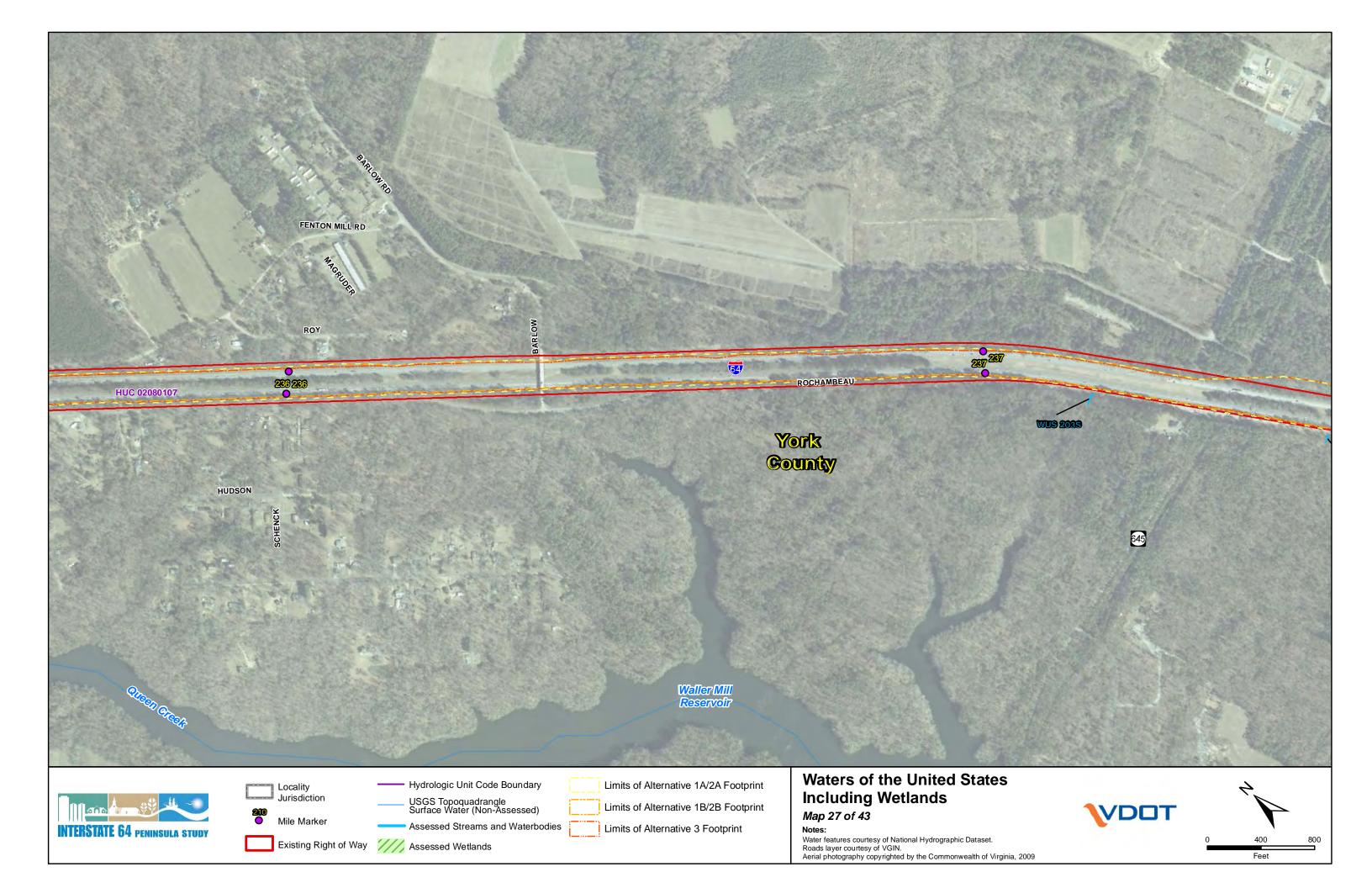


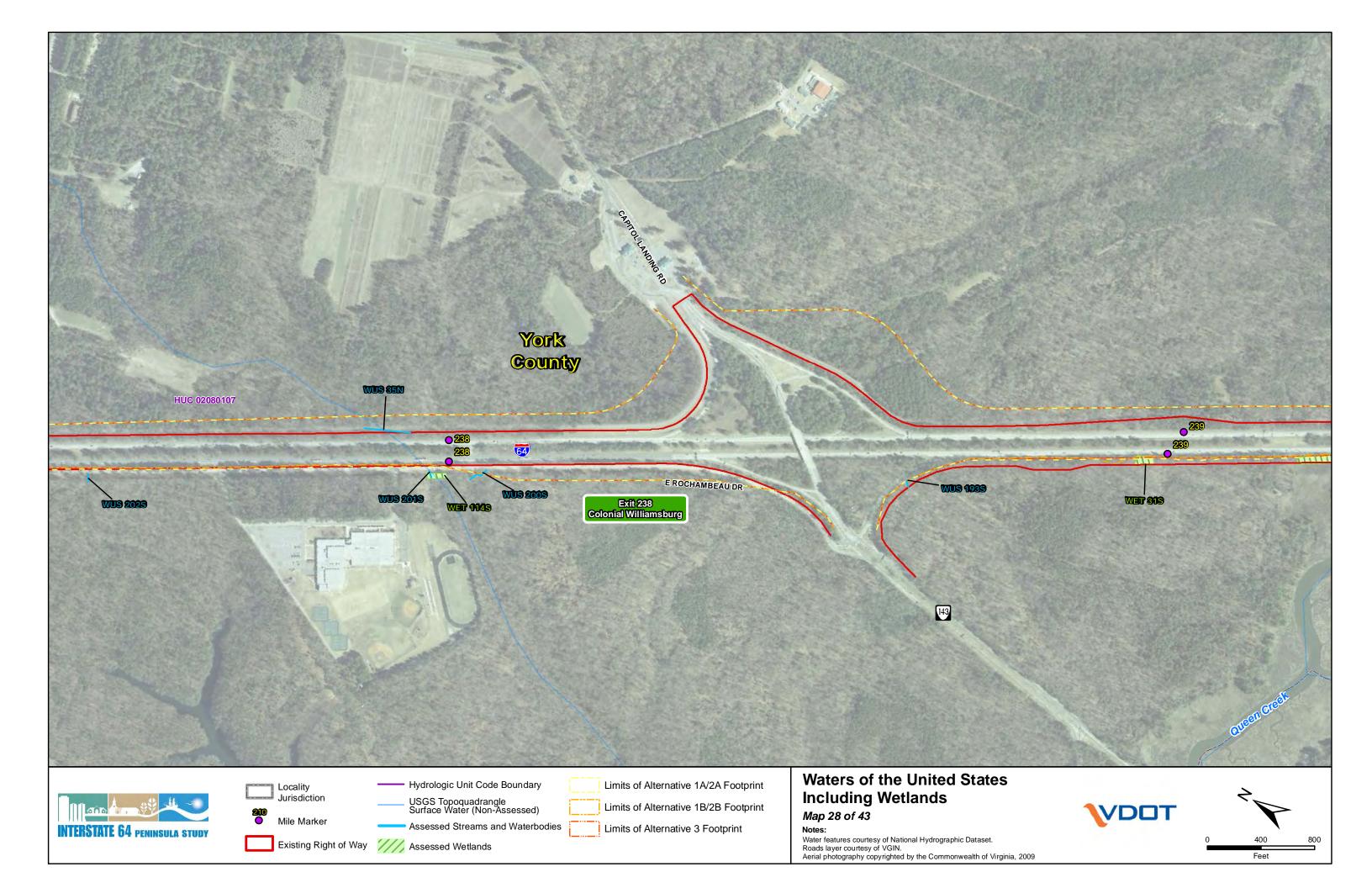


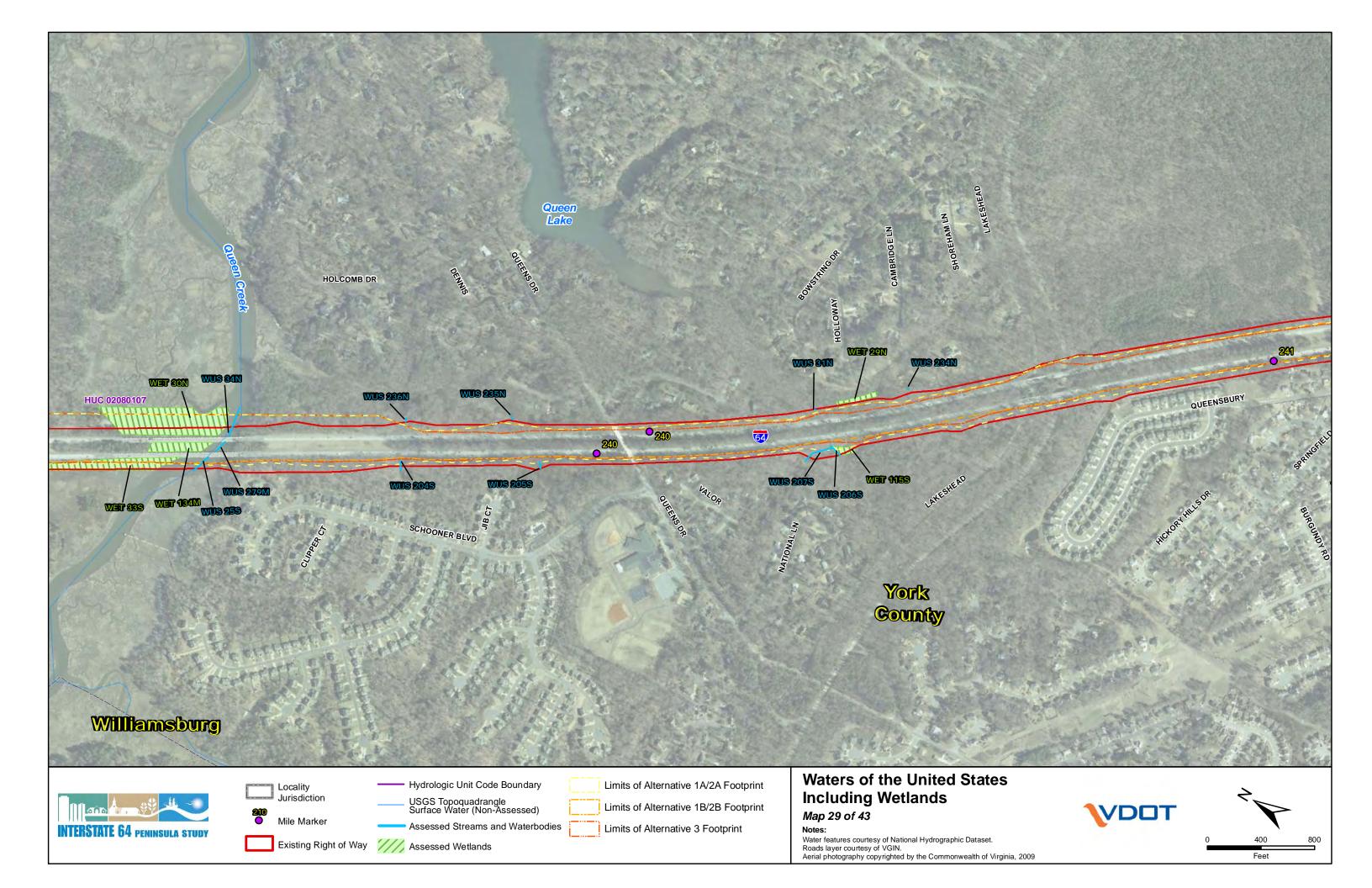


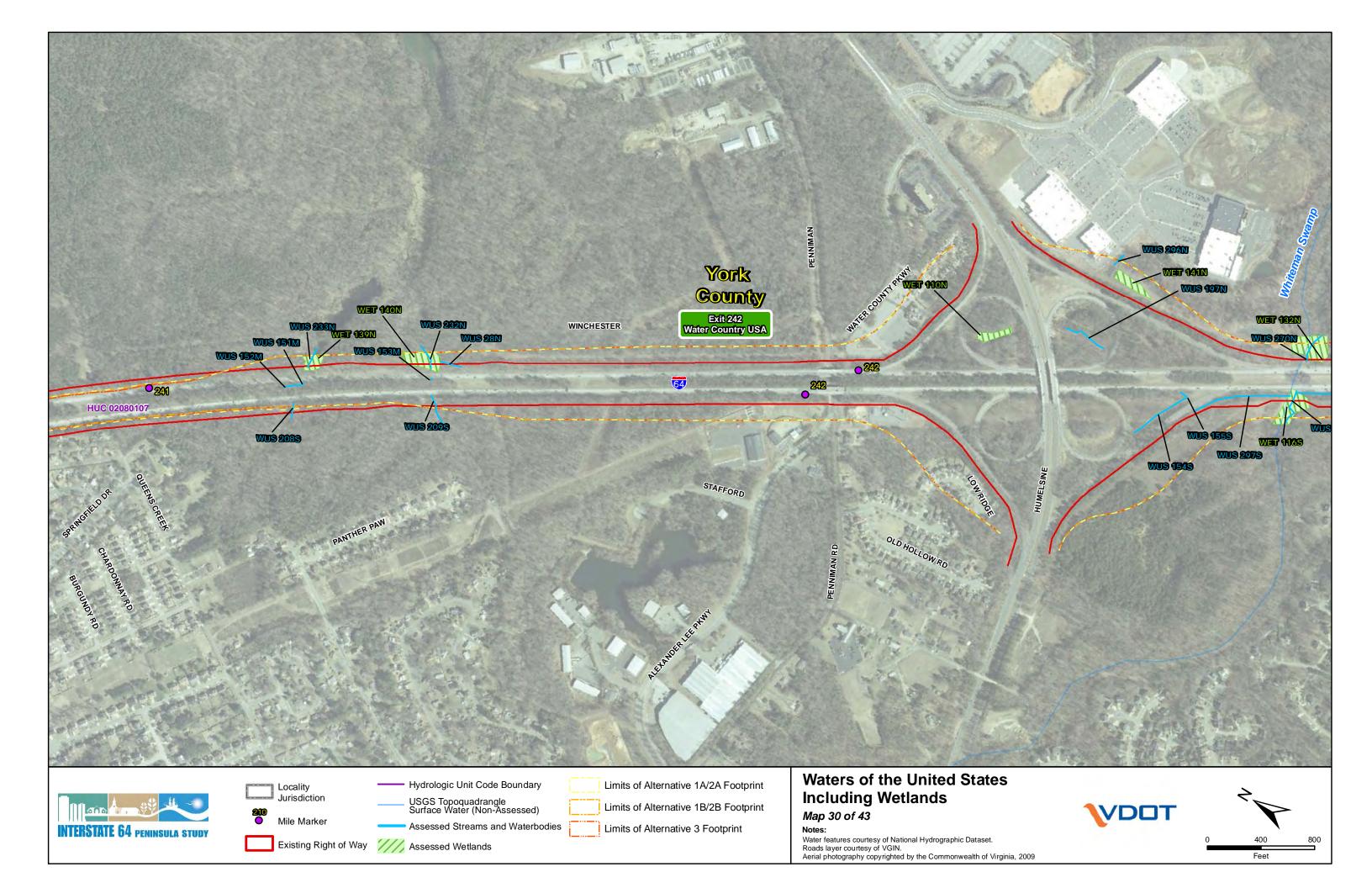


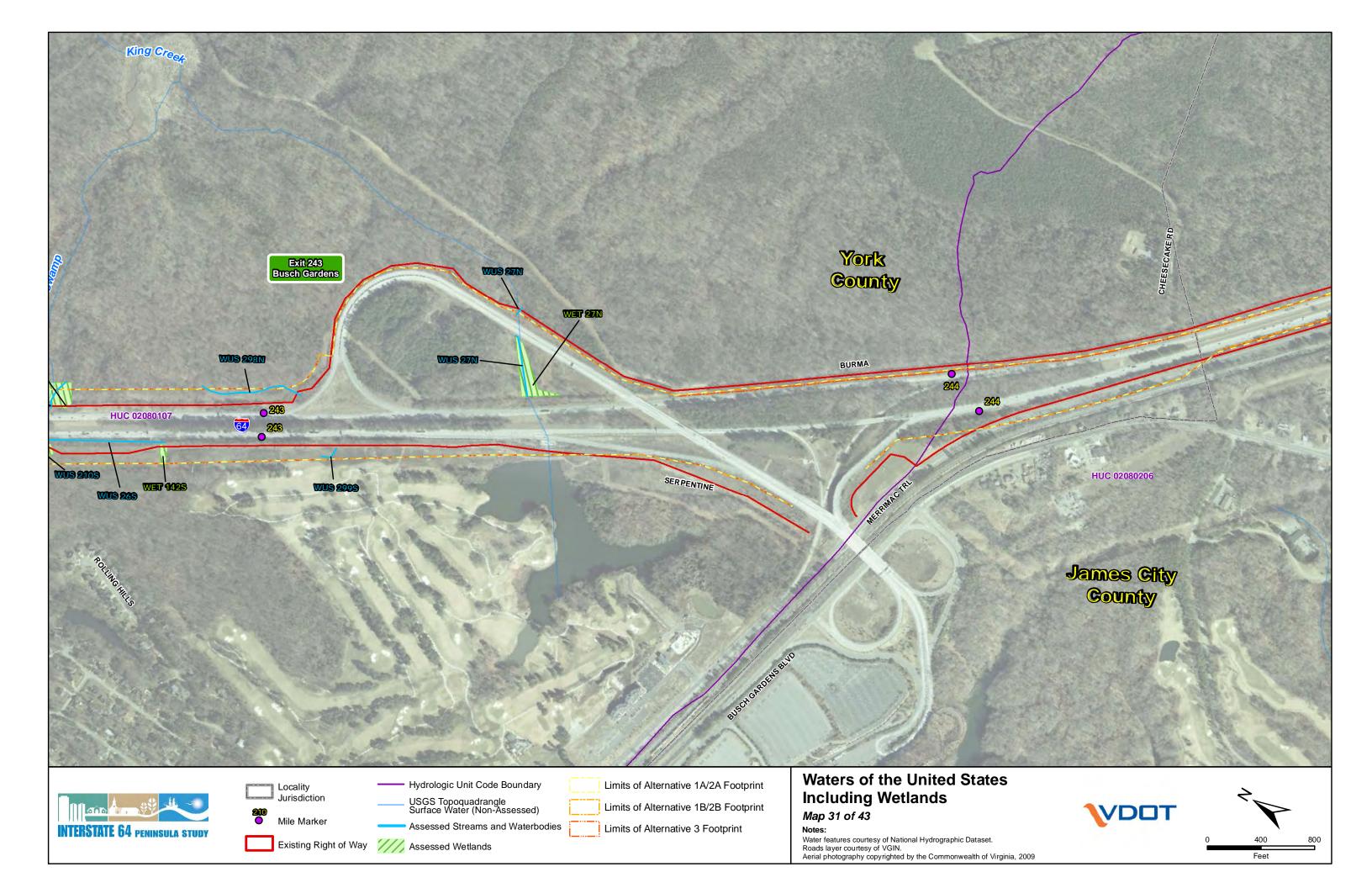


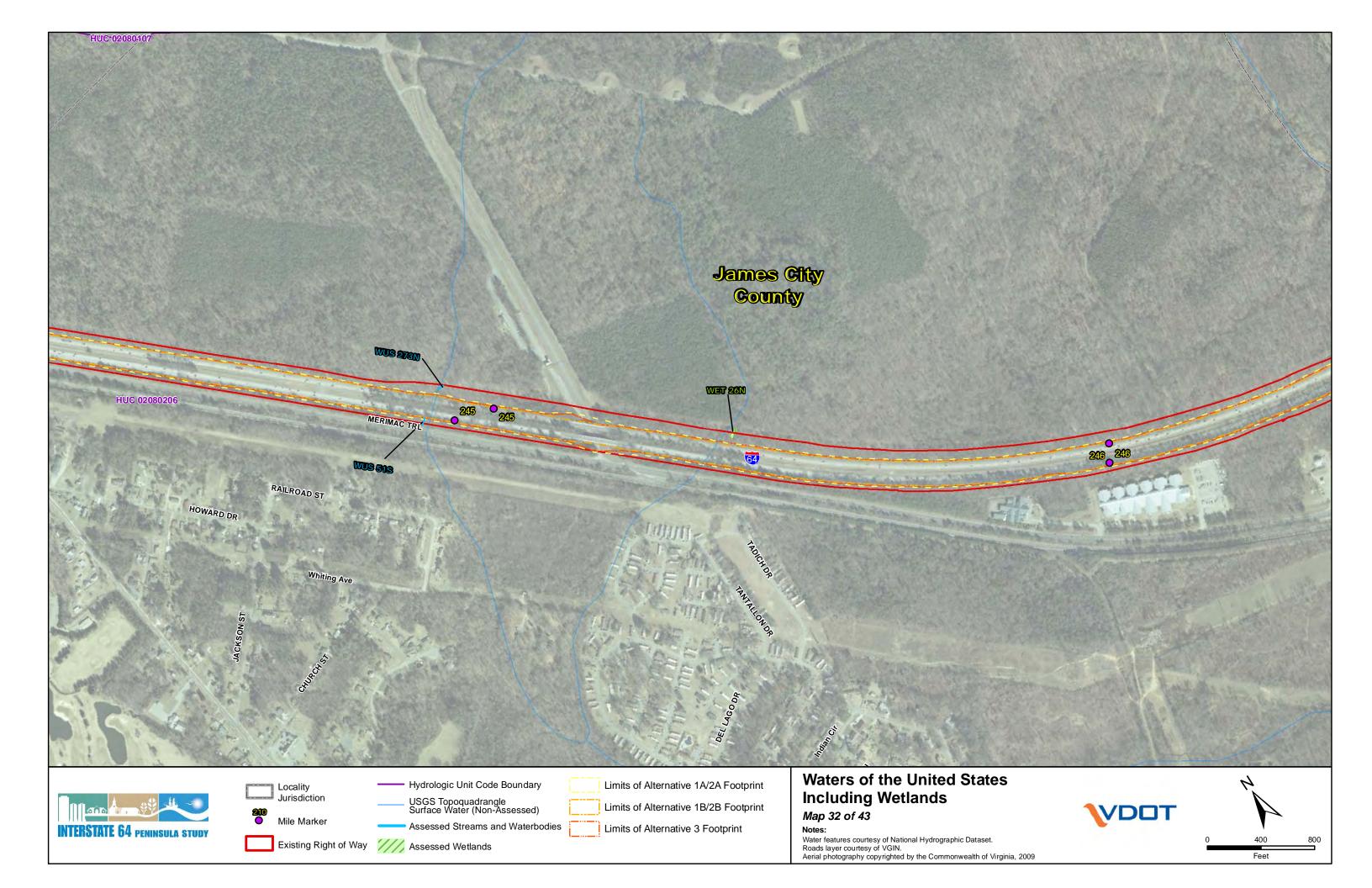


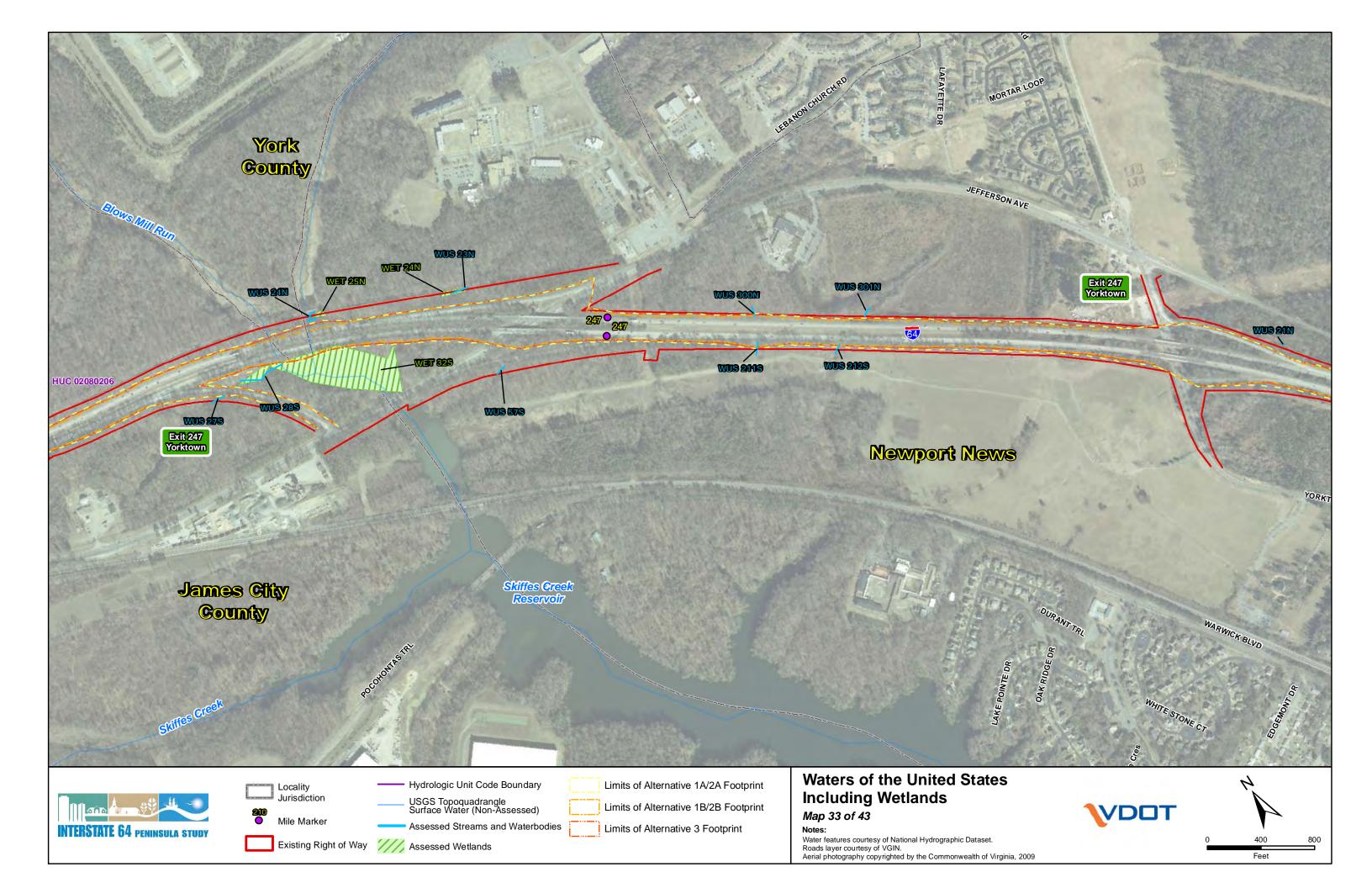


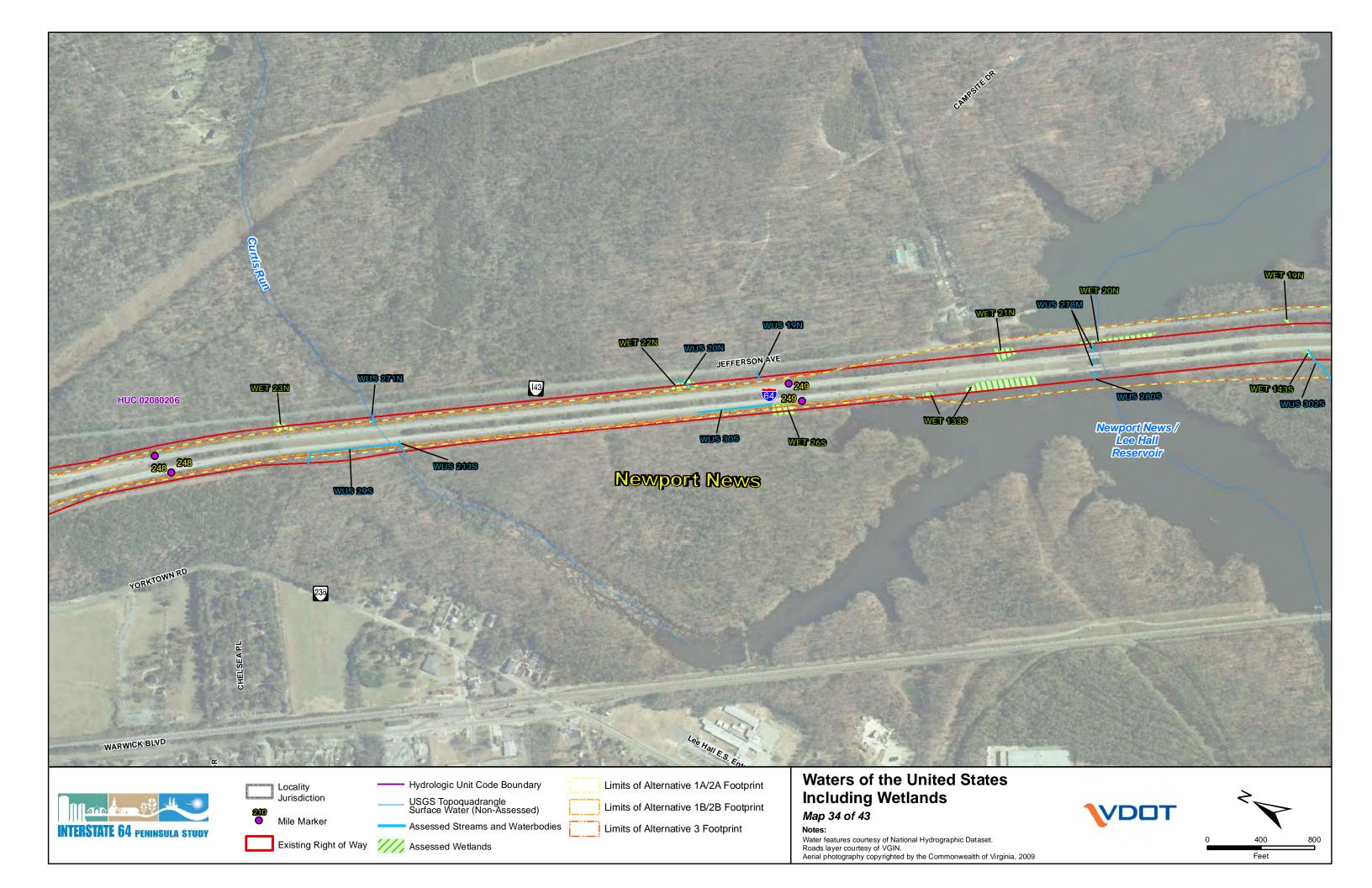


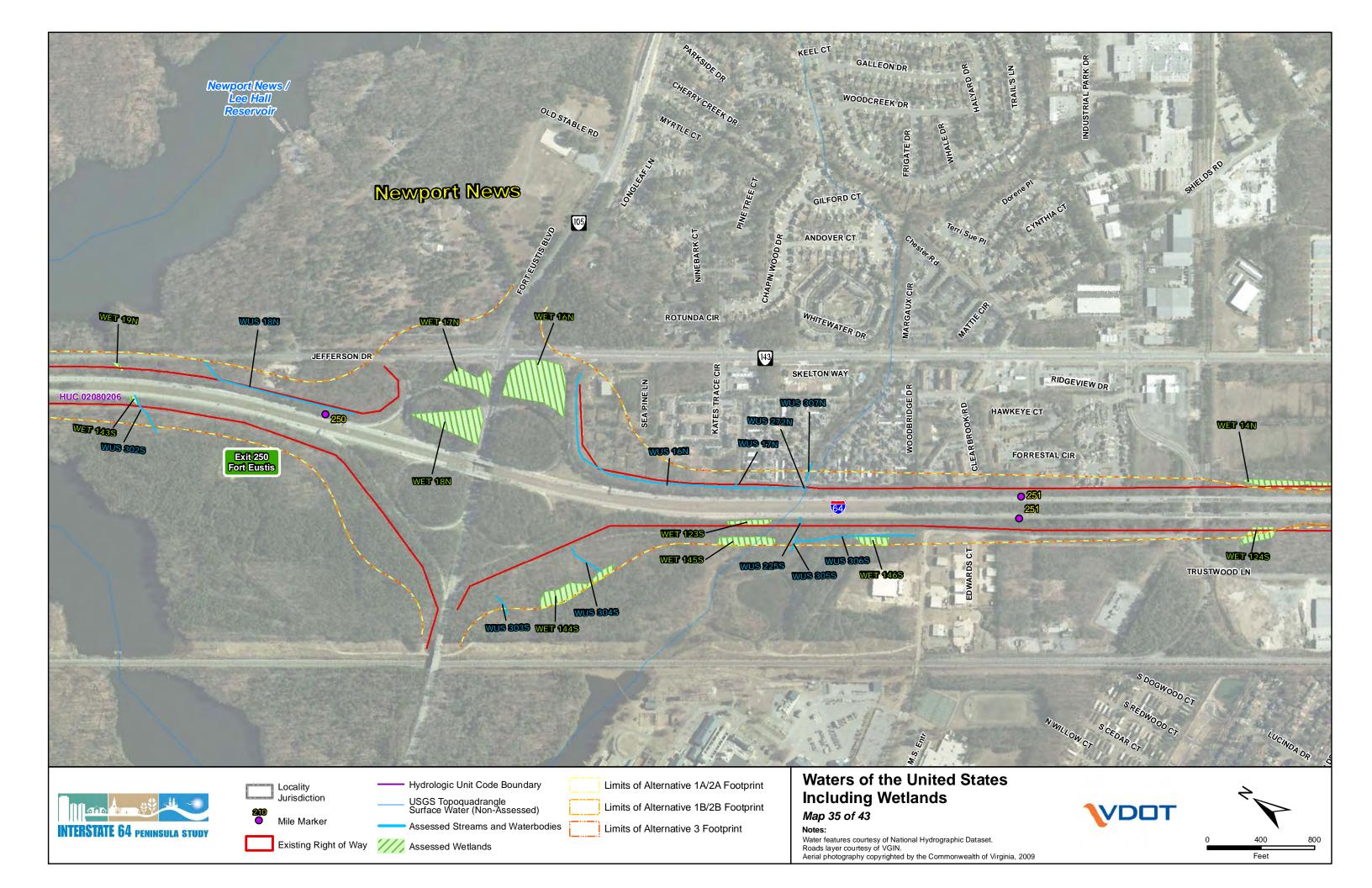


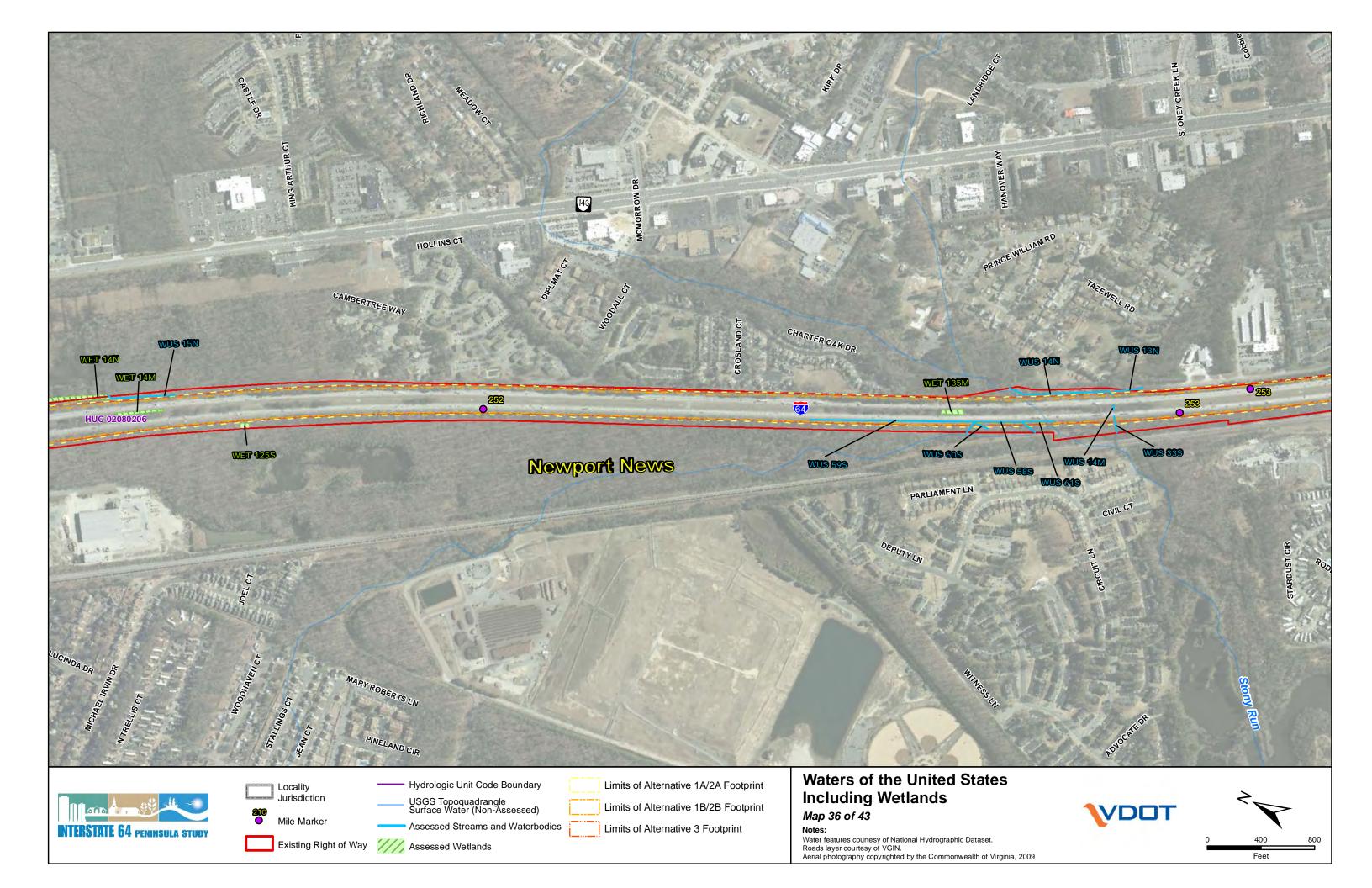


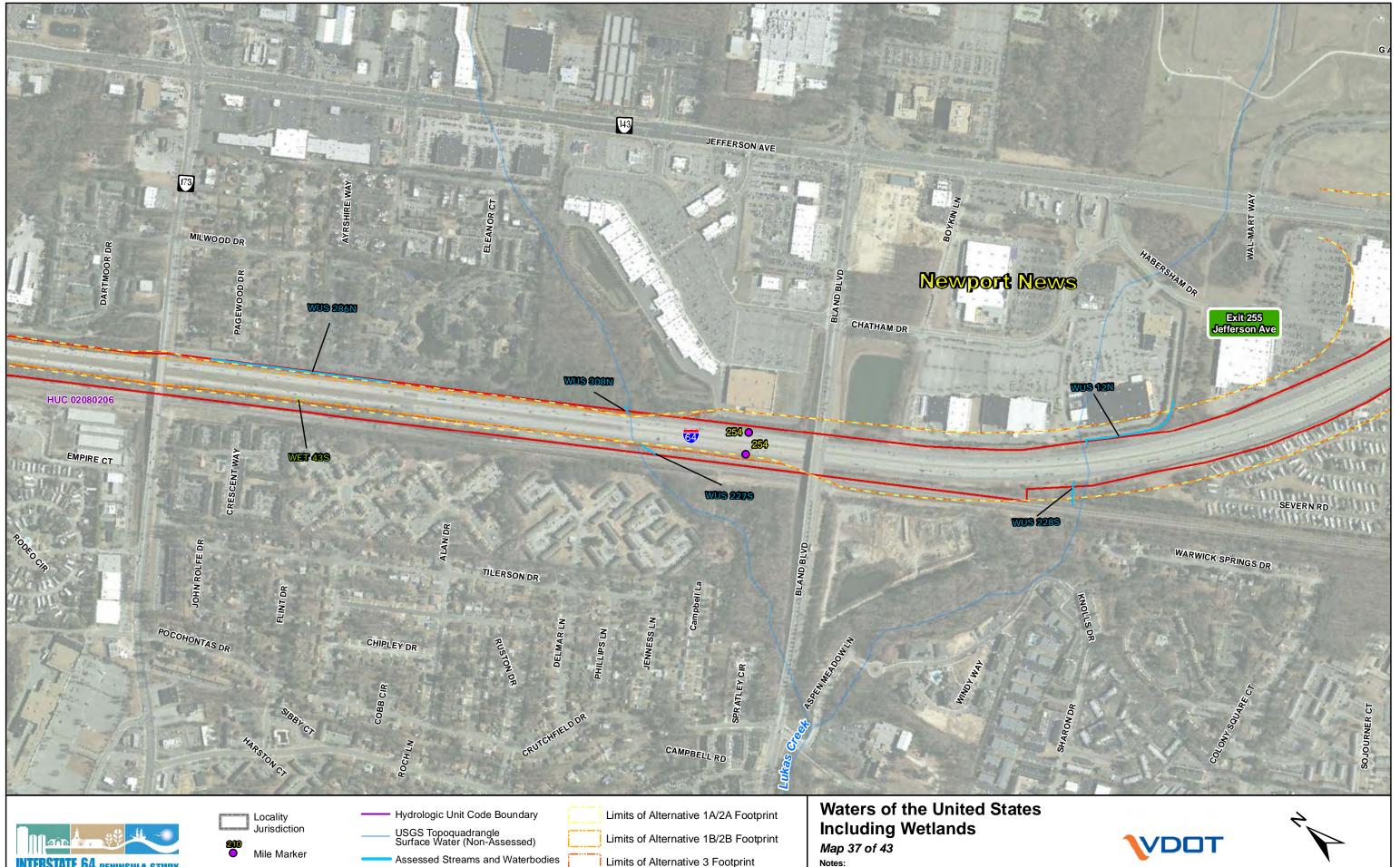






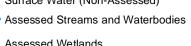










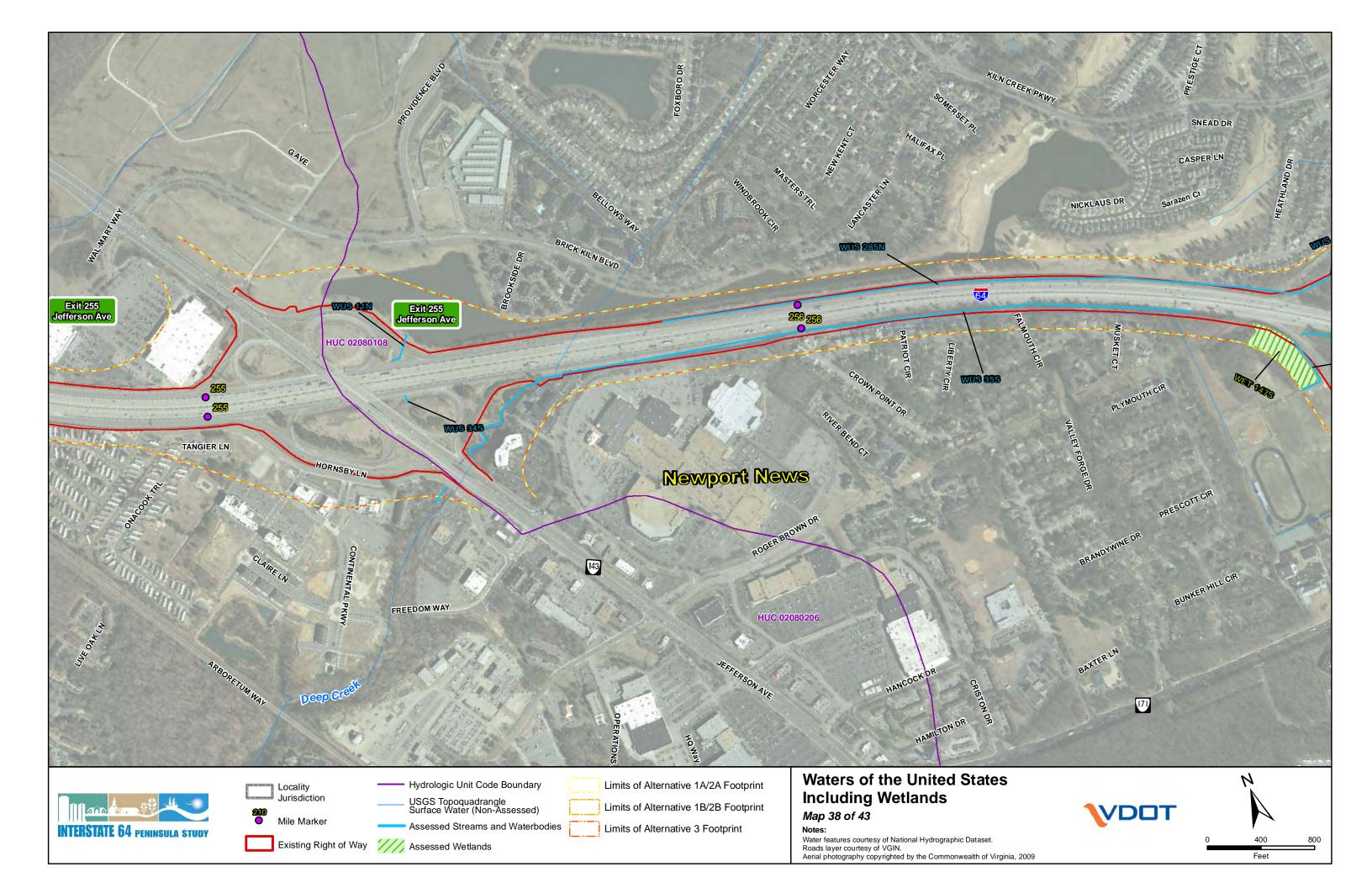


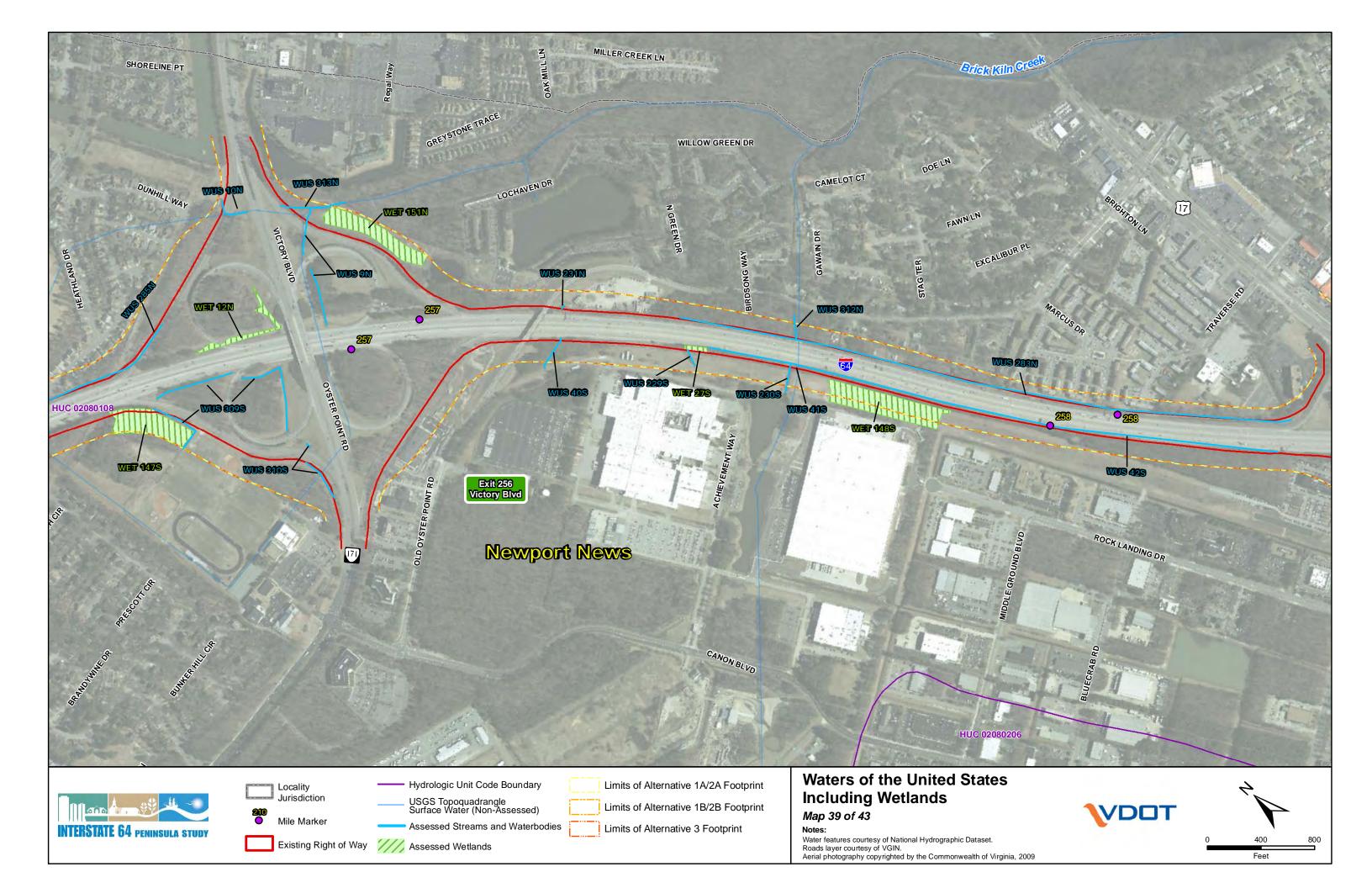
Notes:
Water features courtesy of National Hydrographic Dataset.
Roads layer courtesy of VGIN.
Aerial photography copyrighted by the Commonwealth of Virginia, 2009

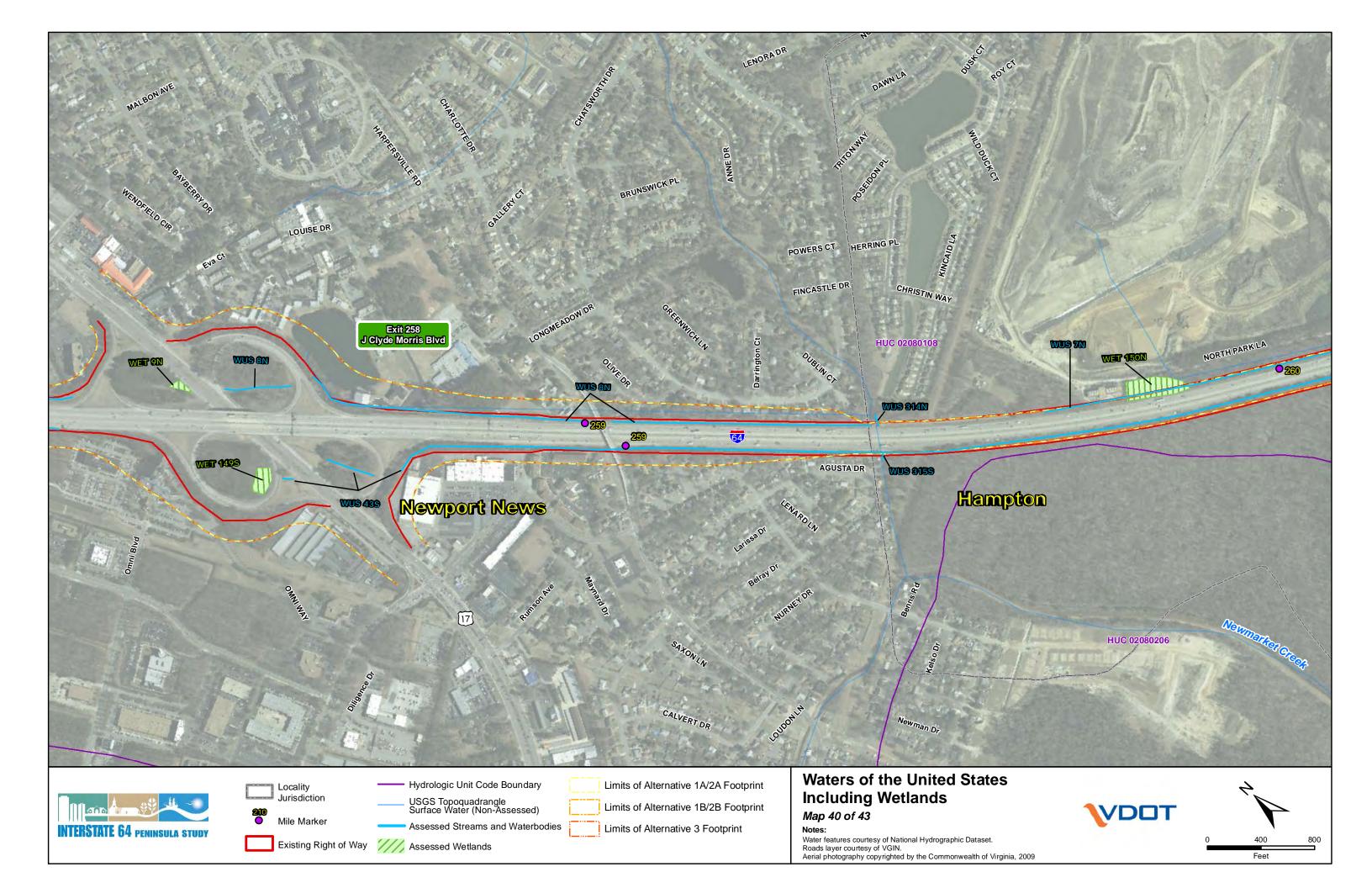


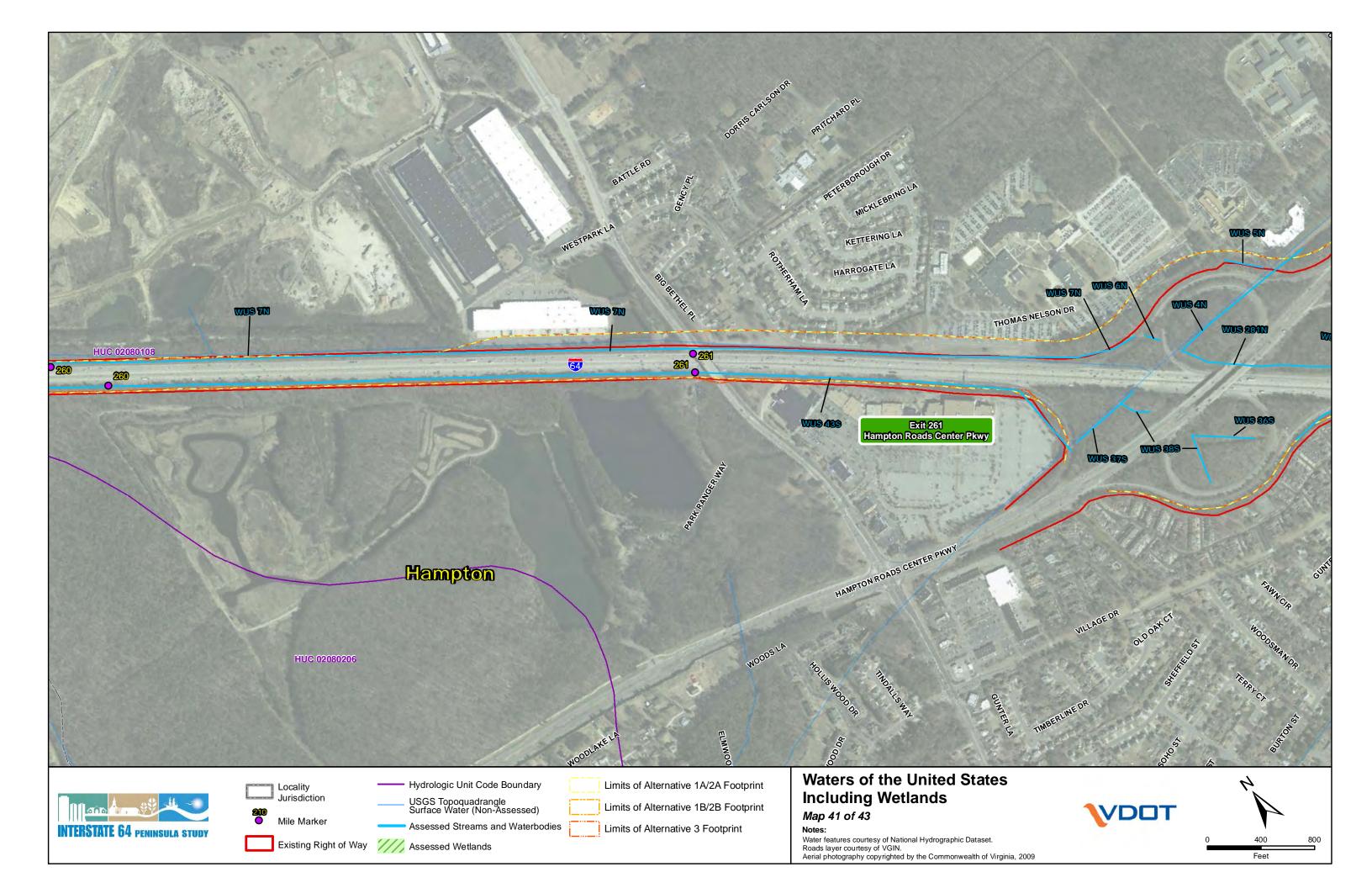


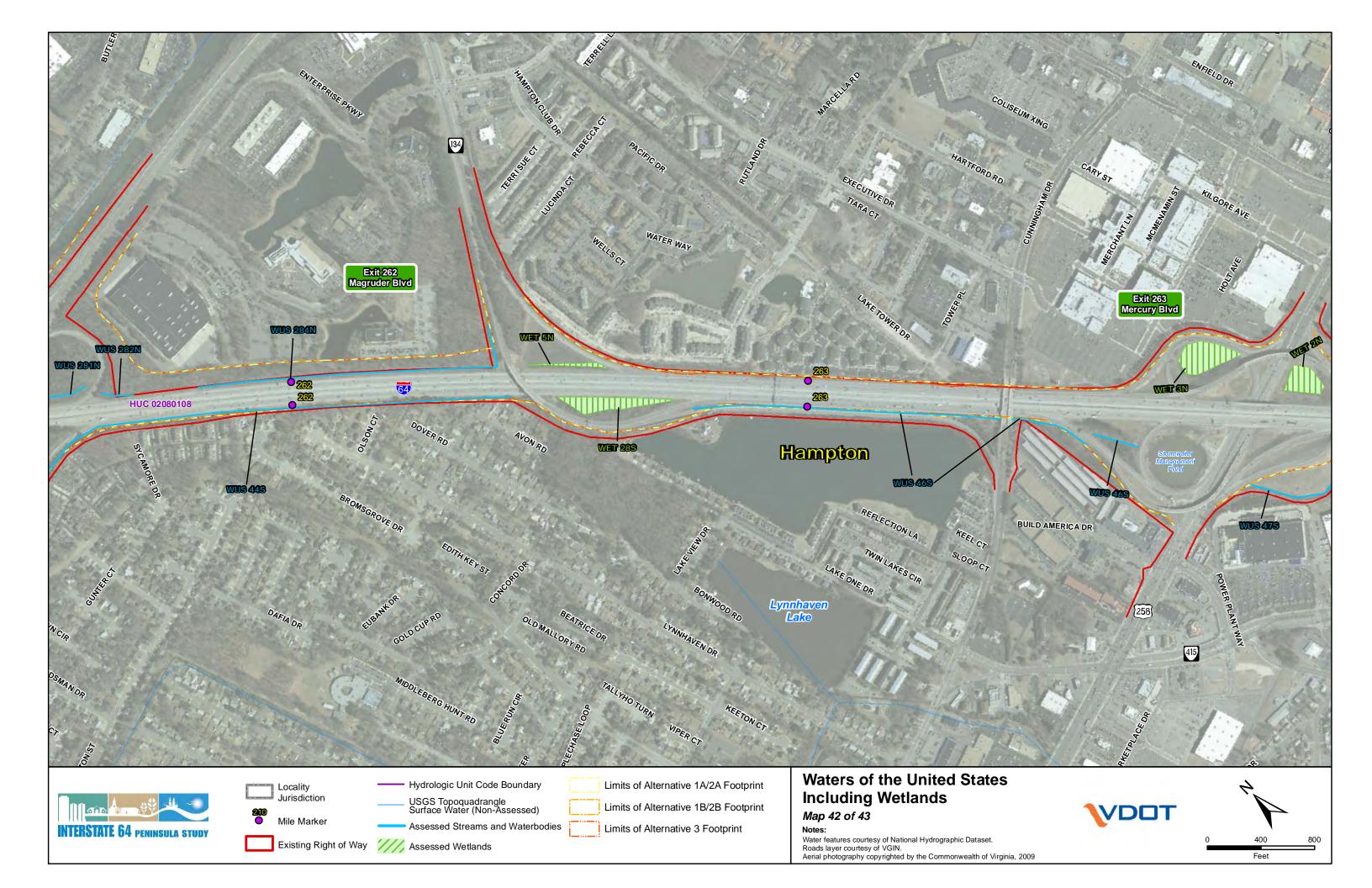
Feet

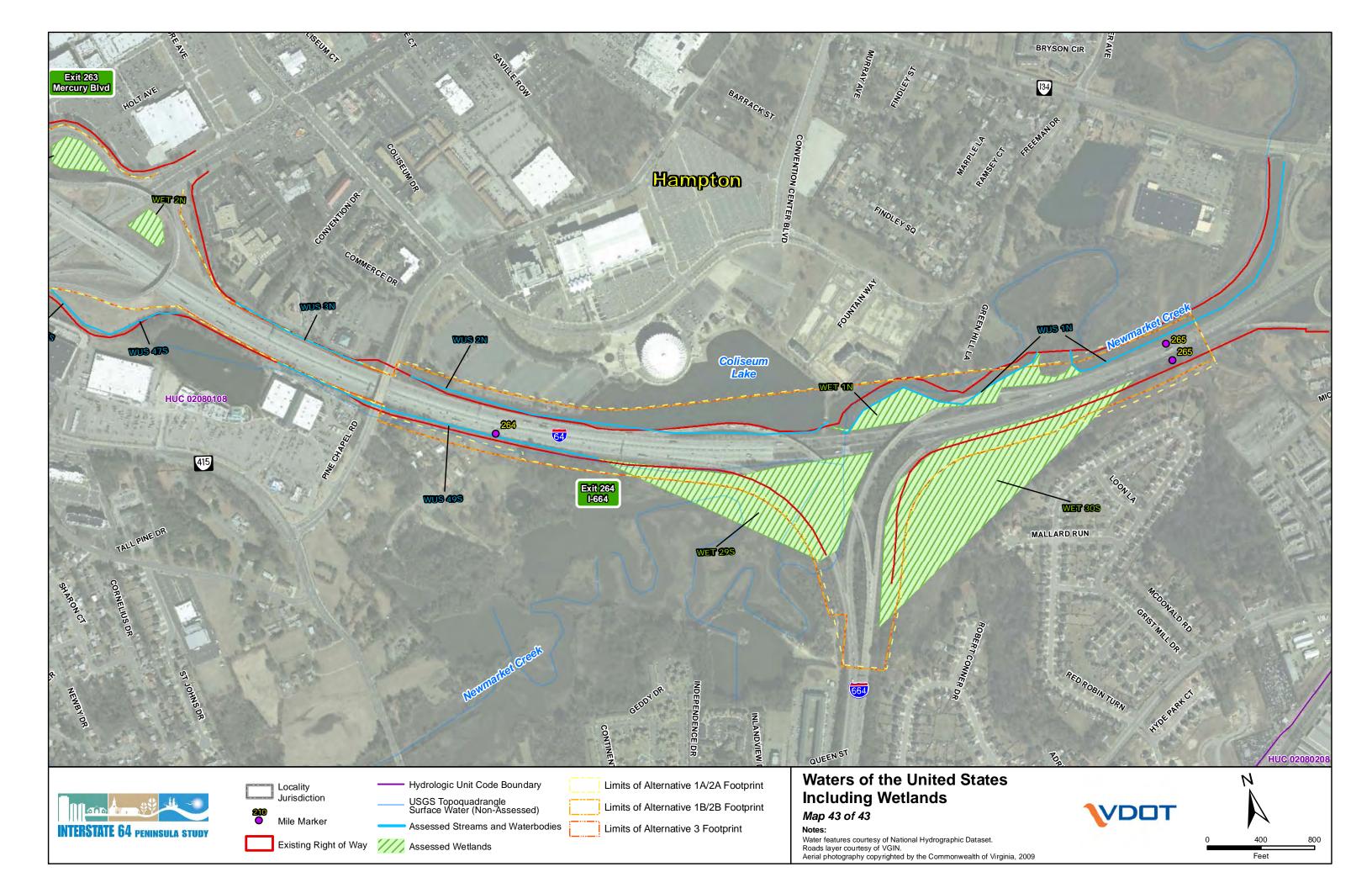


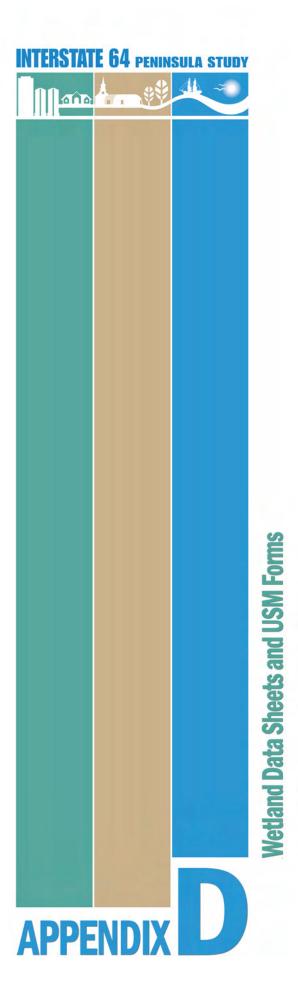












Project/Site:	I-64 Peninsula	a Study		Date:	6/27/201	1
Applicant/Owner:	VDOT			County:	Hampton	
Investigator:	Doucette / Boo	de		State:	Virginia	
Community ID:	PSS	3	Transect ID:		Plot ID:	WET2N
Do Normal Condition			Yes		lo	
s the site significantl		cal situation)?	Yes		lo X	_
ls the area a potentia			Yes	N	lo X	_
f needed, explain on	reverse					
/EGETATION						
		ant Plant Spec				
Commo			cientific Name	Stratum	_	Indicator
1. Commoi			hragmittes australis	Н		FACW
2. Soft Rus			ıncus effusus	Н		FACW+
3. Black W			alix nigra	S		FACW+
4. Goldenro			olidago sp.	Н		OBL
5. Eastern	Baccrus	Ba	accharis halimifolia	S		FACW
<u>^</u>						
7.						
7. 3.						
7. 3. 9.						
7. 3. 9. 10.						
7. 3. 9. 10. 11.						
7. 8. 9. 10. 11.						
7. 3. 9. 10. 11. 12. Percent of dominant :	species that are O	BL, FACW or	FAC	67-83%	,	_
7. 3. 9. 10. 11. 12. Percent of dominant (excluding FAC-)	species that are O	BL, FACW or	FAC	67-83%)	_
7. 3. 9. 10. 11. 12. Percent of dominant (excluding FAC-)	species that are O	BL, FACW or	FAC	67-83%	<u>, </u>	_
7. 3. 9. 10. 11. 12. Percent of dominant (excluding FAC-)	species that are Ol	BL, FACW or	FAC	67-83%)	
7. 8. 9. 10. 11. 12. Percent of dominant (excluding FAC-) Remarks:	species that are O	BL, FACW or	FAC	67-83%)	
7. 3. 9. 10. 11. 12. Percent of dominant (excluding FAC-) Remarks:			FAC			_
7. 3. 9. 10. 11. 12. Percent of dominant (excluding FAC-) Remarks:				ogy Indicators:)	
7. 3. 9. 10. 11. 12. Percent of dominant sexcluding FAC-) Remarks:	cribe in Remarks):		Wetland Hydrol Primary Indicat	ogy Indicators:		_
7. 3. 9. 10. 11. 12. Percent of dominant (excluding FAC-) Remarks:	cribe in Remarks):		Wetland Hydrol Primary Indicat	ogy Indicators: ors:		
7. 3. 9. 10. 11. 12. Percent of dominant (excluding FAC-) Remarks: HYDROLOGY Recorded Data (Desc	cribe in Remarks):StreamsAerial Photogr	raphs	Wetland Hydrol Primary Indicate Into	ogy Indicators: ors: undated		_
7. 3. 9. 10. 11. 12. Percent of dominant (excluding FAC-) Remarks: HYDROLOGY Recorded Data (Desc	cribe in Remarks): Streams Aerial Photogr Other	raphs	Wetland Hydrol Primary Indicat Ind X Sa	ogy Indicators: ors: indated turated in Upper 12		
7. 3. 9. 10. 11. 12. Percent of dominant (excluding FAC-) Remarks: HYDROLOGY Recorded Data (Desc	cribe in Remarks): Streams Aerial Photogr Other	raphs	Wetland Hydrol Primary Indicate Inu X Sa Wa	ogy Indicators: ors: indated turated in Upper 12 ater Marks		
Percent of dominant sexcluding FAC-) Remarks: HYDROLOGY Recorded Data (Desconded Data (Descon	cribe in Remarks): Streams Aerial Photogr Other	raphs	Wetland Hydrol Primary Indicate Int X Sa Wa	ogy Indicators: ors: indated turated in Upper 12 ater Marks ft Lines	inches	
7. 3. 3. 9. 10. 11. 12. Percent of dominant sexcluding FAC-) Remarks: HYDROLOGY Recorded Data (Descriptions)	cribe in Remarks):StreamsAerial PhotogrOther orded Data Availab	raphs	Wetland Hydrol Primary Indicate Int. X Sa Wa Dri Se	ogy Indicators: ors: undated turated in Upper 12 ater Marks ft Lines diment Deposits	inches /etlands	
7. 3. 9. 10. 11. 12. Percent of dominant (excluding FAC-) Remarks: HYDROLOGY Recorded Data (Desconded Data (Desconded Data (Desconded Data)) Field Observations: Depth of Surface Wa	cribe in Remarks): Streams Aerial Photogr Other orded Data Availab	raphs ble N/A (in	Wetland Hydrol Primary Indicate Inc X Sa Wa Dri Se	ogy Indicators: ors: indated turated in Upper 12 ater Marks ft Lines diment Deposits ainage Patterns in W cators (2 or more rec	inches /etlands quired):	inches
7. 3. 3. 9. 10. 11. 12. Percent of dominant (excluding FAC-) Remarks: HYDROLOGY Recorded Data (Desconded Desconded Data (Desconded Data (Desconded Desconded Descon	cribe in Remarks): Streams Aerial Photogr Other orded Data Availab	raphs ble N/A (in 0 (in	Wetland Hydrol Primary Indicate Int X Sa Wa Dri Se Dra Se Se Secondary Indicate X Ox	ogy Indicators: ors: undated turated in Upper 12 ater Marks ft Lines diment Deposits ainage Patterns in W	inches /etlands quired): Is in Upper 12	inches
7. 3. 9. 10. 11. 12. Percent of dominant (excluding FAC-) Remarks: HYDROLOGY Recorded Data (Desconded Data (D	cribe in Remarks): Streams Aerial Photogr Other orded Data Availab	raphs ble N/A (in	Wetland Hydrol Primary Indicate X Sa Wa Dri Se Dri Secondary Indicate X Ox	ogy Indicators: ors: Indated turated in Upper 12 ater Marks ft Lines diment Deposits ainage Patterns in W cators (2 or more rec idized Root Channe	inches /etlands quired): Is in Upper 12	inches
6. 7. 8. 9. 10. 11. 12. Percent of dominant (excluding FAC-) Remarks: HYDROLOGY Recorded Data (Description of Surface Water Depth to Saturated S	cribe in Remarks): Streams Aerial Photogr Other orded Data Availab	raphs ble N/A (in 0 (in	Wetland Hydrol Primary Indicate X Sa Wa Dri Se Dri Se Condary Indicate X Ox No.) X Ox No.)	ogy Indicators: ors: undated turated in Upper 12 ater Marks ft Lines diment Deposits ainage Patterns in W cators (2 or more red idized Root Channe ater-Stained Leaves	inches /etlands quired): Is in Upper 12	inches
7. 8. 9. 10. 11. 12. Percent of dominant (excluding FAC-) Remarks: HYDROLOGY Recorded Data (Descondent Descondent Desco	cribe in Remarks): Streams Aerial Photogr Other orded Data Availab	raphs ble N/A (in 0 (in	Wetland Hydrol Primary Indicate Int. X Sa Wa Dri Se Dr. Secondary Indicate A.) X Ox X Ox X Ox X FA	ogy Indicators: ors: undated turated in Upper 12 ater Marks ft Lines diment Deposits ainage Patterns in W cators (2 or more red idized Root Channe ater-Stained Leaves cal Soil Survey Data	inches /etlands quired): ls in Upper 12	inches

Commun	ity ID:	PSS	Transect II	D:	Plot ID:	WET2N
					_	
SOILS						
Map Unit Na	ime					
(Series and				D	rainage Class:	
		firm Mapped Type?	Yes	No	_	
Taxonomy (_	
· · ·	0 17				_	
		Matrix Color	Mottle Colors	Mottle	Textures, Cond	retions, Structures,
Depth (in)	Horizon	(Munsell Moist)	(Munsell Moist)	Abundance/Contrast	etc.	
0-6		10YR 4/1	(1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1		Clay Loam	
6-8		10YK 3/2			Sandy Loam	
8-18		10 YR 4/1			Clay Loam	
0.0		10 110 1/1			Olay Loain	
I I delete Cattle		Vaa	N.	la.		
Hydric Soil I		Yes		lo		
(If yes, chec	k them)					
		_ Histosol		Concretions		
		_Histic Epidon		High Organic Content in		1 Sandy Soils
		_Sulfidic Odor		Organic Streaking in Sa	-	
		_Aquic Moisture Regime		Listed on Local Hydric S		
	Х	Reducing Conditions		Listed on National Hydr		
	Х	_Gleyed or Low-Chroma C	colors	Other (explain in remark	ks)	
Remarks:						
WETLAND	DETERMIN	ATION				
Hydrophytic	Vegetation	Present? Yes	X N	lo Is this	Sampling Point	Within a Wetland
Wetland Hyd	drology Pres	sent? Yes	X	lo	-	
Hydric Soils		Yes	X	lo Ye:	sX	No
		•				
Remarks:	Pic N1584			<u>l</u>		

Project/Site:	1-64 Peninsula Study			Date:	6/27/201	1
Applicant/Owner:	VDOT			County:	Hampton	
Investigator:	Bode / Sprenkle			State:	Virginia	
Community ID:	PEM		Transect ID:		Plot ID:	WET3N
Do Normal Conditions		4:10	Yes X		lo	_
-	y disturbed (Atypical situa	ition)?	Yes		lo X	_
Is the area a potentia			Yes	N	lo X	_
If needed, explain on	reverse					
VEGETATION						
	Dominant Plan	t Species				
Commor	n Name	Scientific Na	ame	Stratum		Indicator
 Broadlea 	af Cattail	Typha latifo	lia	Н		OBL
Soft Rus	h	Juncus effu	sus	Н		FACW+
Canadia	n Rush	Juncus can	adensis	Н		OBL
	Baccharis	Baccharis h	alimifolia	S		FACW
Blunt Sp	ikerush	Eleocharis o	obtusa	Н		OBL
_	vania Smartweed	Polygonum	pensylvanicum	Н		FACW
7.						
8.						
9.						
10.						
11.						
12.						
	species that are OBL, FA	CW or FAC		100%		_
(excluding FAC-)						
Remarks: Photo 15	5A1 East					
HYDROLOGY						
Recorded Data (Desc	•		Wetland Hydrology I	Indicators:		
	Streams		Primary Indicators:			
	Aerial Photographs		X Inundat	ed		
	Other		X Saturat	ed in Upper 12	inches	
No Reco	orded Data Available		Water N			
			Drift Lin			
				ent Deposits		
Field Observations:				ge Patterns in W		
Depth of Surface Wat		(in.)	Secondary Indicator	•		
Depth to Free Water		(in.)		d Root Channe	ls in Upper 12	inches
Depth to Saturated S	oil: 0	(in.)		Stained Leaves		
				oil Survey Data		
				eutral Test		
			Other (I	Explain in Rema	arks)	
Remarks: 85% of	wetland is inundated. [Data point at ed	lge.			

Commun	ity ID:	PEM	Transect ID	D:	Plot ID:	WET3N
SOILS						
Map Unit Na	me					
(Series and I				D	rainage Class:	
		firm Mapped Type?	Yes		_	
Taxonomy (S		-11 71			_	
, ,	3 - 17					
		Matrix Color	Mottle Colors	Mottle	Textures, Cond	retions, Structures,
Depth (in)	Horizon	(Munsell Moist)	(Munsell Moist)	Abundance/Contrast	etc.	,
0-9	110112011	10YR 4/1	10YR 5/8	Few / Prominent	Clay Loam	
9-12		10YR 3/1	10111 0/0	1 GW / 1 TOTHINGTIC	Clay Loam	
12-18		10YR 6/1	2.5Y 6/6	Few / Prominent.	Loamy Sand	
12-10		1011 6/1	2.31 0/0	rew / Fromment.	Loanly Sand	
Hydric Soil Ir	adioatora:	Voo	N	0		
-		res	N			
(If yes, check	k tnem)					
		_Histosol		Concretions		
		Histic Epidon		High Organic Content in		n Sandy Soils
_		_Sulfidic Odor		Organic Streaking in Sa	andy Soils	
_		Aquic Moisture Regime		Listed on Local Hydric S	Soils List	
	Χ	Reducing Conditions		Listed on National Hydr	ic Soils List	
•	Х	Gleyed or Low-Chroma C	colors	Other (explain in remark		
				_ ` '	,	
Remarks:						
rtomanto.						
WETLAND!	DETERMINE	ATION				
WETLAND I					0 " 5	NAPAL: NAC ALL I
Hydrophytic					s Sampling Point	Within a Wetland
Wetland Hyd				0		
Hydric Soils	Present?	Yes	X N	o Ye	sX	No
Remarks:	Pic 1591					

Project/Site:	1-64 Peninsula Sti	uay		Date:	6/27/201	1
Applicant/Owner:	VDOT			County:	Hampton	
nvestigator:	Bode / Doucette			State:	Virginia	
Community ID:	PEM		Transect ID:		Plot ID:	WET5N
Do Normal Conditions			Yes>		No	_
	disturbed (Atypical s	situation)?	Yes		No X	_
ls the area a potentia			Yes		No X	_
f needed, explain on	reverse					
/EGETATION						
	Dominant F	Plant Species				
Commor		Scientifi	c Name	Stratum	<u>. </u>	Indicator
 Black Wi 	llow	Salix nig	gra	Н		FACW+
Broadlea	f Cattail	Typha la	atifolia	Н		OBL
Commor	Rush	Juncus	effusus	Н		FACW+
4. Eastern	oaccharis	Bacchai	ris halimifolia	Н		FACW
5.						
6.						
7.						
7. 3.						
7. 3. 9.						
7. 3. 9. 10.						
7. 3. 9. 10. 11.						
7. 8. 9. 10. 11.	species that are OBL,	FACW or FAC		100%		
7. 3. 9. 10. 11. 12. Percent of dominant s	species that are OBL,	FACW or FAC		100%		_
7. 3. 9. 10. 11. 12. Percent of dominant s (excluding FAC-)	species that are OBL,	FACW or FAC		100%		_
7. 3. 9. 10. 11. 12. Percent of dominant s (excluding FAC-)	species that are OBL,	FACW or FAC		100%		
7. 3. 9. 10. 11. 12. Percent of dominant seculding FAC-) Remarks:	species that are OBL,	FACW or FAC		100%		_
7. 3. 9. 10. 11. 12. Percent of dominant s (excluding FAC-) Remarks:		FACW or FAC				
7. 3. 9. 10. 11. 12. Percent of dominant sexcluding FAC-) Remarks:	ribe in Remarks):	FACW or FAC	Wetland Hydrology	Indicators:		
7. 3. 9. 10. 11. 12. Percent of dominant sexcluding FAC-) Remarks:	ribe in Remarks): Streams		Primary Indicators:	Indicators:		
7. 3. 9. 10. 11. 12. Percent of dominant sexcluding FAC-) Remarks:	ribe in Remarks):StreamsAerial Photograph		Primary Indicators: Inunda	Indicators:		
7. 3. 9. 10. 11. 12. Percent of dominant sexcluding FAC-) Remarks: HYDROLOGY Recorded Data (Desc	ribe in Remarks):StreamsAerial PhotographOther		Primary Indicators: Inunda X Satura	Indicators: ated ated in Upper 12	inches	
7. 3. 9. 10. 11. 12. Percent of dominant services (excluding FAC-) Remarks: HYDROLOGY Recorded Data (Desc	ribe in Remarks):StreamsAerial Photograph		Primary Indicators: Inunda X Satura Water	Indicators: ated ated in Upper 12 Marks	inches	_
7. 3. 9. 10. 11. 12. Percent of dominant sexcluding FAC-) Remarks: HYDROLOGY Recorded Data (Desc	ribe in Remarks):StreamsAerial PhotographOther		Primary Indicators: Inunda X Satura Water Drift L	Indicators: ated ated in Upper 12 Marks ines	inches	
7. 3. 9. 10. 11. 12. Percent of dominant sexcluding FAC-) Remarks: HYDROLOGY Recorded Data (Description of the company of the	ribe in Remarks):StreamsAerial PhotographOther		Primary Indicators: Inunda X Satura Water Drift L Sedim	Indicators: ated ated in Upper 12 Marks ines ent Deposits		
7. 3. 3. 9. 10. 11. 12. Percent of dominant sexcluding FAC-) Remarks: HYDROLOGY Recorded Data (Descriptions)	eribe in Remarks):StreamsAerial PhotographOther rded Data Available		Primary Indicators: Inunda X Satura Water Drift L Sedim Draina	Indicators: ated ated in Upper 12 Marks ines ent Deposits age Patterns in W	Vetlands	
7. 3. 3. 9. 10. 11. 12. Percent of dominant sexcluding FAC-) Remarks: HYDROLOGY Recorded Data (Descriptions)	eribe in Remarks):StreamsAerial PhotographOther rded Data Available		Primary Indicators: Inunda X Satura Water Drift L Sedim	Indicators: ated ated in Upper 12 Marks ines ent Deposits age Patterns in W	Vetlands	
Percent of dominant sexcluding FAC-) Remarks: HYDROLOGY Recorded Data (Desconded Observations: Depth of Surface Wat	eribe in Remarks): Streams Aerial Photograph Other rded Data Available	hs	Primary Indicators: Inunda X Satura Water Drift L Sedim Draina Secondary Indicators:	Indicators: ated ated in Upper 12 Marks ines ent Deposits age Patterns in W	Vetlands quired):	inches
7. 3. 9. 10. 11. 12. Percent of dominant sexcluding FAC-) Remarks: HYDROLOGY Recorded Data (Desconded Data (D	eribe in Remarks): Streams Aerial Photograph Other rded Data Available er: n Pit:	hs N/A (in.)	Primary Indicators: Inunda X Satura Water Drift L Sedim Draina Secondary Indicato Oxidiz	Indicators: ated ated in Upper 12 Marks ines ent Deposits age Patterns in Wors (2 or more rec	Vetlands quired): els in Upper 12	inches
7. 3. 9. 10. 11. 12. Percent of dominant sexcluding FAC-) Remarks: HYDROLOGY Recorded Data (Desconded Data (D	eribe in Remarks): Streams Aerial Photograph Other rded Data Available er: n Pit:	ns <u>N/A</u> (in.) >18 (in.)	Primary Indicators: Inunda X Satura Water Drift L Sedim Draina Secondary Indicato Oxidiz Water	Indicators: ated ated in Upper 12 Marks ines ent Deposits age Patterns in Wors (2 or more receded at the position of the posi	Vetlands quired): els in Upper 12	inches
7. 8. 9. 10. 11. 12. Percent of dominant s (excluding FAC-) Remarks: HYDROLOGY Recorded Data (Desc	eribe in Remarks): Streams Aerial Photograph Other rded Data Available er: n Pit:	ns <u>N/A</u> (in.) >18 (in.)	Primary Indicators: Inunda X Satura Water Drift L Sedim Draina Secondary Indicato Oxidiz Water Local	Indicators: ated ated in Upper 12 Marks ines ent Deposits age Patterns in Wors (2 or more reded Root Channe)	Vetlands quired): els in Upper 12	inches
7. 8. 9. 10. 11. 12. Percent of dominant s (excluding FAC-) Remarks: HYDROLOGY Recorded Data (Description of Surface Water Depth to Free Water)	eribe in Remarks): Streams Aerial Photograph Other rded Data Available er: n Pit:	ns <u>N/A</u> (in.) >18 (in.)	Primary Indicators: Inunda X Satura Water Drift L Sedim Draina Secondary Indicato Oxidiz Water Local X FAC-N	Indicators: ated ated in Upper 12 Marks ines ent Deposits age Patterns in Wors (2 or more reded Root Channers) Stained Leaves Soil Survey Data	Vetlands quired): els in Upper 12	inches

Commun	ity ID:	PEM	Transect II	D:	Plot ID:	WET5N
			•			
SOILS						
Map Unit Na						
(Series and					rainage Class: _	
		firm Mapped Type?	Yes	No	_	
Taxonomy (Subgroup):					
		Matrix Color	Mottle Colors	Mottle	Textures, Cond	retions, Structures,
Depth (in)	Horizon	(Munsell Moist)	(Munsell Moist)	Abundance/Contrast	etc.	
0-3		10YR 4/1			Loamy Sand	
3-9		10YR 2/1			Sandy Clay	
9-18		10YR 4/2			Loamy Sand	
Hydric Soil II	ndicators:	Yes	N	lo		
(If yes, check		103				
(ii yes, check	K tileliij	Histosol		Concretions		
		Histic Epidon			Curtoso Lovor i	Sandy Saila
		Sulfidic Odor		High Organic Content in		i Sariuy Solis
				Organic Streaking in Sa		
		_Aquic Moisture Regime		Listed on Local Hydric S		
	X	_Reducing Conditions		Listed on National Hydri		
	X	Gleyed or Low-Chroma (Colors	Other (explain in remark	(S)	
Remarks:						
WETLAND I						
Hydrophytic	-		X	lo Is this	Sampling Point	Within a Wetland
Wetland Hyd	drology Pres	sent? Yes	X	lo		
Hydric Soils	Present?	Yes	X	lo Yes	sX	No
Remarks:	Photo 1594	ļ		•		
I						

Project/Site:	I-64 Peninsula S	oluuy		Date:	6/28/201	
Applicant/Owner:	VDOT			County:	Newport No	ews
Investigator:	Bode / Doucette			State:	Virginia	
Community ID:	PEM		Transect ID:		Plot ID:	WET9N
Do Normal Condition	s exist on the site?		Yes >	′	No	
	y disturbed (Atypical	situation)?	Yes		No X	_
ls the area a potentia		ondation).	Yes		No X	_
If needed, explain on						
VEGETATION						
	Dominant	Plant Species				
Commo			ic Name	Stratum	1	Indicator
1. Blunt Sp	ikerush	Eleocha	aris obtusa	Н		OBL
2. Deer To	ngue	Dichant	thelium clandestinum	Н		FAC+
3. Gray's S	edge	Carex g	grayi	Н		FACW+
4.						
5.						
6.						
3.						
3. 9.						
3. 9. 10.						
3. 9. 10. 11.						
8. 9. 10. 11. 12.						
8. 9. 10. 11. 12. Percent of dominant	species that are OBL	., FACW or FAC		100%		_
3. 9. 10. 11. 12. Percent of dominant (excluding FAC-)	species that are OBL	_, FACW or FAC		100%		_
3. 9. 10. 11. 12. Percent of dominant (excluding FAC-)	species that are OBL	., FACW or FAC		100%		
3. 9. 10. 11. 12. Percent of dominant (excluding FAC-)	species that are OBL	_, FACW or FAC		100%		_
8. 9. 10. 11. 12. Percent of dominant (excluding FAC-) Remarks:	species that are OBL	., FACW or FAC		100%		_
7. 8. 9. 10. 11. 12. Percent of dominant (excluding FAC-) Remarks: HYDROLOGY Recorded Data (Des		_, FACW or FAC	Wetland Hydrology			_
3. 9. 10. 11. 12. Percent of dominant (excluding FAC-) Remarks:		., FACW or FAC	Wetland Hydrology Primary Indicators:			
3. 9. 10. 11. 12. Percent of dominant (excluding FAC-) Remarks:	cribe in Remarks):			Indicators:		
3. 9. 10. 11. 12. Percent of dominant (excluding FAC-) Remarks:	cribe in Remarks): Streams		Primary Indicators: X Inunda	Indicators:		
3. 9. 10. 11. 12. Percent of dominant (excluding FAC-) Remarks: HYDROLOGY Recorded Data (Des	cribe in Remarks):StreamsAerial Photograp		Primary Indicators: X Inunda X Satura	Indicators:		
3. 9. 10. 11. 12. Percent of dominant (excluding FAC-) Remarks: HYDROLOGY Recorded Data (Des	cribe in Remarks):StreamsAerial PhotograpOther		Primary Indicators: X Inunda X Satura	Indicators: ated ated in Upper 12 Marks		
3. 9. 10. 11. 12. Percent of dominant (excluding FAC-) Remarks: HYDROLOGY Recorded Data (Des	cribe in Remarks):StreamsAerial PhotograpOther		Primary Indicators: X Inunda X Satura Water Drift L	Indicators: ated ated in Upper 12 Marks		
3. 9. 10. 11. 12. Percent of dominant excluding FAC-) Remarks: HYDROLOGY Recorded Data (Des	cribe in Remarks):StreamsAerial PhotograpOther		Primary Indicators: X Inunda X Satura Water Drift L Sedim	Indicators: ated ited in Upper 12 Marks nes	inches	
3. 9. 10. 11. 12. Percent of dominant excluding FAC-) Remarks: HYDROLOGY Recorded Data (Des No Recorded Observations:	cribe in Remarks):StreamsAerial PhotograpOther orded Data Available		Primary Indicators: X Inunda X Satura Water Drift L Sedim	Indicators: ated ted in Upper 12 Marks nes ent Deposits ige Patterns in V	inches	
3. 3. 3. 3. 3. 3. 3. 3. 3. 3. 3. 3. 3. 3	cribe in Remarks):StreamsAerial Photograp _Other orded Data Available	ohs	Primary Indicators: X Inunda X Satura Water Drift L Sedim Draina Secondary Indicators:	Indicators: ated ted in Upper 12 Marks nes ent Deposits ige Patterns in V	inches Vetlands quired):	rinches
3. 9. 10. 11. 12. Percent of dominant (excluding FAC-) Remarks: HYDROLOGY Recorded Data (Des No Recorded Des Field Observations: Depth of Surface Water	cribe in Remarks):Streams Aerial Photograp Other orded Data Available ter: in Pit:	ohs 1 (in.)	Primary Indicators: X Inunda X Satura Water Drift L Sedim Draina Secondary Indicato X Oxidiz	Indicators: ated Ited in Upper 12 Marks Ines Ines Ines Ines Ines Ines Ines Ine	inches Vetlands quired): els in Upper 12	· inches
8. 9. 10. 11. 12. Percent of dominant (excluding FAC-) Remarks: HYDROLOGY Recorded Data (Des	cribe in Remarks):Streams Aerial Photograp Other orded Data Available ter: in Pit:		Primary Indicators: X Inunda X Satura Water Drift L Sedim Draina Secondary Indicato X Oxidiz X Water	Indicators: ated ted in Upper 12 Marks nes ent Deposits age Patterns in Vors (2 or more re	inches Vetlands quired): els in Upper 12	rinches
8. 9. 10. 11. 12. Percent of dominant (excluding FAC-) Remarks: HYDROLOGY Recorded Data (Des No Recorded Des Field Observations: Depth of Surface Water	cribe in Remarks):Streams Aerial Photograp Other orded Data Available ter: in Pit:		Primary Indicators: X	Indicators: ated ted in Upper 12 Marks nes ent Deposits age Patterns in V ors (2 or more re ed Root Channe	inches Vetlands quired): els in Upper 12	rinches
8. 9. 10. 11. 12. Percent of dominant (excluding FAC-) Remarks: HYDROLOGY Recorded Data (Des No Recorded Des Field Observations: Depth of Surface Water	cribe in Remarks):Streams Aerial Photograp Other orded Data Available ter: in Pit:		Primary Indicators: X	Indicators: ated ated in Upper 12 Marks anes ent Deposits age Patterns in V ars (2 or more re ed Root Channe Stained Leaves Soil Survey Data	inches Vetlands quired): els in Upper 12	: inches

Commun	ity ID:	PEM	Transect I	D:	Plot ID:	WET9N
					·	
2011.5						
SOILS						
Map Unit Na				_	roinogo Olas-	
(Series and		firm Mapped Type?	Voc	No.	rainage Class:	
Taxonomy (Yes	No	_	
Taxononiy (oubgroup).					
		Matrix Color	Mottle Colors	Mottle	Textures, Co.	ncretions, Structures,
Depth (in)	Horizon	(Munsell Moist)	(Munsell Moist)	Abundance/Contrast		
0-3		2.5Y 3/1	,		Loam	
3-6		2.5Y 4/1			Clay loam	
6-18		2.5Y 4/1	10YR 5/8	Common/Prominent	Clay loam	
Hydric Soil II		Yes		No		
(If yes, check	k them)	18.4		0 "		
		_Histosol		Concretions	0 ()	. 0 1 0 "
		_Histic Epidon		High Organic Content in		in Sandy Soils
		_Sulfidic Odor		Organic Streaking in Sa		
	X	_Aquic Moisture Regime		Listed on Local Hydric Listed on National Hydr		
	X	Reducing Conditions Gleyed or Low-Chroma	Colors	Other (explain in remar		
	^	_ Cleyed of Low-Cilionia		Other (explain in reilla)	NO)	
Remarks:						
WETLAND I						
Hydrophytic					s Sampling Poir	nt Within a Wetland
Wetland Hyd				No		
Hydric Soils	Present?	Yes	XN	NoYe	s X	No
Remarks:	Photo 1613	3				

Project/Site:	I-64 Peninsula Study	у		Date:	6/29/201	
Applicant/Owner:	VDOT			County:	Newport No	ews
nvestigator:	Bode / Doucette			State:	Virginia	
Community ID:	PEM		Transect ID:		Plot ID:	WET12N
Do Normal Condition			Yes X		No	_
	y disturbed (Atypical situ	ation)?	Yes		No X	_
s the area a potentia			Yes		No X	_
f needed, explain on	reverse					
/EGETATION						
_	Dominant Pla			_		
Commor		Scientific		Stratum	<u> </u>	Indicator
1. Commor		Juncus e		Н		FACW+
2. Deer To	_		nelium clandestinum	Н		FAC+
3. Sweetgu		-	nbar styraciflua	S		FAC
4. Blunt Sp	ikerush	Eleocha	ris obtusa	Н		OBL
5.						
^						
7.						
7. 3.						
7. 3. 9.						
7. 3.). 10.						
7. 3. 9. 10. 11.						
7. 3. 9. 10. 11.						
7. 3. 9. 10. 11. Percent of dominants	species that are OBL, FA	ACW or FAC		100%		_
7. 3. 9. 10. 11. 12. Percent of dominant (excluding FAC-)	species that are OBL, FA	ACW or FAC		100%		_
7. 3. 9. 10. 11. 12. Percent of dominant (excluding FAC-)	species that are OBL, FA	ACW or FAC		100%		_
7. 3. 9. 10. 11. 12. Percent of dominant sexcluding FAC-)	species that are OBL, F <i>F</i>	ACW or FAC		100%		_
7. 3. 9. 10. 11. 12. Percent of dominant (excluding FAC-) Remarks:	species that are OBL, FA	ACW or FAC		100%		
6. 7. 8. 9. 10. 11. 12. Percent of dominant (excluding FAC-) Remarks: HYDROLOGY Recorded Data (Desc		ACW or FAC	Wetland Hydrology			
7. 3. 9. 10. 11. 12. Percent of dominant sexcluding FAC-) Remarks:		ACW or FAC	Wetland Hydrology Primary Indicators:			_
7. 3. 9. 10. 11. 12. Percent of dominant sexcluding FAC-) Remarks:	cribe in Remarks):	ACW or FAC		Indicators:		
7. 3. 9. 10. 11. 12. Percent of dominant sexcluding FAC-) Remarks:	cribe in Remarks):	ACW or FAC	Primary Indicators: Inunda	Indicators:		
7. 3. 9. 10. 11. 12. Percent of dominant (excluding FAC-) Remarks: HYDROLOGY Recorded Data (Desc	cribe in Remarks):StreamsAerial Photographs	ACW or FAC	Primary Indicators: Inunda	Indicators: ted ted in Upper 12		
7. 3. 9. 10. 11. 12. Percent of dominant (excluding FAC-) Remarks: HYDROLOGY Recorded Data (Desc	cribe in Remarks):StreamsAerial Photographs _Other	ACW or FAC	Primary Indicators: Inunda X Satura	Indicators: ted red in Upper 12 Warks		
7. 3. 9. 10. 11. 12. Percent of dominant (excluding FAC-) Remarks: HYDROLOGY Recorded Data (Desc	cribe in Remarks):StreamsAerial Photographs _Other	ACW or FAC	Primary Indicators: Inunda X Satura Water Drift Li	Indicators: ted ted in Upper 12 Marks nes		
Percent of dominant sexcluding FAC-) Remarks: HYDROLOGY Recorded Data (Desconded Data (Descon	cribe in Remarks):StreamsAerial Photographs _Other	ACW or FAC	Primary Indicators: Inunda X Satura Water Drift Li	Indicators: ted ted in Upper 12 Marks nes ent Deposits	inches	
7. 3. 3. 9. 10. 11. 12. Percent of dominant sexcluding FAC-) Remarks: HYDROLOGY Recorded Data (Descriptions)	cribe in Remarks):StreamsAerial PhotographsOther orded Data Available		Primary Indicators: Inunda X Satura Water Drift Li Sedime X Draina	Indicators: ted ted in Upper 12 Marks nes ent Deposits ge Patterns in V	inches	
7. 3. 9. 10. 11. 12. Percent of dominant sexcluding FAC-) Remarks: HYDROLOGY Recorded Data (Desconded Data (Desconded Data (Desconded Data)) Field Observations: Depth of Surface War	cribe in Remarks):StreamsAerial PhotographsOther orded Data Available	۸(in.)	Primary Indicators: Inunda X Satura Water Drift Li Sedime X Draina Secondary Indicato	Indicators: ted ted in Upper 12 Marks nes ent Deposits ge Patterns in W	inches Vetlands quired):	rinches
7. 3. 3. 9. 10. 11. 12. Percent of dominant : Excluding FAC-) Remarks: HYDROLOGY Recorded Data (Description of Surface Water Depth to Free Water)	cribe in Remarks): Streams Aerial Photographs Other orded Data Available ter: N/A in Pit: 0	<u>A(in.)</u>	Primary Indicators: Inunda X Satura Water Drift Li Sedim X Draina Secondary Indicato X Oxidize	Indicators: ted ted in Upper 12 Marks nes ent Deposits ge Patterns in V	inches Vetlands quired): els in Upper 12	inches
7. 3. 9. 10. 11. 12. Percent of dominant : (excluding FAC-) Remarks: HYDROLOGY Recorded Data (Description of Surface Ward Depth of Surface Ward Depth to Free Water	cribe in Remarks): Streams Aerial Photographs Other orded Data Available ter: N/A in Pit: 0	۸(in.)	Primary Indicators: Inunda X Satura Water Drift Li Sedim X Draina Secondary Indicato X Oxidize Water-	Indicators: ted ted in Upper 12 Warks nes ent Deposits ge Patterns in Wes ted Root Channe Stained Leaves	inches Vetlands quired): els in Upper 12	inches
7. 8. 9. 10. 11. 12. Percent of dominant (excluding FAC-) Remarks: HYDROLOGY Recorded Data (Desc	cribe in Remarks): Streams Aerial Photographs Other orded Data Available ter: N/A in Pit: 0	<u>A(in.)</u>	Primary Indicators: Inunda X Satura Water Drift Li Sedim X Draina Secondary Indicato X Oxidize Water- Local S	Indicators: ted ted in Upper 12 Warks nes ent Deposits ge Patterns in V rs (2 or more reced Root Channe Stained Leaves Soil Survey Data	inches Vetlands quired): els in Upper 12	inches
7. 8. 9. 10. 11. 12. Percent of dominant : (excluding FAC-) Remarks: HYDROLOGY Recorded Data (Description of Surface War Depth of Surface War Depth to Free Water	cribe in Remarks): Streams Aerial Photographs Other orded Data Available ter: N/A in Pit: 0	<u>A(in.)</u>	Primary Indicators: Inunda X Satura Water Drift Li Sedime X Draina Secondary Indicato X Oxidize Water- Local S X FAC-N	Indicators: ted ted in Upper 12 Warks nes ent Deposits ge Patterns in Wes ted Root Channe Stained Leaves	inches Vetlands quired): els in Upper 12	inches

Commun	ity ID:	PEM	Transect I	D:	Plot ID:	WET12N
					_	
SOILS						
Map Unit Na	ime					
(Series and				D	rainage Class:	
		firm Mapped Type?	Yes	No	_	
Taxonomy (,.		_	_	
	0 17					
		Matrix Color	Mottle Colors	Mottle	Textures, Cond	retions, Structures,
Depth (in)	Horizon	(Munsell Moist)	(Munsell Moist)	Abundance/Contrast	etc.	,
0-2		10YR 5/1	10YR 6/8	Few/Prominent	Sandy clay	
2-18		2.5YR 4/2	7.5YR 4/6	Common/Prominent	Sandy clay	
					carray elay	
I I delete Cattle		Vaa		N.		
Hydric Soil I		Yes_		No		
(If yes, chec	k them)					
		_Histosol		Concretions		
		_Histic Epidon		High Organic Content in		n Sandy Soils
		_Sulfidic Odor		Organic Streaking in Sa	•	
		Aquic Moisture Regime		Listed on Local Hydric S		
	Χ	Reducing Conditions		Listed on National Hydr		
	Χ	_Gleyed or Low-Chroma C	olors	Other (explain in remark	<s)< td=""><td></td></s)<>	
Remarks:						
WETLAND I	DETERMIN	ATION				
Hydrophytic	Vegetation	Present? Yes	X	No Is this	Sampling Point	Within a Wetland
Wetland Hyd	-			No	. 0	
Hydric Soils		Yes			sX	No
		_				
Remarks:	Photo 1615)		I		
		•				

Project/Site:	I-64 Peninsula Study				Date:	6/29/201	1
Applicant/Owner:	VDOT				County:	Newport Ne	ews
Investigator:	Bode / Doucette				State:	Virginia	
Community ID:	PFO		Transect ID:		_	Plot ID:	WET14N
Do Normal Conditions	s exist on the site?		Yes	Х	N	lo	
Is the site significantly	y disturbed (Atypical situation	on)?	Yes		N	lo X	_
Is the area a potentia	I Problem Area?		Yes		N	lo X	-
If needed, explain on	reverse						_
VEGETATION							
	Dominant Plant	Species					
Commor		Scientific Na	ıme		Stratum		Indicator
1. Red map	ole	Acer rubrum)		T/S		FAC
2. Willow C	Dak	Quercus phe	ellos		T		FAC+
Sweetgu	ım	Liquidambai	r styraciflua		T/S		FAC
4. Poison Iv	vy	Toxicodendi	ron radicans		V		FAC
5. Roundle	af Greenbriar	Smilax rotur	ndifolia		V		FAC
6.							
7.							
8.							
9.							
10.							
11.							
12.		M			4000/		
	species that are OBL, FAC	vv or FAC	_		100%		_
(excluding FAC-) Remarks:							
Remarks.							
HYDROLOGY							
Recorded Data (Desc	·		Wetland Hydro	0.	icators:		
	Streams		Primary Indica				
	Aerial Photographs			nundated			
N D	Other				in Upper 12 i	inches	
No Reco	orded Data Available			/ater Mar rift Lines			
Field Observations:				ediment	-	/otlondo	
Depth of Surface Wat	ter: 3	(in.)	Secondary Inc	_	Patterns in W		
Depth to Free Water	-	— (in.)		•		ls in Upper 12	inches
Depth to Saturated S		— (in.)			ined Leaves	is in Opper 12	IIICIICS
		()			Survey Data		
				AC-Neuti	•		
					olain in Rema	arks)	
				(= ×)		·/	
Remarks:			<u> </u>				

Commun	ity ID:	PFO	Transect II	D:	Plot ID:	WET14N
					_	
SOILS						
Map Unit Na	me					
(Series and	Phase):				rainage Class:	
Field Observ	ations Con	firm Mapped Type?	Yes	No	_	
Taxonomy (_	
,						
		Matrix Color	Mottle Colors	Mottle	Textures, Cond	cretions, Structures,
Depth (in)	Horizon	(Munsell Moist)	(Munsell Moist)	Abundance/Contrast	etc.	
0-5		10YR 4/2	,		Clay loam	
5-11		10YR 6/1	10YR 6/8		Clay loam	
11-18		10YR 4/1			Clay	
					J ,	
Hydric Soil II		Yes	N	lo		
(If yes, check	k them)					
		_ Histosol		Concretions		
		Histic Epidon		High Organic Content in	Surface Layer in	n Sandy Soils
		Sulfidic Odor		Organic Streaking in Sa	ndy Soils	
•		Aquic Moisture Regime		Listed on Local Hydric S		
	Х	Reducing Conditions		Listed on National Hydri		
	Х	Gleyed or Low-Chroma C	Colors	Other (explain in remark		
•		,				
Remarks:						
rtemants.						
WETLAND!	DETERMIN	ATION				
WETLAND I			V 1	In 1. a.e.	Complice Delit	\\/\!\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\
Hydrophytic					s Sampling Point	Within a Wetland
Wetland Hyd				0		
Hydric Soils	Present?	Yes	X N	loYes	s <u>X</u>	No
_						
Remarks:	Photos 162	29 and 1630				

Applicant/Owner: VDOT				County:	Newport Ne	Newport News	
nvestigator:	Bode / Doucette	e		State:	Virginia		
Community ID:	PEM		Transect ID:		Plot ID:	WET16N	
2 - N 1 O 154	i		V \	,	1-		
	ions exist on the site?	Laituation\2	Yes>		lo		
-	intly disturbed (Atypica ntial Problem Area?	i situation)?	Yes Yes		10 X 10 X	_	
f needed, explain			res		NO	_	
Theeded, explain	OII TEVEISE						
/EGETATION							
		t Plant Species	N	0, ,		1 12 4	
	mon Name	Scientifi		Stratum		Indicator	
1. Red l	•	Acer rul		T		FAC	
2. Swee	-		mbar styraciflua	S/T		FAC	
	lly Pine	Pinus ta		S/T		FAC-	
4. Black		Nyssa s	-	S/T		FAC	
5. Poiso	•		lendron radicans	V		FAC	
	dleaf Greenbrier		rotundifolia	V		FAC	
Comr	non Rush	Juncus	effusus	Н		FACW+	
3.							
3. 9.							
3. 9.							
3. 9. 10. 11.							
3. 9. 10. 11. 12.							
3. 9. 10. 11. 12. Percent of domina	int species that are OB	L, FACW or FAC		86%		_	
3. 9. 10. 11. 12. Percent of domina (excluding FAC-)	int species that are OB	L, FACW or FAC		86%		_	
3. 9. 10. 11. 12. Percent of domina	int species that are OB	L, FACW or FAC		86%		_	
3. 9. 10. 11. 12. Percent of domina (excluding FAC-)	int species that are OB	L, FACW or FAC		86%		_	
3. 9. 10. 11. 12. Percent of domina (excluding FAC-) Remarks:	int species that are OB	L, FACW or FAC		86%		_	
3. 9. 10. 11. 12. Percent of domina (excluding FAC-) Remarks:	int species that are OB	L, FACW or FAC	Wetland Hydrology			_	
3. 10. 11. 12. Percent of domina (excluding FAC-) Remarks:		L, FACW or FAC					
3. 10. 11. 12. Percent of domina excluding FAC-) Remarks:	escribe in Remarks):Streams		Primary Indicators:	Indicators:			
3. 10. 11. 12. Percent of domina excluding FAC-) Remarks:	escribe in Remarks):StreamsAerial Photogra		Primary Indicators: X Inunda	Indicators:	inches		
3. 9. 10. 11. 12. Percent of domina (excluding FAC-) Remarks: HYDROLOGY Recorded Data (D	escribe in Remarks):StreamsAerial Photogra	phs	Primary Indicators: X Inunda X Satura	Indicators: ated ted in Upper 12	inches		
3. 9. 10. 11. 12. Percent of domina (excluding FAC-) Remarks: HYDROLOGY Recorded Data (D	escribe in Remarks):StreamsAerial Photogra	phs	Primary Indicators: X Inunda X Satura X Water	Indicators: ated ted in Upper 12 Marks	inches		
3. 9. 10. 11. 12. Percent of domina excluding FAC-) Remarks: HYDROLOGY Recorded Data (D	escribe in Remarks):StreamsAerial Photogra	phs	Primary Indicators: X Inunda X Satura X Water X Drift L	Indicators: ated ted in Upper 12 Marks nes	inches		
3. 9. 10. 11. 12. Percent of domina excluding FAC-) Remarks: HYDROLOGY Recorded Data (D	escribe in Remarks): Streams Aerial Photogra Other ecorded Data Available	phs	Primary Indicators: X Inunda X Satura X Water X Drift L Sedim	Indicators: ated ted in Upper 12 Marks nes ent Deposits			
3. 9. 10. 11. 12. Percent of domina excluding FAC-) Remarks: HYDROLOGY Recorded Data (D No Reference of the property of the	escribe in Remarks):StreamsAerial PhotograOther ecorded Data Available	phs	Primary Indicators: X Inunda X Satura X Water X Drift L Sedim Draina	Indicators: ated ted in Upper 12 Marks nes ent Deposits ge Patterns in W	Vetlands		
3. 9. 10. 11. 12. Percent of domina (excluding FAC-) Remarks: HYDROLOGY Recorded Data (D No Recorded Observations Depth of Surface N	escribe in Remarks): Streams Aerial Photogra Other ecorded Data Available s: Water:	nphs	Primary Indicators: X	Indicators: ated ted in Upper 12 Marks nes ent Deposits ge Patterns in W	Vetlands quired):	inchas	
3. 9. 10. 11. 12. Percent of domina (excluding FAC-) Remarks: HYDROLOGY Recorded Data (Depth of Surface Vace) Depth to Free War	escribe in Remarks): Streams Aerial Photogra Other ecorded Data Available S: Water:	nphs 3 (in.) 1 (in.)	Primary Indicators: X	Indicators: ated ted in Upper 12 Marks nes ent Deposits ge Patterns in Wars (2 or more receded Root Channe	Vetlands quired): els in Upper 12	inches	
3. 9. 10. 11. 12. Percent of domina (excluding FAC-) Remarks: HYDROLOGY Recorded Data (D	escribe in Remarks): Streams Aerial Photogra Other ecorded Data Available S: Water:	nphs	Primary Indicators: X	Indicators: ated ted in Upper 12 Marks nes ent Deposits ge Patterns in W ars (2 or more red ed Root Channe Stained Leaves	Vetlands quired): els in Upper 12	inches	
3. 9. 10. 11. 12. Percent of domina (excluding FAC-) Remarks: HYDROLOGY Recorded Data (D No Report of Surface (Depth to Free War	escribe in Remarks): Streams Aerial Photogra Other ecorded Data Available S: Water:	nphs 3 (in.) 1 (in.)	Primary Indicators: X	Indicators: ated ted in Upper 12 Marks nes ent Deposits ge Patterns in Wars (2 or more reded Root Channe) Stained Leaves Soil Survey Data	Vetlands quired): els in Upper 12	inches	
3. 9. 10. 11. 12. Percent of domina (excluding FAC-) Remarks: HYDROLOGY Recorded Data (D No Report of Surface (Depth to Free War	escribe in Remarks): Streams Aerial Photogra Other ecorded Data Available S: Water:	nphs 3 (in.) 1 (in.)	Primary Indicators: X	Indicators: ated ted in Upper 12 Marks nes ent Deposits ge Patterns in Wars (2 or more reded Root Channeed Stained Leaves Soil Survey Data	Vetlands quired): lls in Upper 12	inches	
3. 9. 10. 11. 12. Percent of domina (excluding FAC-) Remarks: HYDROLOGY Recorded Data (Depth of Surface Vace) Depth to Free War	escribe in Remarks): Streams Aerial Photogra Other ecorded Data Available S: Water:	nphs 3 (in.) 1 (in.)	Primary Indicators: X	Indicators: ated ted in Upper 12 Marks nes ent Deposits ge Patterns in Wars (2 or more reded Root Channe) Stained Leaves Soil Survey Data	Vetlands quired): lls in Upper 12	inches	

Community ID: PEM Transect ID:			D:	Plot ID:	WET16N	
		_	=	_		
SOILS						
Map Unit Na	ime					
(Series and	Phase):			D	rainage Class:	
Field Observ	ations Con	firm Mapped Type?	Yes	No		
Taxonomy (_	
	• . ,					
		Matrix Color	Mottle Colors	Mottle	Textures, Cond	retions, Structures,
Depth (in)	Horizon	(Munsell Moist)	(Munsell Moist)	Abundance/Contrast	etc.	,
0-2		10YR 3/2	(11101110111111111111111111111111111111		Sany loam	
2-18		10YR 3/1	2.5Y 7/6		Clay loam	
2 10		10111 0/1	2.01 170		Olay loain	
1						
		.,				
Hydric Soil I		Yes	N	0		
(If yes, chec	k them)					
,		_Histosol		Concretions		
		_Histic Epidon		High Organic Content in		n Sandy Soils
		_Sulfidic Odor		Organic Streaking in Sa		
		_Aquic Moisture Regime		Listed on Local Hydric S	Soils List	
	Χ	Reducing Conditions		Listed on National Hydr	ic Soils List	
	Χ	Gleyed or Low-Chroma	Colors	Other (explain in remark	ks)	
		_		_		
Remarks:						
WETLAND I	DETERMIN	ATION				
Hydrophytic			X N	o Is this	s Sampling Point	Within a Wetland
Wetland Hyd					, 3	
Hydric Soils		Yes			sX	No
, 5 55.10		100				
Remarks:	Photo 1636	3		<u> </u>		
. tomanto.	. 11010 1000	•				

Project/Site:	I-64 Peninsula Stu	ıdy		Date:	6/29/201	1
Applicant/Owner	: VDOT			County:	Newport Ne	ews
Investigator:	Bode / Doucette			State:	Virginia	
Community ID:	PFO		Transect ID:		Plot ID:	WET17N
	litions exist on the site?				No	_
•	cantly disturbed (Atypical si	tuation)?	Yes		No X	_
-	ential Problem Area?		Yes		No X	_
If needed, explai	n on reverse					
VEGETATION						
		lant Species				
	nmon Name	Scientific		Stratum	<u> </u>	Indicator
	eetgum	=	bar styraciflua	Т		FAC
	ck Gum	Nyssa sy	rlvatica	Т		FAC
Lobl	Iolly Pine	Pinus tae	eda	Т		FAC-
	l Maple	Acer rub	rum	Т		FAC
Pois	son Ivy	Toxicode	endron radicans	V		FAC
6. Willo	ow Oak	Quercus	phellos	Т		FAC+
7. Rou	ındleaf Greenbrier	Smilax ro	otundifolia	V		FAC
8.						
9.						
10.						
11.						
12.						
Percent of domin	nant species that are OBL,	FACW or FAC		86%		
(excluding FAC-))					
Remarks:						
HYDROLOGY Pocorded Data (Describe in Remarks):		Wetland Hydrology	/ Indicators:		
Recorded Data (Streams		Primary Indicators			
		•	·			
	Aerial Photograph	5	X Inund		in also a	
NI- I	Other			ated in Upper 12	inches	
NO I	Recorded Data Available			r Marks		
			Drift L			
				nent Deposits		
Field Observation				age Patterns in V		
Depth of Surface		1 (in.)	Secondary Indicat			
Depth to Free Wa		0 (in.)		zed Root Channe		inches
Depth to Saturate	ed Soil:	0(in.)		r-Stained Leaves		
				Soil Survey Data	ì	
				Neutral Test		
			Other	(Explain in Rem	arks)	
Remarks:						

Community ID:		PFO Transect ID:			Plot ID:	WET17N
SOILS						
Map Unit Na	me					
(Series and I	Phase):				rainage Class:	
Field Observ	ations Con	firm Mapped Type?	Yes	No		
Taxonomy (S	Subgroup):					
		Matrix Color	Mottle Colors	Mottle	Textures, Con	cretions, Structures,
Depth (in)	Horizon	(Munsell Moist)	(Munsell Moist)	Abundance/Contrast	etc.	
2-0	0				Organic	
0-6		10YR 4/1	7.5YR 5/6	Common/Prominent	Clay loam	
6-18		2.5Y 7/2	2.5Y 7/6	Common/Prominent	Clay loam	
Lludria Cail Ir	a dia atara.	Vaa	N			
Hydric Soil Ir		Yes	N	0		
(If yes, checl	k tnem)	18.4				
		_Histosol		_ Concretions		
		_Histic Epidon		High Organic Content in		in Sandy Soils
		_Sulfidic Odor		Organic Streaking in Sa		
		_Aquic Moisture Regime		_Listed on Local Hydric S		
	Χ	Reducing Conditions		_Listed on National Hydr		
_	Χ	Gleyed or Low-Chroma C	Colors	Other (explain in remark	(S)	
Remarks:						
WETLAND I	DETERMIN	ATION				
Hydrophytic	Vegetation	Present? Yes	X N	o Is this	Sampling Poin	t Within a Wetland
Wetland Hyd				0	. 5	
Hydric Soils		Yes	X		sX	No
		100				
Remarks:	Photo 1638	3		<u> </u>		
. Comanto.		•				

Project/Site:	I-64 Peninsula Study				Date:	6/29/2011	
Applicant/Owner:	VDOT				County:	Newport New	<u> </u>
Investigator:	Bode / Doucette				State:	Virginia	
					_		
Community ID:	PFO		Transect ID:			Plot ID:	WET18N
			-		_	•	
Do Normal Conditions	exist on the site?		Yes	Х	No	0	
Is the site significantly	disturbed (Atypical situation	on)?	Yes		- No	o X	
Is the area a potential I	Problem Area?		Yes		- No	o X	
If needed, explain on re			-				
VEGETATION							
	Dominant Plant	Species					
Common		Scientific Na	ıme		Stratum		Indicator
1. Sweetgum	<u> </u>	Liquidambai	r styraciflua		T		FAC
2. Black Gun		Nyssa sylva	-		Т		FAC
3. Loblolly Pi	ne	Pinus taeda			Т		FAC-
4. Red Maple		Acer rubrum)		Т		FAC
5. Poison Ivy		Toxicodendi	ron radicans		V		FAC
6. Willow Oa		Quercus phe	ellos		Т		FAC+
7. Roundleaf	Greenbrier	Smilax rotur	ndifolia		V		FAC
8. Soft Rush		Juncus effusus		Н		FACW+	
9.							
10.							
11.							
12.							
Percent of dominant sp	ecies that are OBL, FAC\	N or FAC			88%		
(excluding FAC-)			-				
Remarks:							
HYDROLOGY							
Recorded Data (Descri	be in Remarks):		Wetland Hyd	Irology Indic	cators:		
	Streams		Primary India	cators:			
	Aerial Photographs			Inundated			
	Other		Х	Saturated in	n Upper 12 i	nches	
No Record	ded Data Available			Water Mark	(S		
				Drift Lines			
				Sediment D	eposits		
Field Observations:				Drainage P	atterns in W	etlands	
Depth of Surface Wate	r: N/A	(in.)	Secondary Ir	ndicators (2	or more req	uired):	
Depth to Free Water in	Pit: 0	(in.)	X	Oxidized Ro	oot Channels	s in Upper 12 in	ches
Depth to Saturated Soi	l: 0	(in.)	Х	Water-Stair	ned Leaves		
				Local Soil S	Survey Data		
			Х	FAC-Neutra	al Test		
				Other (Expl	ain in Rema	rks)	
Remarks:	<u> </u>						

Commun	ity ID:	PFO	Transect ID):	Plot ID:	WET18N
					_	
SOILS						
Map Unit Na	ıme					
(Series and				D	rainage Class:	
		firm Mapped Type?	Yes		_	
Taxonomy (,.			_	
	0 17					
		Matrix Color	Mottle Colors	Mottle	Textures, Cond	retions, Structures,
Depth (in)	Horizon	(Munsell Moist)	(Munsell Moist)	Abundance/Contrast	etc.	,
2-0	0	,	,		Organic	
0-6		10 YR 4/1	7.5 YR 5/6	Common/Prominent	Clay loam	
6-18		2.5 Y 7/2	2.5 Y 7/6	Common/Distinct	Clay loam	
Hydric Soil I	ndicators:	Yes	N	0		
(If yes, chec		100		<u> </u>		
(11 y 00, 01100	it thomy	Histosol		Concretions		
		Histic Epidon		High Organic Content in	Surface Laver i	n Sandy Soils
		Sulfidic Odor		Organic Streaking in Sa		Todilay oolis
		Aquic Moisture Regime		Listed on Local Hydric S	-	
	X	Reducing Conditions		Listed on National Hydri		
	X	Gleyed or Low-Chroma C	`oloro	Other (explain in remark		
	^	_Gleyed of Low-Chroma C		_Other (explain in remain	(5)	
Remarks:						
Remarks.						
WETLAND	DETERMIN	ATION				
			V N	o lo thio	Compling Daint	Mithin a Matland
Hydrophytic	-				sampling Point	Within a Wetland
Wetland Hyd				0	- V	Na
Hydric Soils	rresent?	Yes	XN	Yes	sX	No
Domestee	Dhote 4000	1				
Remarks:	Photo 1639	1				

Project/Site:	I-64 Peninsula			Date:	6/29/201	1
Applicant/Owner:				County:	Newport No	ews
Investigator:	Bode / Doucette			State:	Virginia	
Community ID:	PFO		Transect ID:		Plot ID:	WET19N
	ns exist on the site?		Yes_	X	No	_
-	ly disturbed (Atypical situat	tion)?	Yes		NoX	_
Is the area a potenti			Yes		No X	_
If needed, explain or	n reverse					
VEGETATION						
	Dominant Plan	-				
	on Name	Scientifi	c Name	Stratum	<u> </u>	Indicator
	an Hornbeam	Carpinu	s caroliniana	Т		FAC
Lizard's	Tail	Saururu	s cernuus	Н		OBL
Red Ma	ple	Acer ruk	orum	Т		FAC
Sweetg	um	Liquidar	mbar styraciflua	Т		FAC
5.						
6.						
7.						
8.						
9.						
10.						
11.						
12.						
Percent of dominant	species that are OBL, FAC	CW or FAC		100%		
(excluding FAC-)						
Remarks:						
HYDROLOGY						
Recorded Data (Des	scribe in Remarks):		Wetland Hydro	logy Indicators:		
	Streams		Primary Indica	tors:		
	Aerial Photographs			undated		
	Other		X Sa	aturated in Upper 12	inches	
No Rec	orded Data Available			ater Marks		
				rift Lines		
			Se	ediment Deposits		
Field Observations:				rainage Patterns in V	Vetlands	
Depth of Surface Wa	ater: N/A	(in.)		icators (2 or more re		
Depth to Free Water		(in.)		xidized Root Channe		inches
Depth to Saturated S		(in.)		ater-Stained Leaves		11101100
Dopin to Gatarated t		()		ocal Soil Survey Data		
				AC-Neutral Test	4	
				ther (Explain in Rem	arke)	
			├	niei (Evhiain in Mein	aino)	
Remarks:						
i tomants.						

Community ID:	PFO	PFO Transect ID:			WET19N		
SOILS							
Map Unit Name							
(Series and Phase):			Dı	rainage Class:			
	onfirm Mapped Type?	Yes	No	_			
Taxonomy (Subgroup):						
	Matrix Color	Mottle Colors	Mottle	Textures, Conci	retions, Structures,		
Depth (in) Horizon	n (Munsell Moist)	(Munsell Moist)	Abundance/Contrast	etc.			
0-18	10 YR 4/1			Clay loam			
Hydric Soil Indicators:	Yes	N	0				
(If yes, check them)							
	Histosol		Concretions				
	Histic Epidon		High Organic Content in		Sandy Soils		
	Sulfidic Odor		Organic Streaking in Sandy Soils				
	Aquic Moisture Regime		_Listed on Local Hydric S				
X	Reducing Conditions		Listed on National Hydri				
X	Gleyed or Low-Chroma C	colors	_Other (explain in remark	Other (explain in remarks)			
Remarks:							
WETLAND DETERM			1				
Hydrophytic Vegetatio	-			Sampling Point \	Within a Wetland		
Wetland Hydrology Pr		X N					
Hydric Soils Present?	Yes	XN	oYes	SX	No		
Remarks: Photo 16	41						

Project/Site:	1-64 Peninsula Study	<u> </u>			Date:	6/29/20	
Applicant/Owner:	VDOT				County:	Newport I	News
Investigator:	Bode				State:	Virginia	
Community ID:	PFO		Transect ID:			Plot ID:	WET 20N
							(Newport News Reservo
Do Normal Conditions	a aviet on the site?		Yes	X		lo	
	disturbed (Atypical situa	ation\2	Yes	^		lo X	
Is the area a potentia		ation):	Yes			lo X	
If needed, explain on			163_		_ '`	10 <u>X</u>	
VEGETATION							
	Dominant Plai	=			a		
Commor		Scientifi			Stratum	_	Indicator
1. Slippery		Ulmus r			T _		FAC
2. Red Map		Acer ruk			T		FAC
3. Black Gu		Nyssa s			T		FAC
4. Loblolly		Pinus ta			T		FAC-
5. Poison Iv	/y	Toxicod	endron radicans		V		FAC
6.							
7.							
8.							
9.							
10.							
11.							
12.							
	species that are OBL, FA	CW or FAC	_		80%		
(excluding FAC-)							
Remarks:							
HYDROLOGY							
Recorded Data (Desc	cribe in Remarks):		Wetland Hyd	rology Ind	licators:		
	Streams		Primary Indic	ators:			
	Aerial Photographs			nundated			
	Other		X	Saturated	in Upper 12	inches	
No Reco	rded Data Available		,	Nater Ma	rks		
				Drift Lines	i		
				Sediment	Deposits		
Field Observations:				Orainage I	Patterns in W	/etlands	
Depth of Surface Wat	er: N/A	(in.)	Secondary In	dicators (2 or more red	quired):	
Depth to Free Water	in Pit: >18	(in.)	X	Oxidized F	Root Channe	ls in Upper 1	12 inches
Depth to Saturated S		(in.)			ined Leaves	• • •	
		``		_ocal Soil	Survey Data		
				FAC-Neut	-		
				Other (Exp	plain in Rema	arks)	
						,	
Remarks:			1				

Commun	ity ID:	PFO	Transect II	Plot ID:	WET20N	
			_	•		
SOILS						
Map Unit Na	ame					
(Series and				D	rainage Class:	
		firm Mapped Type?	Yes		_	
Taxonomy (_	
(cabgicap).					
		Matrix Color	Mottle Colors	Mottle	Textures Con	cretions, Structures,
Depth (in)	Horizon	(Munsell Moist)	(Munsell Moist)	Abundance/Contrast	etc.	sictions, otractares,
0-5	110112011	10YR 3/2	10YR 5/8	Common/Prominent	Clay loam	
5-18		10YR 5/1	10YR 5/8	Common/Prominent	Clay	
		V	. N	1-		
Hydric Soil I		Yes	N	lo		
(If yes, chec	k them)					
		_Histosol		Concretions		
		_Histic Epidon		High Organic Content in High Organic Conte	า Surface Layer i	n Sandy Soils
		_Sulfidic Odor		Organic Streaking in Sa	andy Soils	
		Aquic Moisture Regime		Listed on Local Hydric	Soils List	
	X	Reducing Conditions		Listed on National Hydr	ic Soils List	
	X	Gleyed or Low-Chroma	Colors	Other (explain in remar		
		_ ′		_ ` '	,	
Remarks:						
WETLAND	DETERMIN	ATION				
WETLAND			V		0 1 0 0	10/2012 10/2010 1
Hydrophytic	•				s Sampling Point	: Within a Wetland
Wetland Hyd				lo		
Hydric Soils	Present?	Yes	sX N	lo Ye	s X	No
Remarks:	Photo 1644	1				

Project/Site:	I-64 Peninsula Study				Date:	6/29/2011	1
Applicant/Owner:	VDOT				County:	Newport Ne	WS
Investigator:	Bode				State:	Virginia	
Community ID:	PFO	_	Transect ID:			Plot ID:	WET21N
Do Normal Conditions	oviet on the cite?		Yes	X	N	2	
	disturbed (Atypical situati	on\2	Yes	^	. N		_
Is the area a potential		011):	Yes		. N		-
If needed, explain on r			163			<u> </u>	_
VEGETATION							
	Dominant Plant	Species					
Common	Name	Scientific N	lame		Stratum	_	Indicator
1. Green As	h	Fraxinus p	ennsylvanica		Т		FACW
Sweetgur		Liquidamb	ar styraciflua		Т		FAC
3. Red Mapl		Acer rubru			Т		FAC
4. Loblolly P		Pinus taed			Т		FAC-
	Hornbeam	Carpinus d	aroliniana		Т		FAC
6.							
7.							
8.							
9.							
10. 11.							
12.							
	pecies that are OBL, FAC	W or EAC			80%		
(excluding FAC-)	pooles that are ODE, 1710	VV 01 1 7.0			0070		_
Remarks:							
HYDROLOGY							
Recorded Data (Descr	rihe in Remarks):		Wetland Hydro	logy Indic	ators:		
Trocorded Bala (Beech	Streams		Primary Indicat		atoro.		
	Aerial Photographs		· ·	undated			
	Other				Upper 12 i	nches	
No Recor	ded Data Available			ater Mark			
			Dr	rift Lines			
			Se	ediment D	eposits		
Field Observations:			Dr	rainage Pa	atterns in W	etlands	
Depth of Surface Water	er: 4	(in.)	Secondary Indi	icators (2	or more req	uired):	
Depth to Free Water in	n Pit: 0	(in.)		xidized Ro	ot Channel	s in Upper 12	inches
Depth to Saturated So	oil: 0	(in.)	X W	ater-Stain	ed Leaves		
					urvey Data		
				AC-Neutra			
			Ot	ther (Expla	ain in Rema	rks)	
Remarks:							

Commun	ity ID:	PFO	Transect ID	D:	Plot ID:	WET21N
					_	
SOILS						
Map Unit Na						
(Series and				D	rainage Class: _	
		firm Mapped Type?	Yes	No	_	
Taxonomy (Subgroup):					
		Matrix Color	Mottle Colors	Mottle	Textures, Cond	cretions, Structures,
Depth (in)	Horizon	(Munsell Moist)	(Munsell Moist)	Abundance/Contrast	etc.	
0-4		10YR 3/2			Clay loam	
4-9		10YR 5/1			Clay loam	
9-18		10YR 6/2	10YR 5/6	Common/Prominent	Clay	
Hydric Soil II	ndicators:	Yes	N	0		
(If yes, check		100				
(ii yes, check	K tiletii)	Histosol		Concretions		
		Histic Epidon		High Organic Content in	Surface Layer i	n Sandy Sails
		Sulfidic Odor				ii Sanuy Solis
		_		Organic Streaking in Sa		
		_Aquic Moisture Regime		Listed on Local Hydric S		
	X	_Reducing Conditions		Listed on National Hydro		
	Х	Gleyed or Low-Chroma C	Colors	_Other (explain in remark	(S)	
Remarks:						
WETLAND I						
Hydrophytic	-		X	o Is this	Sampling Point	Within a Wetland
Wetland Hyd	drology Pres	sent? Yes	X N	0		
Hydric Soils	Present?	Yes	X	o Yes	sX	No
Remarks:	Photo 1645	5		•		

Applicant/Owner: Investigator:						
Investigator:				County:	Newport Ne	ews
	Bode / Doucette			State:	Virginia	
Community ID:	PFO	_	Transect ID:		Plot ID:	WET22N
Do Normal Conditions			Yes		lo	
	disturbed (Atypical situa	tion)?	Yes_		lo X	
s the area a potential			Yes	N	lo X	
f needed, explain on i	reverse					
/EGETATION						
	Dominant Plan	t Species				
Common		Scientific	c Name	Stratum		Indicator
1. Red Map		Acer rub	orum	Т		FAC
	Hornbeam	-	s caroliniana	Т		FAC
3. Tuliptree		Lirioden	dron tulipifera	Т		FACU
4. Hazel Ald	ler	Alnus se		S		OBL
5. Sweetgur	m	Liquidan	nbar styraciflua	Т		FAC
6.						
7.						
3.						
).						
10.						
11.						
11. 12.	pecies that are OBL, FA	CW or FAC	_	80%		_
11. 12. Percent of dominant s	pecies that are OBL, FA	CW or FAC	_	80%		_
11.Percent of dominant sexcluding FAC-)	pecies that are OBL, FA	CW or FAC	_	80%		_
1. 2. Percent of dominant s excluding FAC-)	pecies that are OBL, FA	CW or FAC	-	80%		_
11. 12. Percent of dominant s (excluding FAC-) Remarks:	pecies that are OBL, FA	CW or FAC	_	80%		_
11. Percent of dominant s excluding FAC-) Remarks: HYDROLOGY		CW or FAC	Wetland Hydro			_
I1. I2. Percent of dominant s excluding FAC-) Remarks: HYDROLOGY	ribe in Remarks):	CW or FAC		ology Indicators:		_
11. 12. Percent of dominant s excluding FAC-) Remarks: HYDROLOGY	ribe in Remarks): Streams	CW or FAC	Primary Indica	ology Indicators:		_
11. 12. Percent of dominant s excluding FAC-) Remarks: HYDROLOGY	ribe in Remarks):StreamsAerial Photographs	CW or FAC	Primary Indica X In	ology Indicators: tors: undated	inches	_
I1. I2. Percent of dominant s excluding FAC-) Remarks: HYDROLOGY Recorded Data (Description	ribe in Remarks):StreamsAerial PhotographsOther	CW or FAC	Primary Indica X In	ology Indicators: tors: undated aturated in Upper 12	inches	_
11. Percent of dominant s (excluding FAC-) Remarks: HYDROLOGY Recorded Data (Description	ribe in Remarks):StreamsAerial Photographs	CW or FAC	Primary Indica X In Sa W	ology Indicators: tors: undated aturated in Upper 12 /ater Marks	inches	
11. Percent of dominant s (excluding FAC-) Remarks: HYDROLOGY Recorded Data (Description	ribe in Remarks):StreamsAerial PhotographsOther	CW or FAC	Primary Indica X In Sa W	ology Indicators: tors: undated aturated in Upper 12 /ater Marks rift Lines	inches	
I1. I2. Percent of dominant s excluding FAC-) Remarks: HYDROLOGY Recorded Data (Description of the company of	ribe in Remarks):StreamsAerial PhotographsOther	CW or FAC	Primary Indicat X In Sa W Di Se	ology Indicators: tors: undated aturated in Upper 12 /ater Marks rift Lines ediment Deposits		
11. 12. Percent of dominant s excluding FAC-) Remarks: HYDROLOGY Recorded Data (Description of the content of	ribe in Remarks):StreamsAerial PhotographsOther rded Data Available		Primary Indica X In Sa W Di Se	ology Indicators: tors: undated aturated in Upper 12 /ater Marks rift Lines ediment Deposits rainage Patterns in W	/etlands	
11. 12. Percent of dominant s (excluding FAC-) Remarks: HYDROLOGY Recorded Data (Description of Surface Water)	ribe in Remarks): Streams Aerial Photographs Other rded Data Available	(in.)	Primary Indica X In Sa W Di Se Di Secondary Ind	ology Indicators: tors: undated aturated in Upper 12 fater Marks rift Lines ediment Deposits rainage Patterns in W icators (2 or more rec	√etlands quired):	inches
Percent of dominant s excluding FAC-) Remarks: HYDROLOGY Recorded Data (Description of Surface Water in Depth to Free Water in Depth of Free Water in Depth of Surface Water in Depth of Free Water in Depth of Surface Water in	ribe in Remarks): Streams Aerial Photographs Other rded Data Available er: N/A	(in.)	Primary Indicat X In Sa W Di Se Di Secondary Ind X O:	ology Indicators: tors: undated aturated in Upper 12 /ater Marks rift Lines ediment Deposits rainage Patterns in W icators (2 or more rec xidized Root Channe	/etlands quired): ls in Upper 12	inches
11. 12. Percent of dominant s (excluding FAC-) Remarks: HYDROLOGY Recorded Data (Description of Surface Water in Depth to Free Water in Percentage in the P	ribe in Remarks): Streams Aerial Photographs Other rded Data Available er: N/A	(in.)	Primary Indicators X In Sa W W Di Secondary Ind X O X W	ology Indicators: tors: undated aturated in Upper 12 /ater Marks rift Lines ediment Deposits rainage Patterns in W icators (2 or more rec xidized Root Channe /ater-Stained Leaves	/etlands quired): ls in Upper 12	inches
11. 12. Percent of dominant s (excluding FAC-) Remarks: HYDROLOGY Recorded Data (Description)	ribe in Remarks): Streams Aerial Photographs Other rded Data Available er: N/A	(in.)	Primary Indicat X In Sa W Di Secondary Ind X O: X W Lo	ology Indicators: tors: undated aturated in Upper 12 /ater Marks rift Lines ediment Deposits rainage Patterns in W icators (2 or more red xidized Root Channe /ater-Stained Leaves ocal Soil Survey Data	/etlands quired): ls in Upper 12	inches
11. 12. Percent of dominant s (excluding FAC-) Remarks: HYDROLOGY Recorded Data (Description of Surface Water in the company of the company	ribe in Remarks): Streams Aerial Photographs Other rded Data Available er: N/A	(in.)	Primary Indicat X In Sa W Di Secondary Ind X O X W Lc F/	ology Indicators: tors: undated aturated in Upper 12 /ater Marks rift Lines ediment Deposits rainage Patterns in W icators (2 or more rec xidized Root Channe /ater-Stained Leaves	√etlands quired): ls in Upper 12	inches

Communi	ty ID:	PFO	Transect I	D:	Plot ID:	WET22N
OILS						
Map Unit Nai				D	rainaga Classi	
Series and F	riase). ations Conf	irm Mapped Type?	Yes	No	rainage Class:	
Γaxonomy (S					_	
axonomy (c	abgroup).					
		Matrix Color	Mottle Colors	Mottle	Textures, Conc	retions, Structures,
Depth (in)	Horizon	(Munsell Moist)	(Munsell Moist)	Abundance/Contrast	etc.	
0-2		10 YR 2/2	·		Clay loam	
2-18		10 YR 3/1			Clay loam	
lydric Soil Ir	ndicators:	Yes		No		
f yes, check		,				
,,	,	Histosol		Concretions		
-		Histic Epidon		High Organic Content in	Surface Layer in	Sandy Soils
=		Sulfidic Odor		Organic Streaking in Sa	-	,
-		Aquic Moisture Regime		Listed on Local Hydric S	•	
-	Х	Reducing Conditions		Listed on National Hydr		
_	Χ	Gleyed or Low-Chroma C	Colors	Other (explain in remark		
Remarks:						
VETLAND D	DETERMINA	ATION				
lydrophytic \			1 X	No Is this	Sampling Point	Within a Wetland
Vetland Hyd	-			No	. 5	
Hydric Soils I		Yes			sX	No
temarks:	Photo 1653	<u> </u>				

Project/Site:	I-64 Peninsula			Date:		
Applicant/Owner:				County:	Newport Ne	ews
nvestigator:	Bode / Doucette			State:	Virginia	
Community ID:	PFO		Transect ID:		Plot ID:	WET23N
Oo Normal Condition			Yes	X N	No	_
	y disturbed (Atypical situa	ation)?	Yes		No X	_
s the area a potentia			Yes		No X	_
f needed, explain on	reverse					
/EGETATION						
	Dominant Pla	nt Species				
Commo		Scientific	c Name	Stratum	<u> </u>	Indicator
1. Red Ma	ple	Acer rub		Т		FAC
2. Sweetgi		Liquidan	nbar styraciflua	Т		FAC
•	Chestnut Oak	Quercus	s michauxii	S		FACW
	n Sycamore	Platanus	s occidentalis	Т		FACW-
	af Greenbrier	Smilax r	otundifolia	V		FAC
ô.						
3.						
3. 9.						
3. 9.						
3. 9. 10. 11.						
3. 9. 10. 11.						
3. 9. 10. 11. 12. Percent of dominant	species that are OBL, FA	ACW or FAC		100%		_
3. 9. 10. 11. 12. Percent of dominant (excluding FAC-)	species that are OBL, FA	ACW or FAC		100%		_
3. 9. 10. 11. 12. Percent of dominant (excluding FAC-)	species that are OBL, FA	ACW or FAC		100%		_
3. 0. 10. 11. 12. Percent of dominant excluding FAC-)	species that are OBL, FA	ACW or FAC		100%		_
3. 10. 11. 12. Percent of dominant excluding FAC-) Remarks:	species that are OBL, FA	ACW or FAC		100%		_
3. 9. 10. 11. 12. Percent of dominant (excluding FAC-) Remarks:		ACW or FAC	Wetland Hydrolog			_
3. 9. 10. 11. 12. Percent of dominant excluding FAC-) Remarks:		ACW or FAC	Wetland Hydrolog Primary Indicators	y Indicators:		
3. 9. 10. 11. 12. Percent of dominant excluding FAC-) Remarks:	cribe in Remarks):	ACW or FAC		y Indicators:		_
3. 10. 11. 12. Percent of dominant (excluding FAC-) Remarks:	cribe in Remarks):Streams	ACW or FAC	Primary Indicators X Inund	y Indicators:	inches	_
3. 9. 10. 11. 12. Percent of dominant (excluding FAC-) Remarks: HYDROLOGY Recorded Data (Des	cribe in Remarks):StreamsAerial Photographs	ACW or FAC	Primary Indicators X Inund X Satur	y Indicators: : ated	inches	
3. 9. 10. 11. 12. Percent of dominant (excluding FAC-) Remarks: HYDROLOGY Recorded Data (Des	cribe in Remarks): Streams Aerial Photographs Other	ACW or FAC	Primary Indicators X Inund X Satur	y Indicators: : ated ated in Upper 12 r Marks	inches	_
3. 9. 10. 11. 12. Percent of dominant excluding FAC-) Remarks: HYDROLOGY Recorded Data (Des	cribe in Remarks): Streams Aerial Photographs Other	ACW or FAC	Primary Indicators X Inund X Satur Wate Drift L	y Indicators: : ated ated in Upper 12 r Marks	inches	
B. D. D. D. Dercent of dominant excluding FAC-) Remarks: HYDROLOGY Recorded Data (Des	cribe in Remarks): Streams Aerial Photographs Other	ACW or FAC	Primary Indicators X Inund X Satur Wate Drift L	y Indicators: : ated ated in Upper 12 r Marks .ines		
3. 9. 10. 11. 12. Percent of dominant excluding FAC-) Remarks: HYDROLOGY Recorded Data (Des No Recorded Observations:	cribe in Remarks):StreamsAerial PhotographsOther orded Data Available	ACW or FAC	Primary Indicators X Inund X Satur Wate Drift L	y Indicators: : ated ated in Upper 12 r Marks ines nent Deposits age Patterns in W	Vetlands	
3. 3. 3. 3. 3. 3. 3. 3. 3. 3. 3. 3. 3. 3	cribe in Remarks): Streams Aerial Photographs Other orded Data Available	(in.)	Primary Indicators X Inund X Satur Wate Drift L Sedin Drain Secondary Indicat	y Indicators: : ated ated in Upper 12 r Marks ines nent Deposits age Patterns in Wors (2 or more rec	Vetlands quired):	inches
B. B	cribe in Remarks): Streams Aerial Photographs Other orded Data Available ter: 3 in Pit: 3	(in.)	Primary Indicators X Inund X Satur Wate Drift L Sedin Drain Secondary Indicat X Oxidi:	y Indicators: : ated ated in Upper 12 r Marks ines nent Deposits age Patterns in W	Vetlands quired): els in Upper 12	inches
3. 9. 10. 11. 12. Percent of dominant (excluding FAC-) Remarks: HYDROLOGY Recorded Data (Des No Recorded Observations: Depth of Surface Water	cribe in Remarks): Streams Aerial Photographs Other orded Data Available ter: 3 in Pit: 3	(in.)	Primary Indicators X Inund X Satur Wate Drift L Sedin Drain Secondary Indicat X Oxidi: X Wate	y Indicators: : ated ated in Upper 12 r Marks .ines nent Deposits age Patterns in Wors (2 or more receded Root Channers-Stained Leaves	Vetlands quired): els in Upper 12	inches
B. B	cribe in Remarks): Streams Aerial Photographs Other orded Data Available ter: 3 in Pit: 3	(in.)	Primary Indicators X Inund X Satur Wate Drift L Sedin Drain Secondary Indicat X Oxidi: X Wate Local	y Indicators: : ated ated in Upper 12 r Marks .ines nent Deposits age Patterns in W ors (2 or more receted	Vetlands quired): els in Upper 12	rinches
(excluding FAC-) Remarks: HYDROLOGY Recorded Data (Des	cribe in Remarks): Streams Aerial Photographs Other orded Data Available ter: 3 in Pit: 3	(in.)	Primary Indicators X Inund X Satur Wate Drift L Sedin Drain Secondary Indicat X Oxidi: X Wate Local X FAC-	y Indicators: : ated ated in Upper 12 marks innes in Upper 15 may be posits age Patterns in Wors (2 or more reduced Root Channer-Stained Leaves Soil Survey Data	Vetlands quired): els in Upper 12	inches

Commun	ity ID:	PFO	Transect ID):	Plot ID:	WET23N
					_	
SOILS						
Map Unit Na	ıme					
(Series and	Phase):			D	rainage Class:	
Field Observ	ations Con	firm Mapped Type?	Yes	No	_	
Taxonomy (Subgroup):				_	
		Matrix Color	Mottle Colors	Mottle	Textures, Cond	cretions, Structures,
Depth (in)	Horizon	(Munsell Moist)	(Munsell Moist)	Abundance/Contrast	etc.	
0-7		10 YR 3/2			Clay loam	
7-18		10 YR 5/1	10 YR 5/8	Common/Prominent	Clay loam	
					,	
Hydric Soil I		Yes	N	0		
(If yes, chec	k them)					
		_Histosol		Concretions		
		_Histic Epidon		High Organic Content in	Surface Layer i	n Sandy Soils
		Sulfidic Odor		Organic Streaking in Sa	ndy Soils	
		Aquic Moisture Regime		Listed on Local Hydric S	Soils List	
	Х	Reducing Conditions		Listed on National Hydri	c Soils List	
	Х	Gleyed or Low-Chroma C	Colors	Other (explain in remark		
		_ ′		_ ` '	,	
Remarks:						
WETLAND	DETERMIN	ATION				
Hydrophytic			V K1	O lo 4bio	Sampling Boint	Within a Wetland
	-				Sampling Point	vviuiiii a vvelianu
Wetland Hyd				0	. V	Ne
Hydric Soils	Present?	Yes	XN	oYes	sX	No
	DI					
Remarks:	Photo 1651	I				

Project/Site:	I-64 Peninsula			Date:		
Applicant/Owner:	VDOT			County:		
Investigator:	Doucette / Bode)		State:	Virginia	
Community ID:	PEM		Transect ID: A		Plot ID:	WET 24N
Do Normal Condition			Yes X		10	_
Is the site significantl		situation)?	Yes		lo X	_
Is the area a potentia			Yes		10 X	_
lf needed, explain on	reverse					
VEGETATION						
_		t Plant Species		_		
Commo		Scientific		Stratum	<u> </u>	Indicator
1. Lizard's			s cernuus	Н		OBL
2. Poison I	•		enron radicans	V		FAC-
3. Sweet G			nbar styraciflua	Т		FAC-
4. Red Maj		Acer rub		Т		FAC-
5. Virginia			ocissus quinquefolia	Н		FACU
Pawpaw		Asimina	triloba	S		FACU+
•						
7.						
7. 8.						
7. 8. 9.						
7. 3. 9. 10.						
7. 8. 9. 10. 11.						
7. 8. 9. 10. 11.						
7. 8. 9. 10. 11. 12. Percent of dominant	species that are OBI	L, FACW or FAC		67%		_
7. 8. 9. 10. 11. 12. Percent of dominant (excluding FAC-)	species that are OBI	L, FACW or FAC		67%		_
7. 8. 9. 10. 11. 12. Percent of dominant (excluding FAC-)	species that are OBI	L, FACW or FAC		67%		_
7. 3. 9. 10. 11. 12. Percent of dominant (excluding FAC-)	species that are OBI	L, FACW or FAC		67%		
7. 8. 9. 10. 11. 12. Percent of dominant (excluding FAC-) Remarks:	species that are OBI	L, FACW or FAC		67%		_
7. 8. 9. 10. 11. 12. Percent of dominant (excluding FAC-) Remarks:		L, FACW or FAC	Wetland Hydrology I			
7. 3. 9. 10. 11. 12. Percent of dominant (excluding FAC-) Remarks:		L, FACW or FAC	Wetland Hydrology In Primary Indicators:			
7. 3. 9. 10. 11. 12. Percent of dominant (excluding FAC-) Remarks:	cribe in Remarks):		, ,,,	ndicators:		
7. 3. 9. 10. 11. 12. Percent of dominant (excluding FAC-) Remarks:	cribe in Remarks): Streams		Primary Indicators: Inundate	ndicators:	inches	
7. 3. 9. 10. 11. 12. Percent of dominant (excluding FAC-) Remarks: HYDROLOGY Recorded Data (Desc	cribe in Remarks):StreamsAerial Photogra	phs	Primary Indicators: Inundate	ndicators: ed ed in Upper 12	inches	
7. 8. 9. 10. 11. 12. Percent of dominant (excluding FAC-) Remarks: HYDROLOGY Recorded Data (Desc	cribe in Remarks):StreamsAerial Photogra _Other	phs	Primary Indicators: Inundate X Saturate	ndicators: ed ed in Upper 12 larks	inches	
7. 8. 9. 10. 11. 12. Percent of dominant (excluding FAC-) Remarks: HYDROLOGY Recorded Data (Desc	cribe in Remarks):StreamsAerial Photogra _Other	phs	Primary Indicators: Inundate X Saturate Water M Drift Lin	ndicators: ed ed in Upper 12 larks	inches	
7. 3. 9. 10. 11. 12. Percent of dominant (excluding FAC-) Remarks: HYDROLOGY Recorded Data (Desc	cribe in Remarks):StreamsAerial Photogra _Other	phs	Primary Indicators: Inundate X Saturate Water M Drift Lin	ndicators: ed ed in Upper 12 larks es nt Deposits		
7. 3. 9. 10. 11. 12. Percent of dominant (excluding FAC-) Remarks: HYDROLOGY Recorded Data (Descriptions)	cribe in Remarks):StreamsAerial PhotograOther orded Data Available	phs	Primary Indicators: Inundate X Saturate Water M Drift Lin Sedimee X Drainag	ndicators: ed ed in Upper 12 larks es nt Deposits e Patterns in W	Vetlands	
7. 3. 9. 10. 11. 12. Percent of dominant (excluding FAC-) Remarks: HYDROLOGY Recorded Data (Desconded Data (Desconded Data (Desconded Data)) Field Observations: Depth of Surface Wa	cribe in Remarks):StreamsAerial PhotograOther orded Data Available	phs N/A (in.)	Primary Indicators: Inundate X Saturate Water M Drift Lin Sedime X Drainag Secondary Indicators	ndicators: ed ed in Upper 12 larks es nt Deposits e Patterns in W	Vetlands quired):	inches
7. 3. 9. 10. 11. 12. Percent of dominant (excluding FAC-) Remarks: HYDROLOGY Recorded Data (Description of Surface Wadden Depth of Surface Wadden) Depth of Free Water	cribe in Remarks): Streams Aerial Photogra Other orded Data Available ter:	phs N/A (in.) 0 (in.)	Primary Indicators: Inundate X Saturate Water M Drift Lin Sedime X Drainag Secondary Indicators X Oxidizee	ndicators: ed ed in Upper 12 larks es nt Deposits e Patterns in W s (2 or more red	Vetlands quired): els in Upper 12	rinches
7. 8. 9. 10. 11. 12. Percent of dominant (excluding FAC-) Remarks: HYDROLOGY Recorded Data (Description of Surface Wall Depth of Surface Wall Depth to Free Water	cribe in Remarks): Streams Aerial Photogra Other orded Data Available ter:	phs N/A (in.)	Primary Indicators: Inundate X Saturate Water M Drift Lin Sedime X Drainag Secondary Indicators X Oxidized X Water-S	ndicators: ed ed in Upper 12 larks es nt Deposits e Patterns in W s (2 or more red d Root Channe	Vetlands quired): els in Upper 12	
7. 8. 9. 10. 11. 12. Percent of dominant (excluding FAC-) Remarks: HYDROLOGY Recorded Data (Desc	cribe in Remarks): Streams Aerial Photogra Other orded Data Available ter:	phs N/A (in.) 0 (in.)	Primary Indicators: Inundate X Saturate Water M Drift Lin Sedime X Drainag Secondary Indicators X Oxidized X Water-S Local Se	ed ed in Upper 12 larks es nt Deposits e Patterns in Was (2 or more red Root Channe tained Leaves oil Survey Data	Vetlands quired): els in Upper 12	· inches
7. 8. 9. 10. 11. 12. Percent of dominant (excluding FAC-) Remarks: HYDROLOGY Recorded Data (Desconded Data (D	cribe in Remarks): Streams Aerial Photogra Other orded Data Available ter:	phs N/A (in.) 0 (in.)	Primary Indicators: Inundate X Saturate Water M Drift Lin Sedime X Drainag Secondary Indicators X Oxidize X Water-S Local Se	ndicators: ed ed in Upper 12 larks es nt Deposits e Patterns in W s (2 or more red d Root Channe	Vetlands quired): lls in Upper 12	rinches

Commun	ity ID:	PEM	Transect ID): A	Plot ID:	WET 24N
					_	
SOILS						
Map Unit Na	ime					
(Series and	Phase):			Di	rainage Class:	
Field Observ	ations Con	firm Mapped Type?	Yes	No	_	
Taxonomy (_	
		Matrix Color	Mottle Colors	Mottle	Textures, Cond	cretions, Structures,
Depth (in)	Horizon	(Munsell Moist)	(Munsell Moist)	Abundance/Contrast	etc.	
0-5		10yr 2/2			Clay loam	
5-8		2.5Y 6/3	7/5YR 5/8	many / prominent	Sandy clay	
8-11		2.5Y 5/1			Sandy clay	
11-18		2.5 Y 4/1			Sandy clay	
Hydric Soil I	ndicators:	Yes	N	0		
(If yes, chec		•				
(),	,	Histosol		Concretions		
		Histic Epidon		High Organic Content in	Surface Laver i	n Sandy Soils
		Sulfidic Odor		Organic Streaking in Sa		ir carray conc
		Aquic Moisture Regime		Listed on Local Hydric S	•	
	X	Reducing Conditions		Listed on National Hydri		
	X	Gleyed or Low-Chroma C	olore	Other (explain in remark		
		_ Gleyed of Low-Chilotha C		_Other (explain in remain	(3)	
Remarks:						
Remarks.						
WETLAND	DETERMIN	ATION				
			V N	o lo thio	Compline Daint	Mithin a Matland
Hydrophytic	-	-			Sampling Point	Within a Wetland
Wetland Hyd			X N			N1 -
Hydric Soils	Present?	Yes	X N	oYes	S X	No
Dame !	DEM					
Remarks:	PEM	1				
	Photo 1654	 				

Project/Site:	I-64 Peninsula				Date:	6/30/201	1
Applicant/Owner:					County:	Newport Ne	ews
Investigator:	Bode / Doucette				State:	Virginia	-
Community ID:	PEM		Transect ID:		_	Plot ID:	WET25N
Do Normal Conditions	s evist on the site?		Yes	X	N	0	
	disturbed (Atypical situat	ion)?	Yes		– 'N		_
Is the area a potentia		1011):	Yes		_	o X	_
If needed, explain on			100		_ '`		_
VEGETATION							
	Dominant Plant	Species					
Commor		Scientific N	Name		Stratum	_	Indicator
1. Hazel Al		Alnus serr			S		OBL
2. Red Map		Acer rubru			Т		FAC
3. Lizard's		Saururus			H		OBL
4. Sweetgu		-	ar styraciflua 		T		FAC
5. Scaldwe	ed	Cuscuta g	ronovii		V		NL
6.							
7. 8.							
9.							
10.							
11.							
12.							
	species that are OBL, FAC	W or FAC			60%		
(excluding FAC-)	•						_
Remarks: Infested	with Cuscuta Gronovii (Do	odder)					
HYDROLOGY							
Recorded Data (Desc	cribe in Remarks):		Wetland Hydro	logy Indi	cators:		
,	Streams		Primary Indicat				
	Aerial Photographs		In	undated			
	Other		X Sa	aturated i	n Upper 12 i	inches	
No Reco	rded Data Available		W	ater Marl	ks		
				rift Lines			
				ediment [-		
Field Observations:				-	Patterns in W		
Depth of Surface Wat		(in.)	Secondary Indi	•			
Depth to Free Water		(in.)				ls in Upper 12	inches
Depth to Saturated S	oil: 0	(in.)			ned Leaves Survey Data		
				AC-Neutr	,		
					ai rest Iain in Rema	arks)	
				ιοι (Ελβ	ani ili NGIIIC	ai Noj	
Remarks:			ı				

Commun	ity ID:	PEM	Transect ID	D:	Plot ID:	WET25N
					_	
SOILS						
Map Unit Na	me					
(Series and				D	rainage Class:	
		firm Mapped Type?	Yes	No	_	
Taxonomy (_	
	0 17					
		Matrix Color	Mottle Colors	Mottle	Textures, Con-	cretions, Structures,
Depth (in)	Horizon	(Munsell Moist)	(Munsell Moist)	Abundance/Contrast	etc.	,
0-5		10 YR 3/1	,		Clay loam	
5-8		10 YR 5/1			Sandy clay	
8-18		2.5 Y 5/2	10 YR 5/8	Common/Prominent	Sandy clay	
		,_	10 111 0/0		carray cray	
Hydric Soil I	ndicatore:	Yes	N	0		
(If yes, chec		162		<u> </u>		
(ii yes, chec	K trieffi)	Histosol		Congretions		
				_ Concretions	Curfo oo Lawari	n Candy Caila
		_Histic Epidon		High Organic Content in		n Sandy Solls
		_Sulfidic Odor		Organic Streaking in Sa	•	
		_Aquic Moisture Regime		Listed on Local Hydric S		
	X	_Reducing Conditions		Listed on National Hydri		
	Х	_Gleyed or Low-Chroma C	olors	_Other (explain in remark	(S)	
Remarks:						
WETLAND						
Hydrophytic					Sampling Point	Within a Wetland
Wetland Hyd		sent? Yes		0		
Hydric Soils	Present?	Yes	X N	o Yes	sX	No
Remarks:	Photos 165	7 and 1658				

Project/Site:	I-64 Peninsula			Date:	6/30/201	1
Applicant/Owner:				County:	James City	
Investigator:	Bode / Doucette			State:	Virginia	
Community ID:	PFO		Transect ID:		Plot ID:	WET26N
Do Normal Condition			Yes	X	No	_
•	tly disturbed (Atypical situat	tion)?	Yes		No X	
Is the area a potentia			Yes	1	No X	
If needed, explain or	n reverse					
VEGETATION						
	Dominant Plan	-				
Commo	on Name	Scientifi	c Name	Stratum	<u>1</u>	Indicator
1. Poison	lvy	Toxicod	endron radicans	V		FAC
Pawpaw	N	Asimina	triloba	S		FACU+
3. Green A	Ash	Fraxinus	s pennsylvanica	Т		FACW
4. Red Ma	aple	Acer ruk	orum	Т		FAC
5.						
6.						
7.						
8.						
9.						
10.						
11.						
12.						
	species that are OBL, FAC	CW or FAC		75%		
(excluding FAC-)	species that are OBL, 1710	JVV 01 1 7.0		1070		_
Remarks:						
ivemarks.						
HYDROLOGY Recorded Data (Des	ecribe in Pemarks):		Wetland Hydrolo	any Indicators:		
Necolued Data (Des	Streams		Primary Indicato			
			· ·			
	Aerial Photographs			ndated	inahaa	
No Dec	Other			urated in Upper 12	inches	
No Rec	orded Data Available			ter Marks		
				t Lines		
				liment Deposits		
Field Observations:				inage Patterns in V		
Depth of Surface Wa		(in.)	-	ators (2 or more re		
Depth to Free Water		(in.)		dized Root Channe		inches
Depth to Saturated S	Soil: 6	(in.)		ter-Stained Leaves		
			Loc	al Soil Survey Data	a	
			FAC	C-Neutral Test		
			Oth	er (Explain in Rem	arks)	
Remarks:						

Communi	ty ID:	PFO	Transect ID):	Plot ID:	WET26N
SOILS						
Map Unit Na						
(Series and I				Dı	rainage Class: _	
		firm Mapped Type?	Yes	No	_	
Taxonomy (S	Subgroup):					
		Matrix Color	Mottle Colors	Mottle	Textures, Cor	cretions, Structures,
Depth (in)	Horizon	(Munsell Moist)	(Munsell Moist)	Abundance/Contrast	etc.	
0-10		5 Y 6/1			Clay loam	
10-18		5 Y 6/1	7.5 YR 5/8	Common/Prominent	Clay loam	
Hydric Soil Ir	odicatore:	Yes	N	0		
		165_		<u> </u>		
(If yes, check	(mem)	Listand		Compantions		
-		_Histosol		_ Concretions	0 ()	. 0 . 1 . 0 . 1
-		_Histic Epidon		High Organic Content in	-	in Sandy Soils
-		_Sulfidic Odor		Organic Streaking in Sa		
-		_Aquic Moisture Regime		Listed on Local Hydric S		
_	X	_Reducing Conditions		Listed on National Hydri		
_	Х	_Gleyed or Low-Chroma C	olors	Other (explain in remark	(s)	
Remarks:						
WETLAND [DETERMIN	ATION				
Hydrophytic '	Vegetation	Present? Yes	X N	o Is this	Sampling Poin	t Within a Wetland
Wetland Hyd			X			
Hydric Soils		Yes	X		sX	No
Remarks:	Photo 1660)		I		

Project/Site:	I-64 Peninsi	uia			Date:	6/30/201	1
Applicant/Owner:					County:	York	
nvestigator:	Bode / Doug	cette			State:	Virginia	
Community ID:	PI	EM	_	Transect ID:		Plot ID:	WET27N
Do Normal Condition				Yes		lo	_
Is the site significant			on)?	Yes		loX	_
Is the area a potenti		?		Yes		lo X	_
If needed, explain or	n reverse						
VEGETATION							
	Domi	inant Plant	Species				
Commo	on Name	_	Scientific	Name	Stratum	<u></u>	Indicator
 Broadle 	af Cattail		Typha lat	tifolia	Н		OBL
Lizard's	Tail		Saururus	cernuus	Н		OBL
Polygoi	num		Polygonu	ım sp	Н		OBL
4. America	an Sycamore		Platanus	occidentalis	T		FACW-
5. Arrowle	af Tearthumb		Polygonu	ım sagittatum	Н		OBL
6.							
7.							
7. 3.							
7. 3. 9.							
7. 3. 9. 10.							
7. 8. 9. 10. 11.							
7. 8. 9. 10. 11.	species that are	OBL FAC	W or FAC		100%		
7. 8. 9. 10. 11. 12. Percent of dominant	species that are	OBL, FAC	W or FAC		100%		_
7. 8. 9. 10. 11. 12. Percent of dominant (excluding FAC-)	species that are	OBL, FAC\	W or FAC		100%		_
7. 8. 9. 10. 11. 12. Percent of dominant (excluding FAC-)	species that are	OBL, FAC	W or FAC		100%		
7. 3. 9. 10. 11. 12. Percent of dominant (excluding FAC-)	species that are	OBL, FAC\	W or FAC		100%		_
7. 8. 9. 10. 11. 12. Percent of dominant (excluding FAC-) Remarks:	species that are	OBL, FAC	W or FAC	_	100%		
7. 8. 9. 10. 11. 12. Percent of dominant (excluding FAC-) Remarks:			W or FAC	Wetland Hydrol			
7. 3. 9. 10. 11. 12. Percent of dominant (excluding FAC-) Remarks:			W or FAC	Wetland Hydrole Primary Indicato	ogy Indicators:		
7. 3. 9. 10. 11. 12. Percent of dominant (excluding FAC-) Remarks:	scribe in Remarks	s):	W or FAC	Primary Indicate	ogy Indicators:		
7. 3. 9. 10. 11. 12. Percent of dominant (excluding FAC-) Remarks:	scribe in Remarks Streams	s):	W or FAC	Primary Indicate X Inu	ogy Indicators: ors:	inches	
7. 8. 9. 10. 11. 12. Percent of dominant (excluding FAC-) Remarks: HYDROLOGY Recorded Data (Des	scribe in RemarksStreamsAerial Photo	s): ographs	W or FAC	Primary Indicate X Inu X Sa	ogy Indicators: ors: indated	inches	
7. 3. 9. 10. 11. 12. Percent of dominant (excluding FAC-) Remarks: HYDROLOGY Recorded Data (Des	scribe in Remarks Streams Aerial Photo	s): ographs	W or FAC	Primary Indicate X Inu X Sar Wa	ogy Indicators: ors: indated turated in Upper 12 ater Marks	inches	
7. 8. 9. 10. 11. 12. Percent of dominant (excluding FAC-) Remarks: HYDROLOGY Recorded Data (Des	scribe in Remarks Streams Aerial Photo	s): ographs	W or FAC	Primary Indicato X Inu X Sa Wa Dri	ogy Indicators: ors: Indated turated in Upper 12 ater Marks ft Lines	inches	
7. 3. 9. 10. 11. 12. Percent of dominant (excluding FAC-) Remarks: HYDROLOGY Recorded Data (Des	scribe in Remarks Streams Aerial Photo	s): ographs	W or FAC	Primary Indicate X Inu X Sat Wa Dri Set	ogy Indicators: ors: indated turated in Upper 12 ater Marks ft Lines diment Deposits		
7. 3. 9. 10. 11. 12. Percent of dominant excluding FAC-) Remarks: HYDROLOGY Recorded Data (Des	scribe in Remarks Streams Aerial Photo Other orded Data Avail	s): ographs lable		Primary Indicato X Inu X Sar Wa Dri See	ogy Indicators: ors: indated turated in Upper 12 ater Marks ft Lines diment Deposits ainage Patterns in V	Vetlands	
7. 3. 9. 10. 11. 12. Percent of dominant (excluding FAC-) Remarks: HYDROLOGY Recorded Data (Desemble Companion of Surface With Companion of Surface	Scribe in Remarks Streams Aerial Photo Other Forded Data Availa	s): ographs lable 0.50	(in.)	Primary Indicato X Inu X Sar Wa Dri Secondary Indicator	ogy Indicators: ors: indated turated in Upper 12 ater Marks ft Lines diment Deposits ainage Patterns in Weators (2 or more rec	Vetlands quired):	inchos
7. 3. 9. 10. 11. 12. Percent of dominant (excluding FAC-) Remarks: HYDROLOGY Recorded Data (Desemble of Surface Water) Depth of Surface Water) Depth to Free Water	Scribe in Remarks Streams Aerial Photo Other orded Data Availa	s): ographs lable 0.50	(in.) (in.)	Primary Indicate X Inu X Sar Wa Dri Sec Secondary Indic X Ox	ogy Indicators: ors: indated turated in Upper 12 ater Marks ft Lines diment Deposits ainage Patterns in W cators (2 or more red idized Root Channe	Vetlands quired): els in Upper 12	inches
7. 3. 9. 10. 11. 12. Percent of dominant (excluding FAC-) Remarks: HYDROLOGY Recorded Data (Desemble of Surface Water) Depth of Surface Water) Depth to Free Water	Scribe in Remarks Streams Aerial Photo Other orded Data Availa	s): ographs lable 0.50	(in.)	Primary Indicate X Inu X Sar Wa Dri Secondary Indic X Ox Wa	ogy Indicators: ors: Indated turated in Upper 12 ater Marks ft Lines diment Deposits ainage Patterns in Weators (2 or more recidized Root Channe	Vetlands quired): els in Upper 12	inches
7. 8. 9. 10. 11. 12. Percent of dominant (excluding FAC-) Remarks: HYDROLOGY Recorded Data (Desemble of Surface Water) Depth of Surface Water	Scribe in Remarks Streams Aerial Photo Other orded Data Availa	s): ographs lable 0.50	(in.) (in.)	Primary Indicato X Inu X Sar Wa Dri Sec Dra Secondary Indic X Ox Wa Loc	ogy Indicators: ors: indated turated in Upper 12 ater Marks ft Lines diment Deposits ainage Patterns in W cators (2 or more red idized Root Channe ater-Stained Leaves cal Soil Survey Data	Vetlands quired): els in Upper 12	inches
7. 8. 9. 10. 11. 12. Percent of dominant (excluding FAC-) Remarks: HYDROLOGY Recorded Data (Des	Scribe in Remarks Streams Aerial Photo Other orded Data Availa	s): ographs lable 0.50	(in.) (in.)	Primary Indicato X Inu X Sar Wa Dri Sec Dra Secondary Indic X Ox Wa Loc X FA	ogy Indicators: ors: indated turated in Upper 12 ater Marks ft Lines diment Deposits ainage Patterns in Weators (2 or more recidized Root Channe ater-Stained Leaves cal Soil Survey Data C-Neutral Test	Vetlands quired): lls in Upper 12	inches
7. 8. 9. 10. 11. 12. Percent of dominant (excluding FAC-) Remarks: HYDROLOGY Recorded Data (Desemble of Surface Water) Depth of Surface Water	Scribe in Remarks Streams Aerial Photo Other orded Data Availa	s): ographs lable 0.50	(in.) (in.)	Primary Indicato X Inu X Sar Wa Dri Sec Dra Secondary Indic X Ox Wa Loc X FA	ogy Indicators: ors: indated turated in Upper 12 ater Marks ft Lines diment Deposits ainage Patterns in W cators (2 or more red idized Root Channe ater-Stained Leaves cal Soil Survey Data	Vetlands quired): lls in Upper 12	inches

Commun	ity ID:	PEM	PEM Transect ID:			WET27N
				_	_	
SOILS						
Map Unit Na						
(Series and				D	rainage Class:	
		firm Mapped Type?	Yes	No	_	
Taxonomy (Subgroup):					
			Mottle Colors	Mottle		ncretions, Structures,
Depth (in)	Horizon	(Munsell Moist)	(Munsell Moist)	Abundance/Contrast	etc.	
0-14		2.5 Y 4/1	2.5 Y 5/6	Many/Prominent	Clay	
Hydric Soil II	ndicators:	Yes	N	0		
(If yes, check	k them)	_				
		Histosol		Concretions		
		- Histic Epidon		 High Organic Content in 	Surface Layer	in Sandy Soils
		Sulfidic Odor		Organic Streaking in Sa		,
•		Aquic Moisture Regime	-	Listed on Local Hydric S		
•	Х	Reducing Conditions		Listed on National Hydr		
	X	Gleyed or Low-Chroma Co	olors	Other (explain in remark		
		_ 0.0,00 0. 20 00		_ other (explain in remain	,	
Remarks:	Auger refus	sal at 14"				
rtomanto.	ragor rorac	ar at 11				
WETLAND I	DETERMIN	ATION				
Hydrophytic			X N	0 le thic	Sampling Poir	t Within a Wetland
Wetland Hyd			X N		Sampling Foll	it vvitilli a vvetlallu
		_				No
Hydric Soils	riesent?	Yes_	X N	Yes	sX	No
Damarita	Dhata 4000	<u> </u>				
Remarks:	Photo 1662	•				

Project/Site):	I-64 Corridor	•		Date:	7/5/2011	
Applicant/O	wner:				County:	James City	
Investigator		Sekula / Doucette			State:	Virgina	
Community	ID:	PFO		Transect ID:		Plot ID:	WET31N
_							
1		exist on the site?		YesX	N		_
	-	disturbed (Atypical situ	ıation)?	Yes	N		_
		Problem Area?		Yes	N	oX	_
If needed, e	explain on re	verse					
VEGETATI	ON						
		Dominant Pla			_		
	Common N		Scientific I	Name	Stratum	<u> </u>	Indicator
1.	Lizard's Ta	iil	Saururus		Н		OBL
2.	Poison Ivy			ndron radicans	V		FAC
3.	Christmas		-	ım acrostichiodes	Н		FACU-
4.	American F	•	llex opaca		S		FACU+
5.	American H	Hornbeam		caroliniana	S		FAC
6.	Pawpaw		Asimina tr	riloba	S		FACU+
7.	Spicebush		Lindera be		S		FACW-
8.	Tuliptree		Liriodendr	on tulipifera	Т		FACU
9.	Red Maple)	Acer rubru	ım	Т		FAC
10.	Sweetgum		Liquidamb	ar styraciflua	Т		FAC
11.	Blackgum		Nyssa syl		Т		FAC
12.	Virginia Cre	eeper	Parthenod	cissus quinquefolia	V		FACU
Percent of o	dominant spe	ecies that are OBL, F	ACW or FAC		58%		_
(excluding F	FAC-)						
Remarks:							
HYDROLO							
Recorded D	Data (Describ	oe in Remarks):		Wetland Hydrology In	dicators:		
		Streams		Primary Indicators:			
		_Aerial Photographs		Inundate			
		_Other		X Saturate	d in Upper 12 i	nches	
	No Record	ed Data Available		Water M	arks		
				Drift Line	s		
					t Deposits		
Field Obser	rvations:			X Drainage	Patterns in W	etlands	
Depth of Su	ırface Water	: N/	<u>A</u> (in.)	Secondary Indicators	(2 or more req	juired):	
Depth to Fr	ee Water in	Pit: 3	(in.)			s in Upper 12 i	nches
Depth to Sa	aturated Soil:	: 0	(in.)	X Water-St	ained Leaves		
				Local So	il Survey Data		
				FAC-Net	ıtral Test		
				Other (E	xplain in Rema	ırks)	
Remarks:							

Community ID: PFO Transect ID:			D:	Plot ID:	WET31N	
SOILS						
Map Unit Na				_		
(Series and I				D	rainage Class: _	
		firm Mapped Type?	Yes	No	_	
Taxonomy (S	Subgroup):					
5 4 (1)		Matrix Color	Mottle Colors	Mottle		cretions, Structures,
Depth (in)	Horizon	(Munsell Moist)	(Munsell Moist)	Abundance/Contrast	etc.	
0-2		2.5 Y 3/1	5 VD 4/0	E /D : .	Sandy clay loa	ım
2-4		2.5 Y 6/4	5 YR 4/6	Few/Prominent	Sandy clay	
4-6		2.5 Y 6/3			Sandy clay	
6-12		2.5 Y 6/2			Sandy clay	
12-18		2.5 Y 4/1			Silty clay	
Hydric Soil Ir	odicators:	Yes	,	No		
(If yes, check		162	<u> </u>			
(II yes, check	K (IIIeIII)	Histosol		Concretions		
-		Histic Epidon			Surface Lavori	n Candy Caila
		Sulfidic Odor		High Organic Content in		11 Salidy Solls
-		_		Organic Streaking in Sa		
-	V	_Aquic Moisture Regime		Listed on Local Hydric S		
-	X	_Reducing Conditions		Listed on National Hydr		
	X	_Gleyed or Low-Chroma C	olors	Other (explain in remark	(S)	
Remarks:	A lot of god	iment deposition from storr	nwatar rupoff			
Remarks.	A lot of Sea	imeni deposition from stori	iiwatei iuiioii			
WETI AND I	DETERMINI	ATION				
WETLAND I			X	No lo this	Sampling Daint	Within a Wetland
Hydrophytic Wetland Hyd					s sampling Point	vviuiiii a vvelianu
Hydric Soils				No	· ·	No
myunc Solls	riesent?	Yes		NoYe	sX	No
Domorto						
Remarks:						

Project/Site:		I-64 Corridor				Date:	7/5/2011		
Applicant/Ov	wner:					County:	James City		
Investigator:		Sekula / Doucette				State:	Virginia		
Community	ID:	PFO	_	Transect ID:		_	Plot ID:	WET	32N
Do Normal C	Conditions e	exist on the site?		Yes	Х	No	0		
Is the site sig	gnificantly d	listurbed (Atypical situati	on)?	Yes		N	o X	•	
		roblem Area?	,	Yes		N		•	
If needed, ex	-			-				i	
VEGETATIO	ON								
	O N	Dominant Plant	-	M =		044		la diseten	
1	Common N		Scientific			Stratum	_	Indicator	
	Lizard's Ta		Saururus			H		OBL	
	Shallow Se	-	Carex luri			Н		OBL	
	Japanese S		-	ium vimineum		Н		FAC	
	Sensitive F		Onoclea s			Н		FACW	
	Golden Rag	gwort	Senecio a			Н		FACW	
	Sweetgum		=	oar styraciflua		S/T		FAC	
	Hazel Alde		Alnus seri			S		OBL	
8.	Red Maple		Acer rubri	ım		Т		FAC	
9.	Black Gum		Nyssa syl	vatica		Т		FAC	
10.	Black Willo	W	Salix nigra	a		Т		FAC	
11.									
12.									
Percent of d	ominant spe	ecies that are OBL, FAC	W or FAC	_		100%			
(excluding F	AC-)								
Remarks:									
LIVEROLOG	5V								
Recorded Da		pe in Remarks):		Wetland Hyd	Irology Ind	icators:			
Trocorded Dr	ala (Boooni	Streams		Primary India		ioatoro.			
		Aerial Photographs		1	Inundated				
		Other				in Upper 12 i	nches		
,	No Pocordo	_ Other ed Data Available			Water Mai		ilciies		
	INO INCCOLU	eu Dala Avallable			Drift Lines				
Ciald Obser					Sediment	-	- 41 - 10 - 10 -		
Field Observ		. NI/A	(:)		-	Patterns in W			
Depth of Sui			(in.)	·	-	2 or more req	•		
Depth to Fre			(in.)				s in Upper 12 ir	icnes	
Depth to Sat	turated Soll:	0	(in.)			ined Leaves			
						Survey Data			
					FAC-Neut				
				<u> </u>	Otner (Exp	olain in Rema	rks)		
Remarks:									
i tomanto.									

Commun	Community ID: PFO Transect ID:				Plot ID: WET32N		
					_		
SOILS							
Map Unit Na	me						
(Series and I					rainage Class: _		
Field Observ	ations Con	firm Mapped Type?	Yes	No	_		
Taxonomy (Subgroup):						
		Matrix Color	Mottle Colors	Mottle	Textures, Cond	cretions, Structures,	
Depth (in)	Horizon	(Munsell Moist)	(Munsell Moist)	Abundance/Contrast	etc.		
0-6		2.5 Y 6/3	5 YR 5/6	Common/Prominent	Sandy clay		
		2.5 Y 4/2	5 YR 5/6	Common/Prominent	Sandy clay		
18-Jun		2.5 Y 6/2			Sandy clay		
Hydric Soil Ir	ndicators:	Yes	N	0			
(If yes, checl							
(),	,	Histosol		Concretions			
-		Histic Epidon		High Organic Content in	Surface Laver i	n Sandy Soils	
-		Sulfidic Odor		Organic Streaking in Sa	-	Touridy Collo	
-		Aquic Moisture Regime	-	Listed on Local Hydric S			
	Х	Reducing Conditions		Listed on National Hydri			
-		_					
-	X	_Gleyed or Low-Chroma C		Other (explain in remark	(8)		
Damarka							
Remarks:							
WETLAND I				<u> </u>			
Hydrophytic	-				s Sampling Point	Within a Wetland	
Wetland Hyd				0			
Hydric Soils	Present?	Yes	X N	o Yes	sX	No	
		base of slope					
	Stormwate	r ditch flows into wetland					

Project/Site):	I-64 Peninsula			Date:	7/5/2011	
Applicant/O)wner:				County:	James City	
Investigator	r:	Sekula / Doucette			State:	Virginia	
Community	ID:	PFO	PFO Tran			Plot ID:	WET 33N
Do Normal	Conditions	exist on the site?		Yes X	No	0	_
Is the site s	ignificantly of	disturbed (Atypical situat	ion)?	Yes	No	o <u>X</u>	_
Is the area	a potential F	Problem Area?		Yes	No	o <u>X</u>	_
If needed, e	explain on re	everse					
VECETATI	ON						
VEGETATI	ON	Dominant Plant	Species				
	Common I		Scientific N	lame	Stratum		Indicator
1.		e False Nettle	Boehmeria		H		FACW+
2.	Lizard's Ta		Saururus d	=	Н		OBL
3.		Stilt Grass		um vimineum	н		FAC
4.	Christmas		•	m acrostichoides	н		FAC
5.	Shallow S		Carex lurio		н		OBL
6.	Golden Ra	•	Senecio al		н		FACW
7.	Pawpaw	agwort	Asimino tri		H/S		FACU+
8.	Red Maple	ā.	Acer rubru		T		FAC
9.	American		Platanus o		T.		FACW-
10.	Poison Ivy	•		dron radicans	V		FAC
11.	. 0.0011117		70,100001	aronnadioano	·		1710
12.							
	dominant sp	ecies that are OBL, FAC	W or FAC		80%		
(excluding I	-						-
Remarks:		e - dominant					
		dominated by microsteg	jium				
		,					
HYDROLO				•			
Recorded D	Data (Descri	be in Remarks):		Wetland Hydrology I	ndicators:		
		Streams		Primary Indicators:			
		Aerial Photographs		Inundat			
		Other			ed in Upper 12 i	nches	
	No Record	ded Data Available		Water N			
				Drift Lin			
					nt Deposits		
Field Obser		11/4	<i>(</i> :)		ge Patterns in W		
	urface Wate		(in.)	Secondary Indicator			
1 -	ee Water in		(in.)		d Root Channels	s in Upper 12 ii	ncnes
Depth to Sa	aturated Soi	l: <u> </u>	(in.)		Stained Leaves		
					oil Survey Data		
					eutral Test	rko)	
				Other (I	Explain in Rema	iks)	
Remarks:				1			
i Ciliains.							

Commun	Community ID: PFO Transect ID:			D:	Plot ID: WET 33N		
					_		
SOILS							
Map Unit Na	me						
(Series and	Phase):				rainage Class: _		
Field Observ	ations Con	firm Mapped Type?	Yes	No	_		
Taxonomy (Subgroup):				_		
		Matrix Color	Mottle Colors	Mottle	Textures, Cond	cretions, Structures,	
Depth (in)	Horizon	(Munsell Moist)	(Munsell Moist)	Abundance/Contrast	etc.		
0-8		10YR 4/2	5 YR 3/4	Common/Prominent	Silty clay loam		
8-12		10 YR 5/1	5 YR 4/6	Many/Prominent	Silt clay		
12-18		10 YR 6/1	5 YR 4/6	Many/Prominent	Silt clay		
				•	•		
		.,					
Hydric Soil II		Yes	N	0			
(If yes, check	k them)						
		_Histosol		Concretions			
		_Histic Epidon		High Organic Content in		n Sandy Soils	
		_Sulfidic Odor		Organic Streaking in Sa	ndy Soils		
		_Aquic Moisture Regime		Listed on Local Hydric S	Soils List		
	Χ	Reducing Conditions		Listed on National Hydr	ic Soils List		
	Χ	Gleyed or Low-Chroma C	Colors	Other (explain in remark	(S)		
•							
Remarks:							
WETLAND I	DETERMIN	ATION					
Hydrophytic			X N	lo Is this	Sampling Point	Within a Wetland	
Wetland Hyd				0 15 11115	Sampling Follit	vvidili a vvolialiu	
Hydric Soils		•			· ·	No	
i iyunc Solls	rieselii!	Yes	N	loYe	sX	No	
Damarita	\\/_4 =	hann of along					
Remarks:	vvetiand at	base of slope					

Project/Site:	I-64 Peninsula	•			Date:	7/5/2011	
Applicant/Owner:					County:	James City	
Investigator:	Sekula / Doucette				State:	Virginia	
Community ID:	PFO		Transect ID:			Plot ID:	WET34N
,					_		
	ions exist on the site?		Yes_	Х	N		
	ently disturbed (Atypical situa	ation)?	Yes_		_ N		
· ·	ntial Problem Area?		Yes_		_ N	oX	
If needed, explain	on reverse						
VEGETATION							
	Dominant Plar	nt Species					
Comr	mon Name	Scientific	Name		Stratum		Indicator
1. Japar	nese Stilt Grass	Microsteg	gium vimineum		Н	_	FAC
	d's Tail	Saururus	cernuus		Н		OBL
3. Swee	tgum	Liquidam	bar styraciflua		S		FAC
4. Small	spike False Nettle	Boehmer	ia cylindrica		Н		FACW+
5. Amer	ican Hornbeam	Carpinus	caroliniana		Т		FAC
6. Red N	Maple	Acer rubr	rum		Т		FAC
7.							
8.							
9.							
10.							
11.							
12.							
	int species that are OBL, FA	CW or FAC	_		100%		
(excluding FAC-)							
Remarks: Herb	layer is domniated by micro	stegium					
HYDROLOGY							
	escribe in Remarks):		Wetland Hydro	ology Indi	cators:		
	Streams		Primary Indica				
	Aerial Photographs			undated			
	Other				in Upper 12 i	nches	
No Re	ecorded Data Available			/ater Mar			
				rift Lines			
				ediment I	Deposits		
Field Observations	3:				Patterns in W	etlands	
Depth of Surface \		(in.)	Secondary Ind	-			
Depth to Free Wat		(in.)				s in Upper 12 ir	nches
Depth to Saturated		(in.)			ned Leaves		
'		` ′			Survey Data		
			X F	AC-Neutr	al Test		
					lain in Rema	ırks)	
				, .		•	
Remarks:			-				

Community	community ID: PFO Transect ID:):	Plot ID: WET34N		
			_		_		
SOILS							
Map Unit Nan	ne						
(Series and P	hase):				rainage Class: _		
Field Observa	ations Conf	irm Mapped Type?	Yes	No	_		
Taxonomy (S	ubgroup):						
					_		
		Matrix Color	Mottle Colors	Mottle	Textures, Cond	cretions, Structures,	
Depth (in)	Horizon	(Munsell Moist)	(Munsell Moist)	Abundance/Contrast	etc.		
0-2		5 YR 5/6			Clay		
2-6		2.5 Y 5/1	5 YR 6/6	Many/Prominent	Clay		
6-18		10 YR 6/1	7.5 YR 5/8	Many/Prominent	Silt clay		
				•	-		
Hydric Soil Inc		Ye	N	0			
(If yes, check	them)						
_		_Histosol		_ Concretions			
_		Histic Epidon		High Organic Content in		n Sandy Soils	
_		_Sulfidic Odor		_Organic Streaking in Sa	-		
		_Aquic Moisture Regime		Listed on Local Hydric S	Soils List		
	Χ	Reducing Conditions		Listed on National Hydri	ic Soils List		
	Χ	Gleyed or Low-Chroma	Colors	Other (explain in remark	ks)		
_		_		_			
Remarks:							
WETLAND D	ETERMIN	ATION					
			s X N	o Is this	Sampling Point	Within a Wetland	
	/egetation			.5 (11)			
Hydrophytic V				0			
Hydrophytic V Wetland Hydr	ology Pres	ent? Ye	s X	0	e X	No	
Hydrophytic V	ology Pres		s X		sX	No	
Hydrophytic V Wetland Hydr Hydric Soils F	rology Pres Present?	ent? Ye	s X		sX	No	
Hydrophytic V Wetland Hydr Hydric Soils F	rology Pres Present?	ent? Ye	s X		sX	No	

Project/Site:	I-64 Peninsula			Date:	7/5/2011	1
Applicant/Owner:				County:	James City	
Investigator:	Sekula / Doucette			State:	Virginia	
Community ID:	PEM		Transect ID:		Plot ID:	WET36N
Do Normal Condition			YesX		lo	_
_	ly disturbed (Atypical situat	ion)'?	Yes		lo X	_
Is the area a potential If needed, explain or			Yes	N	lo X	_
VEGETATION						
	Dominant Plant	-	N.	0, ,		I P .
	n Name	Scientific		Stratum		Indicator
1. Lizard's			s cernuus	H		OBL
-	pike False Nettle		ria cylindrica	Н		FACW+
3. Commo		Juncus e		Н		FACW+
	af Tearthumb		um sagittatum	Н		OBL
	Smartweed		ım hydropiperoides	Н		OBL
6. Sensitiv			sensibilis	Н		FACW
	an Elderberry	Sarnbuc	us canadensis	S		FACW-
8.						
9.						
10.						
11.						
12.		NA/ - - - - - -		4000/		
	species that are OBL, FAC	W OF FAC		100%		_
(excluding FAC-)						
Remarks:						
HYDROLOGY						
Recorded Data (Des	cribe in Remarks):		Wetland Hydrology	Indicators:		
	Streams		Primary Indicators:			
	Aerial Photographs		Inunda	ited		
	Other		X Satura	ted in Upper 12	inches	
No Rec	orded Data Available		Water	Marks		
			Drift Li	nes		
			Sedim	ent Deposits		
Field Observations:			X Draina	ge Patterns in W	/etlands	
Depth of Surface Wa	ater: N/A	(in.)	Secondary Indicato	rs (2 or more red	quired):	
Depth to Free Water		(in.)		ed Root Channe	ls in Upper 12	inches
Depth to Saturated S	Soil: 0	(in.)	Water-	Stained Leaves		
				Soil Survey Data		
			X FAC-N	leutral Test		
			Other	(Explain in Rema	arks)	
Domarka: Stram	votor ditch course of bu	drology				
	vater ditch - source of hy into culvert under road	urology				
Dianis	Jan Jan Jan Toda					

Community ID:	PEM	Transect ID):	Plot ID:	WET36N	
OILS						
lap Unit Name Series and Phase):			n	rainage Class: _		
ield Observations (Confirm Mapped Type?	Yes	No No	rairiage Class		
	р):	163		_		
axonomy (Cabgrou	Υ)·					
	Matrix Color	Mottle Colors	Mottle	Textures, Con	cretions, Structures,	
Depth (in) Horizo	oth (in) Horizon (Munsell Moist) (Munsell Mo		Abundance/Contrast	etc.		
0-6	10 YR 4/3	· · · · · · · · · · · · · · · · · · ·		Sandy Ioam		
6-18	2.5 Y 4/2	2.5 Y 6/6	Few/Prominent	Sandy loam		
udric Soil Indicators	· Vo	e N	0			
	s: Ye	s N	o			
		s N				
	Histosol	s N	_ Concretions	o Surface Laver	in Sandy Soils	
	Histosol Histic Epidon	s N	Concretions High Organic Content ir		in Sandy Soils	
	Histosol Histic Epidon Sulfidic Odor		Concretions High Organic Content ir Organic Streaking in Sa	ndy Soils	in Sandy Soils	
yes, check them)	Histosol Histic Epidon Sulfidic Odor Aquic Moisture Regime		Concretions High Organic Content in Organic Streaking in Sa Listed on Local Hydric S	ndy Soils Soils List	in Sandy Soils	
ydric Soil Indicators f yes, check them) X X	Histosol Histic Epidon Sulfidic Odor Aquic Moisture Regime Reducing Conditions		Concretions High Organic Content ir Organic Streaking in Sa	ndy Soils Soils List ic Soils List	in Sandy Soils	
yes, check them) X X	Histosol Histic Epidon Sulfidic Odor Aquic Moisture Regime		Concretions High Organic Content ir Organic Streaking in Sa Listed on Local Hydric S Listed on National Hydri	ndy Soils Soils List ic Soils List	in Sandy Soils	
yes, check them) X X	Histosol Histic Epidon Sulfidic Odor Aquic Moisture Regime Reducing Conditions		Concretions High Organic Content ir Organic Streaking in Sa Listed on Local Hydric S Listed on National Hydri	ndy Soils Soils List ic Soils List	in Sandy Soils	
yes, check them) X X	Histosol Histic Epidon Sulfidic Odor Aquic Moisture Regime Reducing Conditions		Concretions High Organic Content ir Organic Streaking in Sa Listed on Local Hydric S Listed on National Hydri	ndy Soils Soils List ic Soils List	in Sandy Soils	
yes, check them) X X emarks:	Histosol Histic Epidon Sulfidic Odor Aquic Moisture Regime Reducing Conditions Gleyed or Low-Chroma		Concretions High Organic Content ir Organic Streaking in Sa Listed on Local Hydric S Listed on National Hydri Other (explain in remark	ndy Soils Soils List ic Soils List (s)		
yes, check them) X	Histosol Histic Epidon Sulfidic Odor Aquic Moisture Regime Reducing Conditions Gleyed or Low-Chroma	Colors	Concretions High Organic Content ir Organic Streaking in Sa Listed on Local Hydric S Listed on National Hydri Other (explain in remark	ndy Soils Soils List ic Soils List (s)	in Sandy Soils	
yes, check them) X X X emarks:	Histosol Histic Epidon Sulfidic Odor Aquic Moisture Regime Reducing Conditions Gleyed or Low-Chroma	Colors s X N s X N	Concretions High Organic Content ir Organic Streaking in Sa Listed on Local Hydric S Listed on National Hydri Other (explain in remark	ndy Soils Soils List ic Soils List (s)		
yes, check them) X X X emarks:	Histosol Histic Epidon Sulfidic Odor Aquic Moisture Regime Reducing Conditions Gleyed or Low-Chroma	Colors S X N S X N	Concretions High Organic Content ir Organic Streaking in Sa Listed on Local Hydric S Listed on National Hydri Other (explain in remark	ndy Soils Soils List ic Soils List (s)		
yes, check them) X X ETLAND DETERM //drophytic Vegetatietland Hydrology F	Histosol Histic Epidon Sulfidic Odor Aquic Moisture Regime Reducing Conditions Gleyed or Low-Chroma	Colors S X N S X N	Concretions High Organic Content ir Organic Streaking in Sa Listed on Local Hydric S Listed on National Hydri Other (explain in remark	ndy Soils Soils List ic Soils List (S)	t Within a Wetland	

Project/Site:		I-64 Peninsula			Date:	7/5/2011	
Applicant/Ov					County:	James City	
Investigator:		Sekula / Doucette			State:	Virginia	
Community I	ID:	PFO	_	Transect ID:		Plot ID:	WET37N
Do Normal C	Conditions e	exist on the site?		Yes X	. No	0	
		listurbed (Atypical situation	on)?	Yes	No.		<u>-</u>
		Problem Area?	,	Yes	— No		•
If needed, ex	-						•
VEGETATIO	ON						
		Dominant Plant	=				
1 .	Common N		Scientific N		Stratum	_	Indicator
	Christmas		-	m acrostichoides	Н		FACU-
	Lizard's Ta		Saururus d		Н		OBL
	•	False Nettle	Boehmeria	-	Н		FACW+
4.	Jewelweed	I	Impatiens (•	Н		FACW
5.	Tuliptree		Lirodendro	n tulipifera	S		FACU
6.	Pawpaw		Asimina tri	loba	S		FACU+
7.	Spicebush		Lindera be	nzoin	S		FACW-
8.	Virginia Cro	eeper	Parthenoci	issus quinquefolia	V		FACU
9.	Poison Ivy		Toxicoden	dron radicans	V		FAC
10.	American H	Holly	llex opaca		S		FACU+
11.	Red Maple		Acer rubru	m	Т		FAC
12.	American S	Sycamore	Platanus o	ccidentalis	Т		FACW-
Percent of de	ominant sp	ecies that are OBL, FAC	V or FAC		58%		
(excluding F	AC-)						
Remarks:							
HYDROLOG	2V						
-		pe in Remarks):		Wetland Hydrology	Indicators:		
Trecorded Br	ata (Descrit	Streams		Primary Indicators:	maioators.		
-		Aerial Photographs		Inunda	ited		
		Other			ted in Upper 12 ii	nches	
	No Record	ed Data Available		Water		101100	
	110 1100014	ou bata / tvanabio		Drift Li			
					ent Deposits		
Field Observ	ations.				ge Patterns in W	etlands	
Depth of Sur		: N/A	(in.)	Secondary Indicato	-		
Depth to Fre			(in.)	1	ed Root Channels	•	nches
Depth to Sat			(in.)		Stained Leaves	5 111 Oppor 12 11	101100
- op to cat			_()		Soil Survey Data		
					leutral Test		
					(Explain in Rema	rks)	
				501	, ₁	-1	
Remarks:				<u> </u>			

Commun	Community ID: PFO Transect ID:			D:	Plot ID:	WET37N
SOILS						
Map Unit Na	me					
(Series and	Phase):				rainage Class:	
Field Observ	ations Con	firm Mapped Type?	Yes	No	_	
Taxonomy (Subgroup):				_	
		Matrix Color	Mottle Colors	Mottle	Textures, Con	cretions, Structures,
Depth (in)	Horizon	(Munsell Moist)	(Munsell Moist)	Abundance/Contrast	etc.	
0-12		2.5 Y 5/2			Sandy loam	
12-18		2.5 Y 6/3			Sandy loam	
					·	
Hydric Soil I		Yes		No		
(If yes, chec	k them)					
		_Histosol		Concretions		
		_Histic Epidon		High Organic Content in	Surface Layer	n Sandy Soils
		Sulfidic Odor		Organic Streaking in Sa	ndy Soils	
		Aquic Moisture Regime		Listed on Local Hydric S	Soils List	
•	Х	Reducing Conditions		Listed on National Hydri	c Soils List	
,	Х	Gleyed or Low-Chroma C	Colors	Other (explain in remark		
		- ′		_ ` ` '	,	
Remarks:						
WETLAND I	DETEDMIN	ATION				
Hydrophytic			V N	No la thia	Sampling Daint	Within a Wetland
	-				Sampling Point	vviuiiii a vvelianu
Wetland Hyd				No		Na
Hydric Soils	Present?	Yes	X1	No Yes	SX	No
	107 41					
	-	-	ce of hydrology from s	tormwater (boarderline wet	land)	
	Flows into	culvert under road				

Project/Site:	I-64 Peninsula				Date:	7/5/2011	
Applicant/Owner:					County:	James City	
Investigator:	Sekula / Doucette				State:	Virginia	
Community ID:	PEM		Transect ID:		_	Plot ID:	WET38N
Do Normal Conditions			Yes_	Χ	N		-
	y disturbed (Atypical situa	tion)?	Yes_		_ N		-
Is the area a potential			Yes_		_ N	o X	-
If needed, explain on	reverse						
VEGETATION							
	Dominant Plan	t Species					
Commor	n Name	Scientific I	Name		Stratum		Indicator
1. Shallow	Sedge	Carex lurie	da		Н	_	OBL
Arrowlea	of Tearthumb	Polygonui	n sagittatum		Н		OBL
Smallspi	ke False Nettle	Boehmeria	a cylindrica		Н		FACW+
4. Commor	n Rush	Juncus ef	fusus		Н		FACW+
5. Commor	n Boneset	Eupatoriui	m perfoliaturx		Н		FACW+
6. Hazel Ale	der	Alnus serr	rulata		S		OBL
7. Americar	n Sycamore	Platanus d	occidentalis		S		FACW-
8.							
9.							
10.							
11.							
12.							
Percent of dominant s	species that are OBL, FAC	CW or FAC			100%		_
(excluding FAC-)							
Remarks:							
HYDROLOGY							
Recorded Data (Desc	cribe in Remarks):		Wetland Hydro	ology Indi	icators:		
	Streams		Primary Indica	ators:			
	Aerial Photographs		Ir	nundated			
	Other		XS	aturated	in Upper 12 i	nches	
No Reco	rded Data Available		V	Vater Mar	ks		
			D	rift Lines			
			S	ediment	Deposits		
Field Observations:			X	rainage F	Patterns in W	etlands/	
Depth of Surface Wat	ter: N/A	(in.)	Secondary Inc	dicators (2	2 or more red	quired):	
Depth to Free Water i		(in.)		xidized F	Root Channel	s in Upper 12 i	nches
Depth to Saturated So	oil: 0	(in.)			ined Leaves		
					Survey Data		
				AC-Neuti			
			C	ther (Exp	olain in Rema	arks)	
Domorko:							
Remarks:							

Community ID:		PEM	Trai	nsect ID:		Plot ID:	WET38N
OILS							
lap Unit Na					D	raina na Olasa	
Series and	rnase): (ations Cont	firm Mapped Type?	Yes		No	ainage Class:	
		ппп маррес туре?	165		INO	_	
axonomy (Subgroup).						
		Matrix Color	Mottle Col	ors	Mottle	Textures, Conc	etions, Structures,
Depth (in)	Horizon	(Munsell Moist)	(Munsell M		ndance/Contrast	etc.	,
0-4		2.5 Y 6/2	,	,		Sandy clay	
4-18+		2.5 Y 2.5/1				Sandy clay	
ydric Soil Iı	adicators:		Voc	No			
yes, checl			Yes	No			
yes, check	K (IIIGIII)	Histosol		Concre	ations		
•		Histic Epidon			Prganic Content in	Surface Laver in	Sandy Soils
•	Х	Sulfidic Odor			ic Streaking in Sa		Carlay Colls
		_Samale Odor Aquic Moisture Regir	<u> </u>		on Local Hydric S		
	X	Reducing Conditions			on National Hydri		
	X	Gleyed or Low-Chror			(explain in remark		
	^	_Gleyed of Low-Cillor		Other	(explain in remark	.5)	
emarks:							
ETLAND I	DETERMIN	ATION					
	Vegetation		Yes X	No	Is this	Sampling Point	Within a Wetland
	drology Pres	sent?	Yes X	No			
ydric Soils	Present?		Yes X	No	Yes	sX	No
emarks:							

Project/Site	э:	I-64 Peninsula	l				Date:	7/5/2011	
Applicant/C	Owner:						County:	James City	
Investigato	r:	Sekula / Douc	ette				State:	Virginia	
							_		
Community	/ ID:	PFC)	_	Transect ID:		_	Plot ID:	WET39N
		exist on the site?		١.٥	Yes	Х	_ N		
	-	disturbed (Atypic	al situatio	n)?	Yes		_ N		
	-	Problem Area?			Yes		_ N	o <u>X</u>	
If needed, 6	explain on re	everse							
VECETATI	ION								
VEGETATI	ION	Domina	nt Dlant C	`nooioo					
	Common		nt Plant S	-	lomo		Ctrotum		Indicator
	Common N			Scientific N			Stratum		Indicator
1.		Arrowhead		Sagittaria I			Н		OBL
2.	Cinnamon				cinnamomea		H		FACW
3.	-	e False Nettle		Boehmeria	-		H		FACW+
4.	Sensitive F			Onoclea se			H		FACW
5.	Polygonum			Polygonun	=		Н		E4.0
6.	Sweetgum			-	ar styraciflua		S		FAC
7.	Red Maple			Acer rubru			1		FAC
8.	Black Willo			Salix nigra			<u>T</u>		FACW+
9.	American S				ccidentalis		Т		FACW-
10.	Poison Ivy			Toxicoden	dron radicans		V		FAC
11.									
12.									
	-	ecies that are O	BL, FACV	V or FAC			90-100%)	
(excluding	FAC-)								
Remarks:									
HYDROLO		ha in Damaria).			N/atland I I Iva	الممال مينا لمما			
Recorded L	Data (Descri	be in Remarks):			Wetland Hyd		cators:		
		_Streams			Primary India				
		Aerial Photogi	apns			Inundated			
		_Other					n Upper 12 i	ncnes	
	_ No Record	led Data Availab	ie			Water Mark	KS		
						Drift Lines			
E: 1101						Sediment [
Field Obse			N1/A	<i>(</i> :)		•	atterns in W		
	urface Water		N/A	_(in.)	Secondary In	,		,	
	ree Water in		10	_(in.)				s in Upper 12 in	iches
Depth to Sa	aturated Soil	l:	0	_ (in.)			ned Leaves		
							Survey Data		
						FAC-Neutra			
						Other (Exp	lain in Rema	irks)	
D	N.A1. 14	f . d . 17 f			1				
Remarks:		of wetland/strea	ım compl	ex is inund	ated				
	Beaver da	am at culvert							

Commun	ity ID:	PFO Transect ID:			Plot ID:	WET39N
					_	
SOILS						
Map Unit Na	ime					
(Series and	Phase):			D	rainage Class:	
Field Observ	ations Con	firm Mapped Type?	Yes	No	_	
Taxonomy (Subgroup):					
		Matrix Color	Mottle Colors	Mottle	Textures, Con-	cretions, Structures,
Depth (in)	Horizon	(Munsell Moist)	(Munsell Moist)	Abundance/Contrast	etc.	
0-3		7.5 YR 3/4			Sandy loam	
3-18		2.5 Y 6/2	7.5 YR 5/8	Many/Prominent	Sandy loam	
	п.	.,				
Hydric Soil I		Yes	N	0		
(If yes, chec	k them)					
		_Histosol		Concretions		
		_Histic Epidon		High Organic Content in		n Sandy Soils
		Sulfidic Odor		Organic Streaking in Sa	ndy Soils	
		_Aquic Moisture Regime		Listed on Local Hydric S	Soils List	
	Χ	Reducing Conditions		Listed on National Hydri	ic Soils List	
	Χ	Gleyed or Low-Chroma C	Colors	Other (explain in remark	(S)	
,				_		
Remarks:						
WETLAND I	DETERMIN	ATION				
Hydrophytic			X N	o Is this	Sampling Point	Within a Wetland
Wetland Hyd	-			0 15 tills	Sampling Follic	vvidili a vvetlatiu
Hydric Soils					· ·	No
i iyunc Solis	i ieseill?	Yes	XN	Yes	sX	No
Damarir						
Remarks:						

Project/Site:	I-64 Penin	suia					Date:	7/6/201	1	
Applicant/Owne	er:						County:	New Kent		
nvestigator:	Sekula / D	oucette					State:	Virginia		
Community ID:		PFO	_	Transect	ID:		_	Plot ID:	WET40N	
	ditions exist on the s				es	Χ		lo	_	
-	ficantly disturbed (At		on)?		/es			lo X	_	
-	otential Problem Area	1?		١	/es		^	lo X	_	
f needed, expla	ain on reverse									
/EGETATION										
		ninant Plant	Species							
	mmon Name		Scientific	Name			Stratum		Indicator	
	ard's Tail		Saururus	s cernuus			Н		OBL	
	ensitive Fern		Onoclea	sensibilis			Н		FACW	
3. Co	astal Sweetpepperb	ush	Clethra a	alnifolia			Н		FAC+	
	ed Maple		Acer rub	rum			Т		FAC	
5. Sw	veetgum		Liquidan	nbar styraciflu	ıa		Т		FAC	
6. Bla	ackgum		Nyssa sy	/Ivatica			Т		FAC	
7.										
3.										
9.										
10.										
11.										
12.										
Percent of dom	inant species that ar	e OBL, FAC	W or FAC				100%			
excluding FAC	:-)								_	
Remarks:										
N/DD 01 0 0 V										
HYDROLOGY	(Describe in Remark	ke).		Wetland	Hydrol	oay Ind	licators:			
recorded Data	Streams	13).		Primary			ilcators.			
	Aerial Pho	tographs		I minary		indated				
	Other	tograpris		X			in Upper 12	inches		
No	Recorded Data Ava	ilahla				ater Mai		IIICHES		
	Necolueu Dala Ava	liable				ft Lines				
							Deposits			
Field Observati	one:			X			Patterns in W	lotlands		
Depth of Surfac		NI/A	(in)			•	2 or more red			
•		N/A	(in.)		-	-			Linghag	
Depth to Free V		3	(in.)	X			ined Leaves	ls in Upper 12	inches	
Depth to Satura	aled Soil.	0	(in.)							
							Survey Data			
				X			ral Test			
					Otl	ner (Exp	plain in Rema	arks)		
Pomorlos Or	oution mounds									
	ayfish mounds									
56	eep wetland									

Communi	ity ID:	PFO	Transect I	Plot ID:	WET40N	
					_	
SOILS						
Map Unit Na						
(Series and I				D	rainage Class: _	
		firm Mapped Type?		No	_	
Taxonomy (Subgroup):					
		Matrix Color	Mottle Colors	Mottle		cretions, Structures,
Depth (in)	Horizon	(Munsell Moist)	(Munsell Moist)	Abundance/Contrast	etc.	
0-2		10 YR 3/2			Sandy loam	
2-6		2.5 Y 6/2			Sandy clay	
6-9		10 YR 4/1			Sandy silt loar	
9-12 12-18		10 YR 4/1 10 YR 5/2			Sandy clay los	
12-18		10 YR 5/2			Sandy clay loa	arrı
-						
Hydric Soil Ir	ndicators:	Yes	1	No		
(If yes, checl	k them)	·				
		Histosol		Concretions		
'		Histic Epidon		High Organic Content in	Surface Layer	in Sandy Soils
		Sulfidic Odor		Organic Streaking in Sa	indy Soils	
'		Aquic Moisture Regime		Listed on Local Hydric S	Soils List	
'	Х	Reducing Conditions		Listed on National Hydr	ic Soils List	
	Χ	Gleyed or Low-Chroma C	olors	Other (explain in remark	(S)	
		_				
Remarks:						
WETLAND I						
Hydrophytic				No Is this	Sampling Poin	t Within a Wetland
Wetland Hyd		-		No		
Hydric Soils	Present?	Yes	X	No Ye:	sX	No
Remarks:	Linear wetl	and paralleling highway				

Project/Site:	I-64 Peninsula				Date:	7/6/2011	
Applicant/Owner:					County:	New Kent	
Investigator:	Sekula / Doucette				State:	Virginia	
Community ID:	PFO	_	Transect ID:		_	Plot ID:	WET46N
	ns exist on the site?		Yes	Х	_ N		<u>-</u>
_	tly disturbed (Atypical situat	on)?	Yes		_ N		-
Is the area a potenti			Yes		_ N	oX	-
If needed, explain o	n reverse						
VEGETATION							
	Dominant Plant	Species					
Commo	on Name	Scientific N	ame		Stratum		Indicator
1. Lizard's	s Tail	Saururus ce	ernuus		Н		OBL
Sensitive	ve Fern	Onoclea se	nsibilis		Н		FACW
	eaf Tearthumb	Polygonum	sagittatum		Н		OBL
4. Polygo	num	Polygonum	•		Н		
5. Hazel A		Alnus serru	lata		S		OBL
6. Red Ma	-	Acer rubrur			Т		FAC
7. Blackgı	um	Nyssa sylva	atica		Т		FAC
8.							
9.							
10.							
11.							
12.		540			00.4000		
	t species that are OBL, FAC	W or FAC			86-100%)	
(excluding FAC-)							
Remarks:							
HYDROLOGY							
Recorded Data (Des			Wetland Hydro		ators:		
	Streams		Primary Indicat				
	Aerial Photographs			undated			
	Other				n Upper 12 i	nches	
No Red	corded Data Available			ater Mark	S		
				ift Lines	,		
Field Observations				ediment D	-	/	
Field Observations:	nto NI/A	(i.e.)		•	atterns in W		
Depth of Surface Water		(in.)	Secondary Indi	-			a ahaa
Depth to Free Wate Depth to Saturated		(in.) (in.)			ned Leaves	s in Upper 12 in	iches
Deptil to Saturated	JOII. 0	(\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\			Survey Data		
				AC-Neutra	-		
					ม ายรเ ain in Rema	ırks)	
				o. (Expi			
Remarks: Seep v	wetland						

Community ID:	PFO	Transec	et ID:	Plot ID:	WET46N
olLS ap Unit Name					
Series and Phase):				Drainage Class:	
eld Observations Co	onfirm Mapped Type?	Yes	No		
):				
	Matrix Color	Mottle Colors	Mottle		cretions, Structures,
Depth (in) Horizon		(Munsell Moist)	Abundance/Contras		
0-6	2.5 Y 6/2			Loamy sand	
6-18	2.5 Y 5/1			Loamy sand	
		Yes	No		
		Yes	No		
	Histosol	Yes	Concretions		
	Histosol Histic Epidon	Yes	Concretions High Organic Content		in Sandy Soils
	Histosol Histic Epidon Sulfidic Odor		Concretions High Organic Content Organic Streaking in S	Sandy Soils	in Sandy Soils
	Histosol Histic Epidon Sulfidic Odor Aquic Moisture Regin	 ne	Concretions High Organic Content Organic Streaking in S Listed on Local Hydric	Sandy Soils c Soils List	in Sandy Soils
yes, check them)	Histosol Histic Epidon Sulfidic Odor	 ne	Concretions High Organic Content Organic Streaking in S Listed on Local Hydric Listed on National Hy	Sandy Soils c Soils List dric Soils List	in Sandy Soils
yes, check them)	Histosol Histic Epidon Sulfidic Odor Aquic Moisture Regin	ne	Concretions High Organic Content Organic Streaking in S Listed on Local Hydric	Sandy Soils c Soils List dric Soils List	in Sandy Soils
yes, check them) X X	Histosol Histic Epidon Sulfidic Odor Aquic Moisture Regin Reducing Conditions	ne	Concretions High Organic Content Organic Streaking in S Listed on Local Hydric Listed on National Hy	Sandy Soils c Soils List dric Soils List	in Sandy Soils
yes, check them) X X	Histosol Histic Epidon Sulfidic Odor Aquic Moisture Regin Reducing Conditions	ne	Concretions High Organic Content Organic Streaking in S Listed on Local Hydric Listed on National Hy	Sandy Soils c Soils List dric Soils List	in Sandy Soils
yes, check them) X X emarks:	Histosol Histic Epidon Sulfidic Odor Aquic Moisture Regin Reducing Conditions Gleyed or Low-Chron	ne	Concretions High Organic Content Organic Streaking in S Listed on Local Hydric Listed on National Hy	Sandy Soils c Soils List dric Soils List	in Sandy Soils
yes, check them) X X emarks:	Histosol Histic Epidon Sulfidic Odor Aquic Moisture Regin Reducing Conditions Gleyed or Low-Chron	ne	Concretions High Organic Content Organic Streaking in S Listed on Local Hydric Listed on National Hy Other (explain in rema	Sandy Soils c Soils List dric Soils List arks)	
yes, check them) X X X emarks:	Histosol Histic Epidon Sulfidic Odor Aquic Moisture Regin Reducing Conditions Gleyed or Low-Chron	ne	Concretions High Organic Content Organic Streaking in S Listed on Local Hydric Listed on National Hy Other (explain in rema	Sandy Soils c Soils List dric Soils List arks)	in Sandy Soils
emarks: /ETLAND DETERMI ydrophytic Vegetatio /etland Hydrology Pro	Histosol Histic Epidon Sulfidic Odor Aquic Moisture Regin Reducing Conditions Gleyed or Low-Chron NATION Present?	ne	Concretions High Organic Content Organic Streaking in S Listed on Local Hydric Listed on National Hy Other (explain in rema	Sandy Soils c Soils List dric Soils List arks) his Sampling Poin	t Within a Wetland
yes, check them) X X x emarks:	Histosol Histic Epidon Sulfidic Odor Aquic Moisture Regin Reducing Conditions Gleyed or Low-Chron NATION Present?	ne	Concretions High Organic Content Organic Streaking in S Listed on Local Hydric Listed on National Hy Other (explain in rema	Sandy Soils c Soils List dric Soils List arks)	t Within a Wetland
yes, check them) X X X emarks: ETLAND DETERMI ydrophytic Vegetatio etland Hydrology Pro	Histosol Histic Epidon Sulfidic Odor Aquic Moisture Regin Reducing Conditions Gleyed or Low-Chron NATION Present?	ne	Concretions High Organic Content Organic Streaking in S Listed on Local Hydric Listed on National Hy Other (explain in rema	Sandy Soils c Soils List dric Soils List arks) his Sampling Poin	t Within a Wetland

Project/Site:	I-64 Peninsula				Date:	7/6/2011	
Applicant/Owner:					County:	New Kent	
Investigator:	Sekula / Doucette				State:	Virginia	
Community ID:	PFO	_	Transect ID:		-	Plot ID:	WET48N
D. N			V	V	N.		
Do Normal Conditions		\2	Yes_	Х	_ N		-
	/ disturbed (Atypical situati	on)?	Yes		_ N		-
Is the area a potential If needed, explain on			Yes		_ N	oX	_
ii fieeded, explain on	reverse						
VEGETATION							
	Dominant Plant	Species					
Common	Name	Scientific N	lame		Stratum		Indicator
1. Lizard's	Tail	Saururus c	ernuus		Н		OBL
2. Green Ar	rrow Arum	Peltandra v	/irginica		Н		OBL
3. Japanese	e Stilt Grass	-	ım vimineum		Н		FAC
4. Red Map		Acer rubrui			Т		FAC
5. Blackgun	n	Nyssa sylv	atica		Т		FAC
6.							
7.							
8.							
9.							
10.							
11.							
12.	procing that are ODL FAC	\\\			1000/		
(excluding FAC-)	species that are OBL, FAC	W OF FAC			100%		-
Remarks:							
remarks.							
HYDROLOGY							
Recorded Data (Desc	rihe in Remarks):		Wetland Hydro	logy Indic	ators.		
Trecorded Bala (Bese	Streams		Primary Indica		ators.		
	Aerial Photographs		-	undated			
	Other				n Upper 12 i	nches	
No Reco	rded Data Available			ater Mark			
				rift Lines			
			Se	ediment D	eposits		
Field Observations:					atterns in W	etlands	
Depth of Surface Wat	er: N/A	(in.)	Secondary Ind	-			
Depth to Free Water i	n Pit: 4	(in.)	0:	xidized Ro	oot Channel	s in Upper 12 i	nches
Depth to Saturated So	oil: 0	 (in.)	XW	ater-Stair	ed Leaves		
		<u> </u>	Lo	ocal Soil S	Survey Data		
			X FA	AC-Neutra	al Test		
			0	ther (Expl	ain in Rema	ırks)	
Remarks: Majority	of wetland is inundated						

Commun	ity ID:	PFO	Transect ID):	Plot ID:	WET48N
					_	
SOILS						
Map Unit Na	ime					
(Series and	Phase):			Di	rainage Class:	
Field Observ	ations Con	firm Mapped Type?	Yes	No	_	
Taxonomy (Subgroup):				_	
		Matrix Color	Mottle Colors	Mottle	Textures, Cond	cretions, Structures,
Depth (in)	Horizon	(Munsell Moist)	(Munsell Moist)	Abundance/Contrast	etc.	
0-2		10 YR 3/2			Silty sand	
2-18		2.5 Y 5/1			Sandy clay	
Hydric Soil I		Yes	N	0		
(If yes, chec	k them)					
		_Histosol		Concretions		
		_Histic Epidon		High Organic Content in	Surface Layer i	n Sandy Soils
		Sulfidic Odor		Organic Streaking in Sa	ndy Soils	
		Aquic Moisture Regime		Listed on Local Hydric S	Soils List	
'	Х	Reducing Conditions		Listed on National Hydri	c Soils List	
,	Х	Gleyed or Low-Chroma C	Colors	Other (explain in remark		
		-		_ ` '	,	
Remarks:						
WETLAND I	DETERMIN	ATION				
Hydrophytic			X N	o Is this	Sampling Point	Within a Wetland
					Camping Fulli	vvidili a vvetlatiu
Wetland Hyd						No
Hydric Soils	riesent?	Yes	XN	Yes	SX	No
D '	10/-41- 1 1					
Remarks:	Wetland at	rest area				

Project/Site:	I-64 Peninsula				Date:	7/8/2011	
Applicant/Owner:					County:	New Kent	
Investigator:	Sekula / Copeland				State:	Virginia	
Community ID:	PEM		Transect ID:		_	Plot ID:	WET55N
Do Normal Condit	tions exist on the site?		Yes	X	N	0	
	antly disturbed (Atypical situat	ion)?	Yes		_		-
1	ntial Problem Area?	, .	Yes		_ N		-
If needed, explain					_	-	-
VEGETATION							
	Dominant Plant	=			0		
	mon Name	Scientific N			Stratum	_	Indicator
	Ilspike False Nettle		a cylindrica		H		FACW+
	mon Rush	Juncus eff			H		FACW+
	n Arrow Arum	Peltandra	-		Н		OBL
	mon Buttonbush	-	hus occidentalis		S		OBL
	Maple	Acer rubru			T 		FAC
	itive Fern	Onoclea s	ensibilis		Н		FACW
7.							
8.							
9.							
10.							
11.							
12.	ant angains that are ODL FAC	N/ 05 EAC			1000/		
	ant species that are OBL, FAC	W or FAC			100%		-
(excluding FAC-) Remarks:							
Remarks.							
HYDROLOGY							
Recorded Data (D	Describe in Remarks):		Wetland Hydrol	ogy Indi	cators:		
	Streams		Primary Indicate	ors:			
	Aerial Photographs		Inu	ndated			
	Other		X Sat	turated i	n Upper 12 i	nches	
No R	ecorded Data Available		Wa	iter Marl	ks		
			Dri	ft Lines			
				diment [Deposits		
Field Observations	s:		X Dra	ainage F	atterns in W	etlands	
Depth of Surface	Water: N/A	(in.)	Secondary India	cators (2	or more rec	juired):	
Depth to Free Wa		(in.)				s in Upper 12 i	nches
Depth to Saturate	d Soil: 0	(in.)			ned Leaves		
					Survey Data		
				C-Neutr			
			Oth	ner (Exp	lain in Rema	ırks)	
Dame de SEC	africation 12-2- 17-1						
Remarks: 75%	of wetland is inundated						

Commun	Community ID: PEM Transect ID:				Plot ID:	WET55N
					_	
SOILS						
Map Unit Na	me					
(Series and				Di	rainage Class:	
		firm Mapped Type?	Yes	No	_	
Taxonomy (_	_	
	0 17					
		Matrix Color	Mottle Colors	Mottle	Textures, Cond	cretions, Structures,
Depth (in)	Horizon	(Munsell Moist)	(Munsell Moist)	Abundance/Contrast	etc.	,
0-5		10 YR 2/2	,		Clay loam	
5-10		Gley 1 7/10Y			Sandy clay	
10-18		2.5 Y 7/1			Loamy sand	
					,	
Hydric Soil II	ndicators:	Yes	N	lo		
(If yes, check						
(11) 00, 01100		Histosol		Concretions		
		Histic Epidon		High Organic Content in	Surface Laver i	n Sandy Soils
		Sulfidic Odor		Organic Streaking in Sa		Touridy Collo
		Aquic Moisture Regime		Listed on Local Hydric S	•	
	X	Reducing Conditions		Listed on National Hydri		
	X	Gleyed or Low-Chroma C	olore	Other (explain in remark		
		_ Gleyed of Low-Chiloffia C			.5)	
Remarks:						
ixemarks.						
WETLAND I	DETERMIN	ATION				
			V N	lo lo thio	Compling Point	Within a Watland
Hydrophytic Wetland Hyd				lo Is this	Sampling Point	Within a Wetland
					. V	Nie
Hydric Soils	riesent?	Yes	N	loYes	SX	No
Domorko	Pics 81 and	1 00				
Remarks:	FICS OI and	102				

Project/Site:	I-64 Peninsula				_Date:	7/8/201	<u>1</u>
Applicant/Owner:					County:	New Kent	
Investigator:	Sekula				State:	Virginia	
Community ID:	PFO		Transect ID:		_	Plot ID:	WET56N
Do Normal Condition	ns exist on the site?		Yes	Х		lo	
s the site significant	ly disturbed (Atypical situa	tion)?	Yes_		N	√o X	_
Is the area a potentia	al Problem Area?		Yes		N	√o X	<u> </u>
If needed, explain or	reverse						
VEGETATION							
	Dominant Plan	t Species					
Commo	n Name	Scientific	Name		Stratum		Indicator
1. Red Ma	ple	Acer rubi	rum		Т		FAC
2. Willow 0	Oak	Quercus	phellos		Т		FAC+
Blackgu	ım	Nyssa sy	rlvatica		T		FAC
Sweetg	um	Liquidam	bar styraciflua		Т		FAC
5.							
6.							
7.							
8.							
9.							
10.							
11.							
12.							
	species that are OBL, FAC	CW or FAC			100%		
(excluding FAC-)	,		_				
Remarks:							
HYDROLOGY							
Recorded Data (Des	cribe in Remarks):		Wetland Hyd	rology Indic	ators:		
,	Streams		Primary Indic	٠.			
	Aerial Photographs		-	nundated			
-	Other			Saturated ir	Upper 12	inches	
No Rec	orded Data Available			Nater Mark			
				Orift Lines			
				Sediment D	enosits		
Field Observations:				Drainage Pa	-	/etlands	
Depth of Surface Wa	ater: N/A	(in.)	Secondary In	-			
Depth to Free Water		(in.)				els in Upper 12	inches
Depth to Saturated S		— (in.)		Nater-Stain			HIGHES
Deptir to Gatarated C		(111.)		_ocal Soil S			
				-ocal Soll S -AC-Neutra	-	ı	
						orke)	
			'	Other (Expl	ain in Kemi	aiks)	
Remarks: 1/2 of v	vetland has pockets of s	tanding wat	<u> </u>				
	sed trunks observed		-				
2500							

Commun	Community ID: PFO Transect ID:			D:	Plot ID: WET5		
					_		
SOILS							
Map Unit Na	ime						
(Series and				Di	rainage Class:		
		firm Mapped Type?	Yes		_		
Taxonomy (_		
	0 17						
		Matrix Color	Mottle Colors	Mottle	Textures, Cond	retions, Structures,	
Depth (in)	Horizon	(Munsell Moist)	(Munsell Moist)	Abundance/Contrast	etc.	,	
1-0	0	,	,		Organic		
0-8		10 YR 3/1			Sandy clay loar	n	
8-18		10 YR 6/2		Many/Prominent	Sandy clay		
				,	, ,		
Hydric Soil I	ndicators:	Yes	N	0			
(If yes, chec							
(11) 00, 01100		Histosol		Concretions			
		Histic Epidon		High Organic Content in	Surface Laver in	Sandy Soils	
		Sulfidic Odor		Organic Streaking in Sa		r Garlay Gollo	
		Aquic Moisture Regime		Listed on Local Hydric S	•		
	Х	Reducing Conditions		Listed on National Hydri			
	X	Gleyed or Low-Chroma C	`olore	Other (explain in remark			
		_ Gleyed of Low-Cilionia C		_Other (explain in remain	(3)		
Remarks:							
ixemarks.							
WETLAND	DETEDMIN	ATION					
Hydrophytic			V N	o le thic	Sampling Point	Within a Wetland	
	•				Sampling Point	vviuiiii a vveliaiiu	
Wetland Hyd				0		No	
Hydric Soils	riesent?	Yes	XN	Yes	SX	No	
Domorto	Die 92						
Remarks:	Pic 83						

Project/Site:	I-64 Peninsula					Date:	7/8/201	1	
Applicant/Owner:						County:	New Kent		
Investigator:	Sekula / Copeland					State:	Virginia		_
Community ID:	PFO		Transect	ID:			Plot ID:	WET57	N
Do Normal Condition					Х	•	lo	_	
_	y disturbed (Atypical situat	ion)?		'es		•	lo X	_	
Is the area a potentia			Y	'es		. ^	lo X	_	
If needed, explain on	reverse								
VEGETATION									
_	Dominant Plant	-							
Commo		Scientifi				Stratum		Indicator	
1. Red Maj		Acer ruk				T		FAC	
2. Blackgu	m	Nyssa s	sylvatica			Т		FAC	
3.									
4.									
5.									
6.									
7.									
8.									
9.									
10.									
11.									
12.									
	species that are OBL, FAC	CW or FAC				100%		_	
(excluding FAC-)									
Remarks:									
HYDROLOGY									
Recorded Data (Des	cribe in Remarks):		Wetland	Hydrolog	gy Indica	ators:			
	Streams		Primary I	ndicators	s:				
	Aerial Photographs			Inund	dated				
	Other		X	Satu	rated in	Upper 12	inches		
No Reco	orded Data Available		X	Wate	er Marks	3			
				Drift	Lines				
				Sedii	ment De	eposits			
Field Observations:				Drair	nage Pa	atterns in W	/etlands		
Depth of Surface Wa	ter: N/A	(in.)	Seconda	ry Indica	tors (2	or more red	quired):		
Depth to Free Water	in Pit: 4	(in.)	X	Oxid	ized Ro	ot Channe	ls in Upper 12	inches	
Depth to Saturated S	oil: 0	(in.)	X	Wate	er-Stain	ed Leaves			
				Loca	l Soil S	urvey Data			
				FAC-	-Neutra	l Test			
				Othe	r (Expla	ain in Rema	arks)		
Remarks: Data po	oint taken at floodplain fr	inge							
Most of	the wetland is inundate	d / overflov	W						

Commun	ommunity ID: PFO Transect ID:				Plot ID: WET57		
					_		
SOILS							
Map Unit Na	me						
(Series and I	Phase):			D	rainage Class: _		
Field Observ	ations Con	firm Mapped Type?	Yes	No	_		
Taxonomy (S	Subgroup):				_		
		Matrix Color	Mottle Colors	Mottle	Textures, Con-	cretions, Structures,	
Depth (in)	Horizon	(Munsell Moist)	(Munsell Moist)	Abundance/Contrast	etc.		
1-0	0				Organic		
0-8		10 YR 4/1			Sandy clay		
8-12		10 YR 5/1			Clay		
12-18		10 YR 5/2	5 YR 4/6	Many/Prominent	Sandy clay		
				•			
Hydric Soil Ir	ndicators:	Vac	N	0			
(If yes, check		163		<u> </u>			
(II yes, check	K (IIIeIII)	Histosol		Concretions			
					Curtosa Lavori	n Candy Caila	
-		_Histic Epidon		High Organic Content in	-	n Sandy Solis	
-		_Sulfidic Odor		Organic Streaking in Sa			
		_Aquic Moisture Regime		Listed on Local Hydric S			
	X	_Reducing Conditions		Listed on National Hydri			
	Х	Gleyed or Low-Chroma C	olors	Other (explain in remark	(S)		
Remarks:							
WETLAND I							
Hydrophytic	-				Sampling Point	Within a Wetland	
Wetland Hyd	drology Pres	sent? Yes	X N	0			
Hydric Soils	Present?	Yes	X N	o Yes	s <u>X</u>	No	
		<u> </u>					
Remarks:	Pic 84	85 from roadway bridge					
	Wetland of	the Chickahominy					
		•					

Project/Site:	I-64 Peninsula				Date:	7/8/201	1
Applicant/Owner:					County:	Henrico	
Investigator:	Sekula / Copeland				State:	Virginia	
Community ID:	PEM	_	Transect ID:		_	Plot ID:	WET58N
			.,	.,			
Do Normal Conditions		\0	Yes_		_ N		_
	disturbed (Atypical situation	on)?	-				_
Is the area a potential If needed, explain on re			Yes_		N	oX	_
ii needed, explain on re	everse						
VEGETATION							
	Dominant Plant	Species					
Common		Scientific Na	ame		Stratum	_	Indicator
1. Common	Rush	Juncus effu	sus		Н		FACW+
2. Broadleaf	Cattail	Typha latifo	lia		Н		OBL
3.							
4.							
5.							
6.							
7.							
8.							
9.							
10.							
11.							
12.							
1	pecies that are OBL, FAC	W or FAC	_		100%		_
(excluding FAC-)							
Remarks: Cattail sta	nd between highway and	raiiroad tracks					
HYDROLOGY							
Recorded Data (Descri	ihe in Remarks):		Wetland Hydro	ology Indi	icators:		
Trocordod Bala (Boson	Streams		Primary Indica		ioatoro.		
	Aerial Photographs		-	nundated			
	Other				in Upper 12 i	inches	
No Record	ded Data Available			√ater Mar			
				rift Lines			
				ediment			
Field Observations:					Patterns in W	etlands	
Depth of Surface Wate	r: 3	(in.)	Secondary Inc	_			
Depth to Free Water in		(in.)	-			s in Upper 12	inches
Depth to Saturated Soi		(in.)			ined Leaves		
.,		_` ′			Survey Data		
				AC-Neut	-		
					olain in Rema	arks)	
Remarks: Inundation	n appears to be higher	than normal	- most likely f	rom prev	ious night's	rain	

Commun	Community ID: PEM Transect ID:				Plot ID: WE		
SOILS							
Map Unit Na	ime						
(Series and				D	rainage Class:		
		firm Mapped Type?	Yes	No	_		
Taxonomy (<u> </u>	_		
(3 7.						
		Matrix Color	Mottle Colors	Mottle	Textures Cond	retions, Structures,	
Depth (in)	Horizon	(Munsell Moist)	(Munsell Moist)	Abundance/Contrast	etc.	rotiono, Otraotaroo,	
0-8	110112011	10 YR 6/2	7.5 YR 5/6	Many / Prominent	Clay		
				-	-		
8-18		2.5 Y 6/2	10 YR 6/8	Many / Prominent	Clay		
l a							
Hydric Soil I		Yes	N	0			
(If yes, chec	k them)						
		_Histosol		Concretions			
		Histic Epidon		High Organic Content in	Surface Layer in	n Sandy Soils	
		Sulfidic Odor		Organic Streaking in Sa	ndy Soils		
		Aquic Moisture Regime		Listed on Local Hydric S	Soils List		
	Х	Reducing Conditions		Listed on National Hydri			
	Х	Gleyed or Low-Chroma C	Colors	Other (explain in remark			
		_ 0.0,00 0. 2011 0.1101110 0			.0)		
Remarks:							
ixemarks.							
WETLAND				T			
Hydrophytic	•				Sampling Point	Within a Wetland	
Wetland Hyd		sent? Yes		0			
Hydric Soils	Present?	Yes	XN	oYes	sX	No	
Remarks:	Pic 88		<u> </u>			<u> </u>	
	Tadpoles o	bserved					
	•						

Project/Site:	I-64 Peninsula			Date:	7/8/201	11
Applicant/Owner:				County:	Henrico	
Investigator:	Sekula / Copeland			State:	Virginia	
Community ID:	PEM		Transect ID:		Plot ID:	WET60N
Do Normal Condition			Yes X		No	
•	y disturbed (Atypical situa	tion)?	Yes		No X	<u> </u>
Is the area a potentia			Yes		No X	<u> </u>
If needed, explain on	reverse					
VEGETATION						
_	Dominant Plan	-				
Commo		Scientifi		Stratum	<u>1</u>	Indicator
1. Lizard's			s cernuus	Н		OBL
2. Cinnamo			da cinnamomea	Н		FACW
3. Deerton	gue	Dichant	helium clandestinum	Н		FAC+
4.						
5.						
6.						
7.						
8.						
9.						
10.						
11.						
12.						
	species that are OBL, FAC	CW or FAC		100%		
(excluding FAC-)						
Remarks:						
HYDROLOGY						
Recorded Data (Des	cribe in Remarks):		Wetland Hydrology I	ndicators:		
	Streams		Primary Indicators:			
	Aerial Photographs		X Inundat	ed		
	Other		X Saturate	ed in Upper 12	inches	
No Reco	orded Data Available		Water N	∕larks		
			Drift Lin	ies		
			Sedime	nt Deposits		
Field Observations:			Drainag	je Patterns in V	Vetlands	
Depth of Surface Wa	ter: 2	(in.)	Secondary Indicator	s (2 or more re	quired):	
Depth to Free Water	in Pit: 0	(in.)	Oxidize	d Root Channe	els in Upper 12	2 inches
Depth to Saturated S	oil: 0	(in.)	X Water-S	Stained Leaves	i	
			Local S	oil Survey Data	э	
			X FAC-Ne	eutral Test		
			Other (I	Explain in Rem	arks)	
Remarks: 75% of	wetland is inundated					

Communi	ty ID:	PEM	Transect	D:	Plot ID:	WET60N
SOILS						
Map Unit Nar (Series and F				D	rainage Class:	
Field Observa	ations Conf	irm Mapped Type?	Yes	No	·amage classi	
		Matrix Color	Mottle Colors	Mottle	Textures Cor	ncretions, Structures,
Depth (in)	Horizon	(Munsell Moist)	(Munsell Moist)	Abundance/Contrast	etc.	ioronono, otraotaroo,
0-6		10 YR 3/2	(Clay loam	
6-12		10 YR 4/1	2.5 Y 6/6	Common/Prominent	Clay	
12-18		10 YR 4/1			Silty clay	
-		Ye	s	No		
-			s			
-		_Histosol	s	Concretions	Curfees Leven	in Condu Coile
-		_Histosol _Histic Epidon	s	Concretions High Organic Content ir	-	in Sandy Soils
-		_Histosol _Histic Epidon _Sulfidic Odor		Concretions High Organic Content ir Organic Streaking in Sa	andy Soils	in Sandy Soils
-	them)	_Histosol _Histic Epidon _Sulfidic Odor _Aquic Moisture Regime		Concretions High Organic Content ir Organic Streaking in Sa Listed on Local Hydric S	andy Soils Soils List	in Sandy Soils
-	them)	_Histosol _Histic Epidon _Sulfidic Odor _Aquic Moisture Regime _Reducing Conditions		Concretions High Organic Content ir Organic Streaking in Sa Listed on Local Hydric S Listed on National Hydr	andy Soils Soils List ric Soils List	in Sandy Soils
-	them)	_Histosol _Histic Epidon _Sulfidic Odor _Aquic Moisture Regime		Concretions High Organic Content ir Organic Streaking in Sa Listed on Local Hydric S	andy Soils Soils List ric Soils List	in Sandy Soils
(If yes, check - - - - - -	them)	_Histosol _Histic Epidon _Sulfidic Odor _Aquic Moisture Regime _Reducing Conditions		Concretions High Organic Content ir Organic Streaking in Sa Listed on Local Hydric S Listed on National Hydr	andy Soils Soils List ric Soils List	in Sandy Soils
(If yes, check - - - - - -	them)	_Histosol _Histic Epidon _Sulfidic Odor _Aquic Moisture Regime _Reducing Conditions		Concretions High Organic Content ir Organic Streaking in Sa Listed on Local Hydric S Listed on National Hydr	andy Soils Soils List ric Soils List	in Sandy Soils
(If yes, check - - - - - Remarks:	X X	Histosol Histic Epidon Sulfidic Odor Aquic Moisture Regime Reducing Conditions Gleyed or Low-Chroma		Concretions High Organic Content ir Organic Streaking in Sa Listed on Local Hydric S Listed on National Hydr	andy Soils Soils List ric Soils List	in Sandy Soils
Hydric Soil In (If yes, check Remarks:	X X X	Histosol Histic Epidon Sulfidic Odor Aquic Moisture Regime Reducing Conditions Gleyed or Low-Chroma	Colors	Concretions High Organic Content ir Organic Streaking in Sa Listed on Local Hydric S Listed on National Hydr Other (explain in remark	andy Soils Soils List ric Soils List ks)	in Sandy Soils
(If yes, check - - - - - Remarks:	X X X	Histosol Histic Epidon Sulfidic Odor Aquic Moisture Regime Reducing Conditions Gleyed or Low-Chroma	Colorssx	Concretions High Organic Content ir Organic Streaking in Sa Listed on Local Hydric S Listed on National Hydr Other (explain in remark	andy Soils Soils List ric Soils List ks)	
(If yes, check - - - - - - - - - - - - - - - - - - -	X X X	Histosol Histic Epidon Sulfidic Odor Aquic Moisture Regime Reducing Conditions Gleyed or Low-Chroma	Colors S X S X	Concretions High Organic Content ir Organic Streaking in Sa Listed on Local Hydric S Listed on National Hydr Other (explain in remark	andy Soils Soils List ric Soils List ks)	nt Within a Wetland
(If yes, check - - - - - Remarks: - - - - - - - - - - - - - - - - - - -	X X X	Histosol Histic Epidon Sulfidic Odor Aquic Moisture Regime Reducing Conditions Gleyed or Low-Chroma ATION Present? Yesent? Yesent?	Colors S X S X	Concretions High Organic Content ir Organic Streaking in Sa Listed on Local Hydric S Listed on National Hydr Other (explain in remark	andy Soils Soils List ric Soils List ks) s Sampling Poir	nt Within a Wetland

Project/Site:	I-64 Peninsula				Date:	7/11/2011	1
Applicant/Owner:					County:	Henrico	
Investigator:	Sekula / Doucette				State:	Virginia	
					_		
Community ID:	PFO		Transect ID:			Plot ID:	WET62N
		_	_		_		
Do Normal Conditions e	exist on the site?		Yes	Х	N	0	
Is the site significantly d	listurbed (Atypical situation	on)?	Yes		- N	o X	_
Is the area a potential P		•	Yes		- N	o X	_
If needed, explain on re			_		_		_
VEGETATION							
	Dominant Plant	Species					
Common N		Scientific N	ame		Stratum		Indicator
1. Sedge		Carex sp.			Н	_	
2. Eastern Ba	ccharis	Baccharis h	nalimifolia		S		FACW
3. Possumha		Viburnum n	nudum		S		OBL
4. Red Maple		Acer rubrun			Т		FAC
5. Blackgum		Nyssa sylva			Т		FAC
6.		, ,					
7.							
8.							
9.							
10.							
11.							
12.							
	ecies that are OBL, FAC	W or FAC			80-100%)	
(excluding FAC-)	•		_				_
Remarks:							
HYDROLOGY							
Recorded Data (Describ	oe in Remarks):		Wetland Hyd	rology India	cators:		
	Streams		Primary Indic	ators:			
	Aerial Photographs		ΧI	nundated			
	Other		X	Saturated ii	n Upper 12 i	nches	
No Record	ed Data Available			Nater Mark			
				Orift Lines			
				Sediment D	Deposits		
Field Observations:					atterns in W	etlands	
Depth of Surface Water	: 1/2	(in.)	Secondary In	-			
Depth to Free Water in		(in.)	1	-	-	s in Upper 12	inches
Depth to Saturated Soil:		(in.)			ned Leaves		
		_` ′	ı	ocal Soil S	Survey Data		
				AC-Neutra	-		
					lain in Rema	rks)	
				,— -		,	
Remarks: 3" of stand	ding water in wetland b	ov the data no	oint				
	<u> </u>	,					

Communi	Community ID: PFO Transect ID:				Plot ID: WET62		
					_		
SOILS							
Map Unit Na	me						
(Series and I	Phase):				rainage Class: _		
Field Observ	ations Con	firm Mapped Type?	Yes	No	_		
Taxonomy (S	Subgroup):				_		
		Matrix Color	Mottle Colors	Mottle	Textures, Cond	cretions, Structures,	
Depth (in)	Horizon	(Munsell Moist)	(Munsell Moist)	Abundance/Contrast	etc.		
0-2		10 YR 5/2			Clay loam		
2-12		2.5 Y 3/1	5 YR 5/8	Few/Prominent	Clay		
12-18		2.5 Y 5/1			Sandy clay		
	!! 4 ·	V		1-			
Hydric Soil Ir		Yes	N	lo			
(If yes, check	(them)						
-		_Histosol		Concretions			
_		_Histic Epidon		High Organic Content in	-	n Sandy Soils	
_		_Sulfidic Odor		Organic Streaking in Sa			
_		_Aquic Moisture Regime		Listed on Local Hydric S			
_	Χ	Reducing Conditions		Listed on National Hydri	ic Soils List		
_	Χ	Gleyed or Low-Chroma C	Colors	Other (explain in remark	(S)		
Remarks:							
WETLAND [DETERMIN	ATION					
Hydrophytic '	Vegetation	Present? Yes	X N	lo Is this	Sampling Point	Within a Wetland	
Wetland Hyd				lo	1 3		
Hydric Soils		Yes			sX	No	
,		100					
Remarks:	Isolated we	tland in interchange (no in	let or outlet)				
	Photo 92	mana in interestange (110 III	ot of outloty				
	1 11010 32						

Project/Site:	I-64 Peninsula				Date:	7/11/2011	
Applicant/Owner:					County:	Henrico	
Investigator:	Sekula / Doucette				State:	Virginia	
	-				_		
Community ID:	PFO		Transect ID:			Plot ID:	WET63N
			•		_		
Do Normal Conditions 6	exist on the site?		Yes	Х	N	0	
Is the site significantly of	disturbed (Atypical situati	on)?	Yes		_ N	o X	_
Is the area a potential F		•	Yes		_ N	o X	_
If needed, explain on re	verse		•				_
VEGETATION							
	Dominant Plant	Species					
Common N		Scientific N	Name		Stratum		Indicator
1. Sedge		Carex sp.			Н	_	
 Sensitive F 	ern	Onoclea s	ensibilis		Н		FACW
3. Red Maple	:	Acer rubru	ım		S/T		FAC
4. Willow Oak		Quercus p	hellos		S/T		FAC+
5. Loblolly pir		Pinus taed			Т		FAC-
6. Sweetgum		Liguidamb	ar styraciflua		S/T		FAC
7. Blackgum		Nyssa sylı	-		S/T		FAC
8.		,					
9.							
10.							
11.							
12.							
	ecies that are OBL, FAC	W or FAC			71-86%		
(excluding FAC-)	,		•				_
Remarks:							
HYDROLOGY							
Recorded Data (Describ	oe in Remarks):		Wetland Hyd	Irology Indi	cators:		
,	Streams		Primary India				
	Aerial Photographs			Inundated			
	Other		X	Saturated i	n Upper 12 i	nches	
No Record	ed Data Available			Water Mark			
				Drift Lines			
				Sediment D	Deposits		
Field Observations:					atterns in W	etlands	
Depth of Surface Water	: N/A	(in.)	Secondary In	•			
Depth to Free Water in		(in.)		,		s in Upper 12	inches
Depth to Saturated Soil		(in.)			ned Leaves		
'		` ′		Local Soil S	Survey Data		
				FAC-Neutra	-		
					lain in Rema	arks)	
				\ T		,	
Remarks: Wetland s	seep in clover leaf of in	terchange	•				
	culvert under the road	0					

Commun	ity ID:	PFO	Transect ID	D:	Plot ID: WET63N		
			•		_		
SOILS							
Map Unit Na	me						
(Series and	Phase):			Di	rainage Class:		
Field Observ	ations Con	firm Mapped Type?	Yes	No	_		
Taxonomy (Subgroup):				_		
		Matrix Color	Mottle Colors	Mottle	Textures, Cond	cretions, Structures,	
Depth (in)	Horizon	(Munsell Moist)	(Munsell Moist)	Abundance/Contrast	etc.		
0-6		2.5 Y 3/1			Sandy clay		
6-18		2.5 Y 5/1			Clay		
					•		
		.,					
Hydric Soil II		Yes	N	0			
(If yes, check	k them)						
		_Histosol		Concretions			
		_Histic Epidon		High Organic Content in		n Sandy Soils	
		Sulfidic Odor		Organic Streaking in Sa	ndy Soils		
		_Aquic Moisture Regime		Listed on Local Hydric S	Soils List		
	Χ	Reducing Conditions		Listed on National Hydri	c Soils List		
	Χ	Gleyed or Low-Chroma C	Colors	Other (explain in remark	s)		
•				_			
Remarks:							
WETLAND I	DETERMIN	ATION					
Hydrophytic			X N	o Is this	Sampling Point	Within a Wetland	
Wetland Hyd	-			0 13 1113	- Samping i Sint	a ma a madana	
Hydric Soils		Yes			sX	No	
i iyunc oolis	1 1000111!	165	N			NO	
Remarks:							
remarks:							

Project/Site:	I-64 Peninsula			Date:	7/11/201	1
Applicant/Owner:				County:	Henrico	
Investigator:	Sekula / Doucette			State:	Virginia	
Community ID:	PEM		Transect ID:	_	Plot ID:	WET64N
Do Normal Conditions	oviet on the cite?		Yes X	N	lo	
	disturbed (Atypical situat	ion\2	Yes		lo X	_
Is the area a potential	` • •	1011):	Yes		lo X	_
If needed, explain on r			163		<u> </u>	_
ii riccaca, explain on i	CVCISC					
VEGETATION						
	Dominant Plant	Species				
Common		Scientific I	Name	Stratum		Indicator
1. Deertong	ue	Dichanthe	lium clandestinum	Н		FAC+
_	ania smartweed	Polygonui	m pensylvanicum	Н		FACW
3. Japanese	Stilt Grass		ium vimineum	Н		FAC
4. Common	Rush	Juncus ef		Н		FACW+
5. Willow Oa	ak	Quercus p	hellos	S/T		FAC+
6.						
7.						
8.						
9.						
10.						
11.						
12.						
Percent of dominant sp	pecies that are OBL, FAC	W or FAC		100%		
(excluding FAC-)						
Remarks:						
LIVERGLOOV						
HYDROLOGY Recorded Data (Descr	iho in Pomarka):		Wetland Hydrology Inc	licators:		
Recorded Data (Descr	Streams		Primary Indicators:	iicators.		
	Aerial Photographs		Inundated	ı		
	Other			i I in Upper 12 i	inches	
No Pecor	Other ded Data Available		Water Ma		IIICHES	
INO INECOM	ueu Dala Avallable		X Drift Lines			
			Sediment			
Field Observations:				Patterns in W	latlands	
Depth of Surface Water	er: N/A	(in.)	Secondary Indicators (
Depth to Free Water in		— (in.)	•		ls in Upper 12	inches
Depth to Saturated So		— (in.)		ained Leaves	13 111 Opper 12	mones
Dopin to Cataratoa Co		()		Survey Data		
			FAC-Neu	•		
				plain in Rema	arks)	
				p.a 101110		
Remarks: 50% of w	vetland is inundated		<u> </u>			
]						

Communi	ity ID:	PEM	Transect II	D:	Plot ID:	WET64N
SOILS						
Map Unit Na	me					
(Series and I				D	rainage Class: _	
Field Observ	ations Conf	firm Mapped Type?	Yes	No		
Taxonomy (Subgroup):	-				
		Matrix Color	Mottle Colors	Mottle	Textures, Con	cretions, Structures,
Depth (in)	Horizon	(Munsell Moist)	(Munsell Moist)	Abundance/Contrast	etc.	
0-5		10 YR 3/2			Silty clay loam	l
5-18		10 YR 4/2	5 YR 5/6	Many/Prominent	Clay	
Hydric Soil Ir	ndicators:	Yes	N	lo		
(If yes, checl		•				
	•	Histosol		Concretions		
·		Histic Epidon		High Organic Content in	Surface Laver	in Sandv Soils
·	Х	Sulfidic Odor	-	Organic Streaking in Sa		,
-		Aquic Moisture Regime		Listed on Local Hydric S		
-	Х	Reducing Conditions		Listed on National Hydr		
·	Х	Gleyed or Low-Chroma C	Colors	Other (explain in remark		
-		,				
Remarks:						
WETLAND I	DETERMIN	ATION				
Hydrophytic			X	lo Is this	Sampling Poin	t Within a Wetland
Wetland Hyd				lo	o camping roin	· · · · · · · · · · · · · · · · · · ·
Hydric Soils		Yes			sX	No
1, 1, 4110 00113	. 7000111:	163				
Remarks:	Photo 97					
i vernans.	1 11010 31					

Project/Site:	I-64 Peninsula				Date:	11/17/201	1	
Applicant/Owner:	VDOT				County:	New Kent		
Investigator:	Scot Aitkenhead				State:	Virginia		
Community ID:	PFO	_	Transect ID: _	Α	_	Plot ID:	WET 117N	
Do Normal Condition	s exist on the site?		Yes	X	N	0		
	y disturbed (Atypical situat	ion)?	Yes			lo X	_	
Is the area a potentia		,	Yes			lo X	_	
If needed, explain on			_		_		_	
VEGETATION								
0.000	Dominant Plant	-	Nama		Chronicum		la dia atau	
Common		Scientific			Stratum	_	Indicator	
1. Red Mar		Acer rub			T		FAC	
2. Sycamo			s occidentalis		T		FACW-	
3. Lizards			s cernuus		H		OBL	
4. Sweet G		-	nbar styraciflua		T		FAC	
5. Sensitive	e rem	Onociea	sensibilis		Н		FACW	
6.								
7. 8.								
9. 10.								
11.								
12.	anaging that are ODL FAC	·\/ or E/C			100%			
(excluding FAC-)	species that are OBL, FAC	W OI FAC	_		100%		_	
Remarks:								
Kemarks.								
HYDROLOGY								
Recorded Data (Desc	•		Wetland Hydr		licators:			
	Streams		Primary Indica					
X	Aerial Photographs			nundated				
	Other				in Upper 12	inches		
No Reco	orded Data Available			Vater Ma				
				Orift Lines				
					Deposits			
Field Observations:				•	Patterns in W			
Depth of Surface Wa		(in.)	Secondary Inc					
Depth to Free Water		(in.)				ls in Upper 12	inches	
Depth to Saturated S	oil:	(in.)			ined Leaves			
					Survey Data			
				AC-Neut				
			C	Other (Exp	plain in Rema	arks)		
Remarks:								
inciliains.								

Commun	ity ID:	PFO	Transect II	D:	Plot ID:	WET 117N	
SOILS							
Map Unit Na				D	rainaga Class:		
(Series and	rnase). vations Conf	firm Mapped Type?	Yes	No	rainage Class: _		
Taxonomy (птимаррей туре:			_		
raxonomy (oubgroup).						
		Matrix Color	Mottle Colors	Mottle	Textures, Con-	cretions, Structures,	
Depth (in)	Horizon	(Munsell Moist)	(Munsell Moist)	Abundance/Contrast	etc.		
		·	· ·				
0-16	Α	10YR 4/1	5YR 4/6	10%	Loamy sand		
Hydric Soil I	ndicators:	Yes	X N	lo			
(If yes, chec							
(),	,	Histosol		Concretions			
		Histic Epidon		High Organic Content in	Surface Laver i	n Sandy Soils	
		Sulfidic Odor	-	Organic Streaking in Sa	-	ir danay dono	
		Aquic Moisture Regime		Listed on Local Hydric S	•		
		Reducing Conditions		Listed on National Hydr			
	X	Gleyed or Low-Chroma C	colors	Other (explain in remark			
	^	_ Gloyed of Low-Official C			(G)		
Remarks:							
WETLAND	DETERMIN	ATION					
Hydrophytic			X N	lo Is this	Sampling Point	Within a Wetland	
Wetland Hy	-			lo			
Hydric Soils		Yes			sX	No	
Domorto	PFO						
Remarks:		,					
	Photo 1537						

Project/Site:					_Date:	11/17/201	
Applicant/Owner:	VDOT				County:	New Kent	
nvestigator:	Scot Aitkenhead				State:	Virginia	
Community ID:	PFO		Transect ID:	Α	_	Plot ID:	WET 118N
o Normal Condition	ns exist on the site?		Yes_	Χ	N	lo	_
-	ly disturbed (Atypical situa	ation)?	Yes_		_ N	lo X	_
s the area a potentia			Yes_		_ N	lo X	
f needed, explain or	reverse						
/EGETATION							
	Dominant Plar	nt Species					
	n Name	Scientific			Stratum		Indicator
	Veined Chain Fern	Woodwar	dia areolata		Н		FACW+
Sensitiv	e Fern	Onoclea s			Н		FACW
3. Soft Ru	sh	Juncus ef	fusus		Н		FACW+
	Sweetpepperbush	Clethra al			S		FAC+
5. Sweet 0	Gum	Liquidaml	oar styraciflua		Т		FAC
Red Ma	ple	Acer rubri	ım		Т		FAC
7.							
7. 3.							
7. 3.							
7. 3.).							
7. 3. 9. 10.							
7. 3. 9. 10. 11.							
7. 3. 9. 10. 11. Percent of dominant	species that are OBL, FA	CW or FAC			100%		_
7. 3. 9. 10. 11. Percent of dominant	species that are OBL, FA	CW or FAC	_		100%		_
7. 3. 9. 10. 11. 22. Percent of dominant excluding FAC-)	species that are OBL, FA	CW or FAC	_		100%		_
7. 3. 9. 10. 11. 22. Percent of dominant excluding FAC-)	species that are OBL, FA	CW or FAC	_		100%		_
7. 3. 9. 10. 11. 12. Percent of dominant excluding FAC-) Remarks:	species that are OBL, FA	CW or FAC	_		100%		_
7. 3. 9. 10. 11.		CW or FAC		ology Indic			
7. 3. 9. 10. 11. 12. Percent of dominant excluding FAC-) Remarks:		CW or FAC	Wetland Hydro				
7. 3. 9. 10. 11. 12. Percent of dominant excluding FAC-) Remarks:	cribe in Remarks):	CW or FAC	Primary Indica				_
7. 3. 9. 10. 11. 12. Percent of dominant excluding FAC-) Remarks:	cribe in Remarks):Streams	CW or FAC	Primary Indica	tors: undated		inches	
7. 3. 9. 10. 11. 12. Percent of dominant excluding FAC-) Remarks: HYDROLOGY Recorded Data (Des	cribe in Remarks):StreamsAerial Photographs	CW or FAC	Primary Indica	tors: undated	ators:	inches	
7. 3. 9. 10. 11. 12. Percent of dominant excluding FAC-) Remarks: HYDROLOGY Recorded Data (Des	cribe in Remarks):StreamsAerial PhotographsOther	CW or FAC	Primary Indica Ir S	tors: lundated aturated in	ators:	inches	_
7. 3. 9. 10. 11. 12. Percent of dominant excluding FAC-) Remarks: HYDROLOGY Recorded Data (Des	cribe in Remarks):StreamsAerial PhotographsOther	CW or FAC	Primary Indica Ir S W	tors: lundated aturated in /ater Mark	eators: n Upper 12 i s	inches	
Y. B. Co. Co. Co. Co. Co. Co. Co.	cribe in Remarks):StreamsAerial PhotographsOther	CW or FAC	Primary Indica Ir S W	tors: nundated aturated in /ater Mark rift Lines ediment D	eators: 1 Upper 12 is		
7. 3. 3. 9. 10. 11. 12. Percent of dominant excluding FAC-) Remarks: HYDROLOGY Recorded Data (Des	cribe in Remarks):StreamsAerial PhotographsOther orded Data Available		Primary Indica	tors: hundated aturated in later Mark: rift Lines ediment D rainage Pa	eators: 1 Upper 12 is 2 seposits atterns in W	/etlands	
2. O. 1. 2. Percent of dominant excluding FAC-) Remarks: HYDROLOGY Recorded Data (Des X No Recorded Observations: Depth of Surface Wa	cribe in Remarks): Streams Aerial Photographs Other orded Data Available	(in.)	Primary Indica	tors: nundated aturated in /ater Mark rift Lines ediment D rainage Pa licators (2	ators: 1 Upper 12 is 1 upper	/etlands quired):	inches
T. 3. 6. 6. 6. 6. 6. 6. 6. 6. 6. 6. 6. 6. 6.	cribe in Remarks): Streams Aerial Photographs Other orded Data Available ater: in Pit:	(in.)	Primary Indica Ir S W D S X D Secondary Inc	tors: nundated aturated in /ater Mark rift Lines ediment D rainage Pa licators (2 xidized Ro	ators: 1 Upper 12 is 1 upper	/etlands	inches
7. 3. 3. 9. 10. 11. 12. Percent of dominant (excluding FAC-) Remarks: HYDROLOGY Recorded Data (Des X No Recorded Observations: Depth of Surface Water Opento Free Water X No Free Water X No Free Water X No Free Water X Depth to Free Water X No Free Water	cribe in Remarks): Streams Aerial Photographs Other orded Data Available ater: in Pit:	(in.)	Primary Indica	tors: aundated aturated in /ater Mark rift Lines ediment D rainage Pa licators (2 xidized Ro /ater-Stain	eators: n Upper 12 is eposits eatterns in Worr more recoort Channeled Leaves	/etlands quired): ls in Upper 12	inches
7. 3. 9. 10. 11. 12. Percent of dominant (excluding FAC-) Remarks: HYDROLOGY Recorded Data (Des	cribe in Remarks): Streams Aerial Photographs Other orded Data Available ater: in Pit:	(in.)	Primary Indication In State of	tors: aundated aturated in /ater Mark rift Lines ediment D rainage Pa licators (2 xidized Ro /ater-Stain	eators: n Upper 12 is eposits eatterns in Woor more record Channel ed Leaves curvey Data	/etlands quired): ls in Upper 12	inches
7. 3. 9. 10. 11. 12. Percent of dominant (excluding FAC-) Remarks: HYDROLOGY Recorded Data (Des	cribe in Remarks): Streams Aerial Photographs Other orded Data Available ater: in Pit:	(in.)	Primary Indication of the secondary Indication of the seco	tors: nundated aturated in /ater Mark rift Lines ediment D rainage Pa licators (2 xidized Ro /ater-Stain ocal Soil S AC-Neutra	eators: n Upper 12 is eposits eatterns in Woor more record Channel ed Leaves curvey Data	/etlands quired): ls in Upper 12	inches

Commun	ity ID:	PFO	Transect II	D:	Plot ID: WET 118N		
					_		
SOILS							
Map Unit Na	ime						
(Series and				Di	ainage Class:		
		firm Mapped Type?	Yes		_		
Taxonomy (<u> </u>	_		
, ,	3 - 17						
		Matrix Color	Mottle Colors	Mottle	Textures, Cond	cretions, Structures,	
Depth (in)	Horizon	(Munsell Moist)	(Munsell Moist)	Abundance/Contrast	etc.	,,	
_ = = = ()		(**************************************	(**************************************				
0-10	Α	G1 - 3/N			Sandy loam		
0.0	,,,	01 0/11			Canay loan		
10-16	В	7.5YR 4/1			Sandy Ioam		
10 10		7.011(1/1			Canay loan		
Lludria Cail I	ndinatoro	Voo	V	lo.			
Hydric Soil I		Yes	XN	lo			
(If yes, chec	k tnem)	LP ()		0 "			
		_Histosol		Concretions			
		_Histic Epidon		High Organic Content in		n Sandy Soils	
		_Sulfidic Odor		Organic Streaking in Sa	-		
		_Aquic Moisture Regime		Listed on Local Hydric S			
	X	Reducing Conditions		Listed on National Hydri			
	X	_Gleyed or Low-Chroma C	olors	Other (explain in remark	s)		
Remarks:							
WETLAND	DETERMIN	ATION					
Hydrophytic	Vegetation	Present? Yes	X N	lo Is this	Sampling Point	Within a Wetland	
Wetland Hyd			X	lo	-		
Hydric Soils		Yes	X	lo Yes	sX	No	
		-					
Remarks:	PFO						
	Photo 1539						

Project/Site:	I-64 Peninsula				Date:	11/17/201	1
Applicant/Owner:	VDOT				County:	New Kent	
nvestigator:	Scot Aitkenhead				State:	Virginia	
Community ID:	PEM		Transect ID:	Α	<u> </u>	Plot ID:	WET 119N
	ons exist on the site?		Yes	Χ		lo	_
•	ntly disturbed (Atypical situa	ition)?	Yes			10 X	
•	itial Problem Area?		Yes			۸o <u> </u>	
If needed, explain	on reverse						
VEGETATION							
	Dominant Plan						
Comn	non Name	Scientific	c Name		Stratum	<u> </u>	Indicator
1. Soft R	Rush	Juncus	effusus		Н		FACW+
2. Willov	v Oak	Quercus	s phellos		Т		FAC+
Green	n Ash	Fraxinus	s pennsylvanica		S		FACW
	tive Fern	Onoclea	sensibilis		Н		FACW
5. Woolg		Scirpus	cyperinus		Н		FACW+
6. Small:	spike False Nettle	Boehme	eria cylindrica		Н		FACW+
7.							
3.							
9.							
10.							
11.							
12.							
Percent of dominal	nt species that are OBL, FA	CW or FAC			100%		
(excluding FAC-)							
Remarks:							
HYDROLOGY							
	escribe in Remarks):		Wetland Hyd	drology Ind	licators:		
(=)	Streams		Primary Indi	٠.			
	Aerial Photographs			Inundated			
	Other			1	in Upper 12	inches	
X No Re	ecorded Data Available			Water Ma			
<u> </u>	oordod Bala / Wallabio			Drift Lines			
				Sediment			
Field Observations			X	li .	Patterns in V	/etlands	
Depth of Surface V		(in.)		_	2 or more re		
Depth to Free Wat		(in.)	Joecondary 1			els in Upper 12	inches
Depth to Saturated		(in.)	X	i	ined Leaves		IIICHES
Deptil to Saturated		(\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\		in .	Survey Data		
				ii	•	l	
			X	FAC-Neut		orko)	
				Otner (Ex	plain in Rem	arks)	
Damanica:							
Remarks:							

Community ID:		PEM	Transec	t ID: A	Plot ID:	WET 119N	
SOILS Map Unit Na							
(Series and I					Drainage Class:		
Field Observ Taxonomy (\$	ations Conf	irm Mapped Type?	Yes	No			
Depth (in)	Horizon	Matrix Color (Munsell Moist)	Mottle Colors (Munsell Moist)	Mottle Abundance/Cor		ncretions, Structures,	
0-16	А	7.5YR 3/1			Loamy sand		
Indeia Cail Is	- di t - u		V	NIa			
Hydric Soil Ir (If yes, checl		Y	es X	No			
ii yes, oneoi	(tilotti)	Histosol		Concretions			
•		Histic Epidon			ntent in Surface Layer	in Sandy Soils	
•		Sulfidic Odor		Organic Streaking		,	
•		- Aquic Moisture Regim	e	Listed on Local H	•		
•		Reducing Conditions		Listed on Nationa	-		
		Gleyed or Low-Chrom	a Colors	Other (explain in I			
Remarks:							
WETLAND I	DETERMINA	ATION					
Hydrophytic			es X	No	Is this Sampling Poir	nt Within a Wetland	
Wetland Hyd	•		es X	No	, 3		
Hydric Soils			es X	No	Yes X	No	
Remarks:	Photo 1540						

Project/Site:	I-64 Peninsula					Date:	12/6/201	1	
Applicant/Owner:	VDOT					County:	Henrico		
Investigator:	Scot Aitkenhead					State:	Virginia		
Community ID:	PEM		Transect	ID:	Α	_	Plot ID:	WET 120	ON
Do Normal Condition			Υ	'es	Χ	N	10		
•	ly disturbed (Atypical situa	ıtion)?		'es			lo <u>X</u>		
Is the area a potentia			Υ	'es		N	loX	<u></u>	
If needed, explain or	reverse								
VEGETATION									
	Dominant Plar	nt Species							
	n Name		ic Name			Stratum		Indicator	
1. Soft Ru			effusus			Н		FACW+	
	ike False Nettle	Boehm	eria cylindrica			Н		FACW+	
Woolgra	ass	Scirpus	s cyperinus			Н		FACW+	
4.									
5.									
6.									
7.									
3.									
9.									
10.									
11.									
12.									
	species that are OBL, FA	CW or FAC				100%		_	
(excluding FAC-)									
Remarks:									
HYDROLOGY									
Recorded Data (Des	cribe in Remarks):		Wetland	Hydrolog	gy Ind	icators:			
	Streams		Primary I	ndicators	s:				
	Aerial Photographs			Inun	dated				
	Other		Х	Satu	rated	in Upper 12	inches		
X No Rec	orded Data Available			Wate	er Mar	·ks			
				Drift	Lines				
				Sedi	ment	Deposits			
Field Observations:				Drair	nage F	Patterns in W	/etlands		
Depth of Surface Wa	ater:	(in.)	Seconda	ry Indica	tors (2	2 or more red	quired):		
Depth to Free Water	in Pit:	(in.)		Oxid	ized F	Root Channe	ls in Upper 12	inches	
Depth to Saturated S	Soil: 4	(in.)	X	Wate	er-Sta	ined Leaves			
				Loca	l Soil	Survey Data	l		
				FAC-	-Neuti	ral Test			
						olain in Rema	arks)		
Remarks:			•						
									$\overline{}$

Commun	nity ID:	PEM	Transect	ID: <u>A</u>	Plot ID:	WET 120N
SOILS						
Map Unit Na						
(Series and					Drainage Class: _	
		firm Mapped Type?	Yes	No		
Taxonomy ((Subgroup):	-				
		Matrix Color	Mottle Colors	Mottle		cretions, Structures,
Depth (in)	Horizon	(Munsell Moist)	(Munsell Moist)	Abundance/Contra	ast etc.	
No soils						
11	l., .l.,	V	V	NI.		
Hydric Soil		Yes_	X	No		
(If yes, chec	ck tnem)	L Bada and		0		
		_Histosol		Concretions	at in Overform Lavorei	in One de Onite
		_Histic Epidon		High Organic Conter		n Sandy Solls
		_Sulfidic Odor		Organic Streaking in	•	
		_Aquic Moisture Regime		Listed on Local Hydr		
		_Reducing Conditions	-1	Listed on National H		
		_Gleyed or Low-Chroma Co	olors	Other (explain in rem	iarks)	
Damarka	Na saila - m	and a discount of DOW lines				
Remarks:	NO SOIIS - II	nolded around ROW line				
WETL AND	DETERMIN	ATION				
	DETERMIN		V	No la	this Commiss Daint	\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\
Hydrophytic					this Sampling Point	vvitnin a vvetiand
Wetland Hy		_		No	V V	No
Hydric Soils	riesent?	Yes_	X	No	Yes X	No
Domestra	DEM					
Remarks:	PEM					
	Photo 008					

Project/Site:	I-64 Peninsula				Date:	12/6/2011	
Applicant/Owner:	VDOT				County:	Henrico	
Investigator:	Scot Aitkenhead				State:	Virginia	
	-				_		
Community ID:	PSS		Transect ID:	Α		Plot ID:	WET 121N
ĺ					_		
Do Normal Conditions	s exist on the site?		Yes	Х	N	0	
Is the site significantly	disturbed (Atypical situa	ation)?	Yes			o X	_
Is the area a potential	Problem Area?		Yes			o X	_
If needed, explain on	reverse				_		_
VEGETATION							
	Dominant Plar	nt Species					
Common	n Name	Scientific	Name		Stratum		Indicator
1. Pin Oak		Quercus	palustris		T	_	FACW
2. Button B	ush	Cephalan	thus occidentalis		S		OBL
3. Soft Rus	h	Juncus et	fusus		Н		FACW+
4. River Bir	ch	Betula nig	gra		Т		FACW
5. Woolgras	SS	Scirpus c			Н		FACW+
6. Jewelwe	ed	Impatiens			Н		FACW
7. Smooth	Alder	Alnus ser	rulata		S		OBL
8. Coastal S	Sweetpepperbush	Clethra ai	nifolia		S		
9.							
10.							
11.							
12.							
Percent of dominant s	species that are OBL, FA	CW or FAC			100%		
(excluding FAC-)							
Remarks:							
HYDROLOGY							
Recorded Data (Desc	cribe in Remarks):		Wetland Hydro		icators:		
	Streams		Primary Indicat	ors:			
	Aerial Photographs		Inu	ındated			
	Other		X Sa	turated	in Upper 12 i	nches	
X No Reco	rded Data Available			ater Mar	ks		
				ift Lines			
					Deposits		
Field Observations:				•	Patterns in W		
Depth of Surface Wat		(in.)	Secondary Indi	-			
Depth to Free Water i		(in.)				s in Upper 12	inches
Depth to Saturated So	oil: <u>5</u>	(in.)			ined Leaves		
					Survey Data		
				C-Neutr			
			Ot	her (Exp	olain in Rema	ırks)	
Remarks:							

Communi	ity ID:	PSS	Transect ID):A	Plot ID:	WET 121N
OILS lap Unit Na	me					
Series and I	Phase):			D	rainage Class:	
		irm Mapped Type?	Yes	No		
Depth (in)	Horizon	Matrix Color (Munsell Moist)	Mottle Colors (Munsell Moist)	Mottle Abundance/Contrast	Textures, Concetc.	retions, Structures,
0-16	А	7.5YR 3/1			Silty clay loam	
ydric Soil Ir	ndicators:	Yes	X N	0		
yes, checl		100		<u> </u>		
	,	Histosol		Concretions		
•		Histic Epidon		High Organic Content in	n Surface Layer in	Sandy Soils
•		Sulfidic Odor		Organic Streaking in Sa	andy Soils	
•		Aquic Moisture Regime		Listed on Local Hydric S	Soils List	
•		Reducing Conditions		Listed on National Hydr	ic Soils List	
•	Х	Gleyed or Low-Chroma C	Colors	Other (explain in remark	ks)	
emarks:						
ETLAND I	DETERMINA	ATION				
	Vegetation I			o Is this	Sampling Point	Within a Wetland
etland Hyd ydric Soils	Irology Pres Present?	ent? Yes Yes		o Ye.	sX	No
		e WET121 & WET122 / Th	nis was an old beaver p	ond		
	Photos 009	, 0011-0013				

Project/Site:	I-64 Peninsula					Date:	12/6/201	1	
Applicant/Owner:	VDOT					County:	Henrico		
nvestigator:	Scot Aitkenhead					State:	Virginia		
Community ID:	PEM		Transect	ID:	Α	_	Plot ID:	WET 1	22N
Oo Normal Condition	s exist on the site?		\	Yes	Χ		lo		
s the site significantly	y disturbed (Atypical situa	tion)?		Yes		^	loX		
ls the area a potentia)	Yes		^	loX		
If needed, explain on	reverse								
VEGETATION									
	Dominant Plan	t Species							
Commo		Scientific				Stratum		Indicator	
	af Cattail	Typha la	atifolia			Н		OBL	
Soft Rus	sh	Juncus e	effusus			Н		FACW+	
3.									
4.									
5.									
6.									
7.									
3.									
9.									
10.									
11.									
12.									
	species that are OBL, FAC	CW or FAC				100%			
(excluding FAC-)	,							_	
Remarks:									
HYDROLOGY									
Recorded Data (Desc	cribe in Remarks):		Wetland	Hydrolo	gy Ind	licators:			
,	Streams		Primary						
	Aerial Photographs				ndated				
	Other					in Upper 12	inches		
X No Reco	orded Data Available				ter Ma				
	rada Bata / tvallablo				t Lines				
			X			Deposits			
Field Observations:						Patterns in V	Vetlands		
Depth of Surface Wa	tor:	(in.)	Seconda		_	2 or more re			
Depth to Free Water		(in.)	Geconda	-	-		guireu). Is in Upper 12	inches	
Depth to Saturated S		(in.)				ined Leaves		. 11101103	
Depiii lo Saluraleu S		(111.)							
						Survey Data	l		
			Х			ral Test	- ul \		
				Oth	er (Ex∣	plain in Rem	arks)		
Remarks: Pinron	accumulation is substra	te for cattai	ile						
nemarks. Niprap	accumulation is substid	ie iui tallal	113						

Commun	ity ID:	PEM		Transect ID):A	Plot ID:	WET 122N
SOILS Map Unit Na							
(Series and						Drainage Class:	
Field Observ	ations Conf	irm Mapped Type?		Yes	No		
Taxonomy (
		Matrix Color	N	Mottle Colors	Mottle	Textures Cond	retions, Structures,
Depth (in)	Horizon	(Munsell Moist)		/Junsell Moist)	Abundance/Contra		rotiono, otraotaroo,
No soils							
			V V	, hi	_		
Hydric Soil I If yes, chec			Yes X	<u>. </u>	0		
ii yes, chec	K trieffi)	Histosol			Concretions		
		Histic Epidon		-	High Organic Conten	it in Surface Layer in	n Sandy Soils
		Sulfidic Odor					
		Sulliule Odol			Organic Streaking in	Sandy Soils	-
		Aquic Moisture Reg	ime		Organic Streaking in Listed on Local Hydri	•	·
		Aquic Moisture Reg				ic Soils List	
		_	S		Listed on Local Hydr	ic Soils List dric Soils List	•
Remarks:	No soils - rii	Aquic Moisture Reg Reducing Condition Gleyed or Low-Chro	s oma Colors		Listed on Local Hydri Listed on National Hy	ic Soils List dric Soils List	
Remarks:	No soils - rij	Aquic Moisture Reg Reducing Condition	s oma Colors		Listed on Local Hydri Listed on National Hy	ic Soils List dric Soils List	·
Remarks:	No soils - rij	Aquic Moisture Reg Reducing Condition Gleyed or Low-Chro	s oma Colors		Listed on Local Hydri Listed on National Hy	ic Soils List dric Soils List	
		Aquic Moisture Reg Reducing Condition Gleyed or Low-Chro orap sediment accum	s oma Colors		Listed on Local Hydri Listed on National Hy	ic Soils List dric Soils List	
WETLAND	DETERMINA	Aquic Moisture Reg Reducing Condition Gleyed or Low-Chro orap sediment accum	s oma Colors oulation	N	Listed on Local Hydr Listed on National Hy Other (explain in rem	ic Soils List ydric Soils List yarks)	Within a Wetland
WETLAND Hydrophytic	DETERMIN Vegetation	Aquic Moisture Reg Reducing Condition Gleyed or Low-Chro orap sediment accum ATION Present?	s oma Colors oulation		Listed on Local Hydri Listed on National Hy Other (explain in rem	ic Soils List dric Soils List	Within a Wetland
WETLAND Hydrophytic Wetland Hyd	DETERMINA Vegetation I	Aquic Moisture Reg Reducing Condition Gleyed or Low-Chro orap sediment accum ATION Present?	s oma Colors oulation	N-	Listed on Local Hydri Listed on National Hy Other (explain in rem	ic Soils List ydric Soils List yarks)	Within a Wetland
WETLAND Hydrophytic Wetland Hyd Hydric Soils	DETERMINA Vegetation I	Aquic Moisture Reg Reducing Condition Gleyed or Low-Chro orap sediment accum ATION Present? ent?	soma Colors nulation Yes X Yes X	C N	Listed on Local Hydri Listed on National Hy Other (explain in rem	ic Soils List ydric Soils List earks) this Sampling Point	

Project/Site:	I-64 Peninsula			Date:	12/7/201	
Applicant/Owner:	VDOT			County:	James City	·
nvestigator:	Scot Aitkenhead			State:	Virginia	
Community ID:	PSS		Transect ID:	Α	Plot ID:	WET 126N
Oo Normal Condition			Yes		No	<u> </u>
	y disturbed (Atypical situa	ation)?	Yes		No X	_
s the area a potentia			Yes	N	No X	_
f needed, explain or	reverse					
/EGETATION						
	Dominant Plan	nt Species				
Commo		Scientific		Stratum	<u> </u>	Indicator
1. Red Ma	•	Acer rubi		Т		FAC
	eaved Cattail	Typha la		Н		OBL
B. River Bi	rch	Betula ni	•	Т		FACW
1. Smooth	Alder	Alnus se		S		OBL
5. False N	ettle	Boehme	eria cylindrica	Н		FACW+
•						
7.						
7. 3.						
7. 3.).						
7. 3.).						
7. 3. 9. 10.						
7. 3. 9. 10. 11.						
7. 3. 9. 10. 11. Percent of dominant	species that are OBL, FA	CW or FAC		100%		_
7. 3. 9. 10. 11. 12. Percent of dominant excluding FAC-)	species that are OBL, FA	CW or FAC		100%		_
7. 3. 9. 10. 11. 12. Percent of dominant excluding FAC-)	species that are OBL, FA	CW or FAC		100%		_
7. 3. 9. 10. 11. 12. Percent of dominant excluding FAC-)	species that are OBL, FA	CW or FAC		100%		
7. 3. 9. 10. 11. 12. Percent of dominant excluding FAC-) Remarks:	species that are OBL, FA	CW or FAC		100%		_
7. 3. 9. 10. 11. 12. Percent of dominant excluding FAC-) Remarks:		CW or FAC				
7. 3. 9. 10. 11. 12. Percent of dominant excluding FAC-) Remarks:		CW or FAC	Wetland Hydrold Primary Indicato	gy Indicators:		
7. 8. 9. 0. 1. 2. Percent of dominant excluding FAC-) Remarks:	cribe in Remarks):	ACW or FAC	Primary Indicato	gy Indicators:		
7. 8. 9. 0. 1. 2. Percent of dominant excluding FAC-) Remarks:	cribe in Remarks):Streams	CW or FAC	Primary Indicato	gy Indicators: rs:	inches	
7. 3. 9. 10. 11. 12. Percent of dominant excluding FAC-) Remarks: HYDROLOGY Recorded Data (Des	cribe in Remarks):StreamsAerial Photographs	CW or FAC	Primary Indicato Inur Sat	gy Indicators: rs: ndated	inches	
Percent of dominant excluding FAC-) Remarks: HYDROLOGY Recorded Data (Des	cribe in Remarks):StreamsAerial PhotographsOther	CW or FAC	Primary Indicato Inur Sate	gy Indicators: rs: ndated urated in Upper 12	inches	
7. 3. 9. 10. 11. 12. Percent of dominant excluding FAC-) Remarks: HYDROLOGY Recorded Data (Des	cribe in Remarks):StreamsAerial PhotographsOther	CW or FAC	Primary Indicato Inur Sati	gy Indicators: rs: ndated urated in Upper 12 er Marks	inches	
7. 3. 3. 9. 10. 11. 12. Percent of dominant excluding FAC-) Remarks: HYDROLOGY Recorded Data (Des	cribe in Remarks):StreamsAerial PhotographsOther	ACW or FAC	Primary Indicato Inur Sati War Drif	gy Indicators: rs: indated urated in Upper 12 er Marks : Lines iment Deposits		
2. 0. 1. 2. Percent of dominant excluding FAC-) Remarks: HYDROLOGY Recorded Data (Des X No Recorded Observations:	cribe in Remarks):StreamsAerial PhotographsOther orded Data Available		Primary Indicato Inur Sati Wai Drif Sec X Dra	gy Indicators: rs: ndated urated in Upper 12 er Marks : Lines iment Deposits nage Patterns in W	Vetlands	
2. 3. 3. 3. 3. 3. 3. 4. 5. 6. 6. 6. 6. 6. 6. 6. 6. 6. 6. 6. 6. 6.	cribe in Remarks): Streams Aerial Photographs Other orded Data Available	(in.)	Primary Indicato Inur Sate Wat Drif Sec X Dra Secondary Indicato	gy Indicators: rs: ndated urated in Upper 12 er Marks Lines iment Deposits nage Patterns in Wators (2 or more rec	Vetlands quired):	inches
A No Recorded Observations: Depth of Surface Water Page 19. Percent of dominant dominant excluding FAC-) Remarks: AYDROLOGY Recorded Data (Des	cribe in Remarks):StreamsAerial PhotographsOther orded Data Available ster: in Pit:	(in.)	Primary Indicato Inur Sate Wat Drif Sec X Dra Secondary Indic	gy Indicators: rs: ndated urated in Upper 12 er Marks Lines iment Deposits nage Patterns in Wators (2 or more red	Vetlands quired): els in Upper 12	inches
A. B.	cribe in Remarks):StreamsAerial PhotographsOther orded Data Available ster: in Pit:	(in.)	Primary Indicato Inur Sati War Drif Sec X Dra Secondary Indic Oxic	gy Indicators: rs: ndated urated in Upper 12 er Marks Lines iment Deposits rnage Patterns in Wators (2 or more redized Root Channe er-Stained Leaves	Vetlands quired): els in Upper 12	inches
7. 3. 3. 9. 10. 11. 12. Percent of dominant (excluding FAC-) Remarks: HYDROLOGY Recorded Data (Des X No Recorded Observations: Depth of Surface Water	cribe in Remarks):StreamsAerial PhotographsOther orded Data Available ster: in Pit:	(in.)	Primary Indicato Inur Sati Wai Drif Sec X Dra Secondary Indic Oxio Wai	gy Indicators: rs: ndated urated in Upper 12 er Marks : Lines iment Deposits inage Patterns in Wators (2 or more redized Root Channe er-Stained Leaves al Soil Survey Data	Vetlands quired): els in Upper 12	inches
(excluding FAC-) Remarks: HYDROLOGY Recorded Data (Des	cribe in Remarks):StreamsAerial PhotographsOther orded Data Available ster: in Pit:	(in.)	Primary Indicato Inur Sate Wat Drif Sec X Dra Secondary Indicato Oxic Wat Loc FAC	gy Indicators: rs: ndated urated in Upper 12 er Marks Lines iment Deposits rnage Patterns in Wators (2 or more redized Root Channe er-Stained Leaves	Vetlands quired): els in Upper 12	inches

Commun	nity ID:	PSS	Transect	ID: A	Plot ID:	WET 126N
				•		
SOILS						
Map Unit Na						
(Series and					Drainage Class: _	
		firm Mapped Type?	Yes	No	<u></u>	
Taxonomy ((Subgroup):					
		Matrix Color	Mottle Colors	Mottle		cretions, Structures,
Depth (in)	Horizon	(Munsell Moist)	(Munsell Moist)	Abundance/Contras	et etc.	
No soils						
11		V	V	NI-		
Hydric Soil		Yes_	X	No		
(If yes, chec	ck tnem)	UEstanal		0		
		_Histosol		Concretions	in 0f	O lb . O - !! -
		_Histic Epidon		High Organic Content		n Sandy Solls
		_Sulfidic Odor		Organic Streaking in S	-	
		_Aquic Moisture Regime		Listed on Local Hydric		
		_Reducing Conditions		Listed on National Hy		
		_Gleyed or Low-Chroma C	olors	Other (explain in rema	arks)	
Damarka	Na saila - a	avid not not not fonce				
Remarks:	INO SOIIS - C	ould not get past fence				
WETL AND	DETERMIN	ATION				
WETLAND			V	Nie le 4	nia Camanlina Daint	Mithing a Mathemal
Hydrophytic					his Sampling Point	vvitnin a vvetland
Wetland Hy		_		No	/ V	NI-
Hydric Soils	Present?	Yes_	X	No Y	'es X	No
Domestra	DCC					
Remarks:	PSS					
	Photo 1564	!				

Project/Site:	I-64 Peninsula				Date:	12/8/201	<u>1</u>
Applicant/Owner:	VDOT				County:	New Kent	
Investigator:	Scot Aitkenhead				State:	Virginia	
Community ID:	PEM		Transect ID:	А	_	Plot ID:	WET 128N
	ons exist on the site?		Yes	Х		lo	_
-	itly disturbed (Atypical situa	ition)?	Yes			10 X	
Is the area a potent			Yes			۸o <u> </u>	
If needed, explain o	n reverse						
VEGETATION							
	Dominant Plan	t Species					
	on Name	Scientifi			Stratum	<u> </u>	Indicator
 Woolgr 		-	cyperinus		Н		FACW+
	d Leaved Tearthumb		um arifolium		Н		OBL
-	d Sedge	Carex c	rinita		Н		OBL
4.							
5.							
6.							
7.							
3.							
).							
10.							
11.							
12.							
	t species that are OBL, FA	CW or FAC			100%		_
(excluding FAC-)							
Remarks:							
HYDROLOGY							
Recorded Data (De	scribe in Remarks):		Wetland Hyd	drology Inc	dicators:		
	Streams		Primary Indi	cators:			
	Aerial Photographs			Inundated	i		
	Other		Х	Saturated	in Upper 12	inches	
	corded Data Available			Water Ma			
X No Red				Drift Lines	5		
X No Red					Donosito		
X No Rec				Sediment	Deposits		
					Patterns in V	Vetlands	
Field Observations:		(in.)	Secondary I	Drainage	Patterns in V		
Field Observations: Depth of Surface W	/ater:	(in.) (in.)	Secondary I	Drainage ndicators (Patterns in V 2 or more re	quired):	inches
Field Observations: Depth of Surface W Depth to Free Wate	r in Pit: 12	(in.)	Secondary I	Drainage ndicators (Oxidized l	Patterns in V 2 or more re	quired): ls in Upper 12	inches
Field Observations: Depth of Surface W Depth to Free Wate	r in Pit: 12		Secondary I	Drainage ndicators (Oxidized I Water-Sta	Patterns in V (2 or more red Root Channe ained Leaves	quired): els in Upper 12	inches
X No Reconstructions: Depth of Surface W Depth to Free Wate Depth to Saturated	r in Pit: 12	(in.)		Drainage ndicators (Oxidized I Water-Sta	Patterns in V (2 or more red Root Channe ained Leaves Survey Data	quired): els in Upper 12	inches
Field Observations: Depth of Surface W Depth to Free Wate	r in Pit: 12	(in.)	Secondary I	Drainage ndicators (Oxidized I Water-Sta Local Soil FAC-Neut	Patterns in V 2 or more re- Root Channe ained Leaves Survey Data tral Test	quired): els in Upper 12	inches
Field Observations: Depth of Surface W Depth to Free Wate	r in Pit: 12	(in.)		Drainage ndicators (Oxidized I Water-Sta Local Soil FAC-Neut	Patterns in V (2 or more red Root Channe ained Leaves Survey Data	quired): els in Upper 12	inches
Field Observations: Depth of Surface W Depth to Free Wate	r in Pit: 12	(in.)		Drainage ndicators (Oxidized I Water-Sta Local Soil FAC-Neut	Patterns in V 2 or more re- Root Channe ained Leaves Survey Data tral Test	quired): els in Upper 12	inches

Commun	ity ID:	PEM	Transect	ID:A	Plot ID:	WET 128N
SOILS						
Map Unit Na						
(Series and				D	rainage Class: _	
		firm Mapped Type?	Yes	No	_	
Taxonomy (Subgroup):					
		Matrix Color	Mottle Colors	Mottle	Textures, Cond	cretions, Structures,
Depth (in)	Horizon	(Munsell Moist)	(Munsell Moist)	Abundance/Contrast	etc.	
0-16	A	7.5YR 4/1			Silty clay loam	
Lludria Cail I	ndiaatara	Voo	V	No		
Hydric Soil I		Yes_	X	No		
(If yes, chec	k tnem)	Lliatopol		Congretions		
		_Histosol		Concretions	Curtosa Lavori	n Candy Caila
		_Histic Epidon		High Organic Content in		n Sandy Solls
		_Sulfidic Odor		Organic Streaking in Sa	-	
		_Aquic Moisture Regime		Listed on Local Hydric S		
		_Reducing Conditions		Listed on National Hydr		
	X	Gleyed or Low-Chroma C	01018	Other (explain in remark	KS)	
Domorko						
Remarks:						
WETLAND	DETERMIN	ATION				
Hydrophytic				No lo this	Sampling Daint	Within a Wetland
	-	_			s sampling Point	within a welland
Wetland Hyd		_		No	o V	No
Hydric Soils	riesent?	Yes_	^	No Ye	sX	No
Domorko	PEM					
Remarks:		,				
	Photo 1497					

Project/Site:	I-64 Peninsula			Date:	12/8/201	1
Applicant/Owner:	VDOT			County:	New Kent	
nvestigator:	Scot Aitkenhead			State:	Virginia	
Community ID:	PEM		Transect ID:	Α	Plot ID:	WET 129N
Do Normal Condition			Yes	X N	lo	
•	y disturbed (Atypical situ	ıation)?	Yes		lo <u>X</u>	_
s the area a potentia			Yes	N	lo X	_
f needed, explain on	reverse					
/EGETATION						
	Dominant Pla	ant Species				
Commo		Scientific		Stratum		Indicator
 Woolgra 	SS	Scirpus	cyperinus	Н		FACW+
Soft Rus	sh	Juncus e		Н		FACW+
•	e Stiltgrass	Microste	egium vimineum	Н		FAC
4. False Ne	ettle		eria cylindrica	Н		FACW+
	n Bugleweed	Lycopus	uniflorus	Н		OBL
6.						
7.						
7. 3.						
7. 3. 9.						
7. 3. 9.						
7. 3. 9. 10. 11.						
7. 3. 9. 10. 11.						
7. 3. 9. 10. 11. 12. Percent of dominant	species that are OBL, F/	ACW or FAC		100%		_
7. 3. 9. 10. 11. 12. Percent of dominant	species that are OBL, F <i>r</i>	ACW or FAC		100%		_
7. 3. 9. 10. 11. 12. Percent of dominant (excluding FAC-)	species that are OBL, F/	ACW or FAC		100%		_
7. 3. 9. 10. 11. 12. Percent of dominant (excluding FAC-)	species that are OBL, F	ACW or FAC		100%		_
7. 3. 9. 10. 11. 12. Percent of dominant (excluding FAC-) Remarks:	species that are OBL, FA	ACW or FAC		100%		
7. 3. 9. 10. 11. 12. Percent of dominant (excluding FAC-) Remarks:		ACW or FAC	Wetland Hydrolo			_
7. 3. 9. 10. 11. 12. Percent of dominant (excluding FAC-) Remarks:		ACW or FAC	Wetland Hydrolo Primary Indicator	gy Indicators:		_
7. 3. 9. 10. 11. 12. Percent of dominant excluding FAC-) Remarks:	cribe in Remarks):	ACW or FAC	Primary Indicator	gy Indicators:		
7. 3. 9. 10. 11. 12. Percent of dominant excluding FAC-) Remarks:	cribe in Remarks):Streams	ACW or FAC	Primary Indicator	gy Indicators:	inches	_
7. 3. 9. 10. 11. 12. Percent of dominant (excluding FAC-) Remarks: HYDROLOGY Recorded Data (Desc	cribe in Remarks):StreamsAerial Photographs	ACW or FAC	Primary Indicator X Inur X Satu	gy Indicators: rs: idated	inches	_
7. 3. 9. 10. 11. 12. Percent of dominant excluding FAC-) Remarks: HYDROLOGY Recorded Data (Desc	cribe in Remarks):StreamsAerial PhotographsOther	ACW or FAC	Primary Indicator X Inur X Satu	gy Indicators: rs: idated irated in Upper 12	inches	
7. 3. 9. 10. 11. 12. Percent of dominant (excluding FAC-) Remarks: HYDROLOGY Recorded Data (Desc	cribe in Remarks):StreamsAerial PhotographsOther	ACW or FAC	Primary Indicator X Inur X Satu Wat Drift	gy Indicators: rs: idated urated in Upper 12 er Marks	inches	_
7. 3. 9. 10. 11. 12. Percent of dominant excluding FAC-) Remarks: HYDROLOGY Recorded Data (Desc	cribe in Remarks):StreamsAerial PhotographsOther	ACW or FAC	Primary Indicator X Inur X Satu Wat Drift	gy Indicators: rs: Idated Irated in Upper 12 er Marks Lines		_
7. 3. 3. 9. 10. 11. 12. Percent of dominant excluding FAC-) Remarks: HYDROLOGY Recorded Data (Descriptions)	cribe in Remarks):StreamsAerial PhotographsOther orded Data Available		Primary Indicator X Inur X Satu Wat Drift Sed X Drai	gy Indicators: rs: dated urated in Upper 12 er Marks Lines iment Deposits	/etlands	
7. 3. 9. 10. 11. 12. Percent of dominant excluding FAC-) Remarks: HYDROLOGY Recorded Data (Description of Surface Warface War	cribe in Remarks): Streams Aerial Photographs Other orded Data Available	(in.)	Primary Indicator X Inur X Satu Wat Driff Sed X Drai Secondary Indicator	gy Indicators: rs: idated urated in Upper 12 er Marks Lines iment Deposits nage Patterns in W	√etlands quired):	inches
7. 3. 3. 9. 10. 11. 12. Percent of dominant (excluding FAC-) Remarks: HYDROLOGY Recorded Data (Description of Surface Water) Depth of Surface Water	cribe in Remarks): Streams Aerial Photographs Other orded Data Available ter: 3 in Pit:	(in.)	Primary Indicator X Inur X Satu Wat Drift Sed X Drai Secondary Indica	gy Indicators: s: idated urated in Upper 12 er Marks Lines iment Deposits nage Patterns in Wators (2 or more rec	Vetlands quired): Is in Upper 12	inches
7. 3. 9. 10. 11. 12. Percent of dominant (excluding FAC-) Remarks: HYDROLOGY Recorded Data (Description of Surface Wadden Company Co	cribe in Remarks): Streams Aerial Photographs Other orded Data Available ter: 3 in Pit:	(in.)	Primary Indicator X Inur X Satu Wat Drift Sed X Drait Secondary Indicator X Wat	gy Indicators: rs: Idated Irrated in Upper 12 er Marks Lines Iment Deposits Inage Patterns in Wators (2 or more red Idized Root Channe er-Stained Leaves	/etlands quired): ls in Upper 12	inches
7. 8. 9. 10. 11. 12. Percent of dominant (excluding FAC-) Remarks: HYDROLOGY Recorded Data (Desc	cribe in Remarks): Streams Aerial Photographs Other orded Data Available ter: 3 in Pit:	(in.)	Primary Indicator X Inur X Satu Wat Drift Sed X Drai Secondary Indica Oxio X Wat Loca	gy Indicators: rs: rdated urated in Upper 12 er Marks Lines iment Deposits nage Patterns in Wators (2 or more red	/etlands quired): ls in Upper 12	inches
7. 8. 9. 10. 11. 12. Percent of dominant (excluding FAC-) Remarks: HYDROLOGY Recorded Data (Description of Surface Wall Depth of Surface Wall Depth of Free Water	cribe in Remarks): Streams Aerial Photographs Other orded Data Available ter: 3 in Pit:	(in.)	Primary Indicator X Inur X Satu Wat Driff Sed X Drait Secondary Indicator X Wat Loca X FAC	gy Indicators: rs: Idated Irated in Upper 12 er Marks Lines Iment Deposits nage Patterns in Wators (2 or more red Sized Root Channe er-Stained Leaves al Soil Survey Data	√etlands quired): ls in Upper 12	inches

Commun	ity ID:	PEM	Transect	ID:A	Plot ID:	WET 129N
SOILS						
Map Unit Na						
(Series and				D	rainage Class: _	
		firm Mapped Type?	Yes	No		
Taxonomy (Subgroup):					
		Matrix Color	Mottle Colors	Mottle		cretions, Structures,
Depth (in)	Horizon	(Munsell Moist)	(Munsell Moist)	Abundance/Contrast	etc.	
0-16	A	7.5YR 4/1			Loamy sand	
		V	V	NI-		
Hydric Soil I		Yes_	X	No		
(If yes, chec	k tnem)	UEstanal		0		
		_Histosol		Concretions	. 0	- O
		_Histic Epidon		High Organic Content in		n Sandy Solls
		_Sulfidic Odor		Organic Streaking in Sa	-	
		_Aquic Moisture Regime		Listed on Local Hydric		
		_Reducing Conditions		Listed on National Hydr		
	Х	Gleyed or Low-Chroma C	olors	Other (explain in remar	KS)	
Damarka						
Remarks:						
WETLAND	DETERMIN	ATION				
WETLAND			V	NIa la thi	. Campling Daint	\\/;4\abla_ia_a_\\/_a4\abla_ia_a
Hydrophytic	-	_			s Sampling Point	Within a Wetland
Wetland Hyd		_		No	V	No
Hydric Soils	rresent?	Yes_	X	NoYe	es X	No
Domestee	DEM					
Remarks:	PEM	.				
	Photo 1509	1				

Project/Site:	I-64 Peninsula				Date:	12/8/201	
Applicant/Owner:	VDOT				County:	New Kent	
nvestigator:	Scot Aitkenhead				State:	Virginia	
Community ID:	PSS		Transect ID:	А	_	Plot ID:	WET 130N
o Normal Condition			Yes			lo	
	y disturbed (Atypical situa	ation)?	Yes			lo X	_
s the area a potentia			Yes			lo X	_
f needed, explain on	reverse						
/EGETATION							
	Dominant Plai	nt Species					
Commo		Scientific			Stratum		Indicator
 River Bi 		Betula n	nigra		S		FACW
2. Red Ma		Acer rub			S		FAC
3. Smooth	Alder	Alnus se	errulata		S		OBL
4.							
5.							
6.							
3.							
3. 9.							
3.). 0.							
3. 9. 10. 11.							
3. 9. 10. 11. 12.							
3. 9. 10. 11. 12. Percent of dominant	species that are OBL, FA	CW or FAC			100%		_
3. 9. 10. 11. 12. Percent of dominant (excluding FAC-)	species that are OBL, FA	CW or FAC			100%		_
3. 9. 10. 11. 12. Percent of dominant (excluding FAC-)	species that are OBL, FA	CW or FAC			100%		_
3. 9. 10. 11. 12. Percent of dominant (excluding FAC-)	species that are OBL, FA	CW or FAC			100%		_
3. 9. 10. 11. 12. Percent of dominant (excluding FAC-) Remarks:	species that are OBL, FA	CW or FAC			100%		_
3. 9. 10. 11. 12. Percent of dominant (excluding FAC-) Remarks:		CW or FAC	Wetland Hy	drology Ind			_
3. 10. 11. 12. Percent of dominant (excluding FAC-) Remarks:		CW or FAC	Wetland Hy				
3. 10. 11. 12. Percent of dominant (excluding FAC-) Remarks:	cribe in Remarks):	CW or FAC					
3. 9. 10. 11. 12. Percent of dominant excluding FAC-) Remarks:	cribe in Remarks):Streams	ACW or FAC	Primary Indi	cators: Inundated		inches	
3. 9. 10. 11. 12. Percent of dominant excluding FAC-) Remarks: HYDROLOGY Recorded Data (Des	cribe in Remarks):StreamsAerial Photographs	CW or FAC	Primary Indi X	cators: Inundated	icators: in Upper 12	inches	
3. 9. 10. 11. 12. Percent of dominant excluding FAC-) Remarks: HYDROLOGY Recorded Data (Des	cribe in Remarks): Streams Aerial Photographs Other	CW or FAC	Primary Indi X	cators: Inundated Saturated	icators: in Upper 12 rks	inches	
3. 9. 10. 11. 12. Percent of dominant (excluding FAC-) Remarks: HYDROLOGY Recorded Data (Des	cribe in Remarks): Streams Aerial Photographs Other	CW or FAC	Primary Indi X	cators: Inundated Saturated Water Mar Drift Lines Sediment	icators: in Upper 12 rks Deposits		
3. 9. 10. 11. 12. Percent of dominant excluding FAC-) Remarks: HYDROLOGY Recorded Data (Des	cribe in Remarks): Streams Aerial Photographs Other	CW or FAC	Primary Indi X	cators: Inundated Saturated Water Mar Drift Lines Sediment	icators: in Upper 12 rks		
3. 9. 10. 11. 12. Percent of dominant excluding FAC-) Remarks: HYDROLOGY Recorded Data (Des X No Recorded Observations:	cribe in Remarks):StreamsAerial PhotographsOther orded Data Available	CW or FAC	Primary Indi X X	cators: Inundated Saturated Water Mar Drift Lines Sediment Drainage I	icators: in Upper 12 rks Deposits	/etlands	
3. 3. 3. 40. 11. 12. Percent of dominant excluding FAC-) Remarks: HYDROLOGY Recorded Data (Des X No Recorded Observations: Depth of Surface Wa	cribe in Remarks): Streams Aerial Photographs Other orded Data Available		Primary Indi X X	cators: Inundated Saturated Water Mai Drift Lines Sediment Drainage I ndicators (2)	icators: in Upper 12 rks Deposits Patterns in W 2 or more rec	/etlands	inches
3. 9. 10. 11. 12. Percent of dominant (excluding FAC-) Remarks: HYDROLOGY Recorded Data (Des X No Recorded Observations: Depth of Surface Water	cribe in Remarks): Streams Aerial Photographs Other orded Data Available ter: 12 in Pit:	(in.)	Primary Indi X X	cators: Inundated Saturated Water Mai Drift Lines Sediment Drainage I ndicators (3 Oxidized F Water-Sta	icators: in Upper 12 rks Deposits Patterns in W 2 or more rec Root Channe ined Leaves	/etlands quired): Is in Upper 12	inches
3. 9. 10. 11. 12. Percent of dominant (excluding FAC-) Remarks: HYDROLOGY Recorded Data (Des X No Recorded Des Field Observations: Depth of Surface Water	cribe in Remarks): Streams Aerial Photographs Other orded Data Available ter: 12 in Pit:	(in.)	Primary Indi X X	cators: Inundated Saturated Water Mai Drift Lines Sediment Drainage I ndicators (3 Oxidized F Water-Sta	icators: in Upper 12 rks Deposits Patterns in W 2 or more rec	/etlands quired): Is in Upper 12	inches
(excluding FAC-) Remarks: HYDROLOGY Recorded Data (Des	cribe in Remarks): Streams Aerial Photographs Other orded Data Available ter: 12 in Pit:	(in.)	Primary Indi X X	cators: Inundated Saturated Water Mai Drift Lines Sediment Drainage I ndicators (3 Oxidized F Water-Sta	icators: in Upper 12 rks Deposits Patterns in W 2 or more rec Root Channe ined Leaves Survey Data	/etlands quired): Is in Upper 12	inches
3. 9. 10. 11. 12. Percent of dominant (excluding FAC-) Remarks: HYDROLOGY Recorded Data (Des X No Recorded Des Field Observations: Depth of Surface Water	cribe in Remarks): Streams Aerial Photographs Other orded Data Available ter: 12 in Pit:	(in.)	Primary Indi X X X Secondary I	cators: Inundated Saturated Water Mar Drift Lines Sediment Drainage I ndicators (2 Oxidized F Water-Sta Local Soil FAC-Neut	icators: in Upper 12 rks Deposits Patterns in W 2 or more rec Root Channe ined Leaves Survey Data	/etlands quired): ls in Upper 12	inches

Commu	nity ID:	PSS		Transect	ID:	Α	_Plot ID:	WET 130N
SOILS								
Map Unit Na (Series and						D	rainage Class:	
Field Obser	vations Conf	irm Mapped Type?		Yes		No		
	(Subgroup):							
		Matrix Color		Mottle Colors		Mottle	Toyturas Cana	retions, Structures,
Depth (in)	Horizon	(Munsell Mois		(Munsell Moist)	Ab	undance/Contrast	etc.	retions, Structures,
()		(**************************************	-/	(**************************************				
No soils								
Hydric Soil	Indicators:		Yes	Χ	No			
(If yes, ched								
		Histosol				cretions		
		Histic Epidon				Organic Content in	-	Sandy Soils
		_Sulfidic Odor				nic Streaking in Sa	•	
		Aquic Moisture Re- Reducing Condition	-			d on Local Hydric s d on National Hydr		
	-	Gleyed or Low-Chi				er (explain in remar		
		_ 0.0,00 0. 20	01110 00101			(oxplain in romai		
Remarks:	No soils - in	undation to the toe	of slope					
WETI AND	DETERMINA	ATION						
	: Vegetation		Yes	Χ	No	Is this	s Sampling Point	Within a Wetland
	drology Pres		Yes	X	No			
Hydric Soils			Yes	X	No	Ye	sX	No
Remarks:	PSS							
	Photo 1510							

Project/Site:	I-64 Peninsula				_Date:	12/8/201	1	
Applicant/Owner:	VDOT				County:	Henrico		
Investigator:	Scot Aitkenhead				State:	Virginia		
Community ID:	PFO		Transect ID:	Α	_	Plot ID:	WET 13	1N
Do Normal Condition			Yes_	Х		lo	_	
-	y disturbed (Atypical sit	uation)?	Yes_			lo X	_	
Is the area a potentia			Yes_		_ ^	lo X	_	
If needed, explain or	reverse							
VEGETATION								
	Dominant Pl	lant Species						
Commo		Scientific			Stratum		Indicator	
1. Red Ma	ple	Acer rub	orum		Т		FAC	
Black W	lllow	Nyssa s	ylvatica		Т		FAC	
3.								
4.								
5.								
6.								
7.								
7. 8.								
7. 8. 9.								
7. 8. 9. 10.								
7. 8. 9. 10. 11.								
7. 8. 9. 10. 11.	species that are OBL, F	FACW or FAC			100%			
7. 8. 9. 10. 11.	species that are OBL, F	FACW or FAC	_		100%		_	
7.8.9.10.11.12.Percent of dominant (excluding FAC-)	species that are OBL, F		 d.		100%		_	
7. 8. 9. 10. 11. 12. Percent of dominant (excluding FAC-)			 d.		100%		_	
7. 8. 9. 10. 11. 12. Percent of dominant (excluding FAC-) Remarks: No othe	r plants becauase it is d						_	
7. 8. 9. 10. 11. 12. Percent of dominant (excluding FAC-) Remarks: No othe	r plants becauase it is d		Wetland Hydro				_	
7. 8. 9. 10. 11. 12. Percent of dominant (excluding FAC-) Remarks: No othe	r plants becauase it is d cribe in Remarks):Streams	deeply inundate						
7. 8. 9. 10. 11. 12. Percent of dominant (excluding FAC-) Remarks: No othe	r plants becauase it is d	deeply inundate	Wetland Hydro Primary Indica X In	tors: undated	cators:			
7. 8. 9. 10. 11. 12. Percent of dominant (excluding FAC-) Remarks: No othe	r plants becauase it is d cribe in Remarks):Streams	deeply inundate	Wetland Hydro Primary Indica X In	tors: undated		inches		
7. 8. 9. 10. 11. 12. Percent of dominant (excluding FAC-) Remarks: No othe HYDROLOGY Recorded Data (Des	r plants becauase it is d cribe in Remarks): Streams Aerial Photographs	deeply inundate	Wetland Hydro Primary Indica X In X S.	tors: undated	cators: in Upper 12	inches		
7. 8. 9. 10. 11. 12. Percent of dominant (excluding FAC-) Remarks: No othe HYDROLOGY Recorded Data (Des	r plants becauase it is d cribe in Remarks): Streams Aerial Photographs Other	deeply inundate	Wetland Hydro Primary Indica X In X S	tors: undated aturated i	cators: in Upper 12	inches		
7. 8. 9. 10. 11. 12. Percent of dominant (excluding FAC-) Remarks: No othe HYDROLOGY Recorded Data (Des	r plants becauase it is d cribe in Remarks): Streams Aerial Photographs Other	deeply inundate	Wetland Hydro Primary Indica X In X S	tors: undated aturated i /ater Mar	cators: in Upper 12 ks	inches		
7. 8. 9. 10. 11. 12. Percent of dominant (excluding FAC-) Remarks: No othe HYDROLOGY Recorded Data (Des	r plants becauase it is d cribe in Remarks): Streams Aerial Photographs Other	deeply inundate	Wetland Hydro Primary Indica X In X S W D X S	tors: undated aturated i ater Mar rift Lines ediment I	cators: in Upper 12 ks			
7. 8. 9. 10. 11. 12. Percent of dominant (excluding FAC-) Remarks: No othe HYDROLOGY Recorded Data (Des X No Recorded Deservations: Depth of Surface Wa	cribe in Remarks): Streams Aerial Photographs Other orded Data Available	deeply inundate	Wetland Hydro Primary Indica X In X S W D X S	tors: undated aturated i tater Mar rift Lines ediment I rainage F	cators: in Upper 12 ks Deposits Patterns in W	/etlands		
7. 8. 9. 10. 11. 12. Percent of dominant (excluding FAC-) Remarks: No othe HYDROLOGY Recorded Data (Des X No Recorded Observations: Depth of Surface Wa	cribe in Remarks): Streams Aerial Photographs Other orded Data Available	deeply inundate	Wetland Hydro Primary Indica X In X S W D X S Secondary Ind	tors: undated aturated i ater Mar rift Lines ediment I rainage F icators (2	cators: in Upper 12 ks Deposits Patterns in W	/etlands	inches	
7. 8. 9. 10. 11. 12. Percent of dominant (excluding FAC-) Remarks: No othe HYDROLOGY Recorded Data (Des X No Recorded Observations: Depth of Surface Water	r plants becauase it is decribe in Remarks): Streams Aerial Photographs Other orded Data Available tter: 1 in Pit:	deeply inundate	Wetland Hydro Primary Indica X In X S W D X S D Secondary Ind X W	tors: undated aturated i /ater Mar rift Lines ediment I rainage F icators (2 xidized R /ater-Stai	cators: in Upper 12 ks Deposits Patterns in W or more received Channe ned Leaves	/etlands quired): Is in Upper 12	inches	
7. 8. 9. 10. 11. 12. Percent of dominant (excluding FAC-) Remarks: No othe HYDROLOGY Recorded Data (Des X No Recorded Description Strict Control of Surface Water Depth to Free Water)	r plants becauase it is decribe in Remarks): Streams Aerial Photographs Other orded Data Available tter: 1 in Pit:	deeply inundate	Wetland Hydro Primary Indica X In X S W D X S D Secondary Ind X W	tors: undated aturated i /ater Mar rift Lines ediment I rainage F icators (2 xidized R /ater-Stai	cators: in Upper 12 ks Deposits Patterns in W or more rec	/etlands quired): Is in Upper 12	inches	
7. 8. 9. 10. 11. 12. Percent of dominant (excluding FAC-) Remarks: No othe HYDROLOGY Recorded Data (Des X No Recorded Descriptions: Depth of Surface Water	r plants becauase it is decribe in Remarks): Streams Aerial Photographs Other orded Data Available tter: 1 in Pit:	deeply inundate	Wetland Hydro Primary Indica X In X S W D X S Secondary Ind O X W Lo X F	tors: undated aturated i tater Mar rift Lines ediment I rainage F icators (2 xidized R tater-Stai ocal Soil i AC-Neutr	cators: In Upper 12 ks Deposits Patterns in Waterns in	/etlands quired): ls in Upper 12	inches	
7. 8. 9. 10. 11. 12. Percent of dominant (excluding FAC-) Remarks: No othe HYDROLOGY Recorded Data (Des	r plants becauase it is decribe in Remarks): Streams Aerial Photographs Other orded Data Available tter: 1 in Pit:	deeply inundate	Wetland Hydro Primary Indica X In X S W D X S Secondary Ind O X W Lo X F	tors: undated aturated i tater Mar rift Lines ediment I rainage F icators (2 xidized R tater-Stai ocal Soil i AC-Neutr	cators: In Upper 12 ks Deposits Patterns in Wall or more received Channel ned Leaves Survey Data	/etlands quired): ls in Upper 12	inches	

Community ID:		PFO	Transect	ID:A	Plot ID:	WET 131N	
SOILS							
Map Unit Na	ame						
(Series and				D	rainage Class: _		
		firm Mapped Type?	Yes	No	_		
Taxonomy (Subgroup):						
		Matrix Color	Mottle Colors	Mottle	Textures, Cond	cretions, Structures,	
Depth (in)	Horizon	(Munsell Moist)	(Munsell Moist)	Abundance/Contrast	etc.		
0-16	A	7.5YR 3/2	5YR 4/6	5%	Sandy clay		
Libralia O a il I		V	V	NI.			
Hydric Soil I		Yes	X	No			
(If yes, chec	ck tnem)	LUntanal		0			
		_Histosol		Concretions	0	. 0 0 - 11 -	
		Histic Epidon		High Organic Content in		1 Sandy Solls	
		_Sulfidic Odor		Organic Streaking in Sa	-		
		_Aquic Moisture Regime		Listed on Local Hydric S			
	X	_Reducing Conditions		Listed on National Hydr			
	X	_Gleyed or Low-Chroma C	olors	Other (explain in remark	KS)		
Damarka	Caila ara a	- frie a -					
Remarks:	Soils are or	n minge					
WETLAND	DETERMIN	ATION					
WETLAND			V	Nie le this	Campalina Daint	\\/;\th::===\\\/=\there	
Hydrophytic					s Sampling Point	Within a Wetland	
Wetland Hy				No	- V	NI-	
Hydric Soils	Present?	Yes	X	NoYe	sX	No	
Domestra	DEO						
Remarks:	PFO	1					
	Photo 1511						

Project/Site:	I-64 Peninsula				_ Date:	12/8/201	1
Applicant/Owner:	VDOT				County:	York	
nvestigator:	Scot Aitkenhead				State:	Virginia	
Community ID:	PEM		Transect ID: _	А	_	Plot ID:	WET 132N
Oo Normal Conditions			Yes	Χ		lo	_
	disturbed (Atypical situa	ation)?	Yes_		_	lo X	_
ls the area a potentia			Yes_		_ N	lo X	_
f needed, explain on	reverse						
/EGETATION							
	Dominant Plar	nt Species					
Commor		Scientific			Stratum		Indicator
	ved Cattail	Typha la			Н		OBL
	e Stiltgrass		egium vimineum		Н		FAC
Woolgra	SS	Scirpus	cyperinus		Н		FACW+
4.							
5.							
6.							
7.							
7. 3.							
7. 3. 9.							
7. 3. 9.							
7. 3. 9. 10. 11.							
7. 8. 9. 10. 11.							
7. 3. 9. 10. 11. 12. Percent of dominants	species that are OBL, FA	.CW or FAC	_		100%		_
7. 3. 9. 10. 11. 12. Percent of dominant s (excluding FAC-)	species that are OBL, FA	CW or FAC	-		100%		_
7. 3. 9. 10. 11. 12. Percent of dominant s (excluding FAC-)	species that are OBL, FA	.CW or FAC	_		100%		_
7. 3. 9. 10. 11. 12. Percent of dominant s (excluding FAC-)	species that are OBL, FA	.CW or FAC	_		100%		_
7. 3. 9. 10. 11. 12. Percent of dominant s (excluding FAC-) Remarks:	species that are OBL, FA	.CW or FAC	_		100%		
7. 8. 9. 10. 11. 12. Percent of dominant s (excluding FAC-) Remarks:		CW or FAC	- Wetland Hyd	rology India			
7. 3. 9. 10. 11. 12. Percent of dominant services (excluding FAC-) Remarks:		CW or FAC	Wetland Hyd Primary Indic				
7. 3. 9. 10. 11. 12. Percent of dominant services (excluding FAC-) Remarks:	ribe in Remarks):	.CW or FAC	Primary Indic				
7. 3. 9. 10. 11. 12. Percent of dominant sexcluding FAC-) Remarks:	eribe in Remarks):Streams	.CW or FAC	Primary Indic	ators: nundated		inches	
7. 3. 9. 10. 11. 12. Percent of dominant services (excluding FAC-) Remarks: HYDROLOGY Recorded Data (Description)	ribe in Remarks): Streams Aerial Photographs	.CW or FAC	Primary Indic	ators: nundated	cators: n Upper 12	inches	
7. 3. 9. 10. 11. 12. Percent of dominant sexcluding FAC-) Remarks: HYDROLOGY Recorded Data (Description)	eribe in Remarks): Streams Aerial Photographs Other	CW or FAC	Primary Indic	ators: nundated Saturated i	cators: n Upper 12	inches	
7. 3. 9. 10. 11. 12. Percent of dominant services (excluding FAC-) Remarks: HYDROLOGY Recorded Data (Description)	eribe in Remarks): Streams Aerial Photographs Other	CW or FAC	Primary Indic	ators: nundated Saturated i Water Mark	cators: n Upper 12 i	inches	
7. 3. 3. 9. 10. 11. 12. Percent of dominant sexcluding FAC-) Remarks: HYDROLOGY Recorded Data (Description of the content of	eribe in Remarks): Streams Aerial Photographs Other	CW or FAC	Primary Indic	ators: nundated Saturated i Water Mark Drift Lines Sediment D	cators: n Upper 12 i		
7. 3. 3. 9. 10. 11. 12. Percent of dominant sexcluding FAC-) Remarks: HYDROLOGY Recorded Data (Descriptions)	eribe in Remarks): Streams Aerial Photographs Other rded Data Available	.CW or FAC	Primary Indic	ators: nundated Saturated i Water Mark Drift Lines Sediment Drainage P	cators: n Upper 12 iks Deposits Patterns in W	/etlands	
A. S.	eribe in Remarks): Streams Aerial Photographs Other rded Data Available	(in.)	Primary Indic X I X S S S S S S S S S S S S S S S S	ators: nundated Saturated i Water Mark Drift Lines Sediment E Drainage P dicators (2	cators: n Upper 12 iks Deposits Patterns in W	/etlands	inches
7. 3. 3. 9. 10. 11. 12. Percent of dominant services (excluding FAC-) Remarks: HYDROLOGY Recorded Data (Descriptions) X No Recorded Descriptions: Depth of Surface Ward Depth to Free Water	eribe in Remarks): Streams Aerial Photographs Other rded Data Available er: 12 n Pit:	(in.)	Primary Indic X X S S S S Secondary In	ators: nundated Saturated i Water Mark Drift Lines Sediment E Drainage P dicators (2 Dxidized R	cators: n Upper 12 iks Deposits Patterns in W	/etlands quired):	inches
7. 3. 9. 10. 11. 12. Percent of dominant s (excluding FAC-) Remarks: HYDROLOGY Recorded Data (Descriptions) X No Recorded Descriptions: Depth of Surface Ward Depth to Free Water	eribe in Remarks): Streams Aerial Photographs Other rded Data Available er: 12 n Pit:	(in.)	Primary Indic X X S S S Secondary In	ators: nundated Saturated i Nater Mark Drift Lines Sediment E Drainage P dicators (2 Dxidized R Nater-Stain	cators: n Upper 12 iks Deposits Patterns in Waterns in	/etlands quired): Is in Upper 12	inches
7. 8. 9. 10. 11. 12. Percent of dominant s (excluding FAC-) Remarks: HYDROLOGY Recorded Data (Desc	eribe in Remarks): Streams Aerial Photographs Other rded Data Available er: 12 n Pit:	(in.)	Primary Indic	ators: nundated Saturated i Nater Mark Drift Lines Sediment E Drainage P dicators (2 Dxidized R Nater-Stain	cators: n Upper 12 iks Deposits Patterns in Wall or more recoot Channel ned Leaves Survey Data	/etlands quired): Is in Upper 12	inches
7. 8. 9. 10. 11. 12. Percent of dominant s (excluding FAC-) Remarks: HYDROLOGY Recorded Data (Descriptions) X No Recorded Descriptions: Depth of Surface Ward Depth to Free Water	eribe in Remarks): Streams Aerial Photographs Other rded Data Available er: 12 n Pit:	(in.)	Primary Indic	ators: nundated Saturated i Water Mark Drift Lines Sediment E Drainage P dicators (2 Dxidized R Water-Stain Local Soil S FAC-Neutra	cators: n Upper 12 iks Deposits Patterns in Wall or more recoot Channel ned Leaves Survey Data	/etlands quired): ls in Upper 12	inches

Community ID:		PEM	Transect	ID: A	Plot ID:	WET 132N	
SOILS							
Map Unit Na (Series and					Drainage Class:		
Field Observ	ations Con	irm Mapped Type?	Yes	No			
Depth (in)	Horizon	Matrix Color (Munsell Moist)	Mottle Colors (Munsell Moist)	Mottle Abundance/Con		ncretions, Structures,	
0-16	А	2.5YR 3/1					
Hydric Soil I		Yes	sX	No			
(11) 00, 01100		Histosol		Concretions			
		Histic Epidon			tent in Surface Layer	in Sandy Soils	
	Х	_Sulfidic Odor		Organic Streaking			
		_Aquic Moisture Regime Reducing Conditions		Listed on Local Hy Listed on National			
	Х	Gleyed or Low-Chroma	Colors	Other (explain in re			
Remarks:							
WETLAND	DETERMIN	ATION					
Hydrophytic	•			No	Is this Sampling Poir	nt Within a Wetland	
Wetland Hyd Hydric Soils		sent? Yes Yes		No	YesX	No	
	PEM						
	Photo 1520						

Project/Site:	I-64 Peninsula					Date:	11/1/201	1
Applicant/Owner:	VDOT					County:	Henrico	
Investigator:	Scot Aitkenhead					State:	Virginia	
Community ID:	PEM		Transec	t ID:	А	_	Plot ID:	WET 50M
Do Normal Condition				Yes	Χ		No	_
•	y disturbed (Atypical situat	tion)?		Yes	Χ		No	_
Is the area a potentia				Yes			No X	
If needed, explain on	reverse							
VEGETATION								
	Dominant Plant	t Species						
Commo		Scientific				Stratum	<u> </u>	Indicator
	af Cattail	Typha la				Н		OBL
Woolgra	SS	Scirpus d	cyperinus			Н		FACW+
3.								
4.								
5.								
6.								
7.								
8.								
9.								
10.								
11.								
12.								
	species that are OBL, FAC	CW or FAC				100%		
(excluding FAC-)	, ,							
Remarks:								
HYDROLOGY								
Recorded Data (Desc	 cribe in Remarks):		Wetland	d Hvdro	logy Ind	licators:		
,	Streams		Primary					
	Aerial Photographs		X		undated			
	Other		X			in Upper 12	inches	
No Reco	orded Data Available				ater Ma			
	nada Bata / tranabio				ift Lines			
						Deposits		
Field Observations:			X			Patterns in V	Vatlands	
Depth of Surface Wa	tor: 1	(in.)			-	2 or more re		
Depth to Free Water		(in.)	X	-			quireu). els in Upper 12	linches
Depth to Saturated S			X			ined Leaves		inches
Depin to Saturated S	011.	(in.)	^					
						Survey Data	1	
						ral Test	- ul)	
				Ot	ner (Ex	plain in Rem	arks)	
Remarks: Peccin	es hydrology from roadw	vav drainag						
itelliaiks. Necelve	73 Hydrology Holli Idadw	vay uramay	-					

Commun	ity ID:	PEM	Transect II	D:A	Plot ID:	WET 50M	
SOILS							
Map Unit Na							
(Series and	•				rainage Class:		
Field Observ	ations Con	firm Mapped Type?	Yes	No	_		
Taxonomy (Subgroup):						
		Matrix Color	Mottle Colors	Mottle	Textures, Cond	retions, Structures,	
Depth (in)	Horizon	(Munsell Moist)	(Munsell Moist)	Abundance/Contrast	etc.		
0-16		7.5YR 4/1	5YR 4/8	15%	Sandy clay loar	n	
1							
1							
Hydric Soil I		Yes	X N	0			
(If yes, chec	k them)						
		_Histosol		Concretions			
		Histic Epidon		High Organic Content in	n Surface Layer in	n Sandy Soils	
		Sulfidic Odor		Organic Streaking in Sa	andy Soils		
		Aquic Moisture Regime		Listed on Local Hydric S			
	Х	Reducing Conditions		Listed on National Hydr			
	X	Gleyed or Low-Chroma	Colors	Other (explain in remark			
1		,			,		
Remarks:							
remand.							
WETL AND	DETERMIN	ATION					
WETLAND			· · ·		. 0 1	Midelin - Middle I	
Hydrophytic	•				s Sampling Point	Within a Wetland	
Wetland Hyd				0			
Hydric Soils	Present?	Yes	X N	o Ye	sX	No	
Remarks:	Wetland dr	ains to a drain inlet in med	ian				
Invasives: Ja	apanese Ho	neysuckle	Photo 140	9/1410			

Project/Site:	I-64 Peninsula				Date:	11/1/2011	
Applicant/Owner:	VDOT				County:	New Kent	
Investigator:	Scot Aitkenhead				State:	Virginia	
					_		
Community ID:	PFO		Transect ID:	Α		Plot ID:	WET 51M
,			•		_		
Do Normal Conditions 6	exist on the site?		Yes	Х	N	0	
Is the site significantly of	disturbed (Atypical situati	ion)?	Yes		N	o X	-
Is the area a potential F	Problem Area?		Yes			o X	-
If needed, explain on re	everse		•		_		•
VEGETATION							
	Dominant Plant	Species					
Common N	Name	Scientific N	ame		Stratum		Indicator
1. Netted Cha	ainfern	Woodward	ia areolata		Н		FACW+
Sensitive F	ern	Onoclea se	ensibilis		Н		FACW
3. Spicebush		Lindera be	nzoin		S		FACW-
4. Common E	Elderberry	Sambucus	canadensis		S		FACW-
5. Lizard's Ta	nil	Saururus c	ernuus		Н		OBL
6. Cinnamon	Fern	Osmunda d	cinnamomea		Н		FACW
7. Hornbeam		Carpinus c	aroliniana		S		FACW+
8.							
9.							
10.							
11.							
12.							
Percent of dominant sp	ecies that are OBL, FAC	CW or FAC	_		100%		_
(excluding FAC-)							
Remarks:							
HYDROLOGY							
Recorded Data (Describ	be in Remarks):		Wetland Hyd		cators:		
	_Streams		Primary India				
	Aerial Photographs			Inundated			
	_Other				in Upper 12 i	nches	
No Record	led Data Available			Water Mar	ks		
				Drift Lines			
				Sediment I			
Field Observations:				•	Patterns in W		
Depth of Surface Water		(in.)	Secondary In	-	-	•	
Depth to Free Water in		(in.)				s in Upper 12 in	nches
Depth to Saturated Soil	: 0	(in.)			ned Leaves		
					Survey Data		
				FAC-Neutr			
				Other (Exp	lain in Rema	ırks)	
			<u> </u>				
Remarks: Crayfish r	nound						

Community ID:		PFO	Transect	ID: A	Plot ID:	WET 51M	
SOILS							
Map Unit Na							
(Series and					rainage Class: _		
		firm Mapped Type?	Yes	No	_		
Taxonomy (Subgroup):						
		Matrix Color	Mottle Colors	Mottle	Textures, Cond	cretions, Structures,	
Depth (in)	Horizon	(Munsell Moist)	(Munsell Moist)	Abundance/Contrast	etc.		
0-16	A	7.5YR 4/1			Loamy sand		
Hydric Soil I	ndicators:	Yes	Χ	No			
(If yes, chec		163					
(ii yes, chec	K tiletii)	Histosol		Concretions			
		Histic Epidon		High Organic Content in	n Surface Laver i	n Sandy Soils	
	Х	Sulfidic Odor		Organic Streaking in Sa		ii Garidy Golis	
		Aquic Moisture Regime		Listed on Local Hydric	-		
		Reducing Conditions	-	Listed on National Hydr			
	Х	Gleyed or Low-Chroma C	tolors	Other (explain in remar			
		_ olcyca or Low officina o		Other (explain in remai	110)		
Remarks:							
r comanio.							
WETLAND	DETERMIN	ATION					
Hydrophytic			Х	No Is this	s Sampling Point	Within a Wetland	
Wetland Hyd				No			
Hydric Soils		Yes			s X	No	
1, 35 55/10		100_					
Remarks:	Photo 1430)					
		-					

Project/Site:						
Applicant/Owner:	VDOT			County:	New Kent	
Investigator:	Scot Aitkenhead			State:	Virginia	
Community ID:	PFO	Trans	ect ID: A		Plot ID:	WET 52M
	ons exist on the site?		Yes X		lo	_
-	ntly disturbed (Atypical situa	ation)?	Yes		10 X	_
-	tial Problem Area?		Yes	^	loX	
If needed, explain	on reverse					
VEGETATION						
	Dominant Plan	•				
	non Name	Scientific Name		Stratum	<u> </u>	Indicator
	Smartweed	Polygonum amph	ibium	Н		OBL
2. Red N		Acer Rubrum		Т		FAC
3. Spice		Lindera benzion		S		FACW-
	l's Tail	Saururus cernuus	:	Н		OBL
	ery Elm	Ulmus rubra		Т		FAC
6. Sensi	tive Fern	Onoclea sensibilis		Н		FACW
7. False	Nettle	Boehmeria cylindi	rica	Н		FACW+
				Т		FACW
	Birch	Betula nigra				
B. River	Birch non Elderberry	Betula nigra Sambucus canad	ensis	S		FACW-
8. River 9. Comm		•	ensis	S		FACW-
8. River 9. Comn 10.		•	ensis	S		FACW-
8. River		•	ensis	S		FACW-
8. River 9. Comn 10. 11.		Sambucus canad	ensis 	S 100%		FACW-
8. River 9. Comn 10. 11.	non Elderberry	Sambucus canad	ensis 			FACW-
8. River 9. Comn 10. 11. 12. Percent of domina	non Elderberry	Sambucus canad	ensis 			FACW-
8. River 9. Comn 10. 11. 12. Percent of domina (excluding FAC-)	non Elderberry	Sambucus canad	ensis 			FACW-
8. River 9. Comn 10. 11. 12. Percent of domina (excluding FAC-) Remarks:	non Elderberry	Sambucus canad	ensis 			FACW-
8. River 9. Comm 10. 11. 12. Percent of domina (excluding FAC-) Remarks:	non Elderberry nt species that are OBL, FA	Sambucus canad		100%		FACW-
3. River 9. Comm 10. 11. 12. Percent of domina (excluding FAC-) Remarks:	non Elderberry Int species that are OBL, FA Escribe in Remarks):	Sambucus canada	and Hydrology I	100%		FACW-
3. River 9. Comm 10. 11. 12. Percent of domina (excluding FAC-) Remarks:	non Elderberry Int species that are OBL, FA Escribe in Remarks): Streams	Sambucus canada	and Hydrology lary Indicators:	100%		FACW-
3. River 9. Comm 10. 11. 12. Percent of domina (excluding FAC-) Remarks:	non Elderberry Int species that are OBL, FA escribe in Remarks): Streams Aerial Photographs	Sambucus canada	and Hydrology I ary Indicators: Inundato	100%	inches	FACW-
3. River 9. Comm 10. 11. 12. Percent of domina (excluding FAC-) Remarks: HYDROLOGY Recorded Data (D	non Elderberry Int species that are OBL, FA Describe in Remarks): Streams Aerial Photographs Other	Sambucus canada	and Hydrology I ary Indicators: Inundate Saturate	100% Indicators: ed ed in Upper 12	inches	FACW-
8. River 9. Comm 10. 11. 12. Percent of domina (excluding FAC-) Remarks: HYDROLOGY Recorded Data (D	non Elderberry Int species that are OBL, FA escribe in Remarks): Streams Aerial Photographs	Sambucus canada	and Hydrology I ary Indicators: Inundate Saturate Water M	100% Indicators: ed ed in Upper 12 larks	inches	FACW-
3. River 9. Comm 10. 11. 12. Percent of domina (excluding FAC-) Remarks: HYDROLOGY Recorded Data (D	non Elderberry Int species that are OBL, FA Describe in Remarks): Streams Aerial Photographs Other	Sambucus canada	and Hydrology I ary Indicators: Inundato Saturate Water M	100% Indicators: ed ed in Upper 12 larks es	inches	FACW-
3. River 9. Comm 10. 11. 12. Percent of domina (excluding FAC-) Remarks: HYDROLOGY Recorded Data (Decorded Dat	escribe in Remarks): Streams Aerial Photographs Other ecorded Data Available	Sambucus canada	and Hydrology Inary Indicators: Inundate Saturate Water M Drift Lin X Sedime	ndicators: ed ed in Upper 12 larks es nt Deposits		FACW-
3. River 9. Comm 10. 11. 12. Percent of domina (excluding FAC-) Remarks: HYDROLOGY Recorded Data (Decorded Dat	escribe in Remarks): Streams Aerial Photographs Other ecorded Data Available	Sambucus canada	and Hydrology Inary Indicators: Inundate Saturate Water M Drift Lin X Sedimen X Drainag	ndicators: ed ed in Upper 12 larks es nt Deposits e Patterns in W	Vetlands	FACW-
8. River 9. Comm 10. 11. 12. Percent of domina (excluding FAC-) Remarks: HYDROLOGY Recorded Data (D No Re	escribe in Remarks): Streams Aerial Photographs Other ecorded Data Available	Sambucus canada ACW or FAC Wetla Prima	and Hydrology Inary Indicators: Inundate Saturate Water M Drift Lin X Sedimen X Drainag ndary Indicators	100% Indicators: ed ed in Upper 12 larks es es out Deposits e Patterns in We s (2 or more rec	Vetlands quired):	_
3. River 9. Comm 10. 11. 12. Percent of domina (excluding FAC-) Remarks: HYDROLOGY Recorded Data (Decorded Dat	escribe in Remarks): Streams Aerial Photographs Other ecorded Data Available Streams Other	Sambucus canada ACW or FAC Wetla Prima (in.)(in.) Seco	and Hydrology Inary Indicators: Inundate Saturate Water M Drift Lin X Sedime X Drainag ndary Indicators	ndicators: ed ed in Upper 12 larks es nt Deposits e Patterns in W s (2 or more red	Vetlands quired): els in Upper 12	_
8. River 9. Comm 10. 11. 12. Percent of domina (excluding FAC-) Remarks: HYDROLOGY Recorded Data (D	escribe in Remarks): Streams Aerial Photographs Other ecorded Data Available Streams Other	Sambucus canada ACW or FAC Wetla Prima (in.) Seco	and Hydrology Inary Indicators: Inundate Saturate Water M Drift Lin X Sedime X Drainag ndary Indicators Oxidizer X Water-S	ndicators: ed ed in Upper 12 larks es nt Deposits e Patterns in W s (2 or more red d Root Channe stained Leaves	Vetlands quired): els in Upper 12	_
8. River 9. Comm 10. 11. 12. Percent of domina (excluding FAC-) Remarks: HYDROLOGY Recorded Data (Domina (Do	escribe in Remarks): Streams Aerial Photographs Other ecorded Data Available Streams Other	Sambucus canada ACW or FAC Wetla Prima (in.)(in.) Seco	and Hydrology Inary Indicators: Inundate Saturate Water M Drift Lin X Sedime X Drainag ndary Indicators Oxidized X Water-S Local Se	ndicators: ed ed in Upper 12 larks es nt Deposits e Patterns in W s (2 or more red d Root Channe trained Leaves oil Survey Data	Vetlands quired): els in Upper 12	_
8. River 9. Comm 10. 11. 12. Percent of domina (excluding FAC-) Remarks: HYDROLOGY Recorded Data (Domina (Do	escribe in Remarks): Streams Aerial Photographs Other ecorded Data Available Streams Other	Sambucus canada ACW or FAC Wetla Prima (in.)(in.) Seco	and Hydrology Inary Indicators: Inundate Saturate Water M Drift Lin X Sedime X Drainag ndary Indicators Oxidize X Water-S Local Se	ndicators: ed ed in Upper 12 larks es nt Deposits e Patterns in W s (2 or more red d Root Channe tained Leaves bil Survey Data utral Test	Vetlands quired): lls in Upper 12	_
8. River 9. Comm 10. 11. 12. Percent of domina (excluding FAC-) Remarks: HYDROLOGY Recorded Data (Domina (Do	escribe in Remarks): Streams Aerial Photographs Other ecorded Data Available Streams Other	Sambucus canada ACW or FAC Wetla Prima (in.)(in.) Seco	and Hydrology Inary Indicators: Inundate Saturate Water M Drift Lin X Sedime X Drainag ndary Indicators Oxidize X Water-S Local Se	ndicators: ed ed in Upper 12 larks es nt Deposits e Patterns in W s (2 or more red d Root Channe trained Leaves oil Survey Data	Vetlands quired): lls in Upper 12	_

Communi	ity ID:	PFO	Transect ID	D:A	Plot ID:	WET 52M
			=			
SOILS						
Map Unit Na	me					
(Series and I	Phase):			D	rainage Class:	
		firm Mapped Type?	Yes	No	_	
Taxonomy (S				_	_	
, (3 - 17					
		Matrix Color	Mottle Colors	Mottle	Textures, Conc	retions, Structures,
Depth (in)	Horizon	(Munsell Moist)	(Munsell Moist)	Abundance/Contrast	etc.	ronono, on dotaroo,
Dopui (III)	110112011	(Manson Moist)	(Wallsell Wolst)	/ Ibundance/ Contrast	010.	
0-16	Α	7.5YR 4/1	5YR 4/6	28%	Sandy clay loar	m
0-10	A	7.51K 4/1	31K 4/0	20 /0	Sariuy Clay IUai	11
}						
Hydric Soil Ir	ndicators:	Yes	X N	0		
(If yes, check		100				
(II yes, ericei	(tiloili)	Histosol		Concretions		
-		Histic Epidon		High Organic Content in	Surface Lover i	Sandy Saila
-	Х	_				1 Salidy Solls
-	Λ	_Sulfidic Odor		Organic Streaking in Sa		
-		_Aquic Moisture Regime		Listed on Local Hydric S		
-		_Reducing Conditions		_Listed on National Hydr		
-	Х	_Gleyed or Low-Chroma	Colors	Other (explain in remark	ks)	
Remarks:						
WETLAND I	DETERMIN	ATION				
Hydrophytic			X N	o Is this	Sampling Point	Within a Wetland
Wetland Hyd					1 19 1	
Hydric Soils		Yes			sX	No
. Iyano oons	. 1000111:	163				
Remarks:	Invasivo la	panese Stiltgrass				
	Photo 1437					

Project/Site:	I-64 Peninsula				Date:	11/1/2011	
Applicant/Owner:	VDOT				County:	New Kent	
Investigator:	Scot Aitkenhead				State:	Virginia	
Community ID:	PFO		Transect ID:	Α	_	Plot ID:	WET 53M
<u></u>							
Do Normal Conditions e		\0	Yes	Х	_ N		_
Is the site significantly d		on)?	Yes		_ N		-
Is the area a potential P			Yes		_ N	oX	-
If needed, explain on re-	verse						
VEGETATION							
VEGETATION	Dominant Plant	Species					
Common N		Scientific N	Jame		Stratum		Indicator
	Chain Fern		dia areoloata		H	<u> </u>	FACW+
2. Red Maple	Onain rem	Acer rubru			 T		FAC
3. False Nettle	<u>م</u>		a cylindrica		Н		FACW+
4. Sweet Gum			ar styraciflua		Т		FAC
5. Sycamore		•	occidentalis		T T		FACW-
6.		r ratarras c	oolaomano		'		17.000
7.							
8.							
9.							
10.							
11.							
12.							
Percent of dominant spe	ecies that are OBL, FAC	W or FAC			100%		
(excluding FAC-)			•				-
Remarks:							
11/2201 00/							
HYDROLOGY Recorded Data (Describ	o in Domarka).		Motland Hye	drology Indi	iootoro		
Recorded Data (Describ	Streams		Wetland Hyd Primary Indi		icators.		
	_Sireams Aerial Photographs		1	Inundated			
	Other				in Upper 12 i	nches	
No Records	_Other ed Data Available			Water Mar		TICHES	
140 1/660101	ed Data Available			Drift Lines	No		
				Sediment	Denosits		
Field Observations:					Patterns in W	etlands	
Depth of Surface Water	•	(in.)		_	2 or more rec		
Depth to Free Water in I		— (in.)		-		s in Upper 12 i	nches
Depth to Saturated Soil:		(in.)			ined Leaves		
'		` ′			Survey Data		
				FAC-Neuti			
					olain in Rema	ırks)	
				, , ,		•	
Remarks:			•				

Commun	ity ID:	PFO		Transect ID	D: <u>A</u>	Plot ID:	WET 53M	
SOILS								
Map Unit Na	ıme							
(Series and	Phase):					Drainage Class:		
Field Observ	ations Confi	irm Mapped Type?		Yes	No	_		
Taxonomy (Subgroup):							
		Matrix Color	N	Nottle Colors	Mottle	Textures, Con	cretions, Structures,	
Depth (in)	Horizon	(Munsell Moist	i) (N	funsell Moist)	Abundance/Contra	ast etc.		
0-4	Α	2.5Y 3/1				Sandy loam		
						·		
4-16	В	2.5Y 6/2		5YR 4/6		Sandy loam		
						,		
Hydric Soil I	ndicators:		Yes X	N	lo			
(If yes, chec								
(ii yes, ence	K triorrij	Histosol			Concretions			
		-				at in Curtage Lawer	in Candy Caila	
		Histic Epidon			High Organic Conter		in Sandy Soils	
		Sulfidic Odor			Organic Streaking in			
		Aquic Moisture Reg			Listed on Local Hydr			
	X	Reducing Condition			Listed on National H			
	Х	Gleyed or Low-Chr	oma Colors		_Other (explain in ren	narks)		
Remarks:								
WETLAND	DETERMINA	ATION						
	Vegetation I		Yes X	N	lo Is	this Sampling Poin	t Within a Wetland	
Wetland Hyd	•		Yes X		lo			
Hydric Soils		··	Yes X			Yes X	No	
i iyano oons	1 1000111:		103 <u> </u>		···			
	Incomplete Inc	panese Stiltgrass						
Damarka								
Remarks:	Photo 1439	bariese Sungrass						

Project/Site:	I-64	Peninsula				Date:	11/1/2011	
Applicant/Owner:						County:	New Kent	
Investigator:		Aitkenhead				State:	Virginia	
Community ID:		PFO		Transect ID: _	A	_	Plot ID:	WET 54M
Do Normal Condi	itions exist or	the site?		Yes	X	N	lo	
Is the site signification	antly disturbe	ed (Atypical situa	tion)?	Yes		<u> </u>	lo X	_
Is the area a pote	ential Problem	n Area?		Yes		N	lo X	- -
If needed, explain	n on reverse							
VEGETATION								
		Dominant Plan	t Species					
Com	nmon Name		Scientific	Name		Stratum		Indicator
1. Sens	sitive Fern		Onoclea	sensibilis		Н		FACW
2. Cinn	amon Fern		Osmuna	la cinnamomea		Н		FACW
3. High	bush Bluebe	rry	Vacciniu	m corymbosum		S		FACW-
4. Ironv	wood		Carpinus	s caroliniana		S		FACW+
5. Ame	erican sycamo	ore	Platanus	coccidentalis		Т		FACW-
	pery Elm		Ulmus ru	ıbra		Т		FAC
	ebush		Lindera	benzoin		S		FACW-
8.								
9.								
10.								
11.								
12.	ant anasias t	hat are ODL EAG	2\\\ ar E\C			1000/		
Percent of domination (excluding FAC-)	ant species ti	nat are OBL, FAC	JVV OI FAC	_		100%		-
Remarks:								
ixemarks.								
HYDROLOGY	Danasila da D			NA/-41		Ľt		
Recorded Data (D	_	· ·		Wetland Hydr Primary Indica		licators:		
	Strea	all Photographs		-	aiors. nundated	ı		
	Othe					in Upper 12	inches	
No R	Recorded Dat				Nater Ma		IIICIIC3	
1401	(Cooraca Dat	a / Wallable			Orift Lines			
						Deposits		
Field Observation	ns:					Patterns in W	/etlands	
Depth of Surface			(in.)	Secondary In	-			
Depth to Free Wa			(in.)				Is in Úpper 12 i	nches
Depth to Saturate		3	(in.)			ined Leaves		
				L	ocal Soil	Survey Data		
				F	AC-Neut	ral Test		
					Other (Ex	plain in Rema	arks)	
Damanda								
Remarks:								

Commun	ity ID:	PFO	Transect ID): A	Plot ID:	WET 54M
					_	
SOILS						
Map Unit Na	me					
(Series and	Phase):			D	rainage Class:	
Field Observ	ations Conf	firm Mapped Type?	Yes	No	_	
Taxonomy (Subgroup):				_	
		Matrix Color	Mottle Colors	Mottle	Textures, Con-	cretions, Structures,
Depth (in)	Horizon	(Munsell Moist)	(Munsell Moist)	Abundance/Contrast	etc.	
0-5	Α	2.5Y 3/1			Sandy loam	
5-16	В	2.5Y 6/2	5YR		Sandy loam	
					-	
Hydric Soil II	ndicators:	Yes	X No	0		
(If yes, check		•				
() 00, 000.		Histosol		Concretions		
		Histic Epidon		High Organic Content in	Surface Laver i	n Sandy Soils
	Х	Sulfidic Odor		Organic Streaking in Sa		in Garlay Gollo
		Aquic Moisture Regime		Listed on Local Hydric S		
	Х	Reducing Conditions		Listed on National Hydr		
	X	Gleyed or Low-Chroma C	olore	Other (explain in remark		
		_ Gleyed of Low-Chiloffia C			(5)	
Remarks:						
Remarks.						
WETLAND	DETERMINI	ATION				
WETLAND I			V NI.	0 lo 4bio	Sampling Daint	Within a Watland
Hydrophytic	-	-	X No		s sampling Point	Within a Wetland
Wetland Hyd		-	X No		- V	Na
Hydric Soils	resent?	Yes_	X No	Ye:	sX	No
Damarir	Dhata 4.440	<u> </u>				
Remarks:	Photo 1442	<u>′</u>				

Project/Site:				Date:		
Applicant/Owner:	VDOT			County:	New Kent	
Investigator:	Scot Aitkenhead			State:	Virginia	
Community ID:	PFO		Transect ID:A	<u>. </u>	Plot ID:	WET 55M
Do Normal Condition			Yes X		Vo	_
-	ly disturbed (Atypical situa	ation)?	Yes		No X	
ls the area a potentia			Yes	N	NoX	
lf needed, explain or	reverse					
VEGETATION						
	Dominant Plan	nt Species				
	n Name	Scientific N		Stratum	<u> </u>	Indicator
1. Sensitiv		Onoclea se		Н		FACW
	ned Chain Fern		lia areolata	Н		FACW+
•	sh Blueberry		coryumbosum	Н		FACW-
	on Fern		cinnamomea	Н		FACW
5. Red Ma		Acer rubur		Т		FAC
Sweet E	•	Magnolia v	-	S		FACW+
				Т		FACW+
7. Sycamo	ore	Platanus o	ccidentalis	-		
7. Sycamo 3.	ore	Platanus o	ccidentalis			
7. Sycamo 3. 9.	ore	Platanus o	ccidentalis	·		
7. Sycamo 3. 9. 10.	ore	Platanus o	ccidentalis			
7. Sycamo 3. 9. 10. 11.	ore	Platanus o	ccidentalis	·		
7. Sycamo 8. 9. 10. 11.			ccidentalis			
7. Sycamo 3. 9. 10. 11. 12. Percent of dominant	ore species that are OBL, FA		ccidentalis	100%		_
7. Sycamo 8. 9. 10. 11. 12. Percent of dominant (excluding FAC-)			ccidentalis	100%		_
7. Sycamo 3. 9. 10. 11. 12. Percent of dominant (excluding FAC-)			ccidentalis	100%		_
7. Sycamo 3. 9. 10. 11. 12. Percent of dominant (excluding FAC-)			ccidentalis	100%		_
7. Sycamo 3. 9. 10. 11. 12. Percent of dominant (excluding FAC-) Remarks:			ccidentalis	100%		_
7. Sycamo 8. 9. 10. 11. 12. Percent of dominant (excluding FAC-) Remarks:	species that are OBL, FA		wetland Hydrology			
7. Sycamo 3. 9. 10. 11. 12. Percent of dominant (excluding FAC-) Remarks:	species that are OBL, FA					_
7. Sycamo 3. 9. 10. 11. 12. Percent of dominant excluding FAC-) Remarks:	species that are OBL, FA		Wetland Hydrology	Indicators:		
7. Sycamo 8. 9. 10. 11. 12. Percent of dominant (excluding FAC-) Remarks:	species that are OBL, FA		Wetland Hydrology Primary Indicators: Inunda	Indicators:	inches	_
7. Sycamo 3. 9. 10. 11. 12. Percent of dominant (excluding FAC-) Remarks: HYDROLOGY Recorded Data (Des	species that are OBL, FA cribe in Remarks): Streams Aerial Photographs		Wetland Hydrology Primary Indicators: Inunda	Indicators: ited ted in Upper 12	inches	_
7. Sycamo 8. 9. 10. 11. 12. Percent of dominant (excluding FAC-) Remarks: HYDROLOGY Recorded Data (Des	species that are OBL, FA cribe in Remarks): Streams Aerial Photographs Other		Wetland Hydrology Primary Indicators: Inunda X Satura	Indicators: ted ted in Upper 12 Marks	inches	
7. Sycamo 8. 9. 10. 11. 12. Percent of dominant (excluding FAC-) Remarks: HYDROLOGY Recorded Data (Des	species that are OBL, FA cribe in Remarks): Streams Aerial Photographs Other		Wetland Hydrology Primary Indicators: Inunda X Satura Water Drift Li	Indicators: ted ted in Upper 12 Marks	inches	
7. Sycamo 3. 9. 10. 11. 12. Percent of dominant (excluding FAC-) Remarks: HYDROLOGY Recorded Data (Des	species that are OBL, FA cribe in Remarks): Streams Aerial Photographs Other		Wetland Hydrology Primary Indicators: Inunda X Satura Water Drift Li X Sedim	Indicators: ited ted in Upper 12 Marks nes		
7. Sycamo 3. 9. 10. 11. 12. Percent of dominant (excluding FAC-) Remarks: HYDROLOGY Recorded Data (Des No Rec	cribe in Remarks): Streams Aerial Photographs Other orded Data Available	ACW or FAC	Wetland Hydrology Primary Indicators: Inunda X Satura Water Drift Li X Sedim X Draina	Indicators: Ited Ited in Upper 12 Marks Ines Iten Deposits Iten Deposits Iten Deposits	Vetlands	
7. Sycamo 3. 3. 4. 10. 11. 12. Percent of dominant excluding FAC-) Remarks: HYDROLOGY Recorded Data (Des No Recorded Observations: Depth of Surface Wa	cribe in Remarks): Streams Aerial Photographs Other orded Data Available	ACW or FAC	Wetland Hydrology Primary Indicators: Inunda X Satura Water Drift Li X Sedim X Draina Secondary Indicator	Indicators: Ited Ited in Upper 12 Marks Ites Ites	Vetlands quired):	inches
7. Sycamo 8. 9. 10. 11. 12. Percent of dominant (excluding FAC-) Remarks: HYDROLOGY Recorded Data (Des No Recorded Observations: Depth of Surface Water	species that are OBL, FA	CW or FAC (in.) (in.)	Wetland Hydrology Primary Indicators: Inunda X Satura Water Drift Li X Sedim X Draina Secondary Indicato	Indicators: Ited Ited in Upper 12 Marks Ines Iten Deposits Iten Deposits Iten Deposits	Vetlands quired): els in Upper 12	inches
7. Sycamo 8. 9. 10. 11. 12. Percent of dominant (excluding FAC-) Remarks: HYDROLOGY Recorded Data (Des No Recorded Observations: Depth of Surface Water	species that are OBL, FA	ACW or FAC	Wetland Hydrology Primary Indicators:	Indicators: Ited Ited in Upper 12 Ited Marks Ites Ites Ites Ites Ites Ites Ites Ite	Vetlands quired): els in Upper 12	inches
7. Sycamo 8. 9. 10. 11. 12. Percent of dominant (excluding FAC-) Remarks: HYDROLOGY Recorded Data (Des	species that are OBL, FA	CW or FAC (in.) (in.)	Wetland Hydrology Primary Indicators: Inunda X Satura Water Drift Li X Sedim X Draina Secondary Indicato Oxidiz X Water- Local S	Indicators: Ited Ited in Upper 12 Marks Ites Ites Ites Ites Ites Ites Ites Ite	Vetlands quired): els in Upper 12	inches
7. Sycamo 8. 9. 10. 11. 12. Percent of dominant (excluding FAC-) Remarks: HYDROLOGY Recorded Data (Des No Recorded Des Pield Observations: Depth of Surface Water	species that are OBL, FA	CW or FAC (in.) (in.)	Wetland Hydrology Primary Indicators: Inunda X Satura Water Drift Li X Sedim X Draina Secondary Indicator Oxidiz X Water- Local S	Indicators: Ited Ited in Upper 12 Ited Marks Ines Itent Deposits Itent Deposits Itent Opposits	Vetlands quired): els in Upper 12	inches

Commun	ity ID:	PFO	Transect I	D:A	Plot ID:	WET 55M
SOILS						
Map Unit Na				-		
(Series and		firm Mannad Tuna	Vaa		Orainage Class:	
		firm Mapped Type?	Yes	No	_	
Taxonomy (Subgroup).					
		Matrix Color	Mottle Colors	Mottle	Taytures Conc	retions, Structures,
Depth (in)	Horizon	(Munsell Moist)	(Munsell Moist)	Abundance/Contrast		retions, etractares,
Dopui (iii)	110112011	(Manson Moist)	(Wansen Wolst)	/ Ibandance/ Contrast	010.	
0-16	А	2.5Y 3/1			Sandy loam	
0.0		2.0 . 0, .				
	l' 4 ·	\/-	- V	\1-		
Hydric Soil II		Ye	es X	No		
(If yes, check	k tnem)	Llistanal		Concretions		
		_Histosol		Concretions	0 ()	0 1 0 1
		_Histic Epidon		High Organic Content in		Sandy Soils
		_Sulfidic Odor		Organic Streaking in Sa		
		_Aquic Moisture Regime		Listed on Local Hydric		
		_Reducing Conditions		Listed on National Hyd	ric Soils List	
	Х	_Gleyed or Low-Chroma	Colors	Other (explain in remar	ks)	
_						
Remarks:						
WET! AND !	DETERMIN	ATION				
WETLAND I			V	No. 1- 4-:	o Complian Daint	Mithin a Mathemal
Hydrophytic					s Sampling Point	vvitnin a vvetland
Wetland Hyd				No	٧	NI-
Hydric Soils	Present?	Ye	es X	NoYe	es X	No
Domortica	Dhoto 444	1				
Remarks:	Photo 1444	ł				

Project/Site:	I-64 Peninsula				Date:	11/2/2011	
Applicant/Owner:	VDOT				County:	New Kent	
Investigator:	Scot Aitkenhead				State:	Virginia	
					_		
Community ID:	PFO		Transect ID:	Α	_	Plot ID:	WET 56M
Do Normal Condition	ons exist on the site?		Yes	Х	N	0	
	ntly disturbed (Atypical situat	tion)?	Yes		_ '`		•
Is the area a potent			Yes		_		•
If needed, explain o							•
VEGETATION							
	Dominant Plan						
	on Name	Scientific I			Stratum	_	Indicator
1. Royal		Osmunda	-		Н		OBL
2. Red M	•	Acer rubru			Т		FAC
	ive Fern	Onoclea s			H		FACW
4. Sweet		-	ar styraciflua		T 		FAC
	eined Chain Fern		dia areolata , .		H		FACW+
6. Green		=	ennsylvanica		T		FACW
7. Lizard'	s raii	Saururus	cernuus		Н		OBL
8. 9.							
10.							
11.							
12.							
	nt species that are OBL, FAC	CW or FAC			100%		
(excluding FAC-)			_				•
Remarks:							
HYDROLOGY							
Recorded Data (De	scribe in Remarks):		Wetland Hyd	rology Ind	icators:		
(= -	Streams		Primary Indic				
	Aerial Photographs		·	nundated			
	Other			Saturated	in Upper 12 i	nches	
No Red	corded Data Available			Nater Mar			
				Drift Lines			
			X	Sediment	Deposits		
Field Observations:			X	Orainage I	Patterns in W	etlands	
Depth of Surface W	/ater: 1	(in.)	Secondary In	dicators (2	2 or more req	juired):	
Depth to Free Water		(in.)				s in Upper 12 ir	nches
Depth to Saturated	Soil: 0	(in.)			ined Leaves		
					Survey Data		
				FAC-Neut			
			<u> </u>	Other (Exp	olain in Rema	ırks)	
Remarks:							
inciliains.							
L							

Communi	ty ID:	PFO	Transect ID	D: A	Plot ID:	WET 56M
					_	
SOILS						
Map Unit Na	me					
(Series and I	Phase):			D	rainage Class:	
		firm Mapped Type?	Yes	No	_	
Taxonomy (S					_	
, (1	3 - 17					
		Matrix Color	Mottle Colors	Mottle	Textures, Cond	cretions, Structures,
Depth (in)	Horizon	(Munsell Moist)	(Munsell Moist)	Abundance/Contrast	etc.	,
Борит (ш)	110112011	(Mancon Molot)	(Marioon Moloc)	7 Ibandanoo, Contract	0.0.	
0-7	Α	10YR 6/2	5YR 4/6	3%	Sandy loam	
0-1		10111 0/2	311X 1 /0	370	Gariay Idam	
7-16		10VD 6/2	C1 4/N	70/	Sandy Joan	
7-10		10YR 6/2	G1 4/N	7%	Sandy loam	
Hydric Soil Ir	ndicators:	Yes	X N	0		
(If yes, check		. 33				
(11) 00, 011001	(tilolli)	Histosol		Concretions		
-		Histic Epidon		High Organic Content in	Surface Layer i	n Sandy Sails
-		<u> </u>				il Salidy Solis
-		_Sulfidic Odor		Organic Streaking in Sa		
-		_Aquic Moisture Regime		Listed on Local Hydric S		
-	X	_Reducing Conditions	— — — — — — — — — — — — — — — — — —	Listed on National Hydri		
-	Х	_Gleyed or Low-Chroma C	Colors	Other (explain in remark	(S)	
Remarks:						
WETLAND [DETERMIN	ATION				
Hydrophytic '			X N	o Is this	Sampling Point	Within a Wetland
Wetland Hyd			X		. 5	
Hydric Soils		Yes	X		sX	No
, 4.10 00110		103				
Remarks:	Photo 1410	<u> </u>				
rtemarts.	1 11010 1410	,				

Project/Site):	I-64 Peninsula				Date:	11/2/2011	
Applicant/C)wner:	VDOT				County:	New Kent	
Investigato		Scot Aitkenhead				State:	Virginia	
						_		
Community	· ID:	PFO/PSS -50/50%		Transect ID:	Α		Plot ID:	WET 57M
			_			_		
Do Normal	Conditions e	exist on the site?		Yes	Χ	N	0	
Is the site s	significantly d	listurbed (Atypical situation	n)?	Yes		N	o X	
Is the area	a potential P	roblem Area?		Yes		N	о Х	
If needed, e	explain on re	verse						•
VEGETATI	ON							
		Dominant Plant S	Species					
	Common N	lame	Scientific N	lame		Stratum	_	Indicator
1.	Sensitive F	ern	Onoclea se	ensibilis		Н		FACW
2.	Lizard's Ta	il	Saururus c	ernuus		Н		OBL
3.	Royal Fern		Osmunda i	regalis		Н		OBL
4.	Red Maple		Acer rubrui	m		Т		FAC
5.	Sweet Bay		Magnolia v	rirginiana		S		FACW+
6.	Buttonbush		-	hus occidentalis		S		OBL
7.	Rice Cutgra		Leersia ory			Н		OBL
8.	Sycamore		Platanus o			T		FACW-
9.	Ironwood		Carpinus c			S		FACW+
10.	Highbush E	Blueherry	•	corymbosum		Н		FACW-
11.	Silky Dogw	-	Cornus am	•		S		FACW
12.	Oliky Dogw	000	Cornus arri	omam		0		TAOW
	dominant en	ecies that are OBL, FACV	V or EAC			100%		
(excluding	-	ecies that are ODL, I ACV	VOLLAC			10076		
Remarks:	50% PFO ,	50% PSS						
rtomanto.	0070110,	00701 00						
HYDROLO	GY							
Recorded [Data (Describ	oe in Remarks):		Wetland Hydro	logy Indi	cators:		
	•	Streams		Primary Indica				
		Aerial Photographs		-	undated			
	-	Other				in Upper 12 i	nches	
	No Record	ed Data Available			ater Mar			
					rift Lines			
					ediment l	Denosits		
Field Obse	rvations:					Patterns in W	etlands	
	urface Water		(in.)	Secondary Ind	_			
1 .	ee Water in		_(in.)	-			s in Upper 12 ir	ochoc
	aturated Soil:					ned Leaves	s iii Oppei 12 ii	iches
Deptil to 3a	aturateu 3011.	·	(in.)					
						Survey Data		
					AC-Neutr		ml.a.	
				O	mer (Exp	lain in Rema	irks)	
Domortici				1				
Remarks:								
Ī								

Commun	ity ID:	PFO/PSS -50/50%	Transect ID	D:A	Plot ID:	WET 57M
SOILS						
Map Unit Na	me					
(Series and	Phase):			D	rainage Class:	
		irm Mapped Type?	Yes	No	_	
Taxonomy (Subgroup):					
		Matrix Color	Mottle Colors	Mottle	Taytures Co	ncretions, Structures,
Depth (in)	Horizon	(Munsell Moist)	(Munsell Moist)	Abundance/Contrast	etc.	icielloris, Structures,
_ = op ()		(**************************************	(**************************************			
0-16	Α	7.5YR 4/1			Loamy clay	
Hydric Soil I	ndicators:	Yes	X N	lo		
(If yes, chec		_				
		Histosol		Concretions		
		_Histic Epidon		High Organic Content in		in Sandy Soils
		_Sulfidic Odor	-	Organic Streaking in Sa	•	
		_Aquic Moisture Regime		Listed on Local Hydric S		
	V	Reducing Conditions		Listed on National Hydr		
	Х	_Gleyed or Low-Chroma Co	DIOIS	Other (explain in remark	(S)	
Remarks:						
WETLAND	DETERMINI	ATION				
Hydrophytic			X N	lo Is this	Sampling Poir	nt Within a Wetland
Wetland Hyd			X			
Hydric Soils		Yes	X N		sX	No
Remarks:	Photo 1414					

Project/Site:	I-64 Peninsula				Date:	11/2/2011	
Applicant/Owner:	VDOT				County:	New Kent	
Investigator:	Scot Aitkenhead				State:	Virginia	
Community ID:	PFO		Transect ID:	Α		Plot ID:	WET 58M
Do Normal Conditions			Yes	X	_ N	-	-
	disturbed (Atypical situat	tion)?	Yes		_ N		-
Is the area a potential F			Yes		_ N	oX	<u>-</u>
If needed, explain on re	verse						
VEGETATION							
VEGETATION	Daminant Dlant	· Cassiss					
Common	Dominant Plant	=	Jomo		Ctrotum		Indicator
Common N		Scientific N			Stratum	_	Indicator
	d Chain Fern		dia areolata		Н		FACW+
2. Sensitive F		Onoclea s			H		FACW
3. False Nettl	-		a cylindrica		H		FACW+
4. Red Maple		Acer rubru			Т		FAC
5. Royal Ferr		Osmunda	-		Н		OBL
6. Highbush I			corymbosum		H		FACW-
7. Sweet Gur	n	Liquidamb	ar styraciflua		Т		FAC
8.							
9.							
10.							
11.							
12.	: #+ ODL FAC	2)4/			4000/		
-	ecies that are OBL, FAC	JVV or FAC	-		100%		-
(excluding FAC-)							
Remarks:							
HYDROLOGY							
Recorded Data (Describ	ne in Remarks):		Wetland Hyd	Irology Indi	icators:		
Trecorded Data (Descri	Streams		Primary Indic		oators.		
	Aerial Photographs		-	Inundated			
	Other				in Upper 12 i	nches	
No Record	ed Data Available			Water Mar		1101100	
110 1100010	od Data / tvaliablo			Drift Lines	NO.		
				Sediment	Denosits		
Field Observations:					Patterns in W	etlands	
Depth of Surface Water	: 1	(in.)	Secondary Ir	-			
Depth to Free Water in		(in.)				s in Upper 12 i	nches
Depth to Saturated Soil		— (in.)			ined Leaves	о пт оррог 12 п	101100
		()			Survey Data		
				FAC-Neuti			
					olain in Rema	ırks)	
				J.1101 (LAP			
Remarks: Crayfish b	ourrows		L				
- Comando Oraynoria							
L							

Commun	ity ID:	PFO	Transect I	D: <u>A</u>	Plot ID:	WET 58M
SOILS						
Map Unit Na				_		
(Series and		" NA LT O			Prainage Class:	
		firm Mapped Type?	Yes	No	_	
Taxonomy (Subgroup):					
		Matrix Calar	Mattle Calera	Mattle	Tautumaa Cana	maticus Otherstowns
Donth (in)	Horizon	Matrix Color	Mottle Colors	Mottle		retions, Structures,
Depth (in)	Horizon	(Munsell Moist)	(Munsell Moist)	Abundance/Contrast	etc.	
0-16	Α	7.5YR 4/1			Loamy clay	
0-10	A	7.511 4/1			Loanly clay	
ı						
		.,				
Hydric Soil I		Yes	s <u>X</u>	No		
(If yes, chec	k them)	18.4				
		_Histosol		Concretions		
		_Histic Epidon		High Organic Content i		Sandy Soils
		_Sulfidic Odor		Organic Streaking in Sa		
		_Aquic Moisture Regime		Listed on Local Hydric		
		Reducing Conditions		Listed on National Hyd		
	Х	_Gleyed or Low-Chroma	Colors	Other (explain in remar	ks)	
Damarka						
Remarks:						
WETLAND	DETERMIN	ATION				
Hydrophytic			X 8	No Is thi	s Sampling Point \	Within a Wetland
Wetland Hyd	-			No 15 till		a rrouding
Hydric Soils		Yes			es X	No
yano oono	. 1000111:	160		~		
Remarks:	Photo 1420)		<u> </u>		

Project/Site:	I-64 Peninsula				Date:	11/2/201	1
Applicant/Owner:	VDOT				County:	New Kent	
Investigator:	Scot Aitkenhead				State:	Virginia	
Community ID:	PFO		Transact ID:	۸		Plot ID:	WET 59M
Community ID:			Transect ID:	A	_	PIOLID.	
Do Normal Conditions	s exist on the site?		Yes	Х	N	0	
Is the site significantly	disturbed (Atypical situat	ion)?	Yes		N	o X	_
Is the area a potential	Problem Area?		Yes		N	o X	
If needed, explain on	reverse						
VEGETATION							
	Dominant Plant	Species					
Common	n Name	Scientific	Name		Stratum		Indicator
1. Sensitive	Fern	Onoclea	sensibilis		Н		FACW
	ed Chain Fern	Woodwa	rdia areolata		Н		FACW+
3. Red Map	ole	Acer rub	rum		Т		FAC
4.							
5.							
6.							
7.							
8.							
9.							
10.							
11.							
12.	species that are OBL, FAC	W or EAC			100%		
(excluding FAC-)	species that are OBL, FAC	W OI FAC	_		100 %		_
Remarks:							
romano.							
HYDROLOGY							
Recorded Data (Desc	erihe in Remarks):		Wetland Hydro	logy Ind	licators:		
Trocordod Bala (Bood	Streams		Primary Indicat		iloatoro.		
	Aerial Photographs			undated	l		
-	Other				in Upper 12 i	nches	
No Reco	rded Data Available			ater Ma			
			Dr	ift Lines	;		
			X Se	ediment	Deposits		
Field Observations:			X Dr	ainage	Patterns in W	etlands/	
Depth of Surface Wat	er: 1	(in.)	Secondary Indi	icators (2 or more red	quired):	
Depth to Free Water i	n Pit: 0	(in.)		kidized F	Root Channel	s in Upper 12	inches
Depth to Saturated So	oil: 0	(in.)			ined Leaves		
					Survey Data		
					ral Test		
			Ot	ther (Exp	plain in Rema	arks)	
Domorko:							
Remarks:							

Commun	ity ID:	PFO		Transect ID:	A	Plot ID:	WET 59M
						_	
SOILS							
Map Unit Na	me						
(Series and	Phase):				1	Drainage Class:	
Field Observ	ations Con	firm Mapped Type?	Yes	3	No	_	
Taxonomy (
		Matrix Color	Mottle	Colors	Mottle	Textures, Conc	retions, Structures,
Depth (in)	Horizon	(Munsell Moist)		ell Moist)	Abundance/Contrast		,
-1 ()			(
0-16	Α	7.5YR 4/1				Sandy Clay loa	m
0.10	,,	7.011(1)1				Carray Clay Ica	
Hydric Soil II		·	Yes X	_ No			
(If yes, check	k them)						
		_Histosol			Concretions		
		_Histic Epidon			High Organic Content	in Surface Layer ir	ı Sandy Soils
	Χ	Sulfidic Odor			Organic Streaking in S	andy Soils	
		Aquic Moisture Regir	ne		Listed on Local Hydric	Soils List	
		Reducing Conditions			Listed on National Hyd	Iric Soils List	
	Х	Gleyed or Low-Chror	na Colors		Other (explain in rema		
•		_			•	·	
Remarks:							
WETLAND I	DETERMIN	ATION					
Hydrophytic			Yes X	No	Is th	is Sampling Point	Within a Wetland
Wetland Hyd			Yes X	- No		Jamping i ont	a vvoluna
Hydric Soils			Yes X	- No		esX	No
i iyuno oons	1 10301111			_ 110	 ''		
Remarks:	Photo 1421	<u> </u>					
nemarks.	T11010 1421	I					

Applicant/Owner:	VDOT			County:	New Kent	
nvestigator:	Scot Aitkenhead			State:	Virginia	
Community ID:	PFO		Transect ID:	Α	Plot ID:	WET 60M
	ions exist on the site?				lo	_
_	antly disturbed (Atypical sit	uation)?	Yes		lo X	
•	ntial Problem Area?		Yes	N	lo X	
f needed, explain	on reverse					
/EGETATION						
	Dominant Pl	ant Species				
	mon Name	Scientific		Stratum		Indicator
	itive Fern	Onoclea		Н		FACW
-	l Fern	Osmunda	a regalis	Н		OBL
3. Red I	Maple	Acer rubr		Т		FAC
	h Marigold	Caltha pa	alustris	Н		OBL
5. Highb	oush Blueberry	Vacciniur	m corymbosum	Н		FACW-
6. Spice	bush	Lindera b	enzoin	S		FACW-
7. Comi	mon Elderberry	Sambucu	ıs canadensis	S		FACW-
3. 9. 10.						
9. 10.						
9.						
9. 10. 11. 12. Percent of domina	ant species that are OBL, F	FACW or FAC		100%		_
9. 10. 11. 12.	ant species that are OBL, F	FACW or FAC		100%		_
9. 10. 11. 12. Percent of domina (excluding FAC-)	ant species that are OBL, F	FACW or FAC		100%		_
9. 10. 11. 12. Percent of domina (excluding FAC-)	ant species that are OBL, F	FACW or FAC		100%		_
9. 10. 11. 12. Percent of domina (excluding FAC-) Remarks:	ant species that are OBL, F	FACW or FAC		100%		_
9. 10. 11. 12. Percent of domina (excluding FAC-) Remarks:		FACW or FAC	Wetland Hydrolog			_
9. 10. 11. 12. Percent of domina (excluding FAC-) Remarks:	escribe in Remarks):	FACW or FAC	Wetland Hydrolog	y Indicators:		_
9. 10. 11. 12. Percent of domina excluding FAC-) Remarks:	escribe in Remarks): Streams		Primary Indicators	y Indicators: :		_
9. 10. 11. 12. Percent of domina excluding FAC-) Remarks:	escribe in Remarks): Streams Aerial Photographs		Primary Indicators X Inunc	y Indicators: : ated	inches	_
9. 10. 11. 12. Percent of domina (excluding FAC-) Remarks: HYDROLOGY Recorded Data (D	escribe in Remarks): Streams Aerial Photographs Other		Primary Indicators X Inunc X Satur	y Indicators: : ated ated in Upper 12	inches	_
9. 10. 11. 12. Percent of domina (excluding FAC-) Remarks: HYDROLOGY Recorded Data (D	escribe in Remarks): Streams Aerial Photographs		Primary Indicators X Inunc X Satur Wate	y Indicators: : ated ated in Upper 12 r Marks	inches	
9. 10. 11. 12. Percent of domina (excluding FAC-) Remarks: HYDROLOGY Recorded Data (D	escribe in Remarks): Streams Aerial Photographs Other		Primary Indicators X Inunc X Satur Wate Drift I	y Indicators: : ated ated in Upper 12 r Marks .ines	inches	
Percent of dominal excluding FAC-) Remarks: HYDROLOGY Recorded Data (D	escribe in Remarks): Streams Aerial Photographs Other ecorded Data Available		Primary Indicators X Inunc X Satur Wate Drift I X Sedir	y Indicators: : ated ated in Upper 12 r Marks Lines nent Deposits		
Percent of dominal excluding FAC-) Remarks: HYDROLOGY Recorded Data (D No R	Pescribe in Remarks): Streams Aerial Photographs Other ecorded Data Available	3	Primary Indicators X Inunc X Satur Wate Drift I X Sedir X Drain	y Indicators: : ated ated in Upper 12 r Marks ines nent Deposits age Patterns in W	/etlands	
Percent of dominal excluding FAC-) Remarks: HYDROLOGY Recorded Data (Decorded Da	Describe in Remarks): Streams Aerial Photographs Other ecorded Data Available s: Water: 1	(in.)	Primary Indicators X Inunc X Satur Wate Drift I X Sedir X Drain Secondary Indicat	y Indicators: : ated ated in Upper 12 r Marks ines nent Deposits age Patterns in Wors (2 or more rec	√etlands quired):	inches
Percent of dominal excluding FAC-) Remarks: HYDROLOGY Recorded Data (Depth of Surface Value) Depth to Free Wa	Describe in Remarks): Streams Aerial Photographs Other ecorded Data Available s: Water: ter in Pit:	(in.) (in.)	Primary Indicators X Inunc X Satur Wate Drift I X Sedir X Drain Secondary Indicat Oxidi	y Indicators: : ated ated in Upper 12 r Marks .ines nent Deposits age Patterns in W ors (2 or more receed	√etlands quired):	inches
Percent of dominates (excluding FAC-) Remarks: HYDROLOGY Recorded Data (Depth of Surface Vaceto (Depth to Free Wall)	Describe in Remarks): Streams Aerial Photographs Other ecorded Data Available s: Water: ter in Pit:	(in.)	Primary Indicators X Inunc X Satur Wate Drift I X Sedir X Drain Secondary Indicat Oxidi Wate	y Indicators: : ated ated in Upper 12 r Marks .ines nent Deposits age Patterns in W ors (2 or more receded Root Channer-Stained Leaves	/etlands quired): ls in Upper 12	inches
Percent of dominates (excluding FAC-) Remarks: HYDROLOGY Recorded Data (Depth of Surface Vacetors) Depth to Free Wa	Describe in Remarks): Streams Aerial Photographs Other ecorded Data Available s: Water: ter in Pit:	(in.) (in.)	Primary Indicators X Inunc X Satur Wate Drift I X Sedir X Drain Secondary Indicat Oxidi Wate Local	y Indicators: : ated ated in Upper 12 r Marks .ines nent Deposits age Patterns in Wors (2 or more red zed Root Channe r-Stained Leaves Soil Survey Data	/etlands quired): ls in Upper 12	inches
9. 10. 11. 12. Percent of domina (excluding FAC-) Remarks: HYDROLOGY Recorded Data (D	Describe in Remarks): Streams Aerial Photographs Other ecorded Data Available s: Water: ter in Pit:	(in.) (in.)	Primary Indicators X Inunc X Satur Wate Drift I X Sedir X Drain Secondary Indicat Oxidi Wate Local FAC-	y Indicators: : ated ated in Upper 12 r Marks .ines nent Deposits age Patterns in Wors (2 or more reced Root Channer-Stained Leaves Soil Survey Data	√etlands quired): ls in Upper 12	inches
Percent of dominates (excluding FAC-) Remarks: HYDROLOGY Recorded Data (Depth of Surface Value) Depth to Free Wa	Describe in Remarks): Streams Aerial Photographs Other ecorded Data Available s: Water: ter in Pit:	(in.) (in.)	Primary Indicators X Inunc X Satur Wate Drift I X Sedir X Drain Secondary Indicat Oxidi Wate Local FAC-	y Indicators: : ated ated in Upper 12 r Marks .ines nent Deposits age Patterns in Wors (2 or more red zed Root Channe r-Stained Leaves Soil Survey Data	√etlands quired): ls in Upper 12	inches

Community ID:		PFO	Transect	ID: A	Plot ID:	WET 60M	
SOILS							
Map Unit Na				_			
(Series and				D	rainage Class:		
		firm Mapped Type?	Yes	No	_		
Taxonomy (Subgroup):						
				14 (4)	T		
D (1 (1)		Matrix Color	Mottle Colors	Mottle		cretions, Structures,	
Depth (in)	Horizon	(Munsell Moist)	(Munsell Moist)	Abundance/Contrast	etc.		
0-16	۸	10VD 2/1			Cilty alay loam		
0-16	A	10YR 3/1			Silty clay loam		
Hydric Soil I	ndicators:	Yes	X	No			
(If yes, chec		103					
(ii yes, ence	K triorrij	Histosol		Concretions			
		Histic Epidon		High Organic Content in	Surface Laver in	n Sandy Soils	
	Х	Sulfidic Odor		Organic Streaking in Sa		Touridy Collo	
		Aquic Moisture Regime		Listed on Local Hydric S	-		
		Reducing Conditions		Listed on National Hydr			
	Х	Gleyed or Low-Chroma C	Colors	Other (explain in remark			
		,			,		
Remarks:							
WETLAND							
Hydrophytic					Sampling Point	Within a Wetland	
Wetland Hyd				No			
Hydric Soils	Present?	Yes	X	No Ye	sX	No	
	DI						
Remarks:	Photo 143						

Project/Site:	I-64 Peninsula				Date:	11/2/2011	
Applicant/Owner:	VDOT				County:	New Kent	
Investigator:	Scot Aitkenhead				State:	Virginia	
Community ID:	PFO	_	Transect ID:	Α	_	Plot ID:	WET 61M
Do Normal Condition	ons exist on the site?		Yes	Х	N	lo	
Is the site significan	ntly disturbed (Atypical situat	tion)?	Yes		N	lo X	_
Is the area a potent		,	Yes		N	lo X	_
If needed, explain o							_
VEGETATION							
	Dominant Plan	-					
	on Name	Scientific			Stratum	_	Indicator
	al Sweetpepperbush	Clethra a			S		FAC+
	ive Fern		sensibilis		H		FACW
3. Red M	•	Acer rubi			I		FAC
4. Ironwo		-	caroliniana 		S		FACW+
5. Royal		Osmunda	-		H		OBL
6. Blackg	ium	Nyssa sy	/Ivatica		Т		FAC
7.							
8.							
9.							
10.							
11.							
12.	at appairs that are ODL EAC	214/ 05 540			1000/		
	nt species that are OBL, FAC	JVV OI FAC			100%		_
(excluding FAC-) Remarks:							
Remarks.							
HYDROLOGY							
Recorded Data (De	scribe in Remarks):		Wetland Hydro	logy Ind	licators:		
	Streams		Primary Indicat				
	Aerial Photographs		In	undated			
	Other		X Sa	aturated	in Upper 12 i	inches	
No Red	corded Data Available		W	ater Ma	rks		
			Dr	rift Lines	;		
			Se	ediment	Deposits		
Field Observations:			Dr	rainage	Patterns in W	etlands/	
Depth of Surface W		(in.)	Secondary Indi				
Depth to Free Wate		(in.)				ls in Upper 12 i	inches
Depth to Saturated	Soil: 0	(in.)			ined Leaves		
					Survey Data		
				AC-Neut			
			Ot	ther (Exp	plain in Rema	arks)	
Dama ulco:							
Remarks:							

Community ID:	PFO	Transect II	D: <u>A</u>	Plot ID:	WET 61M	
SOILS						
Map Unit Na					D : 01	
(Series and		" NA LT O			Drainage Class:	
		firm Mapped Type?	Yes	No	_	
Taxonomy (Subgroup):					
		Matrix Calar	Mattle Calera	Mattle	Tayturas Cana	ontinum. Otam understand
Donth (in)	Horizon	Matrix Color	Mottle Colors	Mottle		etions, Structures,
Depth (in)	Horizon	(Munsell Moist)	(Munsell Moist)	Abundance/Contrast	t etc.	
0-16	Α	7.5YR 3/1			Sandy clay loam	
0-10	A	7.511 3/1			Salidy Clay Idali	<u> </u>
Lludria Cail I	a dia atara.	Voc		lo.		
Hydric Soil I		Yes	SXN	10		
(If yes, chec	k them)	History		Congrations		
		_ Histosol		Concretions	in Conford Lavaria	Condu Coile
		_Histic Epidon Sulfidic Odor		High Organic Content		Sandy Solis
•				Organic Streaking in S		
•		_Aquic Moisture Regime		Listed on Local Hydric		
•		_Reducing Conditions	0-1	Listed on National Hyd		
,	Х	_Gleyed or Low-Chroma	Colors	Other (explain in rema	rks)	
Remarks:						
Nemans.						
WETLAND I	DETERMIN	ATION				
Hydrophytic			s X N	lo Is th	is Sampling Point V	Within a Wetland
Wetland Hyd				lo		
Hydric Soils		Yes			esX	No
Remarks:	Photo 1436	<u> </u>		<u> </u>		
			-		·	· · · · · · · · · · · · · · · · · · ·

Project/Site:	I-64 Peninsula					Date:	11/2/201	1
Applicant/Owner:	VDOT					County:	New Kent	
nvestigator:	Scot Aitkenhead					State:	Virginia	
Community ID:	PFO		Transect	ID:	Α	_	Plot ID:	WET 63M
Oo Normal Condition				Yes	Χ		lo	_
•	y disturbed (Atypical situa	tion)?		Yes			No X	_
ls the area a potentia			`	Yes		^	No X	_
If needed, explain on	reverse							
VEGETATION								
	Dominant Plan	-						
Commo		Scientifi				Stratum		Indicator
 Sensitive 	e Fern	Onoclea	a sensibilis			Н		FACW
River Bir	ch	Betula r	-			Т		FACW
Royal Fe	ern	Osmund	da regalis			Н		OBL
4.								
5.								
6.								
7.								
3.								
9.								
10.								
11.								
12.								
	species that are OBL, FAG	CW or FAC				100%		_
(excluding FAC-)								
Remarks:								
HYDROLOGY								
Recorded Data (Desc	cribe in Remarks):		Wetland	Hydrolo	gy Ind	licators:		
•	Streams		Primary	-				
	Aerial Photographs			Inu	ndated			
	Other		X	Sat	urated	in Upper 12	inches	
No Reco	orded Data Available				ter Ma			
				Drif	t Lines	;		
			Х	Sec	diment	Deposits		
Field Observations:			Х	Dra	inage	Patterns in V	Vetlands	
Depth of Surface Wa	ter:	(in.)	Seconda	ary Indic	ators (2 or more re	quired):	
Depth to Free Water		(in.)		-			Is in Upper 12	inches
Depth to Saturated S	oil: 0	(in.)	Х	— Wa	ter-Sta	ined Leaves		
•				Loc	al Soil	Survey Data	1	
						ral Test		
						plain in Rem	arks)	
					` '		-	
Remarks:								

Community ID:	PFO	Transect I	D:A	Plot ID:	WET 63M	
SOILS						
Map Unit Na				_		
(Series and		" M IT 0			Orainage Class:	
		firm Mapped Type?	Yes	No	_	
Taxonomy (Subgroup):					
		Matrix Calar	Mattle Calare	Mattle	Tayturas Cara	maticus Cturretures
Donth (in)	Horizon	Matrix Color	Mottle Colors	Mottle		retions, Structures,
Depth (in)	Horizon	(Munsell Moist)	(Munsell Moist)	Abundance/Contrast	etc.	
0-16	Α	10YR 3/1			Sandy clay loar	n
0-10	A	1011 3/1			Salidy Clay Idai	
ı						
Lludria Cail I	a dia atara.	Va	o V	No		
Hydric Soil I		Ye	sx	No		
(If yes, chec	k them)	History		Congrations		
		_ Histosol		Concretions	in Comfood Laver in	Candy Caile
		_Histic Epidon Sulfidic Odor		High Organic Content i		Saridy Solls
		_		Organic Streaking in S		
,		_Aquic Moisture Regime		Listed on Local Hydric		
		_Reducing Conditions	0-1	Listed on National Hyd		
,	Х	_Gleyed or Low-Chroma	Colors	Other (explain in remain	rks)	
Remarks:						
Nemans.						
WETLAND I	DETERMIN	ATION				
Hydrophytic			1 X z	No Is th	is Sampling Point	Within a Wetland
Wetland Hyd	-			No		
Hydric Soils		Ye			es X	No
Remarks:	Photo 1441			<u> </u>		

Project/Site:	I-64 Peninsula				Date:	11/2/2011	
Applicant/Owner:	VDOT				County:	New Kent	
Investigator:	Scot Aitkenhead				State:	Virginia	
					_		
Community ID:	PFO	Ti	ransect ID:	Α		Plot ID:	WET 64M
					_		
Do Normal Conditions e	exist on the site?		Yes	Х	N	0	
Is the site significantly d	listurbed (Atypical situat	ion)?	Yes			o X	-
Is the area a potential P		•	Yes			o X	•
If needed, explain on re-	verse				_		•
,							
VEGETATION							
	Dominant Plant	Species					
Common N		Scientific Nam	ne		Stratum		Indicator
1. Sycamore		Platanus occi	dentalis		T	_	FACW-
2. Silky Dogw	rood	Cornus amon	num		S		FACW
3. Ironwood		Carpinus card	oliniana		S		FACW+
4. Sweet Gun	n	Liquidambar s			Т		FAC
Sensitive F	ern	Onoclea sens	•		Н		FACW
6. Lizard's Ta		Saururus cerr			Н		OBL
	veetpepperbush	Clethra alnifol	lia		S		FAC+
8.							
9.							
10.							
11.							
12.							
Percent of dominant spe	ecies that are OBL, FAC	W or FAC			100%		
(excluding FAC-)	,						•
Remarks:							
HYDROLOGY							
Recorded Data (Describ	oe in Remarks):	V	Vetland Hydro	ology Indi	cators:		
	Streams	P	rimary Indica	itors:			
	Aerial Photographs		X In	undated			
	Other		X s	aturated i	n Upper 12 i	nches	
No Record	ed Data Available			/ater Marl			
			D	rift Lines			
			s	ediment [Deposits		
Field Observations:					atterns in W	etlands	
Depth of Surface Water	: 1	(in.)	Secondary Ind	•			
Depth to Free Water in		(in.)	•	,		s in Úpper 12 ir	nches
Depth to Saturated Soil:		(in.)			ned Leaves		
		— ` ´	Lo	ocal Soil	Survey Data		
				AC-Neutr	-		
					lain in Rema	irks)	
		<u> </u>		\ P		,	
Remarks:							

Community ID:		PFO	Transect	ID: A	Plot ID:	WET 64M	
SOILS							
Map Unit Na				_			
(Series and					Orainage Class: _		
		firm Mapped Type?	Yes	No	_		
Taxonomy (Subgroup):						
			M # 0 1	8.4 (c)	T		
5 4 (1)		Matrix Color	Mottle Colors	Mottle		cretions, Structures,	
Depth (in)	Horizon	(Munsell Moist)	(Munsell Moist)	Abundance/Contrast	etc.		
0.46	^	7.5\\D.5\\	7.5\/D.5/6				
0-16	A	7.5YR 5/1	7.5YR 5/6		Loamy sand		
Hydric Soil I	ndicators:	Yes	Χ	No			
(If yes, chec	k them)	•					
	,	Histosol		Concretions			
		Histic Epidon		High Organic Content i	n Surface Layer i	n Sandy Soils	
	Х	Sulfidic Odor		Organic Streaking in S		•	
		Aquic Moisture Regime		Listed on Local Hydric	Soils List		
	Х	Reducing Conditions		Listed on National Hyd	ric Soils List		
	Х	Gleyed or Low-Chroma C	Colors	Other (explain in remai	rks)		
		_					
Remarks:							
WETLAND							
Hydrophytic	-			No Is th	is Sampling Point	Within a Wetland	
Wetland Hyd		sent? Yes	X	No			
Hydric Soils	Present?	Yes	X	No Ye	es X	No	
Remarks:	Photo1450						

Project/Site:	I-64 Peninsula				Date:	11/2/201	1
Applicant/Owner:	VDOT				County:	New Kent	
Investigator:	Scot Aitkenhead				State:	Virginia	
Community ID:	PSS		Transect ID:	А	_	Plot ID:	WET 65M
Do Normal Condition	ons exist on the site?		Yes	Х	N	lo	
	ntly disturbed (Atypical situat	ion)?	Yes			o X	_
Is the area a potent		,	Yes			lo X	_
If needed, explain of							_
VEGETATION							
_	Dominant Plant	-					
	on Name	Scientific			Stratum	_	Indicator
	ive Fern		sensibilis		Н		FACW
	al Sweetpepperbush	Clethra a			S		FAC+ FACW+
3. Ironwo4. Spiceb		Lindera i	s caroliniana		S S		FACW-
5. Spicer.	Justi	Liliuera	oenzoin		3		FACVV-
6.							
7.							
8.							
9.							
10.							
11.							
12.							
Percent of dominar	nt species that are OBL, FAC	CW or FAC			100%		
(excluding FAC-)							
Remarks:							
HYDROLOGY							
Recorded Data (De	escribe in Remarks):		Wetland Hydro	logy Ind	licators:		
	Streams		Primary Indicat	tors:			
	Aerial Photographs		In	undated			
	Other		Sa	aturated	in Upper 12	inches	
No Re	corded Data Available			ater Ma			
				rift Lines			
					Deposits		
Field Observations:		<i>(</i> ')		•	Patterns in W		
Depth of Surface W		(in.)	Secondary Indi	,			
Depth to Free Wate Depth to Saturated		(in.)				ls in Upper 12	inches
Depth to Saturated		(in.)			ined Leaves Survey Data		
					ral Test		
					plain in Rema	arks)	
				o. (LA			
Remarks:			l				

Commun	ity ID:	PSS	Transect ID): A	Plot ID:	WET 65M
					_	
SOILS						
Map Unit Na	me					
(Series and	Phase):				rainage Class:	
Field Observ	ations Conf	firm Mapped Type?	Yes	No	_	
Taxonomy (Subgroup):				_	
		Matrix Color	Mottle Colors	Mottle	Textures, Con-	cretions, Structures,
Depth (in)	Horizon	(Munsell Moist)	(Munsell Moist)	Abundance/Contrast	etc.	
0-3	Α	7.5YR 5/1			Loamy sand	
3-16	В	7.5YR 2.5/1			Loamy sand	
Hydric Soil II	ndicators:	Yes	X N	0		
(If yes, check		-				
(,,	,	Histosol		Concretions		
		Histic Epidon		High Organic Content in	n Surface Laver i	n Sandy Soils
		Sulfidic Odor		Organic Streaking in Sa		Troundy Colle
		Aquic Moisture Regime		Listed on Local Hydric S	•	
		Reducing Conditions		Listed on National Hydr		
	Х	Gleyed or Low-Chroma C	olore	Other (explain in remark		
		_ Gleyed of Low-Officina C		_ Other (explain in remain	N3)	
Remarks:						
ixemarks.						
WETLAND I	DETERMINI	ATION				
			V N	o lo this	. Compling Daint	Mithin a Matland
Hydrophytic	-	-	X N		s sampling Point	Within a Wetland
Wetland Hyd		_		0	- V	Na
Hydric Soils	Present?	Yes_	XN	о <u></u>	s X	No
Dama !	Db -4- 4450					
Remarks:	Photo 1453	5				

Project/Site:	I-64 Peninsula				Date:	11/2/201	<u>.1</u> _
Applicant/Owner:	VDOT				County:	New Kent	
nvestigator:	Scot Aitkenhead				State:	Virginia	
Community ID:	PFO		Transect ID:	A	_	Plot ID:	WET 66M
	ions exist on the site?		Yes			lo	_
_	ently disturbed (Atypical situa	ation)?	Yes			loX	_
-	ntial Problem Area?		Yes		^	loX	
If needed, explain	on reverse						
VEGETATION							
	Dominant Plar	-					
	non Name	Scientific I	Name	_	Stratum		Indicator
	d's Tail	Saururus	cernuus		Н		OBL
	tive Fern	Onoclea s	sensibilis		Н		FACW
3. Red N	Maple	Acer rubru	um		Т		FAC
4. Spice	bush	Lindera be	enzoin		S		FACW-
5. Cinna	amon Fern	Osmunda	cinnamomea		Н		FACW
6. Roya	l Fern	Osmunda	regalis		Н		OBL
7. Ironw	ood	Carpinus	caroliniana		S		FACW+
3.							
9.							
10.							
11.							
12.							
Percent of domina	int species that are OBL, FA	CW or FAC			100%		
(excluding FAC-)	•						_
Remarks:							
HYDROLOGY	agariba in Damarka).		Matland Hy	drology Ind	liaatara		
Recorded Data (D	escribe in Remarks):		Wetland Hy	٠.	ilcators.		
	Streams		Primary Ind		ı		
	Aerial Photographs			Inundated			
	Other				in Upper 12	inches	
No Re	ecorded Data Available			_Water Ma			
				_Drift Lines			
			Х	Sediment	-		
Field Observations			Х	_	Patterns in V		
Depth of Surface \		(in.)	Secondary		2 or more re		
Depth to Free Wat		(in.)				ls in Upper 12	inches
Depth to Saturated	d Soil:	(in.)	X	_	ined Leaves		
				Local Soil	Survey Data	ı	
				FAC-Neut	ral Test		
				Other (Ex	plain in Rema	arks)	
				-			
Remarks:							

Community ID:		PFO	Transect	ID: A	Plot ID:	WET 66M	
SOILS							
Map Unit Na				D	maina ma Olasa.		
(Series and		firm Mapped Type?	Voc	No	rainage Class: _		
Taxonomy (Yes	INO	_		
Taxononiy (Subgroup).						
		Matrix Color	Mottle Colors	Mottle	Textures, Cond	cretions, Structures,	
Depth (in)	Horizon	(Munsell Moist)	(Munsell Moist)	Abundance/Contrast	etc.	Totalion, Oli dotalioo,	
		((
0-16	Α	10YR 4/2	5YR 4/6	2%	Sandy loam		
					-		
Hydric Soil I	ndicators:	Yes	Χ	No			
(If yes, chec	k them)	•					
		_Histosol		Concretions			
		Histic Epidon		High Organic Content in	n Surface Layer i	n Sandy Soils	
		_Sulfidic Odor		Organic Streaking in Sa	-		
		_Aquic Moisture Regime		Listed on Local Hydric S			
	Х	_Reducing Conditions		Listed on National Hydr			
	X	_Gleyed or Low-Chroma C	colors	Other (explain in remark	ks)		
D 1							
Remarks:							
WETLAND	DETERMIN	ΔΤΙΟΝ					
Hydrophytic			X	No Is this	Sampling Point	Within a Wetland	
Wetland Hyd	-			No No	o camping rount	vviiiii a vvoilaria	
Hydric Soils		Yes			s X	No	
						-	
Remarks:	Photo 1454	1					

Applicant/Owner: Investigator: Community ID:	VDOT Scot Aitkenhead					
Community ID:				County:	New Kent	
			·	State:	Virginia	
On Normal Conditions	PFO		Transect ID:	<u> </u>	Plot ID:	WET 67M
On Normal Conditions						
	exist on the site?				lo	_
	disturbed (Atypical situat	ion)?	Yes		lo X	_
s the area a potential			Yes	N	lo X	_
f needed, explain on r	everse					
/EGETATION						
	Dominant Plant	Species				
Common	Name	Scientific	Name	Stratum	<u></u>	Indicator
1. Ironwood		Carpinus	caroliniana	S		FACW+
2. Sensitive	Fern	Onoclea	sensibilis	Н		FACW
3. Highbush	Blueberry	Vacciniu	m corymbosum	S		FACW-
4. Red Mapl	е	Acer rub	rum	Т		FAC
5. Sweet Gu	ım	Liquidam	ıbar styraciflua	T,S		FAC
6.						
7.						
3.						
9.						
0.						
1.						
12.						
Percent of dominant sp	pecies that are OBL, FAC	W or FAC		100%		
(excluding FAC-)						
Remarks:						
HYDROLOGY						
	ibe in Remarks):		Wetland Hydrology	/ Indicators:		
	·		Primary Indicators			
	Streams		,			
	Streams Aerial Photographs		Inund	ated		
	Aerial Photographs		Inund Satura		inches	
Recorded Data (Descr	Aerial Photographs Other		Satura	ated in Upper 12	inches	
Recorded Data (Descr	Aerial Photographs		Satura Water	ated in Upper 12 Marks	inches	
Recorded Data (Descr	Aerial Photographs Other		Satura Water Drift L	ated in Upper 12 Marks ines	inches	
Recorded Data (Descr	Aerial Photographs Other		Satura Water Drift L X Sedin	ated in Upper 12 Marks ines nent Deposits		
Recorded Data (Describer Describer Des	Aerial Photographs Other ded Data Available	(in)	Satura Water Drift L X Sedim X Draina	ated in Upper 12 Marks ines nent Deposits age Patterns in W	/etlands	
Recorded Data (Describer No Recorded Data (Describer No Recorded Description No Recorded Depth of Surface Water No Record	Aerial Photographs Other ded Data Available er:	(in.)	Satura Water Drift L X Sedin X Draina Secondary Indicate	ated in Upper 12 Marks ines nent Deposits age Patterns in Wors (2 or more rec	/etlands quired):	inchas
Recorded Data (Descring No Recorded Observations: Depth of Surface Water in Depth to Free Water in Recorded Description (Description (D	Aerial Photographs Other ded Data Available er: n Pit:	(in.)	Satura Water Drift L X Sedin X Draina Secondary Indicate Oxidiz	ated in Upper 12 Marks ines nent Deposits age Patterns in Wors (2 or more receded Root Channe	/etlands quired): Is in Upper 12	inches
Recorded Data (Descring No Recorded Observations: Depth of Surface Water in Depth to Free Water in Recorded Description (Depth to Free Water in Recorded Description (Description (Descript	Aerial Photographs Other ded Data Available er: n Pit:		Satura Water Drift L X Sedin X Draina Secondary Indicate Oxidiz X Water	ated in Upper 12 Marks ines nent Deposits age Patterns in W ors (2 or more red aed Root Channe Stained Leaves	/etlands quired): Is in Upper 12	inches
Recorded Data (Descring No Recorded Description No Recorded Description No Recorded Depth of Surface Water in Depth to Free Water in	Aerial Photographs Other ded Data Available er: n Pit:	(in.)	Satura Water Drift L X Sedin X Draina Secondary Indicate Oxidiz X Water Local	ated in Upper 12 Marks ines nent Deposits age Patterns in Wors (2 or more red ed Root Channe Stained Leaves Soil Survey Data	/etlands quired): Is in Upper 12	inches
Recorded Data (Descr	Aerial Photographs Other ded Data Available er: n Pit:	(in.)	Satura Water Drift L X Sedin X Draina Secondary Indicate Oxidiz X Water Local FAC-I	ated in Upper 12 Marks ines nent Deposits age Patterns in W ors (2 or more red aed Root Channe Stained Leaves	/etlands quired): ls in Upper 12	inches

Communi	ity ID:	PFO	Transect	ID: A	Plot ID:	WET 67M
			-		_	
SOILS						
Map Unit Na	me					
(Series and I					Drainage Class:	
		firm Mapped Type?	Yes	No		
Taxonomy (S		тт тарроа турот				
Taxonomy (c	Jubgioup).					
		Matrix Color	Mottle Colors	Mottle	Toytures Cone	retions, Structures,
Depth (in)	Horizon	(Munsell Moist)	(Munsell Moist)	Abundance/Contras		delions, Structures,
Deptii (iii)	ПОПДОП	(IVIUIISEII IVIOISI)	(IVIUITSEII IVIOISI)	Abundance/Contras	et etc.	
0.0	^	EVD 4/4			Canaly Issues	
0-9	A	5YR 4/1			Sandy loam	
0.40	_	0.4.4/51			0 1 1	
9-16	В	G1 4/N			Sandy loam	
Hydric Soil Ir	ndicators:	Yes	, X	No		
(If yes, check						
(11 you, or look	it tilollij	Histosol		Concretions		
-		Histic Epidon		High Organic Content	in Surface Laver i	n Sandy Soile
-	Х	Sulfidic Odor		Organic Streaking in S		1 Salidy Solls
-	^	_			•	
-		_Aquic Moisture Regime		Listed on Local Hydric		
-	X	_Reducing Conditions		Listed on National Hy		
-	X	_Gleyed or Low-Chroma	Colors	Other (explain in rema	arks)	
Remarks:						
WETLAND [DETERMIN	ATION				
Hydrophytic	Vegetation	Present? Yes	; X	No Is th	his Sampling Point	Within a Wetland
Wetland Hyd				No		
Hydric Soils		Yes			'es X	No
, , , , , , , , , , , ,		. 55				-
Remarks:	Photo 1411	1				
		•				

Project/Site:	I-6	64 Peninsula				Date:	11/3/2011	
Applicant/Owner:	: VI	DOT				County:	New Kent	
Investigator:	Sc	cot Aitkenhead				State:	Virginia	
Community ID:	_	PFO	_	Transect ID: _	А	_	Plot ID:	WET 68M
Do Normal Condi	itions exist	on the site?		Yes	Х	N	lo	
		rbed (Atypical situati	on)?	Yes			lo X	-
Is the area a pote	-		,	Yes			lo X	-
If needed, explain	n on revers	se		_				-
VECETATION								
VEGETATION		Dominant Plant	Species					
Com	nmon Nam		Scientific	Name		Stratum		Indicator
	rd's Tail	<u> </u>	Saururus			H		OBL
	er Birch		Betula nig			T,S		FACW
	amore		-	occidentalis		T,S		FACW-
1	Maple		Acer rubr			T,S		FAC
	wood			caroliniana		S		FACW+
	bush Blue	berry	-	m corymbosum		S		FACW-
7. Sens	sitive Fern		Onoclea :	sensibilis		Н		FACW
8.								
9.								
10.								
11.								
12.								
	-	s that are OBL, FAC	W or FAC	_		100%		-
(excluding FAC-)								
Remarks:								
HYDROLOGY								
Recorded Data (I	Describe in	n Remarks):		Wetland Hydr	•	licators:		
		reams		Primary Indica				
		erial Photographs			nundated			
l		ther				in Upper 12	inches	
No F	Recorded L	Data Available			Nater Ma			
					Drift Lines			
Field Observation					Sediment		latlanda	
Depth of Surface		1	(in)	Secondary In	-	Patterns in W		
Depth to Free Wa		1	(in.) (in.)	-	-		ls in Upper 12 i	nches
Depth to Saturate		0	— (in.)			ined Leaves	is in Opper 12 ii	iciics
Dopin to Catarate	ou 0011.		('''')			Survey Data		
					FAC-Neut	•		
						plain in Rema	arks)	
					(- /	
Remarks:								

Map Unit Name Sceries and Phase): Solition Sceries and Phase): Solition Sceries and Phase): Series a	Commun	ity ID:	PFO	Transect II	D: A	Plot ID:	WET 68M
Map Unit Name (Series and Phase): Field Observations Confirm Mapped Type? Taxonomy (Subgroup): Matrix Color				•			
Map Unit Name (Series and Phase): Field Observations Confirm Mapped Type? Taxonomy (Subgroup): Matrix Color							
Series and Phase):	SOILS						
Field Observations Confirm Mapped Type? Yes No Taxonomy (Subgroup): Matrix Color Mottle Colors Mottle Textures, Concretions, Structures, Abundance/Contrast etc.	Map Unit Na	ime					
Taxonomy (Subgroup): Depth (in)	(Series and	Phase):				Prainage Class:	
Taxonomy (Subgroup): Depth (in)	Field Observ	ations Con	firm Mapped Type?	Yes	No	_	
Matrix Color Mottle Colors Mottle Textures, Concretions, Structures, etc.							
Depth (in) Horizon							
Depth (in) Horizon (Munsell Moist) (Munsell Moist) Abundance/Contrast etc. 0-9 A 10YR 4/1 Sandy clay loam 9-16 B G1 4/N Sandy clay loam Hydric Soil Indicators: Yes X No			Matrix Color	Mottle Colors	Mottle	Textures, Con-	cretions, Structures,
O-9	Depth (in)	Horizon	(Munsell Moist)	(Munsell Moist)	Abundance/Contrast		
Pydric Soil Indicators: Yes X			,	,			
Pydric Soil Indicators: Yes X	0-9	Α	10YR 4/1			Sandy clay loa	m
Hydric Soil Indicators:						, ,	
Hydric Soil Indicators:	9-16	В	G1 4/N			Sandy clay loa	m
(If yes, check them) Histosol Histic Epidon Aquic Moisture Regime X Reducing Conditions X Gleyed or Low-Chroma Colors WETLAND DETERMINATION Hydrophytic Vegetation Present? Wetland Hydrology Present? Histosol Concretions High Organic Content in Surface Layer in Sandy Soils Corganic Streaking in Sandy Soils Listed on Local Hydric Soils List Listed on National Hydric Soils List Other (explain in remarks) WETLAND DETERMINATION Hydrophytic Vegetation Present? Yes X No Is this Sampling Point Within a Wetland Wetland Hydrology Present? Yes X No Yes X No Hydric Soils Present? Yes X No Yes X No							
(If yes, check them) Histosol Histic Epidon Aquic Moisture Regime X Reducing Conditions X Gleyed or Low-Chroma Colors WETLAND DETERMINATION Hydrophytic Vegetation Present? Wetland Hydrology Present? Histosol Concretions High Organic Content in Surface Layer in Sandy Soils Corganic Streaking in Sandy Soils Listed on Local Hydric Soils List Listed on National Hydric Soils List Other (explain in remarks) WETLAND DETERMINATION Hydrophytic Vegetation Present? Yes X No Is this Sampling Point Within a Wetland Wetland Hydrology Present? Yes X No Yes X No Hydric Soils Present? Yes X No Yes X No							
(If yes, check them) Histosol Histic Epidon Aquic Moisture Regime X Reducing Conditions X Gleyed or Low-Chroma Colors WETLAND DETERMINATION Hydrophytic Vegetation Present? Wetland Hydrology Present? Histosol Concretions High Organic Content in Surface Layer in Sandy Soils Corganic Streaking in Sandy Soils Listed on Local Hydric Soils List Listed on National Hydric Soils List Other (explain in remarks) WETLAND DETERMINATION Hydrophytic Vegetation Present? Yes X No Is this Sampling Point Within a Wetland Wetland Hydrology Present? Yes X No Yes X No Hydric Soils Present? Yes X No Yes X No							
(If yes, check them) Histosol Histic Epidon Aquic Moisture Regime X Reducing Conditions X Gleyed or Low-Chroma Colors WETLAND DETERMINATION Hydrophytic Vegetation Present? Wetland Hydrology Present? Histosol Concretions High Organic Content in Surface Layer in Sandy Soils Corganic Streaking in Sandy Soils Listed on Local Hydric Soils List Listed on National Hydric Soils List Other (explain in remarks) WETLAND DETERMINATION Hydrophytic Vegetation Present? Yes X No Is this Sampling Point Within a Wetland Wetland Hydrology Present? Yes X No Hydric Soils Present? Yes X No Yes X No							
(If yes, check them) Histosol Histic Epidon Aquic Moisture Regime X Reducing Conditions X Gleyed or Low-Chroma Colors WETLAND DETERMINATION Hydrophytic Vegetation Present? Wetland Hydrology Present? Histosol Concretions High Organic Content in Surface Layer in Sandy Soils Corganic Streaking in Sandy Soils Listed on Local Hydric Soils List Listed on National Hydric Soils List Other (explain in remarks) WETLAND DETERMINATION Hydrophytic Vegetation Present? Yes X No Is this Sampling Point Within a Wetland Wetland Hydrology Present? Yes X No Hydric Soils Present? Yes X No Yes X No							
(If yes, check them) Histosol Histic Epidon X Sulfidic Odor Aquic Moisture Regime X Reducing Conditions X Gleyed or Low-Chroma Colors WETLAND DETERMINATION Hydrophytic Vegetation Present? Wetland Hydrology Present? Yes X No Hydric Soils Present? Yes X No Hydric Soils Present? Yes X No Yes							
(If yes, check them) Histosol Histic Epidon X Sulfidic Odor Aquic Moisture Regime X Reducing Conditions X Gleyed or Low-Chroma Colors WETLAND DETERMINATION Hydrophytic Vegetation Present? Wetland Hydrology Present? Yes X No Hydric Soils Present? Yes X No Hydric Soils Present? Yes X No Hydric Soils Present? Yes X No							
(If yes, check them) Histosol Histic Epidon X Sulfidic Odor Aquic Moisture Regime X Reducing Conditions X Gleyed or Low-Chroma Colors WETLAND DETERMINATION Hydrophytic Vegetation Present? Wetland Hydrology Present? Yes X No Hydric Soils Present? Yes X No Hydric Soils Present? Yes X No Hydric Soils Present? Yes X No							
(If yes, check them) Histosol Histic Epidon X Sulfidic Odor Aquic Moisture Regime X Reducing Conditions X Gleyed or Low-Chroma Colors WETLAND DETERMINATION Hydrophytic Vegetation Present? Wetland Hydrology Present? Yes X No Hydric Soils Present? Yes X No Hydric Soils Present? Yes X No Yes							
(If yes, check them) Histosol Histic Epidon Aquic Moisture Regime X Reducing Conditions X Gleyed or Low-Chroma Colors WETLAND DETERMINATION Hydrophytic Vegetation Present? Wetland Hydrology Present? Histosol Concretions High Organic Content in Surface Layer in Sandy Soils Corganic Streaking in Sandy Soils Listed on Local Hydric Soils List Listed on National Hydric Soils List Other (explain in remarks) WETLAND DETERMINATION Hydrophytic Vegetation Present? Yes X No Is this Sampling Point Within a Wetland Wetland Hydrology Present? Yes X No Hydric Soils Present? Yes X No Yes X No							
(If yes, check them) Histosol Histic Epidon Aquic Moisture Regime X Reducing Conditions X Gleyed or Low-Chroma Colors WETLAND DETERMINATION Hydrophytic Vegetation Present? Wetland Hydrology Present? Histosol Concretions High Organic Content in Surface Layer in Sandy Soils Corganic Streaking in Sandy Soils Listed on Local Hydric Soils List Listed on National Hydric Soils List Other (explain in remarks) WETLAND DETERMINATION Hydrophytic Vegetation Present? Yes X No Is this Sampling Point Within a Wetland Wetland Hydrology Present? Yes X No Hydric Soils Present? Yes X No Yes X No							
(If yes, check them) Histosol Histic Epidon Aquic Moisture Regime X Reducing Conditions X Gleyed or Low-Chroma Colors WETLAND DETERMINATION Hydrophytic Vegetation Present? Wetland Hydrology Present? Histosol Concretions High Organic Content in Surface Layer in Sandy Soils Corganic Streaking in Sandy Soils Listed on Local Hydric Soils List Listed on National Hydric Soils List Other (explain in remarks) WETLAND DETERMINATION Hydrophytic Vegetation Present? Yes X No Is this Sampling Point Within a Wetland Wetland Hydrology Present? Yes X No Hydric Soils Present? Yes X No Yes X No							
(If yes, check them) Histosol Histic Epidon Aquic Moisture Regime X Reducing Conditions X Gleyed or Low-Chroma Colors WETLAND DETERMINATION Hydrophytic Vegetation Present? Wetland Hydrology Present? Histosol Concretions High Organic Content in Surface Layer in Sandy Soils Corganic Streaking in Sandy Soils Listed on Local Hydric Soils List Listed on National Hydric Soils List Other (explain in remarks) WETLAND DETERMINATION Hydrophytic Vegetation Present? Yes X No Is this Sampling Point Within a Wetland Wetland Hydrology Present? Yes X No Hydric Soils Present? Yes X No Yes X No							
(If yes, check them) Histosol Histic Epidon Aquic Moisture Regime X Reducing Conditions X Gleyed or Low-Chroma Colors WETLAND DETERMINATION Hydrophytic Vegetation Present? Wetland Hydrology Present? Histosol Concretions High Organic Content in Surface Layer in Sandy Soils Corganic Streaking in Sandy Soils Listed on Local Hydric Soils List Listed on National Hydric Soils List Other (explain in remarks) WETLAND DETERMINATION Hydrophytic Vegetation Present? Yes X No Is this Sampling Point Within a Wetland Wetland Hydrology Present? Yes X No Hydric Soils Present? Yes X No Yes X No		P					
Histosol Histic Epidon High Organic Content in Surface Layer in Sandy Soils Organic Streaking in Sandy Soils Aquic Moisture Regime Aquic Moisture Regime Listed on Local Hydric Soils List X Reducing Conditions X Gleyed or Low-Chroma Colors Other (explain in remarks) WETLAND DETERMINATION Hydrophytic Vegetation Present? Yes X No Is this Sampling Point Within a Wetland Wetland Hydrology Present? Yes X No Yes X Yes X No Yes	-		Yes	X N			
Histic Epidon X Sulfidic Odor Organic Streaking in Sandy Soils Aquic Moisture Regime Listed on Local Hydric Soils List X Reducing Conditions X Gleyed or Low-Chroma Colors WETLAND DETERMINATION Hydrophytic Vegetation Present? Yes X No Hydric Soils Present? Yes X No Hydric Soils Present? Yes X No	(If yes, chec	k them)					
X Sulfidic Odor	•						
Aquic Moisture Regime X Reducing Conditions Clisted on National Hydric Soils List X Gleyed or Low-Chroma Colors WETLAND DETERMINATION Hydrophytic Vegetation Present? Yes X No Is this Sampling Point Within a Wetland Wetland Hydric Soils Present? Yes X No Ye							n Sandy Soils
X Reducing Conditions Listed on National Hydric Soils List X Gleyed or Low-Chroma Colors Other (explain in remarks) Remarks: WETLAND DETERMINATION Hydrophytic Vegetation Present? Yes X No Is this Sampling Point Within a Wetland Wetland Hydrology Present? Yes X No Hydric Soils Present? Yes X No Yes X No		Х					
X Gleyed or Low-Chroma Colors Other (explain in remarks) Remarks: WETLAND DETERMINATION Hydrophytic Vegetation Present? Yes X No Is this Sampling Point Within a Wetland Wetland Hydrology Present? Yes X No Yes X No Hydric Soils Present? Yes X No Yes X No			_Aquic Moisture Regime				
Remarks: WETLAND DETERMINATION Hydrophytic Vegetation Present? Yes X No Is this Sampling Point Within a Wetland Wetland Hydrology Present? Yes X No Yes X No Hydric Soils Present? Yes X No Yes X No		Χ			Listed on National Hyd	ric Soils List	
WETLAND DETERMINATION Hydrophytic Vegetation Present? Yes X No Is this Sampling Point Within a Wetland Wetland Hydrology Present? Yes X No Yes X N		Χ	_Gleyed or Low-Chroma C	Colors	Other (explain in remar	·ks)	
WETLAND DETERMINATION Hydrophytic Vegetation Present? Yes X No Is this Sampling Point Within a Wetland Wetland Hydrology Present? Yes X No Yes X N							
Hydrophytic Vegetation Present? Yes X No Is this Sampling Point Within a Wetland Wetland Hydrology Present? Yes X No Yes X No Hydric Soils Present? Yes X No Yes X No	Remarks:						
Hydrophytic Vegetation Present? Yes X No Is this Sampling Point Within a Wetland Wetland Hydrology Present? Yes X No Yes X No Hydric Soils Present? Yes X No Yes X No							
Hydrophytic Vegetation Present? Yes X No Is this Sampling Point Within a Wetland Wetland Hydrology Present? Yes X No Yes X No Hydric Soils Present? Yes X No Yes X No							
Hydrophytic Vegetation Present? Yes X No Is this Sampling Point Within a Wetland Wetland Hydrology Present? Yes X No Yes X No Hydric Soils Present? Yes X No Yes X No							
Hydrophytic Vegetation Present? Yes X No Is this Sampling Point Within a Wetland Wetland Hydrology Present? Yes X No Yes X No Hydric Soils Present? Yes X No Yes X No	WETLAND I	DETERMIN	ATION				
Wetland Hydrology Present? Yes X No Ye				X N	lo ls thi	s Sampling Point	Within a Wetland
Hydric Soils Present? Yes X No Yes X No Yes X No		-					
						s X	No
Remarks: Photo 1414	i iyuno oons	1 10301111	165			,5 <u> </u>	110
Nellans. Filolo 1414	Domarko:	Dhoto 1/1/					
	ncilialks.	1100 1414	•				

Applicant/Owner: VDOT	Project/Site:		I-64 Peninsula				Date:	11/3/2011	
	Applicant/Owner	r:	VDOT				County:	New Kent	
Do Normal Conditions exist on the site?		_	Scot Aitkenhead					Virginia	
Do Normal Conditions exist on the site? Is the site significantly disturbed (Atppical situation)? Yes No X Is the area a potential Problem Area? If needed, explain on reverse VEGETATION Dominant Plant Species Common Name Scientific Name Scientifi		-							
Do Normal Conditions exist on the site? Is the site significantly disturbed (Atypical situation)? Is the site significantly disturbed (Atypical situation)? Yes No X If needed, explain on reverse VEGETATION Dominant Plant Species Common Name Scientific Name Stratum Indicator 1. Royal Fern Osmunda regalis H OBL 2. Sensitive Fern Onoclea sensibilis H FACW 3. Ironwood Carpinus carelnilaria S FACW+ 4. Sycamore Platanus occidentalis T FACW- 5. Cinnamon Fern Osmunda cinnamomea H FACW 6. Rod Maple Acer rubrum T FAC 7. River Birch Betula nigra T FAC 8. Highbush Blueberry Vaccinium corymbosum H FACW- 10. 11. 12. Percent of dominant species that are OBL, FACW or FAC (excluding FAC-) Remarks: HYDROLOGY Recorded Data (Describe in Remarks): Streams Streams Other X Saturated in Upper 12 inches Wetland Hydrology Indicators: Yes No X Wetland Hydrology Indicators: Primary Indicators: X Inundated Control Upper 12 inches X Saturated in Upper 12 inches X Sediment Deposits X Drainage Patterns in Wetlands Depth of Surface Water: Depth to Saturated Soil: 0 (in.) Depth to Saturated Soil: Other (Explain in Remarks) Citier Control In Remarks) Control Control Control In Remarks) A Water-Stained Leaves Control Test Control In Remarks)	Community ID:		PFO		Transect ID:	Α		Plot ID:	WET 69M
Is the site significantly disturbed (Atypical situation)?		-			-				
Is the site significantly disturbed (Atypical situation)?									
Is the area a potential Problem Area? Yes	Do Normal Cond	ditions exi	st on the site?		Yes	Х	N	0	
	Is the site signific	cantly dis	turbed (Atypical situat	ion)?	Yes		N	o X	-
Dominant Plant Species	Is the area a pot	tential Pro	blem Area?	•	Yes		N	o X	•
Dominant Plant Species	I				-				-
Dominant Plant Species	,								
Common Name	VEGETATION								
Common Name			Dominant Plant	Species					
1. Royal Fern Osmunda regalis H OBL 2. Sensitive Fern Onoclea sensibilis H FACW 3. Ironwood Carpinus caroliniana S FACW+ 4. Sycamore Platanus occidentalis T FACW- 5. Cinnamon Fern Osmunda cinnamomea H FACW- 6. Red Maple Acer rubrum T FAC 7. River Birch Betula nigra T FACW- 8. Highbush Blueberry Vaccinium corymbosum H FACW- 9. 10. T FACW- 10. 11. 12. Percent of dominant species that are OBL, FACW or FAC 100% 100% (excluding FAC-) Remarks: Primary Indicators: Value of Marks Value of Marks Other Acrial Photographs X Inundated X Saturated in Upper 12 inches X Saturated in Upper 12 inches X Secondary Indicators: X Secondary Indicators (2 or more required): <td>Con</td> <td>mmon Na</td> <td></td> <td>=</td> <td>Name</td> <td></td> <td>Stratum</td> <td></td> <td>Indicator</td>	Con	mmon Na		=	Name		Stratum		Indicator
2. Sensitive Fern Onoclea sensibilis	1. Roy	yal Fern		Osmunda	regalis		Н	_	OBL
Ironwood	1		rn		-		Н		FACW
4. Sycamore Platanus occidentalis T FACW- 5. Cinnamon Fern Osmunda cinnamomea H FACW 6. Red Maple Acer rubrum T FAC 7. River Birch Betula nigra T FACW 8. Highbush Blueberry Vaccinium corymbosum H FACW- 9. 10. FACW- 100% 11. 12. Percent of dominant species that are OBL, FACW or FAC 100% 100% (excluding FAC-) Remarks: HYDROLOGY Recorded Data (Describe in Remarks): Wetland Hydrology Indicators: Frimary Indicators: Streams X Sulmundated Water Marks Drift Lines X Saturated in Upper 12 inches X Sediment Deposits X Drainage Patterns in Wetlands Depth to Free Water in Pit: 0 (in.) Oxidized Root Channels in Upper 12 inches Depth to Free Water in Pit: 0 (in.) X							S		
5. Cinnamon Fern Osmunda cinnamomea H FACW 6. Red Maple Acer urbrum T FAC 7. River Birch Betula nigra T FACW 8. Highbush Blueberry Vaccinium corymbosum H FACW- 10. 11. 12. FACW- 100% FACW- Percent of dominant species that are OBL, FACW or FAC (excluding FAC-) 100%		camore					Т		
6. Red Maple Acer rubrum T FAC 7. River Birch Betula nigra T FACW 8. Highbush Blueberry Vaccinium corymbosum H FACW- 9. 10. FACW- 10. 11. 12. Percent of dominant species that are OBL, FACW or FAC 100% 100% Percent of dominant species that are OBL, FACW or FAC 100% 100% 100% Remarks: Wetland Hydrology Indicators: Primary Indicators: Yeimany Indicators: Yeimany Indicators: Aerial Photographs Other X Saturated in Upper 12 inches Water Marks Other Marks X Saturated in Upper 12 inches X Secondary Indicators: X Sediment Deposits X Sediment Deposits X Secondary Indicators: X Other Remarks: X Other Remarks: X Secondary Indicators: Colspan=	_		ern				Н		FACW
7. River Birch Betula nigra T FACW 8. Highbush Blueberry Vaccinium corymbosum H FACW-9-9-9-9-9-9-9-9-9-9-9-9-9-9-9-9-9-9-9							Т		
8. Highbush Blueberry Vaccinium corymbosum H FACW- 9. 10. 11. 12. Percent of dominant species that are OBL, FACW or FAC (excluding FAC-) Remarks: HYDROLOGY Recorded Data (Describe in Remarks): Aerial Photographs Other No Recorded Data Available Field Observations: Depth of Surface Water: Depth to Saturated Soil: I din.) Depth to Saturated Soil: Vaccinium corymbosum H FACW- HOW- Wetland Hydrology Indicators: Primary Indicators: X Inundated X Saturated in Upper 12 inches Water Marks Drift Lines X Sediment Deposits X Drainage Patterns in Wetlands Decorded Patter in Pit: Depth to Saturated Soil: O (in.) X Water-Stained Leaves Local Soil Survey Data FAC-Neutral Test Other (Explain in Remarks)							T		-
9. 10. 11. 12. Percent of dominant species that are OBL, FACW or FAC (excluding FAC-) Remarks: HYDROLOGY Recorded Data (Describe in Remarks): Streams Aerial Photographs Other No Recorded Data Available Field Observations: Depth of Surface Water: Depth to Free Water in Pit: Depth to Saturated Soil: Depth to Free Water in Pit: Depth to Saturated Soil: Depth to Saturat			ueberrv	_			H		
10. 11. 12. Percent of dominant species that are OBL, FACW or FAC (excluding FAC-) Remarks: HYDROLOGY	_		,		,				
11. 12. Percent of dominant species that are OBL, FACW or FAC (excluding FAC-) Remarks: HYDROLOGY Recorded Data (Describe in Remarks): Aerial Photographs Other No Recorded Data Available Field Observations: Depth of Surface Water: Depth to Free Water in Pit: Depth to Saturated Soil: Depth to Face Water in Pit: Depth to Saturated Soil: Depth to Saturate Soil: Depth to Saturated Soil: Depth to Saturate Soil: Depth									
12. Percent of dominant species that are OBL, FACW or FAC (excluding FAC-) Remarks: HYDROLOGY Recorded Data (Describe in Remarks): Aerial Photographs Other No Recorded Data Available No Recorded Data Available Field Observations: Depth of Surface Water: Depth to Free Water in Pit: Depth to Free Water in Pit: Depth to Saturated Soil: Depth to Face Water: Depth to Saturated Soil: Saturated in Upper 12 inches Water-Stained Leaves Local Soil Survey Data FAC-Neutral Test Other (Explain in Remarks)									
Percent of dominant species that are OBL, FACW or FAC (excluding FAC-) Remarks: HYDROLOGY Recorded Data (Describe in Remarks): Streams Aerial Photographs Other No Recorded Data Available No Recorded Data Available Field Observations: Depth of Surface Water: Depth to Free Water in Pit: Depth to Saturated Soil: Saturated In Upper 12 inches Saturated In Upper 12 inch									
Remarks:		nant spec	ies that are OBL. FAC	CW or FAC			100%		
Remarks: HYDROLOGY Recorded Data (Describe in Remarks): Streams Aerial Photographs Other No Recorded Data Available Field Observations: Depth of Surface Water: Depth to Free Water in Pit: Depth to Saturated Soil: Other Other Other I (in.) Depth to Saturated Soil: Other Other Other Other I (in.) Depth to Saturated Soil: Other Other Other Other Wetland Hydrology Indicators: X Inundated X Saturated in Upper 12 inches Depth to Print Deposits X Drainage Patterns in Wetlands Secondary Indicators (2 or more required): Other (Explain in Remarks) At Water-Stained Leaves Cother (Explain in Remarks)		-	,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,		-				-
HYDROLOGY Recorded Data (Describe in Remarks): Streams Aerial Photographs Other No Recorded Data Available Field Observations: Depth of Surface Water: Depth to Free Water in Pit: Depth to Saturated Soil: Wetland Hydrology Indicators: Primary Indicators: X Inundated X Saturated in Upper 12 inches Drift Lines X Sediment Deposits X Drainage Patterns in Wetlands Secondary Indicators (2 or more required): Oxidized Root Channels in Upper 12 inches Depth to Saturated Soil: X Water-Stained Leaves Local Soil Survey Data FAC-Neutral Test Other (Explain in Remarks)		/							
Recorded Data (Describe in Remarks): Streams Aerial Photographs Other No Recorded Data Available Field Observations: Depth of Surface Water: Depth to Saturated Soil: Depth to Saturated Soil: Wetland Hydrology Indicators: Primary Indicators: X Inundated X Saturated in Upper 12 inches Water Marks Drift Lines X Sediment Deposits X Drainage Patterns in Wetlands Secondary Indicators (2 or more required): Oxidized Root Channels in Upper 12 inches X Water-Stained Leaves Local Soil Survey Data FAC-Neutral Test Other (Explain in Remarks)									
Recorded Data (Describe in Remarks): Streams Aerial Photographs Other No Recorded Data Available Field Observations: Depth of Surface Water: Depth to Saturated Soil: Depth to Saturated Soil: Wetland Hydrology Indicators: Primary Indicators: X Inundated X Saturated in Upper 12 inches Water Marks Drift Lines X Sediment Deposits X Drainage Patterns in Wetlands Secondary Indicators (2 or more required): Oxidized Root Channels in Upper 12 inches X Water-Stained Leaves Local Soil Survey Data FAC-Neutral Test Other (Explain in Remarks)									
Recorded Data (Describe in Remarks): Streams Aerial Photographs Other No Recorded Data Available Field Observations: Depth of Surface Water: Depth to Saturated Soil: Depth to Saturated Soil: Wetland Hydrology Indicators: Primary Indicators: X Inundated X Saturated in Upper 12 inches Water Marks Drift Lines X Sediment Deposits X Drainage Patterns in Wetlands Secondary Indicators (2 or more required): Oxidized Root Channels in Upper 12 inches X Water-Stained Leaves Local Soil Survey Data FAC-Neutral Test Other (Explain in Remarks)	HYDROLOGY								
Streams Aerial Photographs Other No Recorded Data Available Field Observations: Depth of Surface Water: Depth to Free Water in Pit: Depth to Saturated Soil: Depth to Saturated Soil: Primary Indicators: X Inundated X Saturated in Upper 12 inches Water Marks Drift Lines X Sediment Deposits X Drainage Patterns in Wetlands Secondary Indicators (2 or more required): Oxidized Root Channels in Upper 12 inches X Water-Stained Leaves Local Soil Survey Data FAC-Neutral Test Other (Explain in Remarks)		(Describe	in Remarks):		Wetland Hvo	Irology Ind	icators:		
Aerial Photographs Other No Recorded Data Available Field Observations: Depth of Surface Water: Depth to Free Water in Pit: Depth to Saturated Soil: X Inundated X Saturated in Upper 12 inches Water Marks Drift Lines X Sediment Deposits X Drainage Patterns in Wetlands Secondary Indicators (2 or more required): Oxidized Root Channels in Upper 12 inches X Water-Stained Leaves Local Soil Survey Data FAC-Neutral Test Other (Explain in Remarks)		•	,		-				
Other No Recorded Data Available No Recorded Data Available Water Marks Drift Lines X Sediment Deposits X Sediment Deposits X Drainage Patterns in Wetlands Secondary Indicators (2 or more required): Depth to Free Water in Pit: Depth to Saturated Soil: X Water-Stained Leaves Local Soil Survey Data FAC-Neutral Test Other (Explain in Remarks)	-				1 -				
No Recorded Data Available Water Marks Drift Lines X Sediment Deposits X Drainage Patterns in Wetlands Depth of Surface Water: Depth to Free Water in Pit: Depth to Saturated Soil: Depth to Saturated Soil: Water Marks Drift Lines X Drainage Patterns in Wetlands Secondary Indicators (2 or more required): Oxidized Root Channels in Upper 12 inches Water-Stained Leaves Local Soil Survey Data FAC-Neutral Test Other (Explain in Remarks)	-	-	• .				in Upper 12 i	inches	
Field Observations: Depth of Surface Water: Depth to Free Water in Pit: Depth to Saturated Soil: Depth to Saturated So	No								
Field Observations: Depth of Surface Water: Depth to Free Water in Pit: Depth to Saturated Soil: Depth to Saturated Soil: Depth to Saturated Soil: X Drainage Patterns in Wetlands Secondary Indicators (2 or more required): Oxidized Root Channels in Upper 12 inches Water-Stained Leaves Local Soil Survey Data FAC-Neutral Test Other (Explain in Remarks)									
Field Observations: Depth of Surface Water: Depth to Free Water in Pit: Depth to Saturated Soil: Depth to Saturated So									
Depth of Surface Water: Depth to Free Water in Pit: Depth to Saturated Soil: Depth to Saturated Soil: Depth to Saturated Soil: Secondary Indicators (2 or more required): Oxidized Root Channels in Upper 12 inches Water-Stained Leaves Local Soil Survey Data FAC-Neutral Test Other (Explain in Remarks)	Field Observation	ns:					-	etlands	
Depth to Free Water in Pit: Depth to Saturated Soil: O (in.) Oxidized Root Channels in Upper 12 inches Water-Stained Leaves Local Soil Survey Data FAC-Neutral Test Other (Explain in Remarks)			1	(in.)		•			
Depth to Saturated Soil: 0 (in.) X Water-Stained Leaves Local Soil Survey Data FAC-Neutral Test Other (Explain in Remarks)	· ·				-	-			nches
Local Soil Survey Data FAC-Neutral Test Other (Explain in Remarks)								о орро	
FAC-Neutral Test Other (Explain in Remarks)				()					
Other (Explain in Remarks)							•		
								arks)	
Remarks:					—	J (LA)		,	
i tomanto.	Remarks:				1				

Commun	ity ID:	PFO	Transect II	D: A	Plot ID:	WET 69M
			-			
SOILS						
Map Unit Na	ıme					
(Series and					Drainage Class:	
	•	firm Mapped Type?	Yes	No		
Taxonomy (марроа туро.				
Taxonomy (oubgroup).					
		Matrix Color	Mottle Colors	Mottle	Toytures Con	cretions, Structures,
Donth (in)	Horizon	(Munsell Moist)	(Munsell Moist)	Abundance/Contras		relions, offuciales,
Depth (in)	ПОПДОП	(Mulisell Moist)	(IVIUIISEII IVIOISI)	Abundance/Contras	et etc.	
0.7	۸	40VD 4/4			Canaly Issues	
0-7	А	10YR 4/1			Sandy loam	
7.40	_	04.4%			0	
7-16	В	G1 4/N			Sandy loam	
Lludria Cail I	n dinatara.	Voo		lo.		
Hydric Soil II		Yes		lo		
(If yes, check	k tnem)	18.4		0		
		_ Histosol		Concretions		
		_Histic Epidon		High Organic Content		า Sandy Soils
		_Sulfidic Odor		Organic Streaking in S	•	
		_Aquic Moisture Regime		Listed on Local Hydric	Soils List	
		Reducing Conditions		Listed on National Hy	dric Soils List	
		Gleyed or Low-Chroma	Colors	Other (explain in rema	arks)	
•				_	•	
Remarks:						
WETLAND I	DETEDMIN	ATION				
Hydrophytic			X	lo lo 41	his Sampling Point	Within a Wetland
					iis Sampiing Point	vviuiiii a vvelianu
Wetland Hyd				lo		
Hydric Soils	Present?	Yes	<u>X</u> N	loY	'es X	No
_						
Remarks:	Photo 1415	5				

Applicant/Owner:						
• •	VDOT			County:	New Kent	
nvestigator:	Scot Aitkenhead			State:	Virginia	
Community ID:	PFO		Transect ID:	Α	Plot ID:	WET 70M
Do Normal Conditions			Yes		No	_
	disturbed (Atypical situa	ition)?	Yes		No X	_
Is the area a potential			Yes	N	No X	
If needed, explain on I	reverse					
VEGETATION						
	Dominant Plan	nt Species				
Common		Scientific	Name	Stratum	<u> </u>	Indicator
 River Bird 		Betula ni	_	S		FACW
Sycamore	е	Platanus	coccidentalis	Т		FACW-
Red Map	le	Acer rub	rum	Т		FAC
 Sensitive 	Fern	Onoclea	sensibilis	Н		FACW
5. Ironwood		Carpinus	s caroliniana	S		FACW+
6. Virginia K	notweed	Polygoni	um virginianum	Н		FAC
7.						
3.						
3. 9.						
3. 9. 10.						
8. 9. 10. 11.						
8. 9. 10. 11. 12.	pecies that are OBL, FA	CW or FAC		100%		
8. 9. 10. 11. 12. Percent of dominant s	pecies that are OBL, FA	CW or FAC		100%		_
8. 9. 10. 11. 12. Percent of dominant s (excluding FAC-)	pecies that are OBL, FA	CW or FAC		100%		_
8. 9. 10. 11. 12. Percent of dominant s (excluding FAC-)	pecies that are OBL, FA	CW or FAC		100%		_
3. 9. 10. 11. 12. Percent of dominant s (excluding FAC-) Remarks:	pecies that are OBL, FA	CW or FAC		100%		_
8. 9. 10. 11. 12. Percent of dominant s (excluding FAC-) Remarks:		CW or FAC	Wetland Hydrold			_
3. 9. 10. 11. 12. Percent of dominant s (excluding FAC-) Remarks:	ribe in Remarks):	CW or FAC	Wetland Hydrold	gy Indicators:		_
3. 9. 10. 11. 12. Percent of dominant s (excluding FAC-) Remarks:	ribe in Remarks): Streams	CW or FAC	Primary Indicato	gy Indicators: rs:		_
3. 9. 10. 11. 12. Percent of dominant s (excluding FAC-) Remarks:	ribe in Remarks):StreamsAerial Photographs	CW or FAC	Primary Indicato	ngy Indicators: rs: ndated	inchos	
3. 9. 10. 11. 12. Percent of dominant s (excluding FAC-) Remarks: HYDROLOGY Recorded Data (Desc	ribe in Remarks):StreamsAerial PhotographsOther	CW or FAC	Primary Indicato Inur Sate	ngy Indicators: rs: ndated urated in Upper 12	inches	_
3. 9. 10. 11. 12. Percent of dominant s (excluding FAC-) Remarks: HYDROLOGY Recorded Data (Description)	ribe in Remarks):StreamsAerial Photographs	CW or FAC	Primary Indicato Inur Sate	ngy Indicators: rs: ndated urated in Upper 12 ier Marks	inches	
3. 9. 10. 11. 12. Percent of dominant s (excluding FAC-) Remarks: HYDROLOGY Recorded Data (Description)	ribe in Remarks):StreamsAerial PhotographsOther	CW or FAC	Primary Indicato Inur Sati	ngy Indicators: rs: ndated urated in Upper 12 ter Marks t Lines	inches	
3. 9. 10. 11. 12. Percent of dominant s (excluding FAC-) Remarks: HYDROLOGY Recorded Data (Description of the content of the	ribe in Remarks):StreamsAerial PhotographsOther	CW or FAC	Primary Indicato Inur Sati War Drif X Sec	ogy Indicators: rs: ndated urated in Upper 12 ter Marks t Lines liment Deposits		
3. 9. 10. 11. 12. Percent of dominant s (excluding FAC-) Remarks: HYDROLOGY Recorded Data (Description of the content of the	ribe in Remarks):StreamsAerial PhotographsOther rded Data Available		Primary Indicato Inur Sati War Drif X Sec X Dra	ogy Indicators: rs: ndated urated in Upper 12 ter Marks t Lines liment Deposits inage Patterns in W	Vetlands	
3. 9. 10. 11. 12. Percent of dominant s (excluding FAC-) Remarks: HYDROLOGY Recorded Data (Description of Surface Water) Pield Observations: Depth of Surface Water	ribe in Remarks):StreamsAerial PhotographsOther rded Data Available	(in.)	Primary Indicato Inur Sate Wat Drif X Sec X Dra Secondary Indic	ogy Indicators: rs: ndated urated in Upper 12 ter Marks t Lines liment Deposits inage Patterns in Wators (2 or more rec	Vetlands quired):	in about
3. 9. 10. 11. 12. Percent of dominant s (excluding FAC-) Remarks: HYDROLOGY Recorded Data (Description of Surface Water in Depth to Free Water in page 10. 10. 11. 12. Percent of dominant s (excluding FAC-) No Recorded Data (Description of Surface Water in page 10. 15. 16. 17. 18. 19. 19. 19. 19. 19. 19. 19. 19. 19. 19	ribe in Remarks): Streams Aerial Photographs Other rded Data Available	(in.)	Primary Indicato Inur Sate Wat Drif X Sec X Dra Secondary Indic	ogy Indicators: rs: Indated Urated in Upper 12 Iter Marks It Lines Uliment Deposits Inage Patterns in Wators (2 or more red	Vetlands quired): els in Upper 12	inches
3. 9. 10. 11. 12. Percent of dominant s (excluding FAC-) Remarks: HYDROLOGY Recorded Data (Description of Surface Water in Depth to Free Water in 19.	ribe in Remarks): Streams Aerial Photographs Other rded Data Available	(in.)	Primary Indicato Inur Sati War Drif X Sec X Dra Secondary Indic Oxi X War	ogy Indicators: rs: ndated urated in Upper 12 ter Marks t Lines liment Deposits inage Patterns in W ators (2 or more red dized Root Channe ter-Stained Leaves	Vetlands quired): els in Upper 12	inches
8. 9. 10. 11. 12. Percent of dominant s (excluding FAC-) Remarks: HYDROLOGY Recorded Data (Description of Surface Water in Depth to Free Water in 19.	ribe in Remarks): Streams Aerial Photographs Other rded Data Available	(in.)	Primary Indicato Inur Sati War Drif X Sec X Dra Secondary Indic Oxio X War Loc	ogy Indicators: rs: ndated urated in Upper 12 ter Marks t Lines liment Deposits inage Patterns in Wators (2 or more red dized Root Channe ter-Stained Leaves al Soil Survey Data	Vetlands quired): els in Upper 12	inches
(excluding FAC-) Remarks: HYDROLOGY Recorded Data (Desc	ribe in Remarks): Streams Aerial Photographs Other rded Data Available	(in.)	Primary Indicato Inur Sate Wate Drif X Sec X Dra Secondary Indic Oxic X Wate Loc FAC	ogy Indicators: rs: ndated urated in Upper 12 ter Marks t Lines liment Deposits inage Patterns in W ators (2 or more red dized Root Channe ter-Stained Leaves	Vetlands quired): els in Upper 12	inches

Commun	ity ID:	PFO	Transect	ID: A	Plot ID:	WET 70M
SOILS						
Map Unit Na				_		
(Series and				D	rainage Class: _	
		firm Mapped Type?	Yes	No	_	
Taxonomy (Subgroup):					
			11 (1) 0 1	B.A. (c)	T . 0	
D (1 (1)		Matrix Color	Mottle Colors	Mottle		cretions, Structures,
Depth (in)	Horizon	(Munsell Moist)	(Munsell Moist)	Abundance/Contrast	etc.	
0-16	۸	10VD 4/1	EVD 4/6	5%	Candy loam	
0-16	A	10YR 4/1	5YR 4/6	370	Sandy loam	
Hydric Soil I	ndicators:	Yes	X	No		
(If yes, chec		163				
(ii yes, ence	it triciri)	Histosol		Concretions		
		Histic Epidon		High Organic Content in	n Surface Laver i	n Sandy Soils
		Sulfidic Odor		Organic Streaking in Sa		Touridy Collo
		Aquic Moisture Regime		Listed on Local Hydric S	•	
	Х	Reducing Conditions		Listed on National Hydr		
	X	Gleyed or Low-Chroma C	Colors	Other (explain in remark		
		,			,	
Remarks:						
WETLAND						
Hydrophytic					s Sampling Point	Within a Wetland
Wetland Hyd				No		
Hydric Soils	Present?	Yes	X	No Yes	sX	No
D .	DI (115					
Remarks:	Photo 1421	I				

Project/Site:	I-64 Peninsula			Date:	11/3/2011	
Applicant/Owner:	VDOT			County:	New Kent	
Investigator:	Scot Aitkenhead			State:	Virginia	
Community ID:	PFO	Transect I	D: A		Plot ID:	WET 71M
•						
Do Normal Condition	ons exist on the site?	Υ	es X	N	0	
Is the site significar	ntly disturbed (Atypical situa	tion)? Y	es	N	o X	-
Is the area a potent	tial Problem Area?	Y	es	N	o X	-
If needed, explain of	on reverse					-
VEGETATION						
	Dominant Plan	t Species				
Comm	on Name	Scientific Name		Stratum		Indicator
1. Sycam	nore	Platanus occidentalis		Т		FACW-
2. Lizard'	's Tail	Saururus cernuus		Н		OBL
3. Marsh	Marigold	Caltha palustris		Н		OBL
	a Knotweed	Polygonum virginianui	n	Н		FAC
5. Red M	laple	Acer rubrum		Т		FAC
6. Sensiti	ive Fern	Onoclea sensibilis		Н		FACW
7. Royal	Fern	Osmunda regalis		Н		OBL
	ush Blueberry	Vaccinium corymbosu	m	S		FACW-
9.	•	•				
10.						
11.						
12.						
Percent of dominar	nt species that are OBL, FAC	CW or FAC		100%		
(excluding FAC-)						•
Remarks:						
HYDROLOGY						
Recorded Data (De	escribe in Remarks):	Wetland I	Hydrology Ind	icators:		
	Streams	Primary Ir	ndicators:			
	Aerial Photographs	X	Inundated			
	Other	X	Saturated	in Upper 12 i	inches	
No Re	corded Data Available		Water Mai	rks		
			Drift Lines	i		
		X	Sediment	Deposits		
Field Observations:	:	X	Drainage I	Patterns in W	etlands/	
Depth of Surface W	/ater: 11	(in.) Secondar	y Indicators (2 or more red	quired):	
Depth to Free Water	er in Pit: 0	(in.)	Oxidized F	Root Channel	ls in Upper 12 i	nches
Depth to Saturated	Soil: 0	(in.) X	Water-Sta	ined Leaves		
			Local Soil	Survey Data		
			FAC-Neut	ral Test		
			Other (Exp	olain in Rema	arks)	
Remarks: Crayfi	sh burrows, receives hyd	rology from I-64				

Commun	ity ID:	PFO	Transect	ID:A	Plot ID:	WET 71M
SOILS						
Map Unit Na						
(Series and					Prainage Class: _	
		firm Mapped Type?	Yes	No	_	
Taxonomy (Subgroup):					
		Matrix Color	Mottle Colors	Mottle		cretions, Structures,
Depth (in)	Horizon	(Munsell Moist)	(Munsell Moist)	Abundance/Contrast	etc.	
0-16	A	7.5YR 3/1			Sandy Ioam	
	P 4		V	N.		
Hydric Soil I		Yes	X	No		
(If yes, chec	k tnem)	18.4		•		
		_Histosol		Concretions		0 1 0 "
		_Histic Epidon		High Organic Content i		n Sandy Soils
	Х	_Sulfidic Odor		Organic Streaking in Sa	-	
		_Aquic Moisture Regime		Listed on Local Hydric		
	Х	_Reducing Conditions	· ·	Listed on National Hyd		
		_Gleyed or Low-Chroma C	olors	Other (explain in remar	KS)	
Remarks:						
WETLAND	DETERMIN	ATION				
WETLAND I			V	NI- I- 4I-1	- Oline Deint	\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\
Hydrophytic	-	-			s Sampling Point	within a wetland
Wetland Hyd			X	No		NI-
Hydric Soils	Present?	Yes	X	No Ye	es X	No
Dama !	Db -4: 4.40	1				
Remarks:	Photo 1424	ł				

Project/Site:	I-64 Peninsula				Date:	11/3/2011	
Applicant/Owner:	VDOT				County:	New Kent	
Investigator:	Scot Aitkenhead				State:	Virginia	
					_		
Community ID:	PFO		Transect ID:	Α		Plot ID:	WET 72M
			-		_		
Do Normal Conditions e	xist on the site?		Yes	Х	N	0	
Is the site significantly d	isturbed (Atypical situation	on)?	Yes			o X	•
Is the area a potential P	roblem Area?		Yes			o X	•
If needed, explain on re-	verse		-		_		•
VEGETATION							
	Dominant Plant	Species					
Common N	lame	Scientific Na	ame		Stratum		Indicator
1. Sensitive F	ern	Onoclea se	nsibilis		Н		FACW
River Birch		Betula nigra	9		S		FACW
3. Ironwood		Carpinus ca	aroliniana		S		FACW+
4. Slippery Eli	m	Ulmus rubra	а		S		FAC
5. Green Ash		Fraxinus pe	ennsylvanica		Т		FAC
6. Sweet Gum	ı	Liquidamba	r styraciflua		Т		FAC
7.							
8.							
9.							
10.							
11.							
12.							
Percent of dominant spe	ecies that are OBL, FAC	W or FAC	_		100%		_
(excluding FAC-)							
Remarks:							
HYDROLOGY			T				
Recorded Data (Describ	•		Wetland Hyd		cators:		
	Streams		Primary India				
	_Aerial Photographs			Inundated			
	_Other				in Upper 12 i	nches	
No Recorde	ed Data Available			Water Mar	ks		
				Drift Lines	.		
E: 1101				Sediment I	-		
Field Observations:		<i>(</i> ;)		•	Patterns in W		
Depth of Surface Water		(in.)	Secondary Ir		-	•	
Depth to Free Water in I		(in.)				s in Upper 12 ir	ncnes
Depth to Saturated Soil:	3	(in.)			ned Leaves		
					Survey Data		
				FAC-Neutr			
				otner (Exp	lain in Rema	irks)	
Demontos			<u> </u>				
Remarks:							

Commun	ity ID:	PFO	_ Transect ID	D:A	Plot ID:	WET 72M
			=		_ _	
SOILS						
Map Unit Na	ıme					
(Series and	Phase):			D	rainage Class:	
Field Observ	ations Con	firm Mapped Type?	Yes	No	_	
Taxonomy (_	
·	0 17					
		Matrix Color	Mottle Colors	Mottle	Textures, Cond	cretions, Structures,
Depth (in)	Horizon	(Munsell Moist)	(Munsell Moist)	Abundance/Contrast	etc.	, , , , , , , , , , , , , , , , , , , ,
Бори (и)	110112011	(Marioon Molot)	(iviancen ivielet)	/ Ibandanoo/ Contract	0.0.	
0-16	А	10YR 4/2	5YR 4/6	3%	Sandy loam	
0-10		10111 7/2	311\ 1 /0	370	Garidy Idam	
Hydric Soil I	ndicators:	Yes	s X N	0		
(If yes, chec	k them)					
		Histosol		Concretions		
		– Histic Epidon		 High Organic Content ir 	n Surface Laver i	n Sandv Soils
		Sulfidic Odor	-	Organic Streaking in Sa		,
		Aquic Moisture Regime		Listed on Local Hydric S		
		Reducing Conditions		Listed on National Hydr		
		Gleyed or Low-Chroma	Colors	Other (explain in remark		
		_ Oldyca of Low Officina		_ other (explain in remain	(3)	
Remarks:						
Remarks.						
METI AND	DETERMIN	ATION				
WETLAND						
Hydrophytic					Sampling Point	Within a Wetland
Wetland Hyd						
Hydric Soils	Present?	Yes	sX N	o Yes	sX	No
Remarks:	Crayfish bu	rrows				
	Photo1426					
				<u> </u>		

Project/Site:	I-64 Peninsula			Date:	11/3/201	1
Applicant/Owner:	VDOT			County:	New Kent	
nvestigator:	Scot Aitkenhead			State:	Virginia	
Community ID:	PFO		Transect ID:	Α	Plot ID:	WET 73M
				.,		
Do Normal Condition			Yes		No	_
	y disturbed (Atypical situa	ition)?	Yes		No X	_
Is the area a potentia			Yes		No X	_
If needed, explain on	reverse					
/EGETATION						
_	Dominant Plan	-		_		
Commor		Scientific		Stratur	<u>n</u>	Indicator
1. Red Mar		Acer rub		Т		FAC
2. Ironwood		=	caroliniana	S		FACW+
3. Slippery		Ulmus ru		T		FAC
4. Green A			pennsylvanica	Т		FACW
5. Sensitive	e Fern	Onoclea	sensibilis	Н		FACW
2						
7.						
7. 3.						
7. 3. 9.						
7. 3. 9. 10.						
7. 3. 9. 10. 11.						
7. 8. 9. 10. 11.						
7. 8. 9. 10. 11. 12. Percent of dominant:	species that are OBL, FA	CW or FAC		100%	, ,	_
7. 3. 9. 10. 11. 12. Percent of dominant : (excluding FAC-)	species that are OBL, FA	CW or FAC		100%	ò	_
7. 3. 9. 10. 11. 12. Percent of dominant : (excluding FAC-)	species that are OBL, FA	CW or FAC		100%		_
7. 3. 9. 10. 11. 12. Percent of dominant (excluding FAC-)	species that are OBL, FA	CW or FAC		100%	, ,	_
7. 8. 9. 10. 11. 12. Percent of dominant (excluding FAC-) Remarks:	species that are OBL, FA	CW or FAC		100%	5	_
7. 3. 9. 10. 11. 12. Percent of dominant (excluding FAC-) Remarks:		CW or FAC	Wetland Hydrol			_
7. 3. 9. 10. 11. 12. Percent of dominant sexcluding FAC-) Remarks:		CW or FAC	Wetland Hydrol	ogy Indicators:		
7. 3. 9. 10. 11. 12. Percent of dominant sexcluding FAC-) Remarks:	cribe in Remarks):	CW or FAC	Primary Indicate	ogy Indicators:		
7. 3. 9. 10. 11. 12. Percent of dominant (excluding FAC-) Remarks:	cribe in Remarks): Streams	CW or FAC	Primary Indicate	ogy Indicators: ors:		
7. 3. 9. 10. 11. 12. Percent of dominant (excluding FAC-) Remarks: HYDROLOGY Recorded Data (Desc	cribe in Remarks):StreamsAerial Photographs	CW or FAC	Primary Indicate	ogy Indicators: ors: undated		
7. 3. 9. 10. 11. 12. Percent of dominant (excluding FAC-) Remarks: HYDROLOGY Recorded Data (Desc	cribe in Remarks): Streams Aerial Photographs Other	CW or FAC	Primary Indicate Inc.	ogy Indicators: ors: undated turated in Upper 12		
7. 3. 9. 10. 11. 12. Percent of dominant (excluding FAC-) Remarks: HYDROLOGY Recorded Data (Desc	cribe in Remarks): Streams Aerial Photographs Other	CW or FAC	Primary Indicate Inc. Sa Wa	ogy Indicators: ors: undated turated in Upper 12 ater Marks		
7. 3. 9. 10. 11. 12. Percent of dominant sexcluding FAC-) Remarks: HYDROLOGY Recorded Data (Description of the content of the	cribe in Remarks): Streams Aerial Photographs Other	CW or FAC	Primary Indicate Inc Sa Wa Dri X Se	ogy Indicators: ors: indated turated in Upper 12 ater Marks ift Lines	2 inches	
7. 3. 3. 9. 10. 11. 12. Percent of dominant sexcluding FAC-) Remarks: HYDROLOGY Recorded Data (Descriptions)	cribe in Remarks):StreamsAerial PhotographsOther orded Data Available	CW or FAC	Primary Indicate Inc Sa Wa Dri X Se X Dri	ogy Indicators: ors: undated turated in Upper 12 ater Marks ift Lines diment Deposits	2 inches Wetlands	
A. B.	cribe in Remarks): Streams Aerial Photographs Other orded Data Available	(in.)	Primary Indicate Inc. Sa Wa Dri X Se X Dri Secondary Indicate	ogy Indicators: ors: undated turated in Upper 12 ater Marks ift Lines diment Deposits ainage Patterns in v	2 inches Wetlands equired):	inches
7. 3. 3. 9. 10. 11. 12. Percent of dominant : (excluding FAC-) Remarks: HYDROLOGY Recorded Data (Description of Surface Water) Depth of Surface Water	cribe in Remarks): Streams Aerial Photographs Other orded Data Available ter:	(in.)	Primary Indicate Inc. Sa Wa Dri X Se X Dri Secondary Indicate	ogy Indicators: ors: undated turated in Upper 12 ater Marks ift Lines diment Deposits ainage Patterns in V	2 inches Wetlands equired): els in Upper 12	inches
7. 3. 9. 10. 11. 12. Percent of dominant (excluding FAC-) Remarks: HYDROLOGY Recorded Data (Description of Surface Wadden Depth of Surface Wadden) Depth of Free Water	cribe in Remarks): Streams Aerial Photographs Other orded Data Available ter:	(in.)	Primary Indicate Inc. Sa Wa Dri X Se X Dra Secondary Indic	ogy Indicators: ors: undated turated in Upper 12 ater Marks ift Lines diment Deposits ainage Patterns in vicators (2 or more re cidized Root Chann ater-Stained Leaves	2 inches Wetlands equired): els in Upper 12 s	inches
(excluding FAC-) Remarks: HYDROLOGY Recorded Data (Desc	cribe in Remarks): Streams Aerial Photographs Other orded Data Available ter:	(in.)	Primary Indicate Inc. Sa Wa Dri X Se X Dri Secondary Indicate	ogy Indicators: ors: undated turated in Upper 12 ater Marks ift Lines diment Deposits ainage Patterns in vecators (2 or more re- cidized Root Chann	2 inches Wetlands equired): els in Upper 12 s	inches
7. 8. 9. 10. 11. 12. Percent of dominant : (excluding FAC-) Remarks: HYDROLOGY Recorded Data (Description of Surface War Depth of Surface War Depth to Free Water	cribe in Remarks): Streams Aerial Photographs Other orded Data Available ter:	(in.)	Primary Indicate Inc. Sa Wa Dri X Se X Dr. Secondary Indicate Ox X Wa Lo FA	ogy Indicators: ors: undated turated in Upper 12 ater Marks ift Lines diment Deposits ainage Patterns in vicators (2 or more re cidized Root Chann ater-Stained Leaves cal Soil Survey Dat	2 inches Wetlands equired): els in Upper 12 s	inches

Commun	ity ID:	PFO	Transect	ID: A	Plot ID:	WET 73M
SOILS						
Map Unit Na				_		
(Series and				D	rainage Class: _	
		firm Mapped Type?	Yes	No	_	
Taxonomy (Subgroup):					
		M () O I	M «I O I	NA (1)	T (0	0
D (1 (1)		Matrix Color	Mottle Colors	Mottle		cretions, Structures,
Depth (in)	Horizon	(Munsell Moist)	(Munsell Moist)	Abundance/Contrast	etc.	
0-16	۸	EVD 2/4			Candy Jaam	
0-16	A	5YR 3/1			Sandy loam	
11		V	V	NI.		
Hydric Soil I		Yes	X	No		
(If yes, chec	k tnem)	Llistanal		Concretions		
		_ Histosol		Concretions	. 0	. 0 0 - 11 -
		Histic Epidon		High Organic Content in		1 Sandy Solls
	Х	_ Sulfidic Odor		Organic Streaking in Sa	-	
		_Aquic Moisture Regime		Listed on Local Hydric S		
		_Reducing Conditions		Listed on National Hydr		
	Х	Gleyed or Low-Chroma C	olors	Other (explain in remark	KS)	
Remarks:						
indinains.						
WETLAND	DETERMIN	ATION				
Hydrophytic			X	No Is this	s Sampling Point	Within a Wetland
Wetland Hyd	-	-	X	No	. 5	
Hydric Soils		Yes	X		s X	No
		<u> </u>	 -			
Remarks:	Photo ?					
· 						

Project/Site:	I-64 Peninsula			Date:	11/3/201	1
Applicant/Owner:	VDOT			County:	New Kent	
Investigator:	Scot Aitkenhead			State:	Virginia	
Community ID:	PFO		Transect ID:	Α	Plot ID:	WET 74M
Do Normal Conditions					lo	_
	disturbed (Atypical s	situation)?	Yes		No X	_
Is the area a potentia			Yes	N	loX	_
If needed, explain on	reverse					
VEGETATION						
		Plant Species		_		
Commor		Scientifi		Stratum	<u> </u>	Indicator
1. Lizard's			is cernuus	Н		OBL
Sensitive			a sensibilis	Н		FACW
3. Ironwood		•	s caroliniana	S		FACW+
4. Red Map	ole	Acer rub	brum	Т		FAC
5.						
7.						
7. 3.						
7. 3. 9.						
7. 3. 9. 10.						
7. 8. 9. 10. 11.						
7. 8. 9. 10. 11.						
7. 8. 9. 10. 11. 12. Percent of dominant s	species that are OBL,	FACW or FAC		100%		_
7. 8. 9. 10. 11. 12. Percent of dominant s (excluding FAC-)	species that are OBL,	FACW or FAC		100%		_
7. 8. 9. 10. 11. 12. Percent of dominant s (excluding FAC-)	species that are OBL,	FACW or FAC		100%		_
7. 3. 9. 10. 11. 12. Percent of dominant s (excluding FAC-)	species that are OBL,	FACW or FAC		100%		_
7. 8. 9. 10. 11. 12. Percent of dominant s (excluding FAC-) Remarks:	species that are OBL,	FACW or FAC		100%		_
7. 8. 9. 10. 11. 12. Percent of dominant s (excluding FAC-) Remarks:		FACW or FAC	Wetland Hydrolog			_
7. 3. 9. 10. 11. 12. Percent of dominant s (excluding FAC-) Remarks:		FACW or FAC	Wetland Hydrolog Primary Indicators	y Indicators:		_
7. 3. 9. 10. 11. 12. Percent of dominant service (excluding FAC-) Remarks:	ribe in Remarks):			y Indicators:		
7. 3. 9. 10. 11. 12. Percent of dominant service (excluding FAC-) Remarks:	ribe in Remarks):		Primary Indicators Inund	y Indicators:	inches	_
7. 3. 9. 10. 11. 12. Percent of dominant s (excluding FAC-) Remarks: HYDROLOGY Recorded Data (Desc	ribe in Remarks):StreamsAerial Photograph		Primary Indicators Inund Satur	y Indicators: : ated	inches	_
7. 3. 9. 10. 11. 12. Percent of dominant services (excluding FAC-) Remarks: HYDROLOGY Recorded Data (Desc	ribe in Remarks): Streams Aerial Photograph Other		Primary Indicators Inund Satur	y Indicators: : ated ated in Upper 12 r Marks	inches	
7. 3. 9. 10. 11. 12. Percent of dominant s (excluding FAC-) Remarks: HYDROLOGY Recorded Data (Desc	ribe in Remarks): Streams Aerial Photograph Other		Primary Indicators Inund Satur Wate Drift L	y Indicators: : ated ated in Upper 12 r Marks .ines	inches	_
7. 3. 9. 10. 11. 12. Percent of dominant service (excluding FAC-) Remarks: HYDROLOGY Recorded Data (Desconded	ribe in Remarks): Streams Aerial Photograph Other		Primary Indicators Inund Satur Wate Drift L	y Indicators: : ated ated in Upper 12 r Marks .ines nent Deposits		
7. 3. 9. 10. 11. 12. Percent of dominant service (excluding FAC-) Remarks: HYDROLOGY Recorded Data (Descriptions)	eribe in Remarks):StreamsAerial PhotographOther rded Data Available	ns	Primary Indicators Inund Satur Wate Drift L	y Indicators: : ated ated in Upper 12 r Marks ines nent Deposits age Patterns in W	Vetlands	
7. 3. 9. 10. 11. 12. Percent of dominant service (excluding FAC-) Remarks: HYDROLOGY Recorded Data (Descondent Data (Descondent Data (Descondent Data (Descondent Data (Descondent Descondent Descond	eribe in Remarks): Streams Aerial Photograph Other rded Data Available	ns 1 (in.)	Primary Indicators Inund Satur Wate Drift L Sedin X Drain Secondary Indicat	y Indicators: : ated ated in Upper 12 r Marks ines nent Deposits age Patterns in Wors (2 or more rec	Vetlands quired):	inches
7. 3. 9. 10. 11. 12. Percent of dominant s (excluding FAC-) Remarks: HYDROLOGY Recorded Data (Description of Surface Water Depth to Free Water)	eribe in Remarks): Streams Aerial Photograph Other rded Data Available er: n Pit:	1 (in.) 0 (in.)	Primary Indicators Inund Satur Wate Drift L Sedin X Drain Secondary Indicat Oxidi:	y Indicators: : ated ated in Upper 12 r Marks .ines nent Deposits age Patterns in W ors (2 or more receed Root Channe	Vetlands quired): els in Upper 12	inches
7. 8. 9. 10. 11. 12. Percent of dominant s (excluding FAC-) Remarks: HYDROLOGY Recorded Data (Description of Surface Water Depth to Free Water)	eribe in Remarks): Streams Aerial Photograph Other rded Data Available er: n Pit:	ns 1 (in.)	Primary Indicators Inund Satur Wate Drift L Sedin X Drain Secondary Indicat Oxidi: X Wate	y Indicators: : ated ated in Upper 12 r Marks .ines nent Deposits age Patterns in W ors (2 or more receded Root Channe	Vetlands quired): els in Upper 12	inches
(excluding FAC-) Remarks: HYDROLOGY Recorded Data (Desc	eribe in Remarks): Streams Aerial Photograph Other rded Data Available er: n Pit:	1 (in.) 0 (in.)	Primary Indicators Inund Satur Wate Drift L Sedin X Drain Secondary Indicat Oxidi: X Wate Local	y Indicators: : ated ated in Upper 12 r Marks .ines nent Deposits age Patterns in Wors (2 or more receded Root Channer-Stained Leaves Soil Survey Data	Vetlands quired): els in Upper 12	inches
7. 8. 9. 10. 11. 12. Percent of dominant s (excluding FAC-) Remarks: HYDROLOGY Recorded Data (Description of Surface Water in Depth to Free Water in Sec.	eribe in Remarks): Streams Aerial Photograph Other rded Data Available er: n Pit:	1 (in.) 0 (in.)	Primary Indicators Inund Satur Wate Drift L Sedin X Drain Secondary Indicat Oxidi: X Wate Local FAC-	y Indicators: : ated ated in Upper 12 r Marks .ines nent Deposits age Patterns in W ors (2 or more receded Root Channe	Vetlands quired): lls in Upper 12	inches

Commun	ity ID:	PFO	Transect	t ID: A	Plot ID:	WET 74M
SOILS						
Map Unit Na				_		
(Series and I					Orainage Class:	
		firm Mapped Type?	Yes	No	_	
Taxonomy (Subgroup):					
		Matrix Calar	Mattle Calara	Mattle	Taydunaa Cana	
Donth (in)	Horizon	Matrix Color	Mottle Colors	Mottle		retions, Structures,
Depth (in)	Horizon	(Munsell Moist)	(Munsell Moist)	Abundance/Contrast	etc.	
0-16	Α	5YR 3/1			Silt clay loam	
0-10	Λ	311(3/1			Oilt Clay Ioaili	
Hydric Soil Ir	ndicators:	Υ	es X	No		
(If yes, checl						
, , , , , , , , ,	,	Histosol		Concretions		
		Histic Epidon		High Organic Content i	in Surface Laver in	Sandy Soils
•		Sulfidic Odor		Organic Streaking in S		reality cons
-		_Aquic Moisture Regim		Listed on Local Hydric		
				Listed on National Hyd		
-	Х	Reducing Conditions				
		_Gleyed or Low-Chrom	a Colors	Other (explain in remain	iks)	
Remarks:						
r comanc.						
WETLAND I	DETERMIN	ATION				
Hydrophytic	Vegetation	Present? Y	es X	No Is th	is Sampling Point	Within a Wetland
Wetland Hyd	drology Pres	sent? Y	es X	No		
Hydric Soils	Present?	Υ	es X	No Ye	es X	No
Remarks:	Photo1428					

Project/Site:	I-64 Peninsula				Date:	11/3/2011	1
Applicant/Owner:	VDOT				County:	New Kent	
Investigator:	Scot Aitkenhead				State:	Virginia	
Community ID:	DEO		Transact ID:	٨		Diet ID:	\//ET 75\/
Community ID:	PFO		Transect ID: _	A		Plot ID:	WET 75M
Do Normal Conditions	exist on the site?		Yes	Х	N	lo	
Is the site significantly	disturbed (Atypical situati	on)?	Yes		N	lo X	_
Is the area a potential	Problem Area?		Yes		N	lo X	_
If needed, explain on r	everse						_
VEGETATION							
120217111011	Dominant Plant	Species					
Common		Scientific	Name		Stratum		Indicator
1. Sensitive	Fern	Onoclea s	sensibilis		Н	_	FACW
Red Mapl	е	Acer rubri	um		T,S		FAC
3. Blackgum	1	Nyssa syl	vatica		T,S		FAC
4. Sweet Gu			oar styraciflua		T,S		FAC
Cinnamor	n Fern	Osmunda	cinnamomea		Н		FACW
6. Ironwood		Carpinus	caroliniana		S		FACW+
7.							
8.							
9.							
10.							
11.							
12.							
· ·	pecies that are OBL, FAC	W or FAC	_		100%		_
(excluding FAC-)							
Remarks:							
HYDROLOGY							
Recorded Data (Descr	ibe in Remarks):		Wetland Hydr	ology Ind	icators:		
	Streams		Primary Indica	ators:			
	Aerial Photographs			nundated			
	Other		X S	Saturated	in Upper 12	inches	
No Recor	ded Data Available			Vater Ma			
				rift Lines			
					Deposits		
Field Observations:				•	Patterns in W		
Depth of Surface Water		(in.)	Secondary Inc				
Depth to Free Water in		(in.)				ls in Upper 12	inches
Depth to Saturated So	il: <u> </u>	(in.)			ined Leaves		
					Survey Data		
				AC-Neut			
			C	tner (Exp	olain in Rema	arks)	
Remarks:							
inemarks.							

Commun	ity ID:	PFO	Transect	ID: A	Plot ID:	WET 75M
SOILS						
Map Unit Na						
(Series and					Drainage Class: _	
		firm Mapped Type?	Yes	No		
Taxonomy (Subgroup):					
		M () O I	M (() 0 1	NA ((1)	T . 0	0
D (1 (1)		Matrix Color	Mottle Colors	Mottle		cretions, Structures,
Depth (in)	Horizon	(Munsell Moist)	(Munsell Moist)	Abundance/Contra	ast etc.	
0-16	۸	5VD 2/4				
0-16	A	5YR 3/1				
Hydric Soil I	ndicators:	Yes	Χ	No		
(If yes, chec		162		110		
(II yes, chec	K (IIIeIII)	Histosol		Concretions		
		_Histic Epidon		High Organic Conte	nt in Surface Laver i	n Sandy Soils
		Sulfidic Odor		Organic Streaking in		11 Sariuy Solis
		Aquic Moisture Regime		Listed on Local Hyd		
		Reducing Conditions		Listed on National H		
	X	Gleyed or Low-Chroma C	`olore	Other (explain in rer		
		_ Oleyed of Low-Officina C		Other (explain in rei	narks)	
Remarks:						
WETLAND I	DETERMIN	ATION				
Hydrophytic	-			NoIs	this Sampling Point	Within a Wetland
Wetland Hyd		sent? Yes		No		
Hydric Soils	Present?	Yes	Х	No	Yes X	No
Remarks:	Photo 1432	2				

Project/Site:	I-64 Peninsula				Date:	11/3/2011	1
Applicant/Owner:	VDOT				County:	New Kent	
Investigator:	Scot Aitkenhead				State:	Virginia	
Community ID:	PFO		Transect ID:	А		Plot ID:	WET 76M
Do Normal Conditio			Yes_	Х		lo	_
-	tly disturbed (Atypical situat	ion)?	Yes_			lo X	_
Is the area a potenti			Yes_		N	lo X	_
If needed, explain o	n reverse						
VEGETATION							
	Dominant Plant	Species					
Commo	on Name	Scientific	Name		Stratum	_	Indicator
1. River B	Birch	Betula ni	gra		Т		FACW
	l Sweetpepperbush	Clethra a	Inifolia		S		FAC+
	ve Fern	Onoclea	sensibilis		Н		FACW
4. Ironwo	od	Carpinus	caroliniana		S		FACW+
5. Red Ma		Acer rubi			T,S		FAC
•	sh Blueberry	Vacciniui	m corymbosum		S		FACW-
7.							
8.							
9.							
10.							
11.							
12.							
	t species that are OBL, FAC	CW or FAC	_		100%		_
(excluding FAC-)							
Remarks:							
HYDROLOGY			To a constant				
Recorded Data (De:	·		Wetland Hydr		icators:		
	Streams		Primary Indica				
	Aerial Photographs			nundated			
	Other				in Upper 12	inches	
No Red	corded Data Available			Vater Ma			
				Orift Lines			
					Deposits		
Field Observations:				•	Patterns in W		
Depth of Surface W		(in.)	Secondary Inc	,			
Depth to Free Wate		(in.)				ls in Upper 12	inches
Depth to Saturated	Soil:	(in.)			ined Leaves		
					Survey Data		
				AC-Neut		aules)	
				λιυει (ΕΧΙ	olain in Rema	arks)	
Remarks:			<u> </u>				
Tromains.							

Commun	ity ID:	PFO	Transect I	D: <u>A</u>	Plot ID:	WET 76M
					_	
SOILS						
Map Unit Na	me					
(Series and	Phase):				Orainage Class:	
Field Observ	ations Con	firm Mapped Type?	Yes	No	_	
Taxonomy (Subgroup):			_	_	
		Matrix Color	Mottle Colors	Mottle	Textures, Conc	retions, Structures,
Depth (in)	Horizon	(Munsell Moist)	(Munsell Moist)	Abundance/Contrast	etc.	
		,	,			
0-16	Α	G1 4/N			Loamy sand	
						-
lladria Caille		Va	- V N	.la		
Hydric Soil I		Ye	sX	No		
(If yes, chec	k tnem)	18.4		0 "		
		_ Histosol		Concretions		
		_Histic Epidon		High Organic Content i		Sandy Soils
		_Sulfidic Odor		Organic Streaking in S		
,		_Aquic Moisture Regime		Listed on Local Hydric		
		Reducing Conditions		Listed on National Hyd		
	Χ	_Gleyed or Low-Chroma	Colors	Other (explain in remain	·ks)	
Remarks:						
WETLAND I	DETERMIN	ATION				
Hydrophytic	Vegetation	Present? Yes	s <u>X</u>	No Is thi	is Sampling Point	Within a Wetland
Wetland Hyd	drology Pres	sent? Ye	s X	No		
Hydric Soils		Ye	s X	No Ye	es X	No
Remarks:	Photo 1434	1		•		

Project/Site:	I-64 Peninsula				Date:	11/3/2011	
Applicant/Owner:	VDOT				County:	New Kent	
Investigator:	Scot Aitkenhead				State:	Virginia	
Community ID:	PFO		Transect ID:	Α	_	Plot ID:	WET 77M
Do Normal Condition	os exist on the site?		Yes	Х	N	0	
	ly disturbed (Atypical situa	tion)?	Yes		_		•
Is the area a potentia			Yes		_		•
If needed, explain or							•
VEGETATION							
	Dominant Plan	t Species					
Commo	n Name	Scientific	Name		Stratum	_	Indicator
1. River Bi	rch	Betula nig	ra		S		FACW
2. Black W	/illow	Salix nigra	9		S		FACW+
Sensitiv		Onoclea s			Н		FACW
4. Royal F	ern	Osmunda	-		Н		OBL
5. Smooth		Alnus seri	rulata		S		OBL
6. Red Ma	-	Acer rubru			S		FAC
7. Lizard's	Tail	Saururus	cernuus		Н		OBL
8.							
9.							
10.							
11.							
12.		5144 - 54.0			4000/		
	species that are OBL, FAC	JW or FAC	_		100%		
(excluding FAC-)							
Remarks:							
HYDROLOGY							
Recorded Data (Des	cribe in Remarks):		Wetland Hydro		icators:		
	Streams		Primary Indica	tors:			
X	Aerial Photographs			undated			
	Other				in Upper 12 i	nches	
No Rec	orded Data Available			ater Maı			
				rift Lines			
					Deposits		
Field Observations:				_	Patterns in W		
Depth of Surface Wa		(in.)	Secondary Ind			•	
Depth to Free Water		(in.)				s in Upper 12 ir	nches
Depth to Saturated S	Soil: 0	(in.)			ined Leaves		
					Survey Data		
				AC-Neut			
			O	ıner (Exp	olain in Rema	irks)	
Remarks:							
T.Omarko.							

Community	y ID:	PFO		Transect ID	D:A	Plot ID:	WET 77M
						_	
SOILS							
Map Unit Nam							
(Series and P						Orainage Class:	
		firm Mapped Type	e?	Yes	No	_	
Taxonomy (Sı	ubgroup):						
		Matrix Co		Mottle Colors	Mottle		retions, Structures,
Depth (in)	Horizon	(Munsell M	oist)	(Munsell Moist)	Abundance/Contrast	etc.	
						No soils taken	
			.,				
Hydric Soil Ind			Yes	N	lo		
(If yes, check	them)	18 4			0 "		
_		_Histosol			Concretions		0 1 0 "
_		_Histic Epidon			High Organic Content i		Sandy Soils
_		_Sulfidic Odor			Organic Streaking in S		
_		_Aquic Moisture	-	X	Listed on Local Hydric		
_		_Reducing Cond			Listed on National Hyd		
_		_Gleyed or Low-	Chroma Colo	ors	Other (explain in remain	rks)	
Remarks:							
WET! AND D	ETERMAN	ATION					
WETLAND DI							
Hydrophytic V			Yes	X N		is Sampling Point	Within a Wetland
Wetland Hydro		sent?	Yes	X N			
Hydric Soils P	resent?		Yes	N	10 Ye	es X	No
.	N 4 4 : =						
Remarks: P	Photo1435						

Project/Site:	I-64 Peninsula				Date:	11/3/2011	
Applicant/Owner:	VDOT				County:	New Kent	
Investigator:	Scot Aitkenhead				State:	Virginia	
						'	
Community ID:	PFO		Transect ID:	Α		Plot ID:	WET 78M
	ons exist on the site?		Yes_	Х	_ N		_
-	ntly disturbed (Atypical sit	uation)?	Yes_		_ N		_
	ntial Problem Area?		Yes_		_ N	o <u>X</u>	_
If needed, explain	on reverse						
\/===== A = A							
VEGETATION	D : (D)						
	Dominant PI				0, ,		1 2 4
	non Name	Scientific N			Stratum	_	Indicator
	d's Tail	Saururus			H		OBL
2. River		Betula nig			T,S		FACW
_	oush Blueberry		corymbosum		S		FACW-
	mon Fern		cinnamomea		H		FACW
5. Sycar			occidentalis		T,S		FACW-
6. Royal		Osmunda	-		H		OBL
7. Red N 8.	ларіе	Acer rubru	IIII		T,S		FAC
9.							
10.							
11.							
12.							
	nt species that are OBL, F	ACW or EAC			100%		
(excluding FAC-)	The species that are ODE, I	AOW OF FAC	_		10070		-
Remarks:							
Tromano.							
HYDROLOGY							
Recorded Data (De	escribe in Remarks):		Wetland Hydr	ology Indi	icators:		
	Streams		Primary Indica	ators:			
	Aerial Photographs			nundated			
	Other		X	Saturated	in Upper 12 i	nches	
No Re	ecorded Data Available		V	Vater Mar	ks		
				Drift Lines			
			X S	Sediment I	Deposits		
Field Observations	3:		X	Drainage F	Patterns in W	etlands/	
Depth of Surface V	Vater:	(in.)	Secondary In	dicators (2	2 or more rec	quired):	
Depth to Free Wat	er in Pit: 1	(in.)		Dxidized R	Root Channel	s in Upper 12 i	nches
Depth to Saturated	d Soil:	(in.)	X	Vater-Stai	ined Leaves		
					Survey Data		
			F	AC-Neutr	ral Test		
				Other (Exp	olain in Rema	arks)	
Remarks: Crayf	fish burrows						

Commun	ity ID:	PFO	Transec	t ID: A	Plot ID:	WET 78M
					_	
SOILS						
Map Unit Na						
(Series and	Phase):				Orainage Class:	
Field Observ	ations Con	firm Mapped Type?	Yes	No	_	
Taxonomy (Subgroup):					
		Matrix Color	Mottle Colors	Mottle	Textures, Cond	cretions, Structures,
Depth (in)	Horizon	(Munsell Moist)	(Munsell Moist)	Abundance/Contrast	etc.	
0-16	Α	7.5YR 3/1			Sandy clay loa	m
Hydric Soil I	ndicators:	Υ	res X	No		
(If yes, chec	k them)					
		Histosol		Concretions		
,		Histic Epidon		High Organic Content in	n Surface Layer i	n Sandy Soils
		Sulfidic Odor		Organic Streaking in Sa		·
		– Aquic Moisture Regin	ne	Listed on Local Hydric		
•		Reducing Conditions		Listed on National Hydi		
		Gleyed or Low-Chron	na Colors	Other (explain in remar		
		_ 0.0,00 0. 2011 0.11011		отног (охрашт ит голлаг	110)	
Remarks:						
				_		
WETLAND I	DETERMIN	ATION				
Hydrophytic			res X	No Is thi	s Sampling Point	Within a Wetland
Wetland Hyd			res X	No		
Hydric Soils			res X		esX	No
yano oons	. 1000111:	'	<u> </u>			
Remarks:	Photo1439					
. tomanto.	. 110101700					

Project/Site:	I-64 Peninsula			Date:		
Applicant/Owner:	VDOT			County:	New Kent	
Investigator:	Scot Aitkenhead			State:	Virginia	
Community ID:	PFO	Trans	sect ID:	Α	Plot ID:	WET 79M
			.,			
Do Normal Condition			Yes		No	_
-	y disturbed (Atypical situa	ation)?	Yes		No X	_
Is the area a potentia			Yes		No X	_
If needed, explain or	reverse					
VEGETATION						
_	Dominant Plar	· ·				
Commo		Scientific Name		Stratun	<u>n</u>	Indicator
. •	um Moss	Sphagnum		Н		
	Sweetpepperbush	Clethra alnifolia		S		FAC+
3. Red Ma		Acer rubrum		Т		FAC
4. Sensitiv		Onoclea sensibil		Н		FACW
5. Royal F		Osmunda regalis		Н		OBL
	Tail	Saururus cernuu	S	Н		OBL
7.						
7. 3.						
7. 3. 9.						
7. 3. 9. 10.						
7. 8. 9. 10. 11.						
7. 8. 9. 10. 11.						
7. 8. 9. 10. 11. 12. Percent of dominant	species that are OBL, FA	CW or FAC		100%	<u>,</u>	_
7. 8. 9. 10. 11. 12. Percent of dominant (excluding FAC-)	species that are OBL, FA	CW or FAC		100%	5	_
7. 8. 9. 10. 11. 12. Percent of dominant (excluding FAC-)	species that are OBL, FA	CW or FAC		100%	, ,	_
7. 3. 9. 10. 11. 12. Percent of dominant (excluding FAC-)	species that are OBL, FA	CW or FAC		100%	·)	_
7. 8. 9. 10. 11. 12. Percent of dominant (excluding FAC-) Remarks:	species that are OBL, FA	CW or FAC		100%	5	_
7. 8. 9. 10. 11. 12. Percent of dominant (excluding FAC-) Remarks:			land Hydrold			_
7. 8. 9. 10. 11. 12. Percent of dominant (excluding FAC-) Remarks:		Wet	land Hydrold	gy Indicators:		
7. 3. 9. 10. 11. 12. Percent of dominant (excluding FAC-) Remarks:	cribe in Remarks):Streams	Wet	nary Indicato	gy Indicators:		
7. 3. 9. 10. 11. 12. Percent of dominant (excluding FAC-) Remarks:	cribe in Remarks):	Wet	nary Indicato Inur	gy Indicators:		
7. 3. 9. 10. 11. 12. Percent of dominant (excluding FAC-) Remarks: HYDROLOGY Recorded Data (Des	cribe in Remarks):StreamsAerial Photographs	Wet	nary Indicato Inur Sat	gy Indicators: rs: idated		
7. 8. 9. 10. 11. 12. Percent of dominant (excluding FAC-) Remarks: HYDROLOGY Recorded Data (Des	cribe in Remarks): Streams Aerial Photographs Other	Wet	nary Indicato Inur Sati Wa	gy Indicators: rs: idated urated in Upper 12		
7. 8. 9. 10. 11. 12. Percent of dominant (excluding FAC-) Remarks: HYDROLOGY Recorded Data (Des	cribe in Remarks): Streams Aerial Photographs Other	Wet	nary Indicato Inur Sati Wai	gy Indicators: rs: idated urated in Upper 12 er Marks Lines		
7. 3. 9. 10. 11. 12. Percent of dominant (excluding FAC-) Remarks: HYDROLOGY Recorded Data (Des	cribe in Remarks): Streams Aerial Photographs Other	Wet	nary Indicato Inur Sati War Drif X Sec	gy Indicators: rs: idated urated in Upper 12 er Marks Lines iment Deposits	2 inches	
7. 3. 9. 10. 11. 12. Percent of dominant (excluding FAC-) Remarks: HYDROLOGY Recorded Data (Des No Recorded Observations:	cribe in Remarks):StreamsAerial PhotographsOther orded Data Available	Wet	nary Indicato Inur Sati War Drif X Sec X Dra	gy Indicators: rs: idated urated in Upper 12 er Marks Lines iment Deposits nage Patterns in N	2 inches Wetlands	
7. 3. 9. 10. 11. 12. Percent of dominant (excluding FAC-) Remarks: HYDROLOGY Recorded Data (Des No Recorded Observations: Depth of Surface Wa	cribe in Remarks): Streams Aerial Photographs Other orded Data Available	Wet Prim	nary Indicato Inur Sate Wat Drif X Sec X Dra ondary Indic	gy Indicators: rs: rdated urated in Upper 12 er Marks Lines iment Deposits nage Patterns in Nators (2 or more re	2 inches Wetlands equired):	inches
7. 3. 9. 10. 11. 12. Percent of dominant (excluding FAC-) Remarks: HYDROLOGY Recorded Data (Des No Recorded Observations: Depth of Surface Water	cribe in Remarks): Streams Aerial Photographs Other orded Data Available ter:	Wet Prim	nary Indicato Inur Satr War Drif X Sec X Dra ondary Indic	gy Indicators: rs: idated urated in Upper 12 er Marks Lines iment Deposits nage Patterns in Vators (2 or more re	2 inches Wetlands equired): els in Upper 12	rinches
7. 3. 9. 10. 11. 12. Percent of dominant (excluding FAC-) Remarks: HYDROLOGY Recorded Data (Des No Recorded Observations: Depth of Surface Water	cribe in Remarks): Streams Aerial Photographs Other orded Data Available ter:	Wet Prim	nary Indicato Inur Satr War Drif X Sec X Dra ondary Indic Oxic X War	gy Indicators: rs: Idated Irated in Upper 12 er Marks Lines iment Deposits nage Patterns in Vators (2 or more redized Root Channer-Stained Leaves	2 inches Wetlands equired): els in Upper 12	inches
7. 8. 9. 10. 11. 12. Percent of dominant (excluding FAC-) Remarks: HYDROLOGY Recorded Data (Des	cribe in Remarks): Streams Aerial Photographs Other orded Data Available ter:	Wet Prim	nary Indicato Inur Sati War Drif X Sec X Dra ondary Indic Oxic X War Loc	gy Indicators: rs: adated urated in Upper 12 er Marks Lines iment Deposits nage Patterns in Vators (2 or more redized Root Channer-Stained Leaves	2 inches Wetlands equired): els in Upper 12	inches
7. 8. 9. 10. 11. 12. Percent of dominant (excluding FAC-) Remarks: HYDROLOGY Recorded Data (Des No Recorded Des Pield Observations: Depth of Surface Water	cribe in Remarks): Streams Aerial Photographs Other orded Data Available ter:	Wet Prim	nary Indicato Inur Sati Wai Drif X Sec X Dra ondary Indic Oxi X Wai Loc FAC	gy Indicators: rs: Idated Irated in Upper 12 er Marks Lines iment Deposits nage Patterns in Vators (2 or more redized Root Channer-Stained Leaves	2 inches Wetlands equired): els in Upper 12 s a	inches

Commun	ity ID:	PFO	Transect	ID: A	Plot ID:	WET 79M
SOILS						
Map Unit Na				_		
(Series and				D	rainage Class:	
		firm Mapped Type?	Yes	No	_	
Taxonomy (Subgroup):					
		M (; O)	M (() 0 1	NA col	T (0	0
D (1 (1)		Matrix Color	Mottle Colors	Mottle		cretions, Structures,
Depth (in)	Horizon	(Munsell Moist)	(Munsell Moist)	Abundance/Contrast	etc.	
0-16	۸	7 EVD 2/4			Sandy alay lag	m
0-16	A	7.5YR 3/1			Sandy clay loar	11
Hydric Soil I	ndicators:	Yes	Χ	No		
(If yes, chec		103				
(11 y 00, 01100	it thomy	Histosol		Concretions		
		Histic Epidon		High Organic Content in	n Surface Laver in	Sandy Soils
		Sulfidic Odor		Organic Streaking in Sa		Touridy Collo
		Aquic Moisture Regime		Listed on Local Hydric S	-	
		Reducing Conditions		Listed on National Hydr		
	Х	Gleyed or Low-Chroma C	olors	Other (explain in remark		
		,			,	
Remarks:						
WETLAND						
Hydrophytic	-	-			s Sampling Point	Within a Wetland
Wetland Hyd				No		
Hydric Soils	Present?	Yes	X	No Ye	s X	No
	DI					
Remarks:	Photo 1444	1				

Project/Site:	I-64 Peninsula			Date:	11/3/201	·
Applicant/Owner:	VDOT			County:	New Kent	
Investigator:	Scot Aitkenhead			State:	Virginia	
Community ID:	PFO		Transect ID:	Α	Plot ID:	WET 80M
Do Normal Condition			Yes		No	_
	y disturbed (Atypical situa	ition)?	Yes		No X	
ls the area a potentia			Yes	N	No X	
f needed, explain or	reverse					
VEGETATION						
	Dominant Plan	-				
Commo		Scientific		Stratum	<u> </u>	Indicator
 River Bi 		Betula ni	-	T,S		FACW
	Sweetpepperbush	Clethra a		S		FAC+
3. Red Ma		Acer rub		T,S		FAC
4. Sweet G		-	nbar styraciflua	T,S		FAC
5. Ironwoo	d	Carpinus	caroliniana	S		FACW+
2						
7.						
7. 3.						
7. 3. 9.						
7. 3. 9. 10.						
7. 3. 9. 10. 11.						
7. 8. 9. 10. 11.						
7. 3. 9. 10. 11. 12. Percent of dominant	species that are OBL, FA	CW or FAC		100%		_
7. 3. 9. 10. 11. 12. Percent of dominant (excluding FAC-)	species that are OBL, FA	CW or FAC		100%		_
7. 3. 9. 10. 11. 12. Percent of dominant (excluding FAC-)	species that are OBL, FA	CW or FAC		100%		_
7. 3. 9. 10. 11. 12. Percent of dominant (excluding FAC-)	species that are OBL, FA	CW or FAC		100%		
7. 3. 9. 10. 11. 12. Percent of dominant (excluding FAC-) Remarks:	species that are OBL, FA	CW or FAC		100%		_
7. 3. 9. 10. 11. 12. Percent of dominant (excluding FAC-) Remarks:		CW or FAC	Wetland Hydrolo			_
7. 3. 9. 10. 11. 12. Percent of dominant excluding FAC-) Remarks:		CW or FAC	Wetland Hydrolo Primary Indicator	gy Indicators:		_
7. 3. 9. 10. 11. 12. Percent of dominant excluding FAC-) Remarks:	cribe in Remarks):	CW or FAC	Primary Indicator	gy Indicators:		_
7. 3. 9. 10. 11. 12. Percent of dominant (excluding FAC-) Remarks:	cribe in Remarks):Streams	CW or FAC	Primary Indicator	gy Indicators: s:	inches	_
7. 3. 9. 10. 11. 12. Percent of dominant (excluding FAC-) Remarks: HYDROLOGY Recorded Data (Des	cribe in Remarks):StreamsAerial Photographs	CW or FAC	Primary Indicator	gy Indicators: s: dated	inches	_
7. 3. 9. 10. 11. 12. Percent of dominant (excluding FAC-) Remarks: HYDROLOGY Recorded Data (Des	cribe in Remarks): Streams Aerial Photographs Other	CW or FAC	Primary Indicator Inur Satu Wat	gy Indicators: s: dated rated in Upper 12	inches	_
7. 3. 9. 10. 11. 12. Percent of dominant (excluding FAC-) Remarks: HYDROLOGY Recorded Data (Des	cribe in Remarks): Streams Aerial Photographs Other	CW or FAC	Primary Indicator	gy Indicators: s: dated irated in Upper 12 er Marks	inches	
7. 3. 9. 10. 11. 12. Percent of dominant excluding FAC-) Remarks: HYDROLOGY Recorded Data (Des	cribe in Remarks): Streams Aerial Photographs Other	CW or FAC	Primary Indicator Inur Satu Wat Drift X Sed	gy Indicators: s: dated rrated in Upper 12 er Marks Lines		_
7. 3. 3. 9. 10. 11. 12. Percent of dominant excluding FAC-) Remarks: HYDROLOGY Recorded Data (Des No Recorded	cribe in Remarks):StreamsAerial PhotographsOther orded Data Available	CW or FAC	Primary Indicator Inur Satu Wat Drift X Sed X Drai	gy Indicators: s: dated rated in Upper 12 er Marks Lines ment Deposits	Vetlands	_
7. 3. 9. 10. 11. 12. Percent of dominant excluding FAC-) Remarks: HYDROLOGY Recorded Data (Des No Recorded Observations: Depth of Surface Wa	cribe in Remarks): Streams Aerial Photographs Other orded Data Available	(in.)	Primary Indicator Inur Satu Wat Drift X Sed X Drai Secondary Indicator	gy Indicators: s: dated irated in Upper 12 er Marks Lines ment Deposits nage Patterns in Witors (2 or more rec	Vetlands quired):	inches
7. 3. 9. 10. 11. 12. Percent of dominant (excluding FAC-) Remarks: HYDROLOGY Recorded Data (Des No Recorded Observations: Depth of Surface Water	cribe in Remarks):StreamsAerial PhotographsOther orded Data Available tter: in Pit:	(in.)	Primary Indicator Inur Satu Wat Drift X Sed X Drai Secondary Indica	gy Indicators: s: dated rated in Upper 12 er Marks Lines ment Deposits nage Patterns in W	Vetlands quired): els in Upper 12	inches
7. 3. 9. 10. 11. 12. Percent of dominant (excluding FAC-) Remarks: HYDROLOGY Recorded Data (Des No Recorded Observations: Depth of Surface Water	cribe in Remarks):StreamsAerial PhotographsOther orded Data Available tter: in Pit:	(in.)	Primary Indicator Inur Satu Wat Drift X Sed X Drai Secondary Indica Oxic X Wat	gy Indicators: s: dated rated in Upper 12 er Marks Lines ment Deposits nage Patterns in W stors (2 or more rec	Vetlands quired): els in Upper 12	inches
(excluding FAC-) Remarks: HYDROLOGY Recorded Data (Des	cribe in Remarks):StreamsAerial PhotographsOther orded Data Available tter: in Pit:	(in.)	Primary Indicator Inur Satu Wat Drift X Sed X Drai Secondary Indica Oxio X Wat Loca	gy Indicators: s: dated irated in Upper 12 er Marks Lines ment Deposits nage Patterns in W itors (2 or more red	Vetlands quired): els in Upper 12	inches
7. 8. 9. 10. 11. 12. Percent of dominant (excluding FAC-) Remarks: HYDROLOGY Recorded Data (Des No Recorded Observations: Depth of Surface Water	cribe in Remarks):StreamsAerial PhotographsOther orded Data Available tter: in Pit:	(in.)	Primary Indicator Inur Satu Wat Drift X Sed X Drai Secondary Indica Oxio X Wat Loca FAC	gy Indicators: s: dated arated in Upper 12 er Marks Lines ment Deposits nage Patterns in Wators (2 or more red lized Root Channe er-Stained Leaves al Soil Survey Data	Vetlands quired): els in Upper 12	inches

Commun	ity ID:	PFO	Transect	ID: A	Plot ID:	WET 80M
SOILS						
Map Unit Na				D	rainaga Classi	
(Series and		firm Mapped Type?	Voc	No	rainage Class: _	
Taxonomy (Yes	INU	_	
Taxonomy (Subgroup).	-				
		Matrix Color	Mottle Colors	Mottle	Textures Cond	cretions, Structures,
Depth (in)	Horizon	(Munsell Moist)	(Munsell Moist)	Abundance/Contrast	etc.	notiono, otraotaroo,
Doptii (iii)	110112011	(Marioon Molot)	(Marioon Moiot)	/ Ibandanoo/ Contract	0.0.	
0-16	Α	7.5YR 3/2	5YR 4/6	5%	Sandy loam	
			0111111			
I Ivalaia Cail I		Vaa	V	Ma		
Hydric Soil I		Yes	X	No		
(If yes, chec	k tnem)	History		Compretions		
		_ Histosol		Concretions	· Conford Laver:	n Candy Caila
		Histic Epidon		High Organic Content in		n Sandy Solls
		_Sulfidic Odor		Organic Streaking in Sa	-	
		_Aquic Moisture Regime		Listed on Local Hydric S		
	X	_Reducing Conditions		Listed on National Hydr		
	X	_Gleyed or Low-Chroma C	olors	Other (explain in remark	(S)	
Remarks:						
Remarks.						
WETLAND	DETERMIN	ATION				
Hydrophytic			X	No Is this	Sampling Point	Within a Wetland
Wetland Hyd	-			No	, camping i onit	
Hydric Soils		Yes			s X	No
1, 35 55/10		100				
Remarks:	Photo1443			I		

Project/Site:	I-64 Peninsula				Date:	11/3/2011	
Applicant/Owner:	VDOT				County:	New Kent	
Investigator:	Scot Aitkenhead				State:	Virginia	
	BE0		T (15			DI . ID	VVET 0.414
Community ID:	PFO		Transect ID:	A	_	Plot ID:	WET 81M
Do Normal Condition	ns exist on the site?		Yes	Х	N	lo	
Is the site significant	tly disturbed (Atypical situat	tion)?	Yes		N	lo X	_
Is the area a potentia	al Problem Area?	,	Yes		N	lo X	_
If needed, explain or	n reverse		_			'	_
VEGETATION							
	Dominant Plan	t Species					
Commo	on Name	Scientific	Name		Stratum		Indicator
1. Sensitiv		Onoclea			Н	_	FACW
2. Ironwoo	od	Carpinus	caroliniana		S		FACW+
3. Red Ma	aple	Acer rubi			T,S		FAC
4. Lizard's	•	Saururus	cernuus		H		OBL
	on Elderberry	Sambucu	ıs canadensis		S		FACW-
6. Sweet 0		Liquidam	bar styraciflua		T,S		FAC
7. Net-Vei	ned Chain Fern	Woodwa	rdia areolata		Н		FACW+
8. Cinnam	non Fern	Osmunda	a cinnamomea		Н		FACW
9.							
10.							
11.							
12.							
Percent of dominant	species that are OBL, FAC	CW or FAC	_		100%		
(excluding FAC-)							
Remarks:							
HYDROLOGY							
Recorded Data (Des	scribe in Remarks):		Wetland Hydr	ology Ind	licators:		
,	Streams		Primary Indica				
	Aerial Photographs			nundated			
	Other		S	aturated	in Upper 12 i	inches	
No Rec	orded Data Available		V	Vater Ma	rks		
				rift Lines	•		
			X	ediment	Deposits		
Field Observations:			X	rainage	Patterns in W	etlands/	
Depth of Surface Wa	ater:	(in.)	Secondary Inc	dicators (2 or more red	quired):	
Depth to Free Water	r in Pit:	(in.)		xidized F	Root Channel	ls in Upper 12	inches
Depth to Saturated S	Soil:	(in.)	X V	Vater-Sta	ined Leaves		
					Survey Data		
				AC-Neut			
			C	ther (Exp	plain in Rema	arks)	
Domorko							
Remarks:							

Commun	ity ID:	PFO	Transect	ID:A	Plot ID:	WET 81M
SOILS						
Map Unit Na				-		
(Series and		" M IT O			Orainage Class:	
		firm Mapped Type?	Yes	No	_	
Taxonomy (Subgroup):					
		Matrix Calar	Mattle Calera	Mattle	Taydynaa Cana	unations Otherstones
Donth (in)	Horizon	Matrix Color	Mottle Colors	Mottle		cretions, Structures,
Depth (in)	Horizon	(Munsell Moist)	(Munsell Moist)	Abundance/Contrast	etc.	
0-16	Α	10YR 5/1			Loamy sand	
0-10	A	1011 3/1			Loanly Sand	
Hydric Soil I		Ye	es X	No		
(If yes, chec	k them)					
•		_Histosol		Concretions		
,		Histic Epidon		High Organic Content in		1 Sandy Soils
•		_Sulfidic Odor		Organic Streaking in Sa		
,		_Aquic Moisture Regime		Listed on Local Hydric		
,		_Reducing Conditions		Listed on National Hyd		
	Х	_Gleyed or Low-Chroma	a Colors	Other (explain in remar	ks)	
Damada						
Remarks:						
WETLAND I	DETERMIN	ΔΤΙΟΝ				
Hydrophytic			es X	No Is thi	s Sampling Point	Within a Wetland
Wetland Hyd				No IS IIII	- 2apig i oiit	a rrouding
Hydric Soils		Ye			esX	No
yano oons	. 1000111:	10	~ <u>~</u>			
Remarks:	Photo1446			l		

Project/Site:	I-64 Peninsula				Date:	11/3/2011	
Applicant/Owner:	VDOT				County:	New Kent	
Investigator:	Scot Aitkenhead				State:	Virginia	
Community ID:	PFO	_	Transect ID: _	Α	_	Plot ID:	WET 82M
Do Normal Conditions	s exist on the site?		Yes	Х	N	0	
	/ disturbed (Atypical situat	ion)?	Yes		_		-
Is the area a potential	` • •	, .	Yes		N		_
If needed, explain on			_		_		-
VEGETATION							
	Dominant Plant	-	la an a		Ctuatura		la di cata a
Common Lizard's		Scientific N			Stratum H	_	Indicator_ OBL
 Lizard's ⁻ Sweet G 		Saururus (ar styraciflua		п T,S		FAC
3. Sensitive		Onoclea s	-		1,5 H		FACW
4. Cinnamo			cinnamomea		н		FACW
5. Red Map		Acer rubru			T,S		FAC
6. Royal Fe		Osmunda			H		OBL
7.							
8.							
9.							
10.							
11.							
12.		540			4000/		
	species that are OBL, FAC	W or FAC	_		100%		_
(excluding FAC-) Remarks:							
Remarks.							
HYDROLOGY			T				
Recorded Data (Desc	•		Wetland Hydr	0.	icators:		
	Streams		Primary Indica				
	Aerial Photographs Other			nundated	in Upper 12 i	inches	
No Reco	rded Data Available			Vater Mai		inches	
11011000	rada Bata / tvaliable			rift Lines			
				ediment			
Field Observations:					atterns in W	etlands	
Depth of Surface Wat	er: 1	(in.)	Secondary Ind	dicators (2 or more red	quired):	
Depth to Free Water i	in Pit: 0	(in.)		xidized F	Root Channel	ls in Upper 12 i	nches
Depth to Saturated So	oil: 0	(in.)			ined Leaves		
					Survey Data		
				AC-Neut			
			c	other (Exp	olain in Rema	arks)	
Remarks:							
indinains.							

Commun	ity ID:	PFO	Transect II	D: <u> </u>	Plot ID:	WET 82M
SOILS						
Map Unit Na				_		
(Series and		" NA LT O			Orainage Class:	
		firm Mapped Type?	Yes	No	_	
Taxonomy (Subgroup):					
		Matrix Calar	Mattle Calera	Mattle	Tayturas Cana	entinum Churchuman
Donth (in)	Horizon	Matrix Color	Mottle Colors	Mottle		retions, Structures,
Depth (in)	Horizon	(Munsell Moist)	(Munsell Moist)	Abundance/Contrast	etc.	
0-16	Α	5YR 3/1			Sandy loam	
0-10	A	31K 3/1			Sandy Idam	
Hydric Soil I		Yes	s <u>X</u> N	lo		
(If yes, chec	k them)					
		_Histosol		Concretions		
,		_Histic Epidon		High Organic Content i		Sandy Soils
•		_Sulfidic Odor		Organic Streaking in S		
,		_Aquic Moisture Regime		Listed on Local Hydric		
,		_Reducing Conditions		Listed on National Hyd		
	Х	_Gleyed or Low-Chroma	Colors	Other (explain in remain	rks)	
Damada						
Remarks:						
WETLAND I	DETERMIN	ATION				
Hydrophytic			s X N	lo Is thi	is Sampling Point \	Within a Wetland
Wetland Hyd				lo lo	Jamping Follie	a rrottana
Hydric Soils		Yes			es X	No
yano oons	. 1000111:	160		···	~ <u></u>	
Remarks:	Photo1452			<u> </u>		

Project/Site:	I-64 Peninsula				Date:	11/3/2011		
Applicant/Owner:	VDOT				County:	James City		
Investigator:	Scot Aitkenhead				State:	Virginia		
Community ID:	PFO		Transect ID:	А	_	Plot ID:	WET 83M	
Do Normal Conditio	ns exist on the site?		Yes	Х	N	0		
Is the site significan	tly disturbed (Atypical situat	tion)?	Yes			o X		
Is the area a potenti	ial Problem Area?		Yes		N	o X		
If needed, explain o	n reverse				_			
VEGETATION								
	Dominant Plant	-			0		1 12 4	
	on Name	Scientific N			Stratum		Indicator	
1. River B		Betula nigi			T,S		FACW	
	ined Chain Fern	Woodward			H		FACW+	
3. Sensitiv		Onoclea se			Н		FACW OBL	
4. Royal F Lizard's		Osmunda Saururus d	•		H H		OBL	
5. Lizard's6. Red Ma		Acer rubru			T,S		FAC	
	apie ish Blueberry		corymbosum		1,3 S		FACW-	
8.	ish blueberry	vaccinium	COLALIDOSALLI		3		I ACVV-	
9.								
10.								
11.								
12.								
Percent of dominant	t species that are OBL, FAC	CW or FAC			100%			
(excluding FAC-)			_					
Remarks:								
HYDROLOGY								
Recorded Data (Des	scribe in Remarks):		Wetland Hydro	oloav Indi	cators:			
	Streams		Primary Indica					
	Aerial Photographs		-	nundated				
	Other		XS	aturated	in Upper 12 i	nches		
No Rec	corded Data Available		V	/ater Mar	ks			
			D	rift Lines				
			X S	ediment l	Deposits			
Field Observations:			X D	rainage F	Patterns in W	etlands		
Depth of Surface W	ater:	(in.)	Secondary Inc	dicators (2	2 or more req	uired):		
Depth to Free Wate		(in.)				s in Upper 12 in	ches	
Depth to Saturated	Soil:	(in.)			ned Leaves			
					Survey Data			
				AC-Neutr				
			c	ther (Exp	lain in Rema	rks)		
Domarka: Craidia	oh hurrowa		1					
Remarks: Crayfis	SII DUITOWS							

Commun	ity ID:	PFO	Transect I	D: A	Plot ID:	WET 83M
SOILS						
Map Unit Na				-		
(Series and		C N I T O			Drainage Class:	
		firm Mapped Type?	Yes	No	_	
Taxonomy (Subgroup):					
		Matrix Calar	Mattle Calera	Mattle	Taydymaa Cana	maticus Otherstowns
Donth (in)	Horizon	Matrix Color (Munsell Moist)	Mottle Colors (Munsell Moist)	Mottle Abundance/Contrast		retions, Structures,
Depth (in)	Horizon	(Munsell Moist)	(iviuriseii ivioist)	Abundance/Contrast	etc.	
0-16	Α	5YR 3/1			Sandy loam	
0-10	A	31K 3/1			Sandy Idam	
ı						
		.,				
Hydric Soil I		Yes	s <u>X</u> 1	No		
(If yes, chec	k them)	18.4				
		_Histosol		Concretions		
		_Histic Epidon		High Organic Content in		Sandy Soils
		_Sulfidic Odor		Organic Streaking in Sa		
,		_Aquic Moisture Regime		Listed on Local Hydric		
,		Reducing Conditions		Listed on National Hydronic		
	Х	_Gleyed or Low-Chroma	Colors	Other (explain in remar	ks)	
Damarka						
Remarks:						
WETLAND I	DETERMIN	ATION				
Hydrophytic			s X 1	No Is thi	s Sampling Point	Within a Wetland
Wetland Hyd	-			No IS UII		a rrouding
Hydric Soils		Yes			esX	No
yano oons	. 1000111:	16.		~	<u> </u>	
Remarks:	Photo 1453	3		<u> </u>		

Project/Site:	I-64	Peninsula				Date:	11/8/2011	
Applicant/Owner	r: VDC)T				County:	James City	
Investigator:	Scot	Aitkenhead				State:	Virginia	
Community ID:		PFO		Transect ID:			Plot ID:	WET 84M
						_		
Do Normal Cond				Yes_	Χ	N	0	
-	-	ed (Atypical situat	ion)?	Yes_		N		_
Is the area a pot		n Area?		Yes_		N	o X	_
If needed, explai	in on reverse							
VEGETATION								
		Dominant Plant	Species					
Con	mmon Name		Scientific	Name		Stratum		Indicator
1. Liza	ard's Tail		Saururus	cernuus		Н	_	OBL
2. Hall	berd Leaved ⁻	Tearthumb	Polygonui	m arifolium		Н		OBL
	iwood		Carpinus	caroliniana		S		FACW+
4. Ame	erican Sycam	ore	Platanus (occidentalis		Т		FACW-
	nsitive Fern		Onoclea s	sensibilis		Н		FACW
6. High	hush Blueberi	ry	Vacciniun	n corymbosum		S		FACW-
7. Sm	ooth Alder		Alnus seri	rulata		S		OBL
8. Wax	x Myrtle		Morella ce	erifera		S		FAC
9.								
10.								
11.								
12.								
Percent of domir	nant species t	hat are OBL, FAC	W or FAC			100%		
(excluding FAC-))			_				_
Remarks:								
HYDROLOGY								
Recorded Data (Describe in R	Remarks):		Wetland Hydr	ology Ind	icators:		
· ·	Stre	•		Primary Indica	٠.			
	Aeria	al Photographs		-	nundated			
	Othe			X	Saturated	in Upper 12 i	inches	
No	Recorded Date				Vater Mai			
					rift Lines			
				X	Sediment	Deposits		
Field Observatio	ns:			X	rainage l	Patterns in W	etlands	
Depth of Surface	e Water:	1	(in.)	Secondary Inc	dicators (2 or more rec	quired):	
Depth to Free W	ater in Pit:	0	(in.)) Dxidized F	Root Channel	ls in Upper 12 i	nches
Depth to Saturat	ted Soil:	0	(in.)			ined Leaves		
			``		ocal Soil	Survey Data		
				F	AC-Neut	ral Test		
					Other (Exp	olain in Rema	arks)	
Remarks:								

Commun	ity ID:	PFO	Transect ID	D:	Plot ID:	WET 84M
			•			
SOILS						
Map Unit Na	me			<u> </u>		
(Series and	Phase):			D	rainage Class:	
Field Observ	ations Conf	irm Mapped Type?	Yes	No	_	
Taxonomy (Subgroup):				_	
		-				
		Matrix Color	Mottle Colors	Mottle	Textures, Cond	cretions, Structures,
Depth (in)	Horizon	(Munsell Moist)	(Munsell Moist)	Abundance/Contrast	etc.	
1 (/		,	,			
0-9	Α	7.5YR 4/1	5YR 4/6	5%	Loamy sand	
					, , , , , , , , , , , , , , , , , , ,	
9-16	В	10YR 4/2	5YR 4/6	5%	Loamy sand	
0 10		101111/1/2	011(1/0	070	Loamy band	
1						
Hydric Soil I		Yes	X	lo		
(If yes, chec	k them)					
		Histosol		Concretions		
		Histic Epidon		High Organic Content in	Surface Layer i	n Sandy Soils
		Sulfidic Odor		Organic Streaking in Sa	ndy Soils	
		Aquic Moisture Regime		Listed on Local Hydric S	Soils List	
	Х	Reducing Conditions		Listed on National Hydr	ic Soils List	
	Х	Gleyed or Low-Chroma (Colors	Other (explain in remark		
		-			,	
Remarks:						
WETLAND	DETERMINA	ATION				
Hydrophytic			X N	lo le thic	Sampling Doint	Within a Wetland
					Sampling Point	vviuiiii a vvelianu
Wetland Hyd				lo	· V	No
Hydric Soils	resent?	Yes	X N	loYes	S X	No
	DI (1111					
Remarks:	Photo 1414					

Project/Site:	I-64 Peninsula			Date:	11/9/201	1
Applicant/Owner:	VDOT			County:	James City	
Investigator:	Scot Aitkenhead			State:	Virginia	
Community ID:	PFO		Transect ID:	A	Plot ID:	WET 86M
	ons exist on the site?		Yes	X	No	_
•	ntly disturbed (Atypical sit	uation)?	Yes		No X	_
Is the area a poten	tial Problem Area?		Yes		No X	_
If needed, explain of	on reverse					
VEGETATION						
		ant Species				
Comm	non Name	Scientifi		Stratu	<u>m</u>	Indicator
1. Ironwo		Carpinu	s caroliniana	S		FACW+
Spicel	bush	Lindera		S		FACW-
Sensit	tive Fern	Onoclea	sensibilis	Н		FACW
Lizard	's Tail		s cernuus	Н		OBL
Sweet	t Gum	Liquidar	nbar styraciflua	Т		FAC
6. Americ	can Sycamore	Platanus	s occidentalis	Т		FACW-
7.						
8.						
9.						
10.						
11.						
12.						
	nt species that are OBL, F	FACW or FAC	_	100%	6	<u> </u>
(excluding FAC-)						
Remarks:						
HYDROLOGY						
	escribe in Remarks):		Wetland Hydro	ology Indicators:		
	Streams		Primary Indica	tors:		
	Aerial Photographs	5	-	undated		
	Other		Sa	aturated in Upper 1:	2 inches	
No Re	ecorded Data Available			ater Marks		
				rift Lines		
				ediment Deposits		
Field Observations	:			rainage Patterns in	Wetlands	
Depth of Surface W		(in.)		icators (2 or more r		
		(in.)	-	xidized Root Chann		inches
Depth to Free Wate		(in.)		ater-Stained Leave		
•	I SOII:					
•		` ′	Lo	ocal Soil Survey Da	ta	
Depth to Free Wate Depth to Saturated				ocal Soil Survey Da AC-Neutral Test	ta	
•	Soll: 		F/	AC-Neutral Test		
•	Soil: 		F/	•		
•		· ,	F/	AC-Neutral Test		

Community ID:		PFO	Transect I	D:A	_Plot ID: _	WET 86M
SOILS						
Map Unit Na						
(Series and					rainage Class: _	
		irm Mapped Type?	Yes	No	_	
Taxonomy (Subgroup):					
		Matrix Color	Mottle Colors	Mottle	Toyturas Can	protiona Structuras
Depth (in)	Horizon	(Munsell Moist)	(Munsell Moist)	Abundance/Contrast	etc.	cretions, Structures,
Deptil (iii)	110112011	(Mulisell Moist)	(Muliseli Moist)	Abundance/Contrast	eto.	
0-16	Α	5YR 4/1	5YR 4/6	2%	Sandy clay loa	m
Hydric Soil I	ndicators:	Yes	X	No		
(If yes, chec	k them)					
		Histosol		Concretions		
		Histic Epidon		High Organic Content in		n Sandy Soils
		Sulfidic Odor		Organic Streaking in Sa		
		_Aquic Moisture Regime		Listed on Local Hydric S		
	X	Reducing Conditions		Listed on National Hydr		
	X	_Gleyed or Low-Chroma (Colors	Other (explain in remark	ks)	
Remarks:						
WETLAND	DETERMIN	ATION				
Hydrophytic			1 X	No Is this	Sampling Point	Within a Wetland
Wetland Hy				No		
Hydric Soils		Yes			s X	No
Remarks:		rge this wetland with the c	ne it touches	•		
	Photo 1420					

Project/Site:	I-64 Peninsula			Date:		
Applicant/Owner:	VDOT			County:	James City	
nvestigator:	Scot Aitkenhead			State:	Virginia	
Community ID:	PFO		Transect ID:	Α	Plot ID:	WET 87M
	ns exist on the site?		Yes		lo	_
-	tly disturbed (Atypical situa	ition)?	Yes		No X	
ls the area a potenti			Yes	N	√oX	
f needed, explain o	n reverse					
/EGETATION						
	Dominant Plar	nt Species				
	on Name	Scientific I		Stratum		Indicator
1. Ironwoo		•	caroliniana	S		FACW+
2. Blackgı		Nyssa syl		Т		FAC
•	sh Blueberry	Vaccinium	n corymbosum	S		FACW-
4. Red Ma		Acer rubru	ım	S		FAC
5. Sensitiv	∕e Fern	Onoclea s	ensibilis	Н		FACW
6. Net-Vei	ined Chain Fern	Woodward	dia areolata	Н		FACW+
7.						
7. 3.						
7. 3. 9.						
7. 3. 9.						
7. 3. 9. 10. 11.						
7. 3. 9. 10. 11.						
7. 3. 9. 10. 11. 12. Percent of dominant	t species that are OBL, FA	CW or FAC		100%		_
7. 3. 9. 10. 11. 12. Percent of dominant (excluding FAC-)	species that are OBL, FA	CW or FAC		100%		_
7. 3. 9. 10. 11. 12. Percent of dominant (excluding FAC-)	species that are OBL, FA	CW or FAC		100%		_
7. 3. 9. 10. 11. 12. Percent of dominant (excluding FAC-)	species that are OBL, FA	CW or FAC		100%		_
7. 3. 9. 10. 11. 12. Percent of dominant (excluding FAC-) Remarks:	t species that are OBL, FA	CW or FAC		100%		_
7. 8. 9. 10. 11. 12. Percent of dominant (excluding FAC-) Remarks:		CW or FAC	Wetland Hydrolog			
7. 3. 9. 10. 11. 12. Percent of dominant excluding FAC-) Remarks:		CW or FAC	Wetland Hydrolog	gy Indicators:		
7. 3. 9. 10. 11. 12. Percent of dominant excluding FAC-) Remarks:	scribe in Remarks):	CW or FAC	Primary Indicator	gy Indicators:		_
7. 3. 9. 10. 11. 12. Percent of dominant excluding FAC-) Remarks:	scribe in Remarks):Streams	CW or FAC	Primary Indicator	gy Indicators: s:	inches	_
7. 3. 9. 10. 11. 12. Percent of dominant (excluding FAC-) Remarks: HYDROLOGY Recorded Data (Des	scribe in Remarks): Streams Aerial Photographs	CW or FAC	Primary Indicator Inun Satu	gy Indicators: s: dated	inches	_
7. 8. 9. 10. 11. 12. Percent of dominant (excluding FAC-) Remarks: HYDROLOGY Recorded Data (Des	scribe in Remarks): Streams Aerial Photographs Other	CW or FAC	Primary Indicator Inun Satu Wate	gy Indicators: s: dated rated in Upper 12	inches	_
7. 3. 9. 10. 11. 12. Percent of dominant (excluding FAC-) Remarks: HYDROLOGY Recorded Data (Des	scribe in Remarks): Streams Aerial Photographs Other	CW or FAC	Primary Indicator Inun Satu Wate	gy Indicators: s: dated rated in Upper 12 er Marks	inches	
7. 3. 9. 10. 11. 12. Percent of dominant excluding FAC-) Remarks: HYDROLOGY Recorded Data (Des	scribe in Remarks): Streams Aerial Photographs Other	CW or FAC	Primary Indicator Inun Satu Wate Drift X Sedi	gy Indicators: s: dated rated in Upper 12 er Marks Lines		
7. 3. 3. 9. 10. 11. 12. Percent of dominant excluding FAC-) Remarks: HYDROLOGY Recorded Data (Des	scribe in Remarks): Streams Aerial Photographs Other corded Data Available	CW or FAC	Primary Indicator Inun Satu Wate Drift X Sedi X Drail	gy Indicators: s: dated rated in Upper 12 er Marks Lines ment Deposits	Vetlands	
7. 3. 3. 9. 10. 11. 12. Percent of dominant excluding FAC-) Remarks: HYDROLOGY Recorded Data (Desemble of Surface Williams)	scribe in Remarks): Streams Aerial Photographs Other corded Data Available	(in.)	Primary Indicator Inun Satu Wate Drift X Sedi X Drait Secondary Indica	gy Indicators: 3: dated rated in Upper 12 er Marks Lines ment Deposits nage Patterns in W tors (2 or more rec	Vetlands quired):	inches
7. 3. 9. 10. 11. 12. Percent of dominant (excluding FAC-) Remarks: HYDROLOGY Recorded Data (Desemble of Surface Water) Depth of Surface Water) Depth to Free Water	scribe in Remarks): Streams Aerial Photographs Other corded Data Available ater:	(in.)	Primary Indicator Inun Satu Wate Drift X Sedi X Draii Secondary Indica Oxid	gy Indicators: s: dated rated in Upper 12 er Marks Lines ment Deposits nage Patterns in W	Vetlands quired): els in Upper 12	inches
7. 3. 9. 10. 11. 12. Percent of dominant (excluding FAC-) Remarks: HYDROLOGY Recorded Data (Desemble of Surface Water) Depth of Surface Water) Depth to Free Water	scribe in Remarks): Streams Aerial Photographs Other corded Data Available ater:	(in.)	Primary Indicator Inun Satu Wate Drift X Sedi X Draii Secondary Indica Oxid X Wate	gy Indicators: s: dated rated in Upper 12 er Marks Lines ment Deposits nage Patterns in W tors (2 or more red ized Root Channe	Vetlands quired): els in Upper 12	inches
7. 8. 9. 10. 11. 12. Percent of dominant (excluding FAC-) Remarks: HYDROLOGY Recorded Data (Des	scribe in Remarks): Streams Aerial Photographs Other corded Data Available ater:	(in.)	Primary Indicator Inun Satu Wate Drift X Sedi X Drait Secondary Indica Oxid X Wate Loca	gy Indicators: s: dated rated in Upper 12 er Marks Lines ment Deposits nage Patterns in W tors (2 or more rec ized Root Channe	Vetlands quired): els in Upper 12	inches
7. 8. 9. 10. 11. 12. Percent of dominant (excluding FAC-) Remarks: HYDROLOGY Recorded Data (Desemble of Surface Water) Depth of Surface Water) Depth to Free Water	scribe in Remarks): Streams Aerial Photographs Other corded Data Available ater:	(in.)	Primary Indicator Inun Satu Wate Drift X Sedi X Drair Secondary Indica Oxid X Wate Loca FAC	gy Indicators: s: dated rated in Upper 12 er Marks Lines ment Deposits nage Patterns in W tors (2 or more red ized Root Channe er-Stained Leaves I Soil Survey Data	Vetlands quired): els in Upper 12	inches

Community ID:		PFO	Transect	ID: A	Plot ID:	WET 87M	
SOILS							
Map Unit Na				D	rainaga Classi		
(Series and		firm Mapped Type?	Voc	No No	rainage Class:		
Taxonomy (Yes		_		
Taxonomy (oubgroup).						
		Matrix Color	Mottle Colors	Mottle	Textures. Conc	retions, Structures,	
Depth (in)			Abundance/Contrast	etc.			
1 (/		,	,				
0-16	0-16 A 5YR 4/1 5YR 4/6		1%	Loamy sandy			
Hydric Soil I	ndicators:	Yes	X	No			
(If yes, chec	k them)						
		_Histosol		Concretions			
		_Histic Epidon		High Organic Content in		Sandy Soils	
		_Sulfidic Odor		Organic Streaking in Sa	•		
		_Aquic Moisture Regime		Listed on Local Hydric S			
		_Reducing Conditions		Listed on National Hydr			
	X	Gleyed or Low-Chroma C	Olors	Other (explain in remark	(S)		
Remarks:							
ixemarks.							
WETLAND	DETERMIN	ATION					
Hydrophytic			X	No Is this	s Sampling Point	Within a Wetland	
Wetland Hyd	-			No			
Hydric Soils		Yes	Х	No Ye	s <u>X</u>	No	
Remarks:	Photo 1424	1					

Project/Site:	I-64 Peninsula	a			Date:	11/9/2011	
Applicant/Owner:	VDOT				County:	James City	
Investigator:	Scot Aitkenhe	ad			State:	Virginia	
Community ID:	PFC)	Transect ID:	Α		Plot ID:	WET 88M
							
Do Normal Condit	tions exist on the site?	?	Yes	Х	N	0	
Is the site significa	antly disturbed (Atypic	al situation)?	Yes		N	o X	-
Is the area a poter	ntial Problem Area?	•	Yes		N	o X	-
If needed, explain	on reverse		•				-
VEGETATION							
	Domina	ant Plant Specie	S				
Comr	mon Name	=	entific Name		Stratum		Indicator
1. Sens	itive Fern	Onc	clea sensibilis		Н		FACW
2. Net-V	/eined Chain Fern	Woo	odwardia areolata		Н		FACW+
3. Green	n Ash	Fraz	kinus pennsylvanica		S		FACW
4. Lizaro	d's Tail		rurus cernuus		Н		OBL
5. Ironw	vood	Car	oinus caroliniana		S		FACW+
6. Spice	ebush		lera benzoin		S		FACW-
1	Maple	Ace	r rubrum		Т		FAC
	h Marigold	Cali	ha palustris		Н		OBL
	mon Elderberry		nbucus canadensis		S		FACW-
10.	·						
11.							
12.							
Percent of domina	ant species that are O	BL, FACW or F.	AC		100%		
(excluding FAC-)			•				•
Remarks:							
HYDROLOGY							
Recorded Data (D	escribe in Remarks):		Wetland Hyd	Irology Ind	icators:		
	Streams		Primary Indi	cators:			
	Aerial Photog	raphs		Inundated			
	Other			Saturated	in Upper 12 i	inches	
No R	ecorded Data Availab	ole		Water Mai	rks		
			X	Drift Lines	i		
			X	Sediment	Deposits		
Field Observations	S:		X	Drainage I	Patterns in W	etlands/	
Depth of Surface	Water:	(in.)	Secondary I	ndicators (2 or more red	quired):	
Depth to Free Wa	ter in Pit:	3 (in.)		Oxidized F	Root Channel	ls in Upper 12 in	nches
Depth to Saturate	d Soil:	2 (in.)	X	Water-Sta	ined Leaves		
	_			Local Soil	Survey Data		
				FAC-Neut	ral Test		
				Other (Exp	olain in Rema	arks)	
Remarks:			•				

Commun	ity ID:	PFO	Transect ID	D: A	Plot ID:	WET 88M
	•					
SOILS						
Map Unit Na	ime					
(Series and				D	rainage Class:	
		firm Mapped Type?	Yes	No	_	
Taxonomy (11 21			_	
, ,	0 17	-				
		Matrix Color	Mottle Colors	Mottle	Textures, Conc	retions, Structures,
Depth (in)	Horizon	(Munsell Moist)	(Munsell Moist)	Abundance/Contrast	etc.	
Борит ()	110112011	(Manoon Molot)	(Marioon Molot)	/ Ibandanoo/ Contract	- 0.0.	
0-12	Α	7.5YR 4/1	5YR 4/6	1%	Sandy clay loar	n
0 12		7.011(4/1	011V 1 /0	170	Carray clay loar	11
12-16	В	7.5YR 6/1			Loamy sand	
12-10		7.5110/1			Loanly Sand	
Hydric Soil I	ndicators:	Yes	X N	0		
(If yes, chec	k them)					
		Histosol		Concretions		
,		Histic Epidon		High Organic Content in	n Surface Layer ir	n Sandy Soils
•		Sulfidic Odor		Organic Streaking in Sa		
		Aquic Moisture Regime		Listed on Local Hydric S		
	Х	Reducing Conditions		Listed on National Hydr		
,	Х	Gleyed or Low-Chroma C	Colors	Other (explain in remark		
•					,	
Remarks:						
rtomanto.						
WETLAND I	DETERMIN	ATION				
Hydrophytic			V N1	o la thia	Sampling Point	Within a Wetland
	•				s Sampling Point	vviulin a vvetiano
Wetland Hyd			X N		- V	NI-
Hydric Soils	Present?	Yes	X N	o Yes	sX	No
Remarks:	Photo 1429					
						_

Project/Site:		I-64 Peninsula				Date:	11/9/2011	
Applicant/O	wner:	VDOT				County:	James City	
Investigator:	:	Scot Aitkenhead				State:	Virginia	
						_		
Community	ID:	PFO		Transect ID:			Plot ID:	WET 89M
				-		_	-	
-								
Do Normal (Conditions e	xist on the site?		Yes	Х	No)	
Is the site si	gnificantly d	isturbed (Atypical situat	ion)?	Yes		_ No	X X	
Is the area a	a potential P	roblem Area?		Yes		_ No	X X	
If needed, ex	xplain on re	verse		•		_		
VEGETATIO	ON							
		Dominant Plant	Species					
	Common N	lame	Scientific N	lame		Stratum		Indicator
1.	Sensitive F	ern	Onoclea se	ensibilis		Н	_	FACW
2.	Net-Veined	Chain Fern	Woodward	lia areolata		Н		FACW+
3.	Green Ash		Fraxinus p	ennsylvanica		S		FACW
4.	Lizard's Ta	il	Saururus d	ernuus		Н		OBL
5.	Ironwood		Carpinus c	aroliniana		S		FACW+
6.	Spicebush		Lindera be	nzoin		S		FACW
7.	Red Maple		Acer rubru	m		Т		FAC
8.	Marsh Mari	gold	Caltha palı	ustris		Н		OBL
9.	Common E	Iderberry	Sambucus	canadensis		S		FACW-
10.								
11.								
12.								
Percent of d	lominant spe	ecies that are OBL, FAC	W or FAC	_		100%		
(excluding F	AC-)							
Remarks:								
HYDROLOG				_				
Recorded D	ata (Describ	e in Remarks):		Wetland Hyd		cators:		
		_Streams		Primary India				
		_Aerial Photographs			Inundated			
		_Other				n Upper 12 iı	nches	
	No Recorde	ed Data Available			Water Mark	(S		
					Drift Lines			
					Sediment D	-		
Field Observ					-	atterns in W		
Depth of Su			(in.)	Secondary Ir			•	
Depth to Fre			(in.)				s in Upper 12 in	ches
Depth to Sat	turated Soil:	2	(in.)			ned Leaves		
						Survey Data		
					FAC-Neutra			
					Other (Expl	lain in Rema	rks)	
Remarks:								

Commun	ity ID:	PFO Transect ID:			Plot ID:	WET 89M	
	·						
SOILS							
Map Unit Na	me						
(Series and				D	rainage Class:		
,		irm Mapped Type?	Yes	No	_		
Taxonomy (_		
Taxonomy (oabg.oap).						
		Matrix Color	Mottle Colors	Mottle	Textures Conc	retions, Structures,	
Depth (in)	Horizon	(Munsell Moist)		Abundance/Contrast	etc.	retions, etractares,	
Deptil (III)	h (in) Horizon (Munsell Moist) (Munsell Moist) Abundance/C		Abundance/Contrast	eic.			
0.40	٨	7 EVD 4/4	EVD 4/6	40/	Condu dou loo	~	
0-12	A	7.5YR 4/1	5YR 4/6	1%	Sandy clay loar	<u>N</u>	
40.40	_	7 F)/D 0/4					
12-16	-16 B 7.5YR 6/1			Loamy sand			
		.,	.,				
Hydric Soil II		Yes	X N	0			
(If yes, check	k them)						
		Histosol		Concretions			
		Histic Epidon		High Organic Content in	ո Surface Layer ir	Sandy Soils	
•		Sulfidic Odor		Organic Streaking in Sa	indy Soils		
		Aquic Moisture Regime		Listed on Local Hydric S			
•	Х	Reducing Conditions	-	Listed on National Hydr			
•	X	Gleyed or Low-Chroma C	:olors	Other (explain in remark			
		_ Cloyed of Low Officina C		Othor (explain in remain	(0)		
Remarks:							
Remarks.							
WETLAND I							
Hydrophytic			X N	lo Is this	s Sampling Point	Within a Wetland	
Wetland Hyd	drology Pres	ent? Yes	X N	lo			
Hydric Soils	Present?	Yes	X N	lo Yes	sX	No	
Remarks:	Photo 1432			·			

Project/Site:	I-64 Peninsula				Date:	11/9/2011	
Applicant/Owner:	VDOT				County:	James City	
Investigator:	Scot Aitkenhead				State:	Virginia	
					_		
Community ID:	PFO		Transect ID:	Α		Plot ID:	WET 90M
					_	•	
Do Normal Condition	s exist on the site?		Yes	Х	No)	
Is the site significantly	y disturbed (Atypical situa	tion)?	Yes		No	X X	
Is the area a potentia		•	Yes		– No	X	
If needed, explain on					_		
VEGETATION							
	Dominant Plan	t Species					
Commor		Scientific Na	ime		Stratum		Indicator
1. Lizard's	Tail	Saururus ce	rnuus		Н	_	OBL
2. Marsh M	1arigold	Caltha palus	stris		Н		OBL
3. Seed Bo)X	Ludwigia alt			Н		FACW+
4. Red Mar	ple	Acer rubrum			Т		FAC
5. False No		Boehmeria d	cylindrica		Н		FACW+
6. Sweet G	Gum	Liquidambaı	-		T,S		FAC
7. Black W	illow	Salix nigra			S		FACW+
8. Green A	sh	Fraxinus pei	nnsylvanica		Т		FACW
9. Slippery	Elm	Ulmus rubra	-		Т		FAC
	martweed	Polygonum a	amphibium		Н		OBL
11.			•				
12.							
Percent of dominant	species that are OBL, FAC	CW or FAC			100%		
(excluding FAC-)							
Remarks:							
HYDROLOGY							
Recorded Data (Desc	cribe in Remarks):		Wetland Hydr	ology Indi	cators:		
	Streams		Primary Indica	ators:			
	Aerial Photographs		X Ir	nundated			
	Other		X S	Saturated i	in Upper 12 ir	nches	
No Reco	orded Data Available		V	Vater Mar	ks		
				rift Lines			
			S	Sediment [Deposits		
Field Observations:			X	rainage F	Patterns in We	etlands	
Depth of Surface Wa	ter: 0	(in.)	Secondary Ind	dicators (2	or more req	uired):	
Depth to Free Water	in Pit: 0	(in.)	C	Oxidized R	oot Channels	s in Upper 12 in	ches
Depth to Saturated S	soil: 0	(in.)	X V	Vater-Stai	ned Leaves		
			L	ocal Soil :	Survey Data		
			X F	AC-Neutr	al Test		
				Other (Exp	lain in Rema	rks)	
Remarks:							

Commun	ity ID:	PFO	Transect I	D: <u>A</u>	Plot ID:	WET 90M
SOILS						
Map Unit Na						
(Series and				D	rainage Class:	
		firm Mapped Type?	Yes	No	_	
Taxonomy (Subgroup):					
		Matrix Color	Mottle Colors	Mottle		retions, Structures,
Depth (in)	Horizon	(Munsell Moist)	(Munsell Moist)	Abundance/Contrast	etc.	
0-16	0				Muck Soil	
Hydric Soil I	ndicators:	Yes	1 X	No		
(If yes, chec		_				
(11) 00, 01100	it tirorrij	Histosol		Concretions		
		Histic Epidon	X	High Organic Content in	Surface Laver in	Sandy Soils
		Sulfidic Odor		Organic Streaking in Sa		r carray cono
		Aquic Moisture Regime	-	Listed on Local Hydric S		
		Reducing Conditions		Listed on National Hydr		
	X	Gleyed or Low-Chroma Co	olors	Other (explain in remark		
					,	
Remarks:						
WETLAND	DETERMIN	ATION				
Hydrophytic	Vegetation	Present? Yes	X X	No Is this	Sampling Point	Within a Wetland
Wetland Hy	-		X	No		
Hydric Soils		Yes			sX	No
		_				
Remarks:	This is a bo	og		•		
	Photo 1438					

Project/Site:	I-64 Peninsula			Date		11/9/201	·
Applicant/Owner:	VDOT			Cou	nty:	James City	
nvestigator:	Scot Aitkenhead			State	e:	Virginia	
Community ID:	PFO	_	Transect ID:	Α		Plot ID:	WET 91M
Do Normal Condition			Yes_	X	No		_
	y disturbed (Atypical situa	ition)?	Yes_		No		<u> </u>
s the area a potentia			Yes		No	X	
f needed, explain or	reverse						
/EGETATION							
	Dominant Plan	=					
Commo		Scientific		Sti	ratum	_	Indicator
1. Lizard's		Saururus			Н		OBL
Sensitiv		Onoclea			Н		FACW
3. Red Ma		Acer rubr			Т		FAC
	ned Chain Fern		rdia areolata		Н		FACW+
5. Spicebu		Lindera b			S		FACW-
6. Sweet G	Gum	Liquidam	bar styraciflua		Т		FAC
7.							
7. 3.							
7. 3. 9.							
7. 3. 9. 10.							
7. 3. 9. 10. 11.							
7. 3. 9. 10. 11.							
7. 3. 9. 10. 11. Percent of dominant	species that are OBL, FA	CW or FAC	_	1	00%		_
7. 3. 9. 10. 11. 12. Percent of dominant (excluding FAC-)	species that are OBL, FA	CW or FAC	_	1	00%		_
7. 3. 9. 10. 11. 12. Percent of dominant (excluding FAC-)	species that are OBL, FA	CW or FAC	_	1	00%		_
7. 3. 9. 10. 11. 12. Percent of dominant excluding FAC-)	species that are OBL, FA	CW or FAC	_	1	00%		
7. 3. 9. 10. 11. 12. Percent of dominant	species that are OBL, FA	CW or FAC		1	00%		_
7. 3. 9. 10. 11. 12. Percent of dominant (excluding FAC-) Remarks:		CW or FAC		ology Indicators:			
7. 3. 9. 10. 11. 12. Percent of dominant (excluding FAC-) Remarks:		CW or FAC	Wetland Hydro	ology Indicators:			_
7. 3. 9. 10. 11. 12. Percent of dominant excluding FAC-) Remarks:	cribe in Remarks):	CW or FAC	Primary Indica	ology Indicators:			
7. 3. 9. 10. 11. 12. Percent of dominant (excluding FAC-) Remarks:	cribe in Remarks):Streams	CW or FAC	Primary Indica X In	ology Indicators: tors:	:	ches	_
7. 3. 9. 10. 11. 12. Percent of dominant (excluding FAC-) Remarks: HYDROLOGY Recorded Data (Des	cribe in Remarks):StreamsAerial Photographs	CW or FAC	Primary Indica X In X Sa	ology Indicators: tors: undated	:	ches	_
7. 3. 9. 10. 11. 12. Percent of dominant (excluding FAC-) Remarks: HYDROLOGY Recorded Data (Des	cribe in Remarks): Streams Aerial Photographs Other	CW or FAC	Primary Indica X In X Sa	ology Indicators: tors: undated aturated in Uppo	:	ches	
7. 3. 9. 10. 11. 12. Percent of dominant (excluding FAC-) Remarks: HYDROLOGY Recorded Data (Des	cribe in Remarks): Streams Aerial Photographs Other	CW or FAC	Primary Indica X In X So W	ology Indicators: tors: undated aturated in Uppo ater Marks	: er 12 in	ches	
7. 3. 3. 9. 10. 11. 12. Percent of dominant excluding FAC-) Remarks: HYDROLOGY Recorded Data (Des	cribe in Remarks): Streams Aerial Photographs Other	CW or FAC	Primary Indica X In X So W Do So	ology Indicators: tors: undated aturated in Uppo ater Marks rift Lines	er 12 in		
7. 3. 3. 9. 10. 11. 12. Percent of dominant excluding FAC-) Remarks: HYDROLOGY Recorded Data (Des No Recorded Observations:	cribe in Remarks):StreamsAerial PhotographsOther orded Data Available	CW or FAC	Primary Indica X In X Si W Di Si X Di	ology Indicators: tors: undated aturated in Uppe ater Marks rift Lines ediment Deposi	er 12 in ts s in We	tlands	
7. 3. 3. 9. 10. 11. 12. Percent of dominant excluding FAC-) Remarks: HYDROLOGY Recorded Data (Des No Recorded Observations: Depth of Surface Wa	cribe in Remarks): Streams Aerial Photographs Other orded Data Available		Primary Indica X In X Si W Di Scondary Ind	ology Indicators: tors: undated aturated in Uppe ater Marks rift Lines ediment Deposi rainage Pattern	er 12 in ts s in We	etlands iired):	inches
7. 3. 9. 10. 11. 12. Percent of dominant (excluding FAC-) Remarks: HYDROLOGY Recorded Data (Des No Recorded Observations: Depth of Surface Water	cribe in Remarks): Streams Aerial Photographs Other orded Data Available ter: 1 in Pit: 0	(in.)	Primary Indica X In X Si W Di Si X Di Secondary Ind	ology Indicators: tors: undated aturated in Uppo ater Marks rift Lines ediment Deposi rainage Pattern icators (2 or mo	er 12 in ts s in We ore requ	etlands iired):	inches
7. 3. 9. 10. 11. 12. Percent of dominant (excluding FAC-) Remarks: HYDROLOGY Recorded Data (Des No Recorded Observations: Depth of Surface Water	cribe in Remarks): Streams Aerial Photographs Other orded Data Available ter: 1 in Pit: 0	(in.) (in.)	Primary Indica X In X Si W Di Sc X Di Secondary Ind O X W	ology Indicators: tors: undated aturated in Uppo ater Marks rift Lines ediment Deposi rainage Pattern icators (2 or mo xidized Root Ch	er 12 in ts s in We ore requ nannels eaves	etlands iired):	inches
7. 3. 9. 10. 11. 12. Percent of dominant (excluding FAC-) Remarks: HYDROLOGY Recorded Data (Des	cribe in Remarks): Streams Aerial Photographs Other orded Data Available ter: 1 in Pit: 0	(in.) (in.)	Primary Indica X In X Si W Di X Di Secondary Ind X W Lo	ology Indicators: tors: undated aturated in Uppo atter Marks rift Lines ediment Deposi rainage Pattern icators (2 or mo xidized Root Ch ater-Stained Le	er 12 in ts s in We ore requ nannels eaves	etlands iired):	inches
7. 3. 9. 10. 11. 12. Percent of dominant (excluding FAC-) Remarks: HYDROLOGY Recorded Data (Des No Recorded Observations: Depth of Surface Water	cribe in Remarks): Streams Aerial Photographs Other orded Data Available ter: 1 in Pit: 0	(in.) (in.)	Primary Indica X In X Si W D Si X D Secondary Ind X C X Fr	ology Indicators: tors: undated aturated in Upper atter Marks rift Lines ediment Deposi rainage Pattern icators (2 or mo xidized Root Ch atter-Stained Le	er 12 in ts s in We ore requ nannels eaves v Data t	itlands iired): in Upper 12	inches

Commun	ity ID:	PFO	Transect	ID: <u>A</u>	Plot ID:	WET 91M	
SOILS							
Map Unit Na				_			
(Series and		Managad T 0	V		Orainage Class:		
		firm Mapped Type?	Yes	No	_		
Taxonomy (Subgroup):						
		Matrix Calar	Mattle Calera	Mattle	Tayturas Cara	maticus Otherstones	
Donth (in)	Horizon	Matrix Color	Mottle Colors	Mottle		retions, Structures,	
Depth (in)	Horizon	(Munsell Moist)	(Munsell Moist)	Abundance/Contrast	etc.		
0-16	А	10YR 3/1			Sand clay loam		
0-10		10110 3/1			Sand clay loan		
Lludria Cail I	ndiantoro:	V	00 V	No			
Hydric Soil I		16	esX	No			
(If yes, chec	k them)	History		Congrations			
		_Histosol		Concretions	in Confess Laverin	Condu Coile	
		_Histic Epidon		High Organic Content i		1 Sandy Solls	
		_Sulfidic Odor		Organic Streaking in S			
		_Aquic Moisture Regime		Listed on Local Hydric			
		_Reducing Conditions		Listed on National Hyd			
	Х	_Gleyed or Low-Chroma	a Colors	Other (explain in remai	'KS)		
Remarks:							
Nemaiks.							
WETLAND	DETERMIN	ATION					
Hydrophytic			es X	No Is thi	is Sampling Point	Within a Wetland	
Wetland Hyd	-		es X	No	, 5		
Hydric Soils			es X		esX	No	
•							
Remarks:	Photo 1441			•			

Project/Site:	I-64 Peninsula				Date:	11/9/2011	
Applicant/Owner:	VDOT				County:	James City	
Investigator:	Scot Aitkenhead				State:	Virginia	
Community ID:	PFO	Т	ransect ID:	Α		Plot ID:	WET 92M
					_	•	
Do Normal Conditions	exist on the site?		Yes	Х	No)	
Is the site significantly of	disturbed (Atypical situati	on)?	Yes		_ No	X X	
Is the area a potential F	Problem Area?		Yes		_ No	X X	
If needed, explain on re	everse						
VEGETATION							
	Dominant Plant	Species					
Common N	Name	Scientific Nar	ne		Stratum		Indicator
1. Slippery El	m	Ulmus rubra			T,S		FAC
2. Sensitive F	ern	Onoclea sen	sibilis		Н		FACW
Royal Ferr	1	Osmunda reg	galis		Н		OBL
4. Ironwood		Carpinus car			S		FACW+
5. Lizard's Ta	nil	Saururus cer			Н		OBL
6. Green Ash		Fraxinus pen	nsylvanica		T,S		FACW
7. Marsh Mar	rigold	Caltha palusi	tris		Н		OBL
8.							
9.							
10.							
11.							
12.							
Percent of dominant sp	ecies that are OBL, FAC	W or FAC			100%		
(excluding FAC-)							
Remarks:							
HYDROLOGY							
Recorded Data (Describ	be in Remarks):	,	Wetland Hydro	ology Indi	cators:		
	Streams		Primary Indica	itors:			
	Aerial Photographs		X In	nundated			
	Other		X S	aturated i	in Upper 12 ir	nches	
No Record	led Data Available		V	/ater Marl	ks		
			D	rift Lines			
			XS	ediment [Deposits		
Field Observations:			<u> </u>	rainage F	Patterns in We	etlands	
Depth of Surface Water	r: <u> </u>	(in.)	Secondary Ind	licators (2	or more requ	uired):	
Depth to Free Water in	Pit: 2	(in.)		xidized R	oot Channels	s in Upper 12 in	ches
Depth to Saturated Soil	: 0	(in.)	X W	/ater-Stai	ned Leaves		
					Survey Data		
			F	AC-Neutr	al Test		
			O	ther (Exp	lain in Rema	rks)	
Remarks:							

Commun	ity ID:	PFO	Transect	ID: A	Plot ID:	WET 92M
SOILS						
Map Unit Na				_		
(Series and				D	rainage Class: _	
		firm Mapped Type?	Yes	No	_	
Taxonomy (Subgroup):					
		M () O 1	M «I O I	NA col	T (0	0
D (1 (1)		Matrix Color	Mottle Colors	Mottle	Textures, Concretions, Structures,	
Depth (in)	Horizon	(Munsell Moist)	(Munsell Moist)	Abundance/Contrast	etc.	
0.16	۸	7 6VD 4/4			Loomy Cond	
0-16	A	7.6YR 4/1			Loamy Sand	
Hydric Soil I		Yes	X	No		
(If yes, chec	k them)					
		_Histosol		Concretions		
		_Histic Epidon		High Organic Content in		n Sandy Soils
		Sulfidic Odor		Organic Streaking in Sa	-	
		_Aquic Moisture Regime		Listed on Local Hydric S		
		_Reducing Conditions		Listed on National Hydr		
	Х	Gleyed or Low-Chroma C	colors	Other (explain in remark	ks)	
Remarks:						
WETLAND	DETERMIN	ATION				
Hydrophytic				No. lo this	o Compling Doint	Within a Watland
Wetland Hyd	-	-		No Is this	s Sampling Point	Within a Wetland
Hydric Soils		Yes			s X	No
i iyunc sons	1 1036111!	165		NoYe	3	No
Remarks:	Photo 1445	5				
Titomanis.	1 11010 1740	,				

Project/Site:	I-64 Peninsula				Date:	11/9/2011	
Applicant/Owner:	VDOT				County:	James City	
Investigator:	Scot Aitkenhead				State:	Virginia	
Community ID:	PFO		Transect ID:	Α		Plot ID:	WET 93M
<u></u>							
Do Normal Conditions e			Yes_	X	_ No		
Is the site significantly d	, •.	on)?	Yes_		_ No		
Is the area a potential P			Yes_		_ No	X	
If needed, explain on re	verse						
VECETATION							
VEGETATION	Dominant Dlant	Chasias					
Common N	Dominant Plant	-			Ctrotum		Indicator
		Scientific Na			Stratum		Indicator
1. Marsh Mar	~	Caltha palu			Н		OBL
2. Lizard's Ta		Saururus ce			Н		OBL
3. False Nettle		Boehmeria	•		Н		FACW+
4. Cinnamon			innamomea		H		FACW
5. Sensitive F		Onoclea se			H		FACW
6. Red Maple		Acer rubrun			T		FAC
7. Slippery El	m	Lumus rubr	а		Т		FAC
8.							
9.							
10.							
11.							
12.	anian that are ODL FAC)			4.000/		
•	ecies that are OBL, FAC	WOIFAC	_		100%		
(excluding FAC-) Remarks:							
Remarks.							
HYDROLOGY							
Recorded Data (Describ	e in Remarks):		Wetland Hydro	ology Indi	cators:		
	Streams		Primary Indica	itors:			
	Aerial Photographs		Ir	nundated			
	Other		X	aturated i	n Upper 12 ir	nches	
No Record	ed Data Available		V	/ater Marl	ks		
			D	rift Lines			
			s	ediment [Deposits		
Field Observations:			X D	rainage F	Patterns in We	etlands	
Depth of Surface Water		(in.)	Secondary Inc	dicators (2	or more req	uired):	
Depth to Free Water in	Pit: 6	(in.)	X C	xidized R	oot Channels	s in Upper 12 in	ches
Depth to Saturated Soil:	6	(in.)	XV	/ater-Stai	ned Leaves		
			L	ocal Soil S	Survey Data		
			F	AC-Neutr	al Test		
			C	ther (Exp	lain in Rema	rks)	
Remarks:							<u> </u>

Commun	ity ID:	PFO	Transect	ID: A	Plot ID:	WET 93M
SOILS						
Map Unit Na				D	rainaga Classi	
(Series and		firm Mapped Type?	Yes	No No	rainage Class: _	
Taxonomy (_	
Taxonomy (oubgroup).					
		Matrix Color	Mottle Colors	Mottle	Textures, Cond	cretions, Structures,
Depth (in)	Horizon	(Munsell Moist)	(Munsell Moist)	Abundance/Contrast	etc.	,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,
1 ()		,	,			
0-16	Α	7.5YR 3/1	5YR 4/6	5%	Loamy sand	
Hydric Soil I	ndicators:	Yes	Χ	No		
(If yes, chec	k them)	•				
		Histosol		Concretions		
		_Histic Epidon		High Organic Content in		n Sandy Soils
		_Sulfidic Odor		Organic Streaking in Sa	•	
		_Aquic Moisture Regime		Listed on Local Hydric S		
	Х	_Reducing Conditions		Listed on National Hydr		
	X	_Gleyed or Low-Chroma C	colors	Other (explain in remark	(S)	
Damada						
Remarks:						
WETLAND	DETERMIN	ΔΤΙΟΝ				
Hydrophytic			Х	No Is this	Sampling Point	Within a Wetland
Wetland Hyd	-			No Is this	. camping i onit	a rrolland
Hydric Soils		Yes			s X	No
		•				-
Remarks:	Photo 1449)		•		

Project/Site:	I-64 Penins	ula				Date:	11/9/2011		
Applicant/Owner:	VDOT					County:	James City		
Investigator:	Scot Aitken	head				State:	Virginia		
Community ID:	P	FO	_	Transect ID:		_	Plot ID:	WET 94M	
Do Normal Condit	tions exist on the sit	te?		Yes	Х	N	lo		
Is the site significa	antly disturbed (Aty	oical situati	on)?	Yes		N	lo X	-	
	ntial Problem Area?		•	Yes		N	lo X	-	
If needed, explain	on reverse			•				-	
VEGETATION									
VEGETATION	Dom	inant Plant	Species						
Com	mon Name	mant riant	Scientific	Name		Stratum		Indicator	
	r Birch	_	Betula ni			T		FACW	
	Veined Chain Fern			rdia areolata		H		FACW+	
	sitive Fern			sensibilis		Н		FACW	
	d's Tail		Saururus			Н		OBL	
	mon Elderberry			ıs canadensis		S		FACW-	
	Maple		Acer rubi			S		FAC	
	e Nettle			ia cylindrica		Н		FACW+	
8. Ironw				caroliniana		S		FACW+	
9.			•						
10.									
11.									
12.									
Percent of domina	ant species that are	OBL, FAC	W or FAC			100%		_	
(excluding FAC-)									
Remarks:									
HYDROLOGY									
	Describe in Remarks	s):		Wetland Hyd	drology Ind	licators:			
,	Streams	•		Primary Indi					
	Aerial Photo	ographs		X	Inundated				
	Other			X	Saturated	in Upper 12 i	inches		
No R	ecorded Data Avail	able			Water Mai	rks			
					Drift Lines	;			
					Sediment	Deposits			
Field Observation	s:				Drainage I	Patterns in W	/etlands		
Depth of Surface	Water:	0	(in.)	Secondary I	ndicators (2 or more red	quired):		
Depth to Free Wa		1	(in.)				ls in Upper 12 i	nches	
Depth to Saturate	ed Soil:	0	(in.)			ined Leaves			
						Survey Data			
					FAC-Neut				
					Other (Exp	plain in Rema	arks)		
Remarks:									
inciliains.									

Commun	ity ID:	PFO	PFO Transect ID:			WET 94M
SOILS						
Map Unit Na				D	vaina va Olasa.	
(Series and		firm Mannad Tuna	Van	D	rainage Class:	
		firm Mapped Type?	Yes	No	_	
Taxonomy (Subgroup):					
		Matrix Color	Mottle Colors	Mottle	Tayturas Cana	rationa Structuras
Depth (in)	Horizon	(Munsell Moist)	(Munsell Moist)	Abundance/Contrast	Textures, Concretions, Structur ontrast etc.	
Deptil (III)	110112011	(Mulisell Moist)	(IVIUITSEII IVIOISI)	Abundance/Contrast	eic.	
0-16	Α	5Y 6/1	5YR 4/6	5%	Loamy sand	
0-10		31 0/1	J11X 4/0	370	Loanly Sand	
Hydric Soil I	ndicators:	Yes	X N	lo		
(If yes, chec	k them)	•				
		Histosol		Concretions		
		Histic Epidon		High Organic Content in	Surface Layer in	Sandy Soils
		Sulfidic Odor	X	Organic Streaking in Sa		
		Aquic Moisture Regime		Listed on Local Hydric S	Soils List	
	Х	Reducing Conditions		Listed on National Hydr	ic Soils List	
		Gleyed or Low-Chroma C	colors	Other (explain in remark		
		_				
Remarks:						
WETLAND	DETERMIN	ATION				
Hydrophytic	Vegetation	Present? Yes	X	No Is this	Sampling Point	Within a Wetland
Wetland Hyd		sent? Yes		lo		
Hydric Soils	Present?	Yes	X	Ve:	s <u>X</u>	No
Remarks:	Photo 145	I				

Project/Site:	I-64 Peninsula				Date:	11/9/2011	
Applicant/Owner:	VDOT				County:	James City	
Investigator:	Scot Aitkenhead				State:	Virginia	
Community ID:	PFO		Transect ID: _	A	_	Plot ID:	WET 95M
Do Normal Condition	s exist on the site?		Yes	Х	N	О	
	y disturbed (Atypical situat	ion)?	Yes		N		_
Is the area a potentia	, ,,	- ,	Yes			lo X	_
If needed, explain on			_				-
VEGETATION							
	Dominant Plant	-					
Commoi		Scientific N			Stratum	<u> </u>	Indicator
1. Red Mar		Acer rubru			T		FAC
2. Sweet G		•	ar styraciflua		Т		FAC
3. Sycamo			occidentalis		Т		FACW-
4. Green A		=	ennsylvanica		S		FACW
	martweed		n amphibium		Н		OBL
6. River Bir	rch	Betula nig	ra		S		FACW
7.							
8.							
9.							
10.							
11.							
12.							
	species that are OBL, FAC	W or FAC	_		100%		_
(excluding FAC-)	1						
Remarks: Not muc	h vegetation						
HYDROLOGY	- illo in Donondo)		NA/-41				
Recorded Data (Desc	,		Wetland Hyd	•	icators:		
	Streams		Primary Indic				
	Aerial Photographs Other			nundated	in Hanor 10 i	inahaa	
No Door	Orner orded Data Available				in Upper 12	inches	
No Reco	orded Data Available			Water Ma Drift Lines			
Field Observations:				Sediment	-	lationdo	
	tori	(in)		-	Patterns in W		
Depth of Surface Wa		(in.)	Secondary In			ղսուea). Is in Upper 12 i	nahaa
Depth to Free Water Depth to Saturated S		—(in.)			ined Leaves	is in Opper 12 i	ncnes
Deptil to Saturated S	OII	(in.)			Survey Data		
					•		
				FAC-Neut		arke)	
			<u> </u>	omer (EX)	olain in Rema	arks)	
Remarks:							
T. Comanic.							

(Series and Phase): Drainage Class:	uctures,
Map Unit Name (Series and Phase): Field Observations Confirm Mapped Type? Taxonomy (Subgroup): Matrix Color Depth (in) Horizon Mottle Colors Mottle Colors Mottle Colors Abundance/Contrast etc.	uctures,
Map Unit Name (Series and Phase): Field Observations Confirm Mapped Type? Taxonomy (Subgroup): Matrix Color Depth (in) Horizon Mottle Colors Mottle Colors Mottle Colors Abundance/Contrast etc.	uctures,
(Series and Phase): Drainage Class: Field Observations Confirm Mapped Type? Yes No Taxonomy (Subgroup): Matrix Color Mottle Colors Mottle Textures, Concretions, Structure Depth (in) Horizon (Munsell Moist) (Munsell Moist) Abundance/Contrast etc.	uctures,
Field Observations Confirm Mapped Type? Taxonomy (Subgroup): Matrix Color Mottle Colors Mottle Textures, Concretions, Strue Depth (in) Horizon (Munsell Moist) Munsell Moist) Abundance/Contrast etc.	uctures,
Taxonomy (Subgroup): Matrix Color Mottle Colors Mottle Textures, Concretions, Structure Depth (in) Horizon (Munsell Moist) (Munsell Moist) Abundance/Contrast etc.	uctures,
Matrix Color Mottle Colors Mottle Textures, Concretions, Structure (Munsell Moist) (Munsell Moist) Abundance/Contrast etc.	uctures,
Depth (in) Horizon (Munsell Moist) (Munsell Moist) Abundance/Contrast etc.	uctures,
Depth (in) Horizon (Munsell Moist) (Munsell Moist) Abundance/Contrast etc.	
0-16 A 7.5YR 4/1 5YR 4/6 10% Sandy clay loam	
Hydric Soil Indicators: Yes X No No	
(If yes, check them)	
Histosol Concretions	
High Organic Content in Surface Layer in Sandy Soi	ils
Sulfidic OdorOrganic Streaking in Sandy Soils	
Aquic Moisture RegimeListed on Local Hydric Soils List	
X Reducing Conditions Listed on National Hydric Soils List X Gleyed or Low-Chroma Colors Other (explain in remarks)	
X Gleyed or Low-Chroma Colors Other (explain in remarks)	
Remarks:	
Tromano.	
WETLAND DETERMINATION	
Hydrophytic Vegetation Present? Yes X No Is this Sampling Point Within a We	etland
Wetland Hydrology Present? Yes X No No	
Hydric Soils Present? Yes X No Yes X No	
Remarks: Photo 1454	

Project/Site:	I-64 Peninsula Stud	ау		Date:	6/27/201	1
Applicant/Owner:	VDOT			County:	Henrico	
nvestigator:	Scot Aitkenhead			State:	Virginia	
Community ID:	PEM		Transect ID:	Α	Plot ID:	WET 1S
Do Normal Condition			V	V .	1-	
		uotion\2	Yes		lo	_
	y disturbed (Atypical site	ualion)?	Yes Yes			_
Is the area a potentia If needed, explain on			165		lo X	_
ii fieeded, explaiif off	Teverse					
/EGETATION						
0	Dominant Pla		- NI	Otration		la di sata a
Commo		Scientific		Stratum	<u> </u>	Indicator
1. Soft Rus		Juncus e		Н		FACW+
2. Rice Cu	•		oryzoides	H		OBL
3. Skunk C	-		carpus foetidus	H		OBL
4. Royal Fe			la regalis	H		OBL
	aved Cattail	Typha la	atitolia	Н		OBL
7.						
7. 3.						
7. 3. 9.						
7. 3. 9. 10.						
7. 3. 9. 10. 11.						
7. 8. 9. 10. 11.						
7. 8. 9. 10. 11. 12. Percent of dominant	species that are OBL, F	ACW or FAC		100%		_
7. 8. 9. 10. 11. 12. Percent of dominant (excluding FAC-)	species that are OBL, F	ACW or FAC		100%		_
7. 8. 9. 10. 11. 12. Percent of dominant (excluding FAC-)	species that are OBL, F	ACW or FAC		100%		_
7. 3. 9. 10. 11. 12. Percent of dominant (excluding FAC-)	species that are OBL, F	FACW or FAC		100%		_
7. 8. 9. 10. 11. 12. Percent of dominant (excluding FAC-) Remarks:	species that are OBL, F	ACW or FAC		100%		
6. 7. 8. 9. 10. 11. 12. Percent of dominant (excluding FAC-) Remarks: HYDROLOGY Recorded Data (Desc		FACW or FAC	Wetland Hydrolog			_
7. 3. 9. 10. 11. 12. Percent of dominant (excluding FAC-) Remarks:		ACW or FAC	Wetland Hydrolog Primary Indicators	y Indicators:		
7. 3. 9. 10. 11. 12. Percent of dominant (excluding FAC-) Remarks:	cribe in Remarks):		Primary Indicators	y Indicators:		_
7. 3. 9. 10. 11. 12. Percent of dominant (excluding FAC-) Remarks:	cribe in Remarks):Streams		Primary Indicators X Inunc	y Indicators: s:	inches	
7. 3. 9. 10. 11. 12. Percent of dominant (excluding FAC-) Remarks: HYDROLOGY Recorded Data (Desc	cribe in Remarks):StreamsAerial Photographs		Primary Indicators X Inune X Satu	y Indicators: 3: dated	inches	
7. 3. 9. 10. 11. 12. Percent of dominant (excluding FAC-) Remarks: HYDROLOGY Recorded Data (Desc	cribe in Remarks):StreamsAerial PhotographsOther		Primary Indicators X Inune X Satu Wate	ly Indicators: s: dated rated in Upper 12	inches	
7. 3. 9. 10. 11. 12. Percent of dominant (excluding FAC-) Remarks: HYDROLOGY Recorded Data (Desc	cribe in Remarks):StreamsAerial PhotographsOther		Primary Indicators X Inun X Satu Wate Drift	gy Indicators: s: dated rated in Upper 12 er Marks Lines	inches	
7. 3. 3. 10. 11. 12. Percent of dominant (excluding FAC-) Remarks: HYDROLOGY Recorded Data (Desc	cribe in Remarks):StreamsAerial PhotographsOther		Primary Indicators X Inun X Satu Wate Drift Sedi	ly Indicators: 5: dated rated in Upper 12 er Marks Lines ment Deposits		
7. 3. 3. 9. 10. 11. 12. Percent of dominant excluding FAC-) Remarks: HYDROLOGY Recorded Data (Descriptions)	cribe in Remarks):StreamsAerial PhotographsOther orded Data Available	;	Primary Indicators X Inunc X Satu Wate Drift Sedi	ly Indicators: s: dated rated in Upper 12 er Marks Lines ment Deposits nage Patterns in W	Vetlands	
7. 3. 9. 10. 11. 12. Percent of dominant (excluding FAC-) Remarks: HYDROLOGY Recorded Data (Description of Surface Warface Wa	cribe in Remarks): Streams Aerial Photographs Other orded Data Available	: ! (in.)	Primary Indicators X Inunc X Satu Wate Drift Sedi Drair Secondary Indica	y Indicators: 3: dated rated in Upper 12 or Marks Lines ment Deposits nage Patterns in W tors (2 or more rec	Vetlands quired):	inches
7. 3. 9. 10. 11. 12. Percent of dominant (excluding FAC-) Remarks: HYDROLOGY Recorded Data (Description of Surface Water) Depth of Surface Water	cribe in Remarks): Streams Aerial Photographs Other orded Data Available ter: 2 in Pit: 0	(in.)	Primary Indicators X Inunc X Satu Wate Drift Sedi Drair Secondary Indica Oxid	y Indicators: s: dated rated in Upper 12 or Marks Lines ment Deposits nage Patterns in W tors (2 or more recized Root Channe	Vetlands quired): els in Upper 12	inches
7. 3. 9. 10. 11. 12. Percent of dominant (excluding FAC-) Remarks: HYDROLOGY Recorded Data (Description of Surface Water) Depth of Surface Water	cribe in Remarks): Streams Aerial Photographs Other orded Data Available ter: 2 in Pit: 0	(in.)	Primary Indicators X Inunc X Satu Wate Drift Sedi Drair Secondary Indica Oxid X Wate	ly Indicators: s: dated rated in Upper 12 er Marks Lines ment Deposits nage Patterns in W tors (2 or more red ized Root Channe	Vetlands quired): els in Upper 12	inches
7. 3. 9. 10. 11. 12. Percent of dominant (excluding FAC-) Remarks: HYDROLOGY Recorded Data (Description of Surface Water) Depth of Surface Water	cribe in Remarks): Streams Aerial Photographs Other orded Data Available ter: 2 in Pit: 0	(in.)	Primary Indicators X Inunc X Satu Wate Drift Sedi Drair Secondary Indica Oxid X Wate Loca	ly Indicators: S: Idated rated in Upper 12 or Marks Lines ment Deposits hage Patterns in W tors (2 or more red ized Root Channe or-Stained Leaves I Soil Survey Data	Vetlands quired): els in Upper 12	inches
7. 8. 9. 10. 11. 12. Percent of dominant (excluding FAC-) Remarks: HYDROLOGY Recorded Data (Desc	cribe in Remarks): Streams Aerial Photographs Other orded Data Available ter: 2 in Pit: 0	(in.)	Primary Indicators X Inunc X Satu Wate Drift Sedi Drair Secondary Indica Oxid X Wate Loca FAC	ly Indicators: s: dated rated in Upper 12 er Marks Lines ment Deposits nage Patterns in W tors (2 or more red ized Root Channe	Vetlands quired): lls in Upper 12	inches

Commun	ity ID:	PEM	Transect I	D: <u>A</u>	Plot ID:	WET 1S
SOILS						
Map Unit Na						
(Series and					Drainage Class:	
		firm Mapped Type?	Yes	No		
Taxonomy (Subgroup):					
					T . 0	
D 41 (1)		Matrix Color	Mottle Colors	Mottle		retions, Structures,
Depth (in)	Horizon	(Munsell Moist)	(Munsell Moist)	Abundance/Contra	ast etc.	
0-16	Α	10 YR 2/1				
Hydric Soil I		Yes	X	No		
(If yes, chec	k them)					
		Histosol		Concretions		
		_Histic Epidon			nt in Surface Layer ir	Sandy Soils
	X	_Sulfidic Odor		Organic Streaking in	_	
		_Aquic Moisture Regime		Listed on Local Hyd		
		_Reducing Conditions		Listed on National H		
	X	Gleyed or Low-Chroma C	olors	Other (explain in rer	narks)	
Remarks:						
inciliains.						
WETLAND	DETERMIN	ATION				
Hydrophytic			1 X	No Is	this Sampling Point	Within a Wetland
Wetland Hy	-			No	, 3	
Hydric Soils		Yes			Yes X	No
		<u> </u>				
Remarks:	Pic 1076			•		
						

Project/Site:	I-64 Peninsula Study					Date:	6/28/201	<u>1</u>
Applicant/Owner:	VDOT					County:	Henrico	
Investigator:	Scot Aitkenhead					State:	Virginia	
Community ID:	PEM		Transect	ID:	Α	_	Plot ID:	WET 2S
Do Normal Condition			Y	es_	Χ		lo	_
•	y disturbed (Atypical situat	ion)?		es		^	loX	_
Is the area a potentia	l Problem Area?		Y	es		^	lo X	_
If needed, explain on	reverse							
VEGETATION								
	Dominant Plant							
Commor		Scientific				Stratum		Indicator
 Rice Cut 	grass	Leersia d	oryzoides			Н		OBL
2.								
3.								
4.								
5.								
6.								
7.								
3.								
9.								
10.								
11.								
12.								
	species that are OBL, FAC	W or FAC				100%		
(excluding FAC-)	species that are ODL, I AC	W OI I AC		_		100 /6		_
Remarks:								
Remarks.								
HYDROLOGY								
Recorded Data (Desc	cribe in Remarks):		Wetland	Hydrol	ogy Ind	icators:		
	Streams		Primary I	Indicate	ors:			
	Aerial Photographs		X	Inu	ındated			
	Other		Х	— Sa	turated	in Upper 12	inches	
No Reco	orded Data Available				ater Mai			
					ift Lines			
						Deposits		
Field Observations:			X			Patterns in V	/etlands	
Depth of Surface Wa	ter: 1	(in.)			-	2 or more re		
Depth to Free Water			Seconda	•				inches
•		(in.)					ls in Upper 12	inches
Depth to Saturated S	oil: 0	(in.)				ined Leaves		
						Survey Data	l	
						ral Test		
				Ot	her (Exp	olain in Rema	arks)	
Remarks: May no	t be jurisdictional.							

Commun	ity ID:	PEM	Transect	ID: A	Plot ID:	WET 2S
SOILS						
Map Unit Na				_		
(Series and				D	rainage Class:	
		firm Mapped Type?	Yes	No	_	
Taxonomy (Subgroup):					
			M # 0 1	8.4 - cd	-	
D (1 (1)		Matrix Color	Mottle Colors	Mottle		retions, Structures,
Depth (in)	Horizon	(Munsell Moist)	(Munsell Moist)	Abundance/Contrast		
0-16	Α	10YR 3/1			Sandy clay loar	n
Hydric Soil I	ndicators:	Yes	Χ	No		
(If yes, chec						
, , , , , , ,	,	Histosol		Concretions		
		Histic Epidon		High Organic Content in	n Surface Laver ir	Sandy Soils
	X	Sulfidic Odor		Organic Streaking in Sa		,
		Aquic Moisture Regime		Listed on Local Hydric S		
		Reducing Conditions		Listed on National Hydr		
	X	Gleyed or Low-Chroma C	Colors	Other (explain in remark		
		- ′			,	
Remarks:						
WETLAND	DETERMIN	ATION				
Hydrophytic	Vegetation	Present? Yes	Х	No Is this	s Sampling Point '	Within a Wetland
Wetland Hyd				No	-	
Hydric Soils		Yes	X	No Ye	s X	No
Remarks:	Pic 1081				<u> </u>	
			<u> </u>			

Project/Site:	I-64 Peninsula Study				Date:	6/28/201	1
Applicant/Owner:	VDOT				County:	Henrico	
Investigator:	Scot Aitkenhead				State:	Virginia	
Community ID:	PFO		Transect ID:	Α	_	Plot ID:	WET 3S
Do Normal Conditions	e evict on the cite?		Yes	X	N	lo	
	s exist on the site? y disturbed (Atypical situation	nn\2	Yes	^		lo X	_
Is the area a potentia		511):	Yes			lo X	_
If needed, explain on			103_				_
, 1							
VEGETATION							
	Dominant Plant	Species					
Commor		Scientific	Name		Stratum		Indicator
1. Red Mar		Acer rubr			Т		FACW+
2. Sweetgu		•	bar styraciflua		Т		FAC
3. Lizard's		Saururus			Н		OBL
·	ke False Nettle		ia cylindrica		Н		FACW+
5. Fringed	-	Carex crii			Н		OBL
6. Bladder	Sedge	Carex into	umescens		Н		FACW+
7.							
8.							
9.							
10.							
11.							
12.	species that are OBL, FAC	M or EAC			100%		
(excluding FAC-)	species inal are ODL, FAC	WUIFAC	_		100%		_
Remarks:							
Remarks.							
HYDROLOGY							
Recorded Data (Desc	·		Wetland Hydro		licators:		
	Streams		Primary Indica				
	Aerial Photographs			undated			
	Other				in Upper 12	inches	
No Reco	orded Data Available			/ater Ma			
				rift Lines			
E: 1101					Deposits		
Field Observations:		<i>(</i> ')		-	Patterns in W		
Depth of Surface Wat		(in.)	Secondary Ind				
Depth to Free Water		(in.)				ls in Upper 12	inches
Depth to Saturated S	OII.	(in.)			ined Leaves		
					Survey Data		
				AC-Neut	rai Test plain in Rema	arke)	
			—— [°]	uici (EX	piairi ili Keillä	aino)	
Remarks:							
Tromaino.							

Commun	ity ID:	PFO	Transect II	D: A	Plot ID:	WET 3S
			_			
SOILS						
Map Unit Na	ame					
(Series and	Phase):				Drainage Class:	
		firm Mapped Type?	Yes	No	_	
Taxonomy (,,			_	
, ,	3 17					
		Matrix Color	Mottle Colors	Mottle	Textures, Conc	retions, Structures,
Depth (in)	Horizon	(Munsell Moist)	(Munsell Moist)	Abundance/Contras		,,
0-15	A	10YR 2/1	2.5YR 3/6	10%	Clay/Loam	
0 10	/ \	1011(2/1	2.011(0/0	1070	Olay/Loain	
Hydric Soil I	ndicators:	Yes	s X N	lo		
(If yes, chec						
,	,	Histosol		Concretions		
		Histic Epidon		High Organic Content	in Surface Laver in	Sandy Soils
		Sulfidic Odor		Organic Streaking in S		Carray Cono
		Aquic Moisture Regime		Listed on Local Hydric	-	
	X	Reducing Conditions		Listed on National Hyd		
	X		Coloro	Other (explain in rema		
	^	_Gleyed or Low-Chroma	Colors	Other (explain in rema	irks)	
Danasadaa						
Remarks:						
WETLAND				T		
Hydrophytic				lols th	nis Sampling Point \	Nithin a Wetland
Wetland Hyd		sent? Yes		lo		
Hydric Soils	Present?	Yes	s X N	lo Y	es X	No
Remarks:	Pic 1085					

Project/Site:	1-64 Peninsula Stu	udy			Date:	6/28/201	<u>. </u>
Applicant/Owner:	VDOT			(County:	Henrico	
Investigator:	Scot Aitkenhead				State:	Virginia	
Community ID:	PSS		Transect ID: _	Α		Plot ID:	WET 4S
Do Normal Conditions			Yes_	X	N		_
	disturbed (Atypical si	ituation)?	Yes_		N		_
Is the area a potentia			Yes_		N	oX	_
If needed, explain on	reverse						
VEGETATION							
	Dominant P	Plant Species					
Commor		Scientific		_	Stratum		Indicator
1. Willow O	ak	Quercus	•		Т		FAC+
Soft Rus	h	Juncus	effusus		Н		FACW+
Woolgras	SS	Scirpus	cyperinus		Н		FACW+
 Hazel Ale 	der	Alnus se	errulata		S		OBL
Water Tu	ipelo	Nyssa a	quatica		Т		OBL
6.							
7.							
7. 8.							
7. 8. 9.							
7. 8. 9. 10.							
7. 8. 9. 10. 11.							
7. 8. 9. 10. 11.	species that are OBL,	FACW or FAC			100%		
7. 8. 9. 10. 11.	species that are OBL,	FACW or FAC	_		100%		_
7. 8. 9. 10. 11. 12. Percent of dominant s	species that are OBL,	FACW or FAC	_		100%		_
7. 8. 9. 10. 11. 12. Percent of dominant s (excluding FAC-)	species that are OBL,	FACW or FAC	_		100%		_
7. 8. 9. 10. 11. 12. Percent of dominant second (excluding FAC-) Remarks:	species that are OBL,	FACW or FAC	_		100%		
7. 8. 9. 10. 11. 12. Percent of dominant s (excluding FAC-) Remarks:		FACW or FAC	- Wetland Hydr	ology Indica			_
7. 8. 9. 10. 11. 12. Percent of dominant s (excluding FAC-) Remarks:		FACW or FAC	Wetland Hydr				_
7. 8. 9. 10. 11. 12. Percent of dominant s (excluding FAC-) Remarks:	ribe in Remarks):Streams		Primary Indica	ators:			_
7. 8. 9. 10. 11. 12. Percent of dominant s (excluding FAC-) Remarks:	ribe in Remarks): Streams Aerial Photograph		Primary Indicated X I	ators: nundated	itors:	nches	
7. 8. 9. 10. 11. 12. Percent of dominant s (excluding FAC-) Remarks: HYDROLOGY Recorded Data (Desc	ribe in Remarks):StreamsAerial PhotographOther		Primary Indicated X I	ators: nundated Saturated in	itors: Upper 12 i	nches	_
7. 8. 9. 10. 11. 12. Percent of dominant s (excluding FAC-) Remarks: HYDROLOGY Recorded Data (Desc	ribe in Remarks): Streams Aerial Photograph		Primary Indicated X S	ators: nundated Saturated in Vater Marks	itors: Upper 12 i	nches	
7. 8. 9. 10. 11. 12. Percent of dominant s (excluding FAC-) Remarks: HYDROLOGY Recorded Data (Desc	ribe in Remarks):StreamsAerial PhotographOther		Primary Indicates X I X S	ators: nundated Saturated in Vater Marks Orift Lines	itors: Upper 12 i	nches	_
7. 8. 9. 10. 11. 12. Percent of dominant s (excluding FAC-) Remarks: HYDROLOGY Recorded Data (Descondence) No Recorded	ribe in Remarks):StreamsAerial PhotographOther		Primary Indicated Street Stree	ators: nundated Saturated in Vater Marks Orift Lines Sediment De	utors: Upper 12 i		_
7. 8. 9. 10. 11. 12. Percent of dominant s (excluding FAC-) Remarks: HYDROLOGY Recorded Data (Desconded Data (Desconded Data)	ribe in Remarks):StreamsAerial PhotographOther rded Data Available	ns	Primary Indicated States Indicated Indicated States Indicated Indicated States Indicated In	ators: nundated Saturated in Vater Marks Orift Lines Sediment De Orainage Pat	utors: Upper 12 i	etlands	
7. 8. 9. 10. 11. 12. Percent of dominant s (excluding FAC-) Remarks: HYDROLOGY Recorded Data (Desconded Data	ribe in Remarks):StreamsAerial PhotographOther rded Data Available er:	ns 4 (in.)	Primary Indicates A Secondary Indicates A Se	ators: hundated Saturated in l Vater Marks Drift Lines Sediment De Drainage Pat dicators (2 o	utors: Upper 12 i	etlands juired):	inches
7. 8. 9. 10. 11. 12. Percent of dominant s (excluding FAC-) Remarks: HYDROLOGY Recorded Data (Desconded Depth of Surface Water Depth to Free Water (Depth Depth to Free Water (Desconded Depth	ribe in Remarks): Streams Aerial Photograph Other rded Data Available er: n Pit:	(in.)	Primary Indicates A Secondary Indicates A Se	ators: hundated Saturated in l Vater Marks Orift Lines Sediment De Orainage Pat dicators (2 o	utors: Upper 12 in the sposits of t	etlands	inches
7. 8. 9. 10. 11. 12. Percent of dominant s (excluding FAC-) Remarks: HYDROLOGY Recorded Data (Description of Surface Water in Depth to Free Water in Surface W	ribe in Remarks): Streams Aerial Photograph Other rded Data Available er: n Pit:	ns 4 (in.)	Primary Indice X I X S I X S S S Secondary In S	ators: nundated Saturated in Vater Marks Orift Lines Sediment De Orainage Pat dicators (2 o Oxidized Roc Vater-Staine	utors: Upper 12 in the posits and the posits are more record to the position of the position	etlands juired):	inches
7. 8. 9. 10. 11. 12. Percent of dominant s (excluding FAC-) Remarks: HYDROLOGY Recorded Data (Description of Surface Water in Depth to Free Water in Surface W	ribe in Remarks): Streams Aerial Photograph Other rded Data Available er: n Pit:	(in.)	Primary Indicated Secondary Indicated Secondar	ators: nundated Saturated in Vater Marks Orift Lines Sediment De Orainage Pat dicators (2 o Oxidized Roc Vater-Staine ocal Soil Su	utors: Upper 12 in a posits etterns in Work more record Channel and Leaves urvey Data	etlands juired):	inches
7. 8. 9. 10. 11. 12. Percent of dominant s (excluding FAC-) Remarks: HYDROLOGY Recorded Data (Desc	ribe in Remarks): Streams Aerial Photograph Other rded Data Available er: n Pit:	(in.)	Primary Indicates Indicate	ators: nundated Saturated in l Vater Marks Orift Lines Sediment De Orainage Pat dicators (2 o Oxidized Roc Vater-Staine ocal Soil Su FAC-Neutral	utors: Upper 12 in a posits Iterns in Work more recept Channel and Leaves Irvey Data Test	etlands puired): s in Upper 12	inches
7. 8. 9. 10. 11. 12. Percent of dominant s (excluding FAC-) Remarks: HYDROLOGY Recorded Data (Description of Surface Water in Depth to Free Water in Surface W	ribe in Remarks): Streams Aerial Photograph Other rded Data Available er: n Pit:	(in.)	Primary Indicates Indicate	ators: nundated Saturated in Vater Marks Orift Lines Sediment De Orainage Pat dicators (2 o Oxidized Roc Vater-Staine ocal Soil Su	utors: Upper 12 in a posits Iterns in Work more recept Channel and Leaves Irvey Data Test	etlands puired): s in Upper 12	inches

Commur	nity ID:	PSS	Transect	ID: A	Plot ID:	WET 4S
SOILS						
Map Unit Na						
(Series and					Drainage Class:	
		firm Mapped Type?	Yes	No		
Taxonomy ((Subgroup):					
		Matrix Color	Mottle Colors	Mottle		cretions, Structures,
Depth (in)	Horizon	(Munsell Moist)	(Munsell Moist)	Abundance/Conf	trast etc.	
Hydric Soil	Indicators:	Ye	s X	No		
(If yes, ched						
		Histosol		Concretions		
		Histic Epidon		High Organic Cont	tent in Surface Layer i	n Sandy Soils
	X	Sulfidic Odor		Organic Streaking		
		Aquic Moisture Regime		Listed on Local Hy	dric Soils List	
		Reducing Conditions		Listed on National	Hydric Soils List	
		Gleyed or Low-Chroma	Colors	Other (explain in re	emarks)	
			-			
Remarks:	Inundated -	no soils taken.				
	DETERMIN					
Hydrophytic					Is this Sampling Point	Within a Wetland
Wetland Hy				No		
Hydric Soils	Present?	Ye	sX	No	Yes X	No
_						
Remarks:	Pic 1086					

Project/Site:	I-64 Peninsula Study				Date:	6/28/2011	
Applicant/Owner:	VDOT				County:	Henrico	
Investigator:	Scot Aitkenhead				State:	Virginia	
			_				
Community ID:	PFO		Transect ID:	Α	_	Plot ID:	WET 5S
Do Normal Conditions	exist on the site?		Yes_	Х	N	0	_
Is the site significantly	disturbed (Atypical situat	ion)?	Yes_		_ N	o X	_
Is the area a potential	Problem Area?		Yes_		_ N	oX	_
If needed, explain on	reverse						
VECETATION							
VEGETATION	Dominant Plant	Species					
Common		Scientific N	ame		Stratum		Indicator
	n Blueberry		corymbosum		H	_	FACW-
2. Common	-		n perfoliatum		H		FACW+
3. Soft Rush		Juncus effu	-		н		FACW+
4. Red Map		Acer rubrui			Т		FAC
5. Sweetgui			ar styraciflua		T		FAC
6. Fringed S		Carex crini	•		H		OBL
7. Poison Iv			dron radicans		V		FAC
8. Sensitive		Onoclea se			H		FACW
9.	1 0111	07/00/04 00	n lolollio				171011
10.							
11.							
12.							
	species that are OBL, FAC	W or FAC			100%		
(excluding FAC-)	,		_				-
Remarks:							
LIVER OL COV							
HYDROLOGY Recorded Data (Desc	ribo in Pomarks):		Wetland Hydro	ology Indi	catore:		
Recorded Data (Desc	Streams		Primary Indica		cators.		
-	Aerial Photographs		-	nundated			
-	Other				n Upper 12 i	nches	
No Reco	rded Data Available			/ater Marl		1101103	
110 110001	rada Bata Avallabio			rift Lines	NO.		
				ediment [Denosits		
Field Observations:					Patterns in W	etlands	
Depth of Surface Water	er·	(in.)	Secondary Inc	•			
Depth to Free Water in		— (in.)	1			s in Upper 12 i	nches
Depth to Saturated So		— (in.)			ned Leaves	0 III Oppor 12 I	1101100
Dopar to Cataratoa Co		()			Survey Data		
				AC-Neutr			
					lain in Rema	ırks)	
				(-λβ		·,	
Remarks:			1				

Commun	nity ID:	PFO	Transect II	D: A	Plot ID:	WET 5S
	•		-			
SOILS						
Map Unit Na	ame					
(Series and					Drainage Class:	
		firm Mapped Type?	Yes	No		
Taxonomy (тт тарроа турот	100			
Taxonomy (oubgroup).					
		Matrix Color	Mottle Colors	Mottle	Textures Conc	retions, Structures,
Depth (in)	Horizon	(Munsell Moist)	(Munsell Moist)	Abundance/Contras		relions, Structures,
		7.5YR 2.5/1				
0-16	А	7.5 Y R 2.5/1	5YR 3/4	10%	Clay Loam	
1						
Hydric Soil I	ndicators:	Yes	, X N	lo		
(If yes, chec		163	<u> </u>			
(ii yes, chec	k inem)	History		Concretions		
		_Histosol		Concretions		0 1 0 "
		_Histic Epidon		High Organic Content		i Sandy Soils
		Sulfidic Odor		Organic Streaking in S		
		_Aquic Moisture Regime		Listed on Local Hydric		
	X	Reducing Conditions		Listed on National Hyd		
	X	_Gleyed or Low-Chroma	Colors	Other (explain in rema	ırks)	
Remarks:						
WETLAND	DETERMIN	ATION				
Hydrophytic			; X N	lo Is th	nis Sampling Point	Within a Wetland
Wetland Hy				lo lo lo li	Jamping i olit	a rrollaria
Hydric Soils		Yes			es X	No
i iyuno oolis	i icociii!	165	<u> </u>	···	G3 ∧	110
Domarlia	Dia 1000					
Remarks:	Pic 1090					

Applicant/Owner:						
Applicant/Owner.	VDOT			County:	Henrico	
nvestigator:	Scot Aitkenhead			State:	Virginia	
Community ID:	PFO	Transe	ect ID: A		Plot ID:	WET 6S
Do Normal Conditions	e evist on the site?		Yes X		No	
	disturbed (Atypical situa	tion)?	Yes X		10 X	_
is the site significantly Is the area a potential		ilion):	Yes		10 X	_
f needed, explain on			103		<u> </u>	_
VEGETATION						
regeration	Dominant Plar	nt Species				
Common		Scientific Name		Stratum		Indicator
1. Rice Cut	grass	Leersia oryzoides		H	_	OBL
2. Red Map	ole	Acer rubrum		Т		FAC
3. Japanese	e Stilt Grass	Microstegium vin	nineum	Н		FAC
4. False Ne	ttle	Boehmeria cylindri	ica	Н		FACW+
5. Bladder S	Sedge	Carex intumescens	S	Н		FACW+
6. Poison Iv	/y	Toxicodendron radicans		V		FAC
7. Black Gu	im	Nyssa sylvatica		Т		FAC
3.						
9.						
9. 10.						
9. 10. 11.						
9. 10. 11. 12.	species that are OBL, FA	CW or FAC		100%		_
9. 10. 11. 12. Percent of dominant s	species that are OBL, FA	CW or FAC		100%		_
9. 10. 11. 12. Percent of dominant s (excluding FAC-)	species that are OBL, FA	CW or FAC		100%		_
9. 10. 11. 12. Percent of dominant s excluding FAC-)	species that are OBL, FA	CW or FAC		100%		_
9. 10. 11. 12. Percent of dominant s (excluding FAC-) Remarks:	species that are OBL, FA	CW or FAC		100%		_
(excluding FAC-) Remarks: HYDROLOGY			nd Hydrology I			_
9. 10. 11. 12. Percent of dominant s (excluding FAC-) Remarks:	ribe in Remarks):	Wetla	nd Hydrology I			
O. 10. 11. Percent of dominant second factoring (according FAC-) Remarks:	ribe in Remarks):Streams	Wetla	nd Hydrology I ry Indicators: Inundat	ndicators:		_
O. 10. 11. Percent of dominant second factoring (according FAC-) Remarks:	ribe in Remarks): Streams Aerial Photographs	Wetla	ry Indicators: Inundat	ndicators:	inches	_
9. 10. 11. 12. Percent of dominant s (excluding FAC-) Remarks: HYDROLOGY Recorded Data (Desc	cribe in Remarks): Streams Aerial Photographs Other	Wetla	ry Indicators: Inundat Saturate	ndicators: ed ed in Upper 12	inches	_
Percent of dominant second of the second of	ribe in Remarks): Streams Aerial Photographs	Wetla	ry Indicators: Inundat Saturate Water N	ndicators: ed ed in Upper 12 farks	inches	
9. 10. 11. 12. Percent of dominant s (excluding FAC-) Remarks: HYDROLOGY Recorded Data (Desc	cribe in Remarks): Streams Aerial Photographs Other	Wetla	ry Indicators: Inundat Saturate Water M	ndicators: ed ed in Upper 12 /arks es	inches	
APPROLOGY Recorded Data (Desconders) No Recorded No Recorded	cribe in Remarks): Streams Aerial Photographs Other	Wetla	ry Indicators: Inundat Saturate Water N Drift Lin Sedime	ndicators: ed ed in Upper 12 flarks es nt Deposits		
Percent of dominant sexcluding FAC-) Remarks: HYDROLOGY Recorded Data (Desconded Data)	eribe in Remarks): Streams Aerial Photographs Other rded Data Available	Wetla Prima	ry Indicators: Inundat Saturate Water M Drift Lin Sedime Drainag	ndicators: ed ed in Upper 12 Marks es nt Deposits e Patterns in W	Vetlands	
Percent of dominant sexcluding FAC-) Remarks: HYDROLOGY Recorded Data (Desconded Data (Descon	eribe in Remarks): Streams Aerial Photographs Other rded Data Available	Wetla Prima	ry Indicators: Inundat Saturate Water M Drift Lin Sedime Drainag	ndicators: ed ed in Upper 12 Marks es nt Deposits e Patterns in W s (2 or more rec	Vetlands quired):	inches
Percent of dominant sexcluding FAC-) Remarks: HYDROLOGY Recorded Data (Desconded Data (Descon	eribe in Remarks): Streams Aerial Photographs Other rded Data Available er: n Pit:	Wetla Prima (in.) Secon	ry Indicators: Inundat Saturate Water N Drift Lin Sedime Drainage ndary Indicators	ndicators: ed ed in Upper 12 Marks es nt Deposits e Patterns in Wes (2 or more red	Vetlands quired): els in Upper 12	inches
Percent of dominant stexcluding FAC-) Remarks: HYDROLOGY Recorded Data (Desconded Data (Desco	eribe in Remarks): Streams Aerial Photographs Other rded Data Available er: n Pit:	Wetla Prima	ry Indicators: Inundat Saturate Water N Drift Lin Sedime Drainag ndary Indicators Oxidize Water-S	ndicators: ed ed in Upper 12 Marks es nt Deposits e Patterns in W s (2 or more red d Root Channe stained Leaves	Vetlands quired): els in Upper 12	inches
9. 10. 11. 12. Percent of dominant s (excluding FAC-) Remarks: HYDROLOGY Recorded Data (Desc	eribe in Remarks): Streams Aerial Photographs Other rded Data Available er: n Pit:	Wetla Prima (in.) Secon	ry Indicators: Inundat Saturate Water M Drift Lin Sedime Drainag ndary Indicators Water-S Local S	ndicators: ed ed in Upper 12 flarks es nt Deposits e Patterns in W s (2 or more red d Root Channe stained Leaves oil Survey Data	Vetlands quired): els in Upper 12	inches
9. 10. 11. 12. Percent of dominant s (excluding FAC-) Remarks: HYDROLOGY Recorded Data (Desconded Data (Desconded Data (Desconded Data) Field Observations: Depth of Surface Water i	eribe in Remarks): Streams Aerial Photographs Other rded Data Available er: n Pit:	Wetla Prima (in.) Secon	ry Indicators: Inundat Saturate Water M Drift Lin Sedime Drainag ndary Indicators Oxidize Water-S Local S FAC-Ne	ndicators: ed ed in Upper 12 Marks es nt Deposits e Patterns in W s (2 or more red d Root Channe stained Leaves	Vetlands quired): els in Upper 12	inches

SOILS Map Unit Nam (Series and Pl Field Observa Taxonomy (Su Depth (in) 0-16	hase): tions Conf	Matrix Color (Munsell Moist) 10YR 4/1	Yes Mottle Colors (Munsell Moist) 5YR 3/4	No Mottle Abundance/Contrast	rainage Class: Textures, Concre	tions, Structures,
Map Unit Nam (Series and Pl Field Observa Taxonomy (Su Depth (in)	hase): tions Conf ubgroup): Horizon	Matrix Color (Munsell Moist)	Mottle Colors (Munsell Moist)	No Mottle Abundance/Contrast	Textures, Concre	tions, Structures,
Map Unit Nam (Series and Pl Field Observa Taxonomy (Su Depth (in)	hase): tions Conf ubgroup): Horizon	Matrix Color (Munsell Moist)	Mottle Colors (Munsell Moist)	No Mottle Abundance/Contrast	Textures, Concre	tions, Structures,
(Series and Pl Field Observa Taxonomy (Su Depth (in)	hase): tions Conf ubgroup): Horizon	Matrix Color (Munsell Moist)	Mottle Colors (Munsell Moist)	No Mottle Abundance/Contrast	Textures, Concre	tions, Structures,
Field Observa Taxonomy (Su Depth (in)	tions Conf ubgroup): Horizon	Matrix Color (Munsell Moist)	Mottle Colors (Munsell Moist)	No Mottle Abundance/Contrast	Textures, Concre	tions, Structures,
Taxonomy (So	ubgroup): Horizon	Matrix Color (Munsell Moist)	Mottle Colors (Munsell Moist)	Mottle Abundance/Contrast		tions, Structures,
Depth (in)	Horizon	(Munsell Moist)	(Munsell Moist)	Abundance/Contrast		tions, Structures,
		(Munsell Moist)	(Munsell Moist)	Abundance/Contrast		tions, Structures,
		(Munsell Moist)	(Munsell Moist)	Abundance/Contrast		tions, Structures,
					etc.	
0-16	A	10YR 4/1	5YR 3/4			
				10%	Clay Loam	
Hydric Soil Inc	dicators:	Yes	1 X	No		
(If yes, check		_				
(ii yoo, onook	uioiii)	Histosol		Concretions		
_		Histic Epidon		High Organic Content in	Surface Laver in 9	Sandy Soils
_	X	Sulfidic Odor		Organic Streaking in Sa		Januy Jons
_						
	V	Aquic Moisture Regime		Listed on Local Hydric S		
_	X	Reducing Conditions		Listed on National Hydr		
_	X	Gleyed or Low-Chroma Co	olors	Other (explain in remark	KS)	
Remarks:						
WETLAND D				1		
Hydrophytic V	-	-			s Sampling Point W	ithin a Wetland
Wetland Hydro		ent? Yes_		No		
Hydric Soils P	resent?	Yes	1 X	No Ye	sX	No
Remarks:	1093					

Applicant/Owner:	VDOT			County:	New Kent	
Investigator:	Scot Aitkenhead			State:	Virginia	
Community ID:	PFO		Transect ID:	1	Plot ID:	WET 7S
- 10 III						
	ons exist on the site?	:t = t: = := \ 0	Yes		No	_
-	ntly disturbed (Atypical s	ituation)?	Yes		No	
If needed, explain	itial Problem Area?		Yes		No	_
ii needed, explain	on reverse					
VEGETATION						
0		Plant Species	- Nove	Chrotino		la dia atau
Common Name Rice Cutgrass		Scientific		Stratum	<u>1</u>	Indicator
			oryzoides	Н		OBL
			eria cylindrica	H		FACW+
3. Swee	-	Liquidar Acer rub	nbar styraciflua	T T		FAC FAC
4. Red N 5. Poiso			orum endron radicans	I V		FAC
	n ivy tive Fern		enaron radicans i sensibilis	v H		FACW
7. Royal			la regalis	H		OBL
i. Kuyai			s caroliniana	S		FACW+
Nunci				3		FACVV+
	e wood	Carpinu	o da om nana			
9.	e wood	Сагріпи	o caroninana			
9. 10.	e wood	Carpinu.	o daromnana			
9. 10. 11.	e wood	Сагріна	o da omiana			
9. 10. 11. 12.		·	o dai omnana	100%		
9. 10. 11. 12. Percent of domina	nt species that are OBL,	·		100%		_
9. 10. 11. 12. Percent of domina (excluding FAC-)		·		100%		_
9. 10. 11. 12. Percent of domina (excluding FAC-)		·		100%		_
9. 10. 11. 12. Percent of domina		·		100%		_
9. 10. 11. 12. Percent of domina (excluding FAC-) Remarks: HYDROLOGY	nt species that are OBL,	·				_
9. 10. 11. 12. Percent of domina (excluding FAC-) Remarks: HYDROLOGY	nt species that are OBL,	·	Wetland Hydrology	Indicators:		_
9. 10. 11. 12. Percent of domina (excluding FAC-) Remarks: HYDROLOGY	nt species that are OBL, escribe in Remarks): Streams	FACW or FAC	Wetland Hydrology Primary Indicators:	Indicators:		_
9. 10. 11. 12. Percent of domina (excluding FAC-) Remarks: HYDROLOGY	nt species that are OBL, escribe in Remarks): Streams Aerial Photograph	FACW or FAC	Wetland Hydrology Primary Indicators:	Indicators:		
9. 10. 11. 12. Percent of domina (excluding FAC-) Remarks: HYDROLOGY Recorded Data (D	escribe in Remarks): Streams Aerial Photograph	FACW or FAC	Wetland Hydrology Primary Indicators Inund	Indicators: ated ated in Upper 12		_
9. 10. 11. 12. Percent of domina (excluding FAC-) Remarks: HYDROLOGY Recorded Data (D	nt species that are OBL, escribe in Remarks): Streams Aerial Photograph	FACW or FAC	Wetland Hydrology Primary Indicators: Inund. Satura	Indicators: ated ated in Upper 12 Marks		_
9. 10. 11. 12. Percent of domina (excluding FAC-) Remarks: HYDROLOGY Recorded Data (D	escribe in Remarks): Streams Aerial Photograph	FACW or FAC	Wetland Hydrology Primary Indicators: Inund Satura Water	Indicators: ated ated in Upper 12 Marks ines		
9. 10. 11. 12. Percent of domina (excluding FAC-) Remarks: HYDROLOGY Recorded Data (Decorded Dat	escribe in Remarks): Streams Aerial Photograph Other ecorded Data Available	FACW or FAC	Wetland Hydrology Primary Indicators: Inund: Satura Water Drift L	Indicators: ated ated in Upper 12 Marks ines ent Deposits	inches	
9. 10. 11. 12. Percent of domina (excluding FAC-) Remarks: HYDROLOGY Recorded Data (Diagram) No References	escribe in Remarks): Streams Aerial Photograph Other ecorded Data Available	FACW or FAC	Wetland Hydrology Primary Indicators: Inund: Satura Water Drift L Sedim X Draina	Indicators: ated ated in Upper 12 Marks ines ent Deposits age Patterns in V	inches	
9. 10. 11. 12. Percent of domina (excluding FAC-) Remarks: HYDROLOGY Recorded Data (Decorded Da	escribe in Remarks): Streams Aerial Photograph Other ecorded Data Available	FACW or FAC	Wetland Hydrology Primary Indicators: Inund: Satura Water Drift L Sedim X Draina Secondary Indicators	Indicators: ated ated in Upper 12 Marks ines ent Deposits age Patterns in Vors (2 or more re-	inches Vetlands quired):	inches
9. 10. 11. 12. Percent of domina (excluding FAC-) Remarks: HYDROLOGY Recorded Data (Decorded Da	escribe in Remarks): Streams Aerial Photograph Other ecorded Data Available Water: er in Pit:	FACW or FAC ins (in.) 6 (in.)	Wetland Hydrology Primary Indicators: Inund: Satura Water Drift L Sedim X Draina Secondary Indicator X Oxidiz	Indicators: ated ated in Upper 12 Marks ines ent Deposits age Patterns in V ors (2 or more re-	inches Vetlands quired): els in Upper 12	inches
9. 10. 11. 12. Percent of domina (excluding FAC-) Remarks: HYDROLOGY Recorded Data (D	escribe in Remarks): Streams Aerial Photograph Other ecorded Data Available Water: er in Pit:	FACW or FAC	Wetland Hydrology Primary Indicators: Inund: Satura Water Drift L Sedim X Draina Secondary Indicator X Oxidiz X Water	Indicators: ated ated in Upper 12 Marks ines ent Deposits age Patterns in V ors (2 or more re- ed Root Channe -Stained Leaves	inches Vetlands quired): els in Upper 12	inches
9. 10. 11. 12. Percent of domina (excluding FAC-) Remarks: HYDROLOGY Recorded Data (Decorded Da	escribe in Remarks): Streams Aerial Photograph Other ecorded Data Available Water: er in Pit:	FACW or FAC ins (in.) 6 (in.)	Wetland Hydrology Primary Indicators: Inund: Satura Water Drift L Sedim X Draina Secondary Indicato X Oxidiz X Water Local	Indicators: ated ated in Upper 12 Marks ines ent Deposits age Patterns in V ors (2 or more re- ed Root Channer- Stained Leaves Soil Survey Data	inches Vetlands quired): els in Upper 12	inches
9. 10. 11. 12. Percent of domina (excluding FAC-) Remarks: HYDROLOGY Recorded Data (Decorded Da	escribe in Remarks): Streams Aerial Photograph Other ecorded Data Available Water: er in Pit:	FACW or FAC ins (in.) 6 (in.)	Wetland Hydrology Primary Indicators: Inund: Satura Water Drift L Sedim X Draina Secondary Indicator X Oxidiz X Water Local FAC-1	Indicators: ated ated in Upper 12 Marks ines ent Deposits age Patterns in V ors (2 or more re- ed Root Channe -Stained Leaves Soil Survey Data	inches Vetlands quired): els in Upper 12	inches
9. 10. 11. 12. Percent of domina (excluding FAC-) Remarks: HYDROLOGY Recorded Data (Decorded Da	escribe in Remarks): Streams Aerial Photograph Other ecorded Data Available Water: er in Pit:	FACW or FAC ins (in.) 6 (in.)	Wetland Hydrology Primary Indicators: Inund: Satura Water Drift L Sedim X Draina Secondary Indicator X Oxidiz X Water Local FAC-1	Indicators: ated ated in Upper 12 Marks ines ent Deposits age Patterns in V ors (2 or more re- ed Root Channer- Stained Leaves Soil Survey Data	inches Vetlands quired): els in Upper 12	inches

Commun	ity ID:	PFO	Transect	ID: A	Plot ID:	WET 7S
SOILS						
Map Unit Na						
(Series and					Drainage Class:	
		firm Mapped Type?	Yes	No		
Taxonomy (Subgroup):					
		Matrix Color	Mottle Colors	Mottle		retions, Structures,
Depth (in)	Horizon	(Munsell Moist)	(Munsell Moist)	Abundance/Contr		
0-16	Α	5YR 2.5/1			Silt loam	
Hydric Soil I	ndicators:	Yes	Χ	No		
(If yes, chec						
,	,	Histosol		Concretions		
•		Histic Epidon			ent in Surface Layer ir	n Sandy Soils
	Х	Sulfidic Odor		Organic Streaking in		· Canay Como
		Aquic Moisture Regime		Listed on Local Hyd		
		Reducing Conditions		Listed on National F		
	Х	Gleyed or Low-Chroma (`olore	Other (explain in re		
•		_ Gleyed of Low-Officina C		Other (explain in rel	naiks)	
Remarks:						
rtemants.						
WETLAND I	DETERMIN	ATION				
Hydrophytic			X	No Is	s this Sampling Point	Within a Wetland
Wetland Hyd	-			No Is	s una Jampiing Fulli	vviuiiii a vvellaiiu
Hydric Soils					Voc V	No
i iyunc Soils	rieseiil?	Yes	^	No	Yes X	No
Domorto	400	<u> </u>				
Remarks:	109	O .				

Project/Site:	I-64 Peninsula Study				Date:	6/28/2011	
Applicant/Owner:	VDOT				County:	New Kent	
Investigator:	Scot Aitkenhead				State:	Virginia	
					_		
Community ID:	PSS	Trans	ect ID:	Α		Plot ID:	WET 8S
,					_		
Do Normal Conditions	exist on the site?		Yes	Х	No)	
Is the site significantly of	disturbed (Atypical situation	on)?	Yes		_ No	X	•
Is the area a potential F	Problem Area?		Yes		No	x	•
If needed, explain on re	everse				_		•
VEGETATION							
	Dominant Plant	Species					
Common N	Name	Scientific Name			Stratum		Indicator
1. Willow Oak	<	Quercus phellos			S	_	FAC+
Black Willo)W	Salix nigra			S		FACW+
3. Water Tup	elo	Nyssa aquatica			Т		OBL
4. Duck Wee		Lemna minor			Н		OBL
5. Buttonbush	า	Cephalanthus occ	identalis		S		OBL
6. Red Maple)	Acer rubrum			S		FAC
7. False Nettl	e	Boehmeria cylindi	rica		Н		FACW+
8. Yellow Por	nd Lily	Nuphar lutea			Н		OBL
9.	•	•					
10.							
11.							
12.							
Percent of dominant sp	ecies that are OBL, FAC	V or FAC			100%		
(excluding FAC-)							•
Remarks:							
HYDROLOGY							
Recorded Data (Describ	be in Remarks):	Wetla	and Hydrol	ogy Indi	cators:		
	Streams	Prima	ary Indicate	ors:			
	Aerial Photographs		X Inc	ındated			
	Other		X Sa	turated i	n Upper 12 iı	nches	
No Record	led Data Available		Wa	ater Marl	KS		
			Dri	ft Lines			
			Se	diment [Deposits		
Field Observations:			X Dra	ainage P	atterns in W	etlands	
Depth of Surface Water		(in.) Seco	ndary Indi	cators (2	or more req	uired):	
Depth to Free Water in	Pit: 0			idized R	oot Channels	s in Upper 12 in	nches
Depth to Saturated Soil	: 0	(in.)	X Wa	ater-Staii	ned Leaves		
					Survey Data		
			FA	C-Neutr	al Test		
			Otl	her (Exp	lain in Rema	rks)	
Remarks:							

Commur	nity ID:	PSS	Transect II	D: <u>A</u>	Plot ID:	WET 8S
SOILS						
Map Unit Na						
(Series and					Drainage Class:	
		firm Mapped Type?	Yes	No		
Taxonomy ((Subgroup):					
		Matrix Calar	Mattle Calera	Mattle	Taydy mag Cana	maticus. Other rate reas
Donth (in)	Horizon	Matrix Color	Mottle Colors	Mottle		retions, Structures,
Depth (in)	Horizon	(Munsell Moist)	(Munsell Moist)	Abundance/Contra	ast etc.	
Hydric Soil	Indicators:	Yes	X	lo		
(If yes, ched		_				
() 00, 0	u,	Histosol		Concretions		
		Histic Epidon			ent in Surface Layer in	Sandy Soils
	X	Sulfidic Odor		Organic Streaking in		,
		Aquic Moisture Regime	X	Listed on Local Hyd		
		Reducing Conditions	X	Listed on National F		
	X	Gleyed or Low-Chroma C	olors	Other (explain in rer		
		_				
Remarks:						
	No soils tal	ken				
	DETERMIN			 		
Hydrophytic	-	-			this Sampling Point \	Within a Wetland
Wetland Hy		_		lo	.,	
Hydric Soils	Present?	Yes_	XN	10	Yes X	No
Domertica	4004	3				
Remarks:	1096	0				

Project/Site:	I-64 Peninsula Study				Date:	6/28/2011	
Applicant/Owner:	VDOT				County:	New Kent	
Investigator:	Scot Aitkenhead				State:	Virginia	
Community ID:	PSS	Transe	ect ID:	Α		Plot ID:	WET 9S
					_		
-							
Do Normal Conditions	s exist on the site?		Yes	Х	No)	
Is the site significantly	disturbed (Atypical situati	on)?	Yes		No	X	
Is the area a potential	Problem Area?		Yes		No	X X	•
If needed, explain on	reverse						•
VEGETATION							
	Dominant Plant	Species					
Common	n Name	Scientific Name			Stratum		Indicator
1. Lizard's	Tail	Saururus cernuus			Н	_	OBL
2. Broadlea	of Cattail	Typha latifolia			Н		OBL
3. False Ne	ettle	Boehmeria cylindr	ica		Н		FACW+
4. Sensitive	e Fern	Onoclea sensibilis			Н		FACW
5. Hazel Ald	der	Alnus serrulata			S		OBL
6. Rice Cut	grass	Leersia oryzoides			Н		OBL
7. Sweetgu		Liquidambar styra	ciflua		S		FAC
8. Red Map	ole	Acer rubrum			Т		FAC
9. Soft Rusl	h	Juncus effusus			Н		FACW+
10.							
11.							
12.							
Percent of dominant s	species that are OBL, FAC	W or FAC			100%		
(excluding FAC-)							
Remarks:							
HYDROLOGY							
Recorded Data (Desc	cribe in Remarks):	Wetla	nd Hydro	logy Indi	cators:		
	Streams	Prima	ry Indicat	ors:			
	Aerial Photographs		In	undated			
	Other		Sa	turated i	n Upper 12 iı	nches	
No Reco	rded Data Available		X W	ater Mar	ks		
			Dr	ift Lines			
			Se	ediment [Deposits		
Field Observations:			X Dr	ainage F	Patterns in W	etlands	
Depth of Surface Wat	er:	(in.) Secon	ndary Indi	cators (2	or more req	uired):	
Depth to Free Water i	in Pit:	(in.)	O	kidized R	oot Channels	s in Upper 12 ir	nches
Depth to Saturated So	oil:	(in.)	X W	ater-Stai	ned Leaves		
			Lo	cal Soil	Survey Data		
			FA	C-Neutr	al Test		
			Ot	her (Exp	lain in Rema	rks)	
Remarks:							

Commun	ity ID:	PSS	Transect	ID: A	Plot ID:	WET 9S
SOILS						
Map Unit Na						
(Series and					Drainage Class:	
		firm Mapped Type?	Yes	No		
Taxonomy (Subgroup):					
			M # 0 1	3.4	T	
D (1 (1)		Matrix Color	Mottle Colors	Mottle		retions, Structures,
Depth (in)	Horizon	(Munsell Moist)	(Munsell Moist)	Abundance/Contra		
0-16	Α	7.5YR 3/1			Clay loam	
Hydric Soil I		Yes	X	No		
(If yes, chec	k them)					
		Histosol		Concretions		
		Histic Epidon			nt in Surface Layer ir	Sandy Soils
	Х	_Sulfidic Odor		Organic Streaking ir		
		_Aquic Moisture Regime		Listed on Local Hyd		
		_Reducing Conditions		Listed on National H		
	Х	_Gleyed or Low-Chroma C	olors	Other (explain in rer	marks)	
Remarks:						
indinains.						
WETLAND	DETERMIN	ATION				
Hydrophytic			Х	No Is	this Sampling Point	Within a Wetland
Wetland Hyd				No	, 5	
Hydric Soils		Yes		No	Yes X	No
Remarks:	Pics 1105/	1106		•		

Project/Site:		I-64 Peninsula Study				Date:	6/28/2011	
Applicant/O	wner:	VDOT				County:	New Kent	
Investigator		Scot Aitkenhead				State:	Virginia	
						<u> </u>		
Community	ID:	PFO		Transect ID:	Α		Plot ID:	WET 10S
			_			_		
-								
Do Normal (Conditions e	xist on the site?		Yes	Х	N	0	
Is the site si	ignificantly d	isturbed (Atypical situation	on)?	Yes		N	o X	•
Is the area a	a potential P	roblem Area?		Yes		N	o X	•
If needed, e	xplain on rev	verse		•		_		•
VEGETATION	ON							
		Dominant Plant	Species					
	Common N	lame	Scientific N	lame		Stratum		Indicator
1.	Lizards Tai	<u> </u>	Saururus	cernuus		Н		OBL
2.	Fringed Se	dge	Carex crini	ita		Н		OBL
3.	Japanese S	Stilt Grass	Microstegio	um vimineum		Н		FAC
4.	Red Maple		Acer rubr	rum		Т		FAC
5.	American S	Sycamore	Platanus	occidentalis		Т		FACW-
6.	Spice Bush	r L	Lindera b	enzoin.		S		FACW-
7.	False Nettle	Э	Boehmeri	a cylindrica		Н		FACW+
8.	Sensitive F	ern	Onoclea :	sensibilis		Н		FACW
9.	Soft Rush		Juncus eff	usus		Н		FACW+
10.	River Birch		Betula nig	gra		Т		FACW
11.	Bristlebract	Sedge	Carex tribu	-		Н		FACW+
12.								
Percent of d	dominant spe	ecies that are OBL, FAC	W or FAC			100%		
(excluding F	AC-)			•				
Remarks:	·							
HYDROLOG	GY							
Recorded D	ata (Describ	e in Remarks):		Wetland Hyd	drology Indi	cators:		
		Streams		Primary Indi	cators:			
		Aerial Photographs		x	Inundated			
		Other		Х	Saturated	in Upper 12 i	nches	
	No Recorde	ed Data Available			Water Mar	ks		
	-				Drift Lines			
					Sediment I	Deposits		
Field Obser	vations:			Х	Drainage F	Patterns in W	etlands	
Depth of Su	rface Water:	:	(in.)	Secondary I	ndicators (2	or more rec	quired):	
Depth to Fre	ee Water in I	Pit:	(in.)	x	Oxidized R	Root Channel	s in Upper 12 ir	nches
Depth to Sa	turated Soil:		(in.)	Х	Water-Stai	ned Leaves		
			_		Local Soil	Survey Data		
					FAC-Neutr	al Test		
					Other (Exp	lain in Rema	arks)	
Remarks:								

Commun	ity ID:	PFO	Transect ID:	Α	Plot ID:	WET 10S
SOILS						
Map Unit Na				_		
(Series and				D	rainage Class:	
		firm Mapped Type?	Yes	No	_	
Taxonomy (Subgroup):					
		Matrix Color	Mottle Colors	Mottle	Textures, Conc	etions, Structures,
Depth (in)	Horizon	(Munsell Moist)	(Munsell Moist)	Abundance/Contrast	etc.	
0-16	Α	10YR 2/1	2.5YR 3/6	10%	Clay Loam	
Hydric Soil I	ndicators:	Yes	x No			
(If yes, chec		_				
,	,	Histosol		Concretions		
		Histic Epidon	-	High Organic Content in	Surface Laver in	Sandy Soils
	Х	Sulfidic Odor		Organic Streaking in Sa		
		Aquic Moisture Regime		Listed on Local Hydric S		
	Х	Reducing Conditions		Listed on National Hydr		
	X	Gleyed or Low-Chroma Co	olors	Other (explain in remark		
		_ cloyed of zow childhia co		- Other (explain in remain	(0)	
Remarks:						
rtomanto.						
WETLAND	DETERMIN	ATION				
Hydrophytic			x No	le this	s Sampling Point \	Mithin a Wetland
Wetland Hyd			x No		s Sampling Fount	VIIIIII a VVelianu
Hydric Soils		Yes	x No		s x	No
i iyunc 30118	1 1000111!	165_	NO	T es		No
Remarks:	Pix 1111					
intilialks.	FIX LITT					

Project/Site:	I-64 Peninsula Study				Date:	6/29/201	1	
Applicant/Owner:	VDOT				County:	New Kent		
Investigator:	Scot Aitkenhead				State:	Virginia		
Community ID:	PFO		Transect ID:	Α	_	Plot ID:	WET	12S
Do Normal Conditio	ns exist on the site?		Yes	Х	N	lo		
Is the site significan	tly disturbed (Atypical situat	ion)?	Yes		N	о х	_	
Is the area a potent	ial Problem Area?		Yes		N	о х	_	
If needed, explain o	n reverse							
VEGETATION								
	Dominant Plant	Species						
Commo	on Name	Scientific	Name		Stratum		Indicator	
1. Red Ma	aple	Acer ru	brum		Т	<u> </u>	FAC	
	ese Stilt Grass	Microste	gium vimineum		Н		FAC	
Sweet	gum	Liquida	mbar styraciflua		Т		FAC	
4. Lizards	s Tail		s cernuus		Н		OBL	
-	ush Blueberry		um corymbosum		Н		FACW-	
	ve Fern		a sensibilis		Н		FACW	
7. Jewel \	Weed	Impatie	ns capensis		Н		FACW	
8.								
9.								
10.								
11.								
12.	t species that are OBL, FAC	W or EAC			100%			
(excluding FAC-)	t species that are OBL, FAC	W UI FAC			100 /6		_	
Remarks:								
rtemarks.								
Recorded Data (De	scribe in Pemarks):		Wetland Hydrol	oay Ind	icators:			
Recorded Data (De	Streams		Primary Indicate		icators.			
	Aerial Photographs			ındated				
	Other				in Upper 12 i	inches		
No Red	corded Data Available			ater Mai				
				ft Lines				
					Deposits			
Field Observations:					Patterns in W	etlands/		
Depth of Surface W	ater:	(in.)	Secondary India	_				
Depth to Free Wate	r in Pit:	(in.)	Ox	idized F	Root Channel	ls in Upper 12	inches	
Depth to Saturated	Soil:	(in.)	X Wa	ater-Sta	ined Leaves			
			Loc	cal Soil	Survey Data			
					ral Test			
			Oth	her (Exp	olain in Rema	arks)		
Damarks:								
Remarks:								

Commun	ity ID:	PFO	Transect ID:	Α	Plot ID:	WET 12S
SOILS						
Map Unit Na						
(Series and					Drainage Class:	
		firm Mapped Type?	Yes	No		
Taxonomy (Subgroup):					
				8.4 ml	T	
D (1 (1)		Matrix Color	Mottle Colors	Mottle		retions, Structures,
Depth (in)	Horizon	(Munsell Moist) 10YR 2/1	(Munsell Moist)	Abundance/Contra		
0-16	Α	101R 2/1	2.5YR 3/6		Loam	
Hydric Soil I		Yes_	x No			
(If yes, chec	k them)					
		_Histosol		Concretions		
		_Histic Epidon		High Organic Conter		Sandy Soils
	Х	_Sulfidic Odor		Organic Streaking in		
		_Aquic Moisture Regime		Listed on Local Hydr		
	Х	_Reducing Conditions		Listed on National H	=	
	Х	_Gleyed or Low-Chroma Co	olors	Other (explain in rem	narks)	
Remarks:						
indinains.						
WETLAND	DETERMIN	ATION				
Hydrophytic			x No	Is	this Sampling Point	Within a Wetland
Wetland Hyd	-		x No		. 0	
Hydric Soils		Yes	x No		Yes x	No
Remarks:	112	7				
			·			·

Project/Site:	I-64 Peninsula Study				Date:	6/29/2011	
Applicant/Owner:	VDOT				County:	New Kent	
Investigator:	Scot Aitkenhead				State:	Virginia	
Community ID:	PFO		Transect ID:	Α	_	Plot ID:	WET 13S
Do Normal Conditions e		\0	· ·	Х	_ N		-
Is the site significantly d		on)?	Yes			0 <u>X</u>	-
Is the area a potential P			Yes		N	o <u>x</u>	-
If needed, explain on rev	verse						
VEGETATION							
VEGETATION	Dominant Plant	Snecies					
Common N		Scientific	Name		Stratum		Indicator
1. Sensitive F			sensibilis		Н	_	FACW
2. False nettle			ria cylindrica		H		FACW+
3. Red maple		Acer rub	•		Т		FAC
4. Lizards Tai		Saururus			H		OBL
5. Bladder sed			tumescens		Н		FACW+
6.	. 3						
7.							
8.							
9.							
10.							
11.							
12.							
Percent of dominant spe	ecies that are OBL, FAC	N or FAC			100%		_
(excluding FAC-)							
Remarks:							
HYDROLOGY	a in Damarka).		Matteral Live	الممامين المما	inntnun.		
Recorded Data (Describ	•		Wetland Hyd		icators:		
	_Streams Aerial Photographs		Primary Indi	Inundated			
	Other				in Honor 12 i	inches	
No Pocordo	_Other ed Data Available		X	Water Mar	in Upper 12 i	inches	
No ivection	ed Data Available			Drift Lines			
				Sediment			
Field Observations:			×		Patterns in W	letlands	
Depth of Surface Water:	: 1	(in.)		_	2 or more rec		
Depth to Free Water in I		— (in.)	Coochdary II	•		ls in Upper 12 i	nches
Depth to Saturated Soil:		— (in.)	Х		ined Leaves	.с орро	
		_ (***)			Survey Data		
				FAC-Neuti			
					olain in Rema	arks)	
				- (,	
Remarks:							

Community	ID:	PFO		Transec	t ID: _	A	Plot ID:	WET 13S
SOILS								
Map Unit Nam	e							
(Series and Ph							Drainage Class:	
		irm Mapped Type?		Yes		No		
Taxonomy (Su	bgroup):							
							T . 0	
D (1 (1)		Matrix Colo		Mottle Colors		Mottle		ncretions, Structures,
Depth (in)	Horizon	(Munsell Mois	St)	(Munsell Moist)		Abundance/Contra	ist etc.	
Hydric Soil Ind			Yes	X	No_			
(If yes, check t	nem)	LUctoral				Nama and 41 and 41		
		_Histosol				Concretions	at in Curtage Lever	in Condy Coile
		Histic Epidon				ligh Organic Conter	-	in Sandy Solls
	Х	_Sulfidic Odor				Organic Streaking in isted on Local Hydr		
		_Aquic Moisture Re Reducing Condition				isted on Local Hydi isted on National H		
		Gleyed or Low-Ch		are		Other (explain in ren	-	
_		_Gleyed of Low-Ci	iioiiia Coic		—	ollier (explain in ren	iai ks)	
Remarks:								
In	nundated	- no soils taken						
WETLAND DE	TEDMINI	ATION						
Hydrophytic Ve			Yes	X	No	le	this Sampling Poin	nt Within a Wetland
Wetland Hydro			Yes		No _		and Camping i on	a main a monana
Hydric Soils Pr			Yes		No -		Yes x	No
,				-	_		<u></u>	
Remarks:						l		

Applicant/Owner:	I-64 Peninsula Study			Date:	6/29/201	<u>'</u>
	VDOT			County:	New Kent	
Investigator:	Scot Aitkenhead			State:	Virginia	
Community ID:	PFO		Transect ID: A		Plot ID:	WET 14S
Do Normal Conditions	s exist on the site?		Yes x		lo	
-	disturbed (Atypical situat	ion)?	Yes		lox	_
Is the area a potential			Yes		lo <u>x</u>	<u>_</u>
If needed, explain on	reverse					
VEGETATION						
	Dominant Plan	Species				
Common	Name	Scientific	Name	Stratum		Indicator
1. Lizards T	ail	Saururus	cernuus	Н		OBL
2. Red Map	le	Acer ru	brum	Т		FAC
Royal Fe	rn	Osmuno	da regalis	Н		OBL
4. Sensitive	Fern	Onoclea	a sensibilis	Н		FACW
5. Poison Iv	y	Toxicoa	endron radicans	V		FAC
6.						
7.						
8.						
9.						
10.						
11.						
12.						
Percent of dominant s	species that are OBL, FAC	CW or FAC		100%		
(excluding FAC-)	•					_
Remarks:						
LIVEROLOGY						
HYDROLOGY Recorded Data (Desc	rihe in Remarks):		Wetland Hydrology Ir	ndicators:		
Necolucu Data (Desc.	Streams			idicators.		
2212122222000						
			Primary Indicators:	ad		
	Aerial Photographs		x Inundate		inches	
	Aerial Photographs Other		x Inundate x Saturate	d in Upper 12	inches	
	Aerial Photographs		x Inundate x Saturate Water M	d in Upper 12 arks	inches	
	Aerial Photographs Other		x Inundate x Saturate Water M Drift Line	d in Upper 12 arks es	inches	
No Reco	Aerial Photographs Other		x Inundate x Saturate Water M Drift Line x Sedimer	ed in Upper 12 arks es at Deposits		
No Recor	Aerial Photographs Other rded Data Available	(in)	x Inundate x Saturate Water M Drift Line x Sedimer x Drainage	d in Upper 12 arks es of Deposits e Patterns in W	/etlands	
No Recor Field Observations: Depth of Surface Wat	Aerial Photographs Other rded Data Available er: <1	(in.)	x Inundate x Saturate Water M Drift Line x Sedimer x Drainage Secondary Indicators	d in Upper 12 arks es at Deposits e Patterns in W	√etlands quired):	· · · · · · · · · · · · · · · · · · ·
No Recording No Re	Aerial Photographs Other rded Data Available er: <1 n Pit: 1	(in.)	x Saturate	d in Upper 12 arks es at Deposits e Patterns in W a (2 or more real Root Channe	√etlands quired):	inches
No Reco	Aerial Photographs Other rded Data Available er: <1 n Pit: 1		x Inundate x Saturate Water M Drift Line x Sedimer x Drainage Secondary Indicators Oxidized x Water-S	d in Upper 12 arks es at Deposits e Patterns in W (2 or more red I Root Channe tained Leaves	Vetlands quired): Is in Upper 12	inches
No Recording No Re	Aerial Photographs Other rded Data Available er: <1 n Pit: 1	(in.)	x Inundate x Saturate Water M Drift Line x Sedimer x Drainage Secondary Indicators Oxidized x Water-S Local Sc	d in Upper 12 arks es at Deposits e Patterns in W (2 or more red I Root Channe tained Leaves oil Survey Data	Vetlands quired): Is in Upper 12	inches
No Recording No Re	Aerial Photographs Other rded Data Available er: <1 n Pit: 1	(in.)	x Inundate x Saturate Water M Drift Line x Sedimer x Drainage Secondary Indicators Oxidized x Water-S Local Sc FAC-Ne	d in Upper 12 arks es at Deposits e Patterns in W (2 or more red I Root Channe tained Leaves oil Survey Data utral Test	/etlands quired): ls in Upper 12	inches
No Recording No Re	Aerial Photographs Other rded Data Available er: <1 n Pit: 1	(in.)	x Inundate x Saturate Water M Drift Line x Sedimer x Drainage Secondary Indicators Oxidized x Water-S Local Sc FAC-Ne	d in Upper 12 arks es at Deposits e Patterns in W (2 or more red I Root Channe tained Leaves oil Survey Data	/etlands quired): ls in Upper 12	inches
No Recording No Re	Aerial Photographs Other rded Data Available er: <1 n Pit: 1	(in.)	x Inundate x Saturate Water M Drift Line x Sedimer x Drainage Secondary Indicators Oxidized x Water-S Local Sc FAC-Ne	d in Upper 12 arks es at Deposits e Patterns in W (2 or more red I Root Channe tained Leaves oil Survey Data utral Test	/etlands quired): ls in Upper 12	inches

Communi	ty ID:	PFO	Transect ID:	А	Plot ID:	WET 14S
			•			
SOILS						
Map Unit Na				5		
(Series and F	rnase):	Green Marrier and Trime and	Vas	Di	rainage Class: _	
		firm Mapped Type?		No	_	
raxonomy (S	subgroup):					
		Matrix Color	Mottle Colors	Mottle	Toyturos Con	cretions, Structures,
Depth (in)	Horizon	(Munsell Moist)	(Munsell Moist)	Abundance/Contrast	etc.	orelions, offuciales,
0-15	A	7.5 YR 4/1	2.5 YR 3/4	10%	Sandy Clay loa	am
0-13	Α	7.5 TK 1 /T	2.5 11(5/4	1070	Carlay Clay 10	AIII
I						
Hydric Soil Ir	dicatore:	Yes	x No			
(If yes, check		163_	X No			
(II yes, check	(iiieiii)	Histosol		Concretions		
-					Surface Layer i	n Candy Caila
-		_Histic Epidon		High Organic Content in		II Salidy Solls
-	Х	_Sulfidic Odor		Organic Streaking in Sa		
-		_Aquic Moisture Regime		Listed on Local Hydric S		
-	X	Reducing Conditions Gleyed or Low-Chroma Co		Listed on National Hydri		
-	Х	_Gleyed of Low-Chroma Co	1015	Other (explain in remark	(5)	
Remarks:						
nemarks.						
WETLAND [TEDMIN	ATION				
Hydrophytic '			V No.	lo thio	Campling Daint	Within a Wetland
			X No	is this	Sampling Point	vviuiiii a vveuand
Wetland Hyd			X No			No
Hydric Soils	rresent?	Yes_	x No	Yes	SX	No
Damasiliai	44.40	`				
Remarks:	1146)				

Project/Site:	I-64 Peninsula			Date:	6/29/201	<u> </u>
Applicant/Owner:	VDOT			County:	New Kent	
nvestigator:	Scot Aitkenhead			State:	Virginia	
Community ID:	PFO		Transect ID:	Α	Plot ID:	WET 15S
Do Normal Conditions	s exist on the site?		Yes	X N	No	
s the site significantly	disturbed (Atypical situa	tion)?	Yes		No X	_
ls the area a potentia	Problem Area?		Yes		No X	_
f needed, explain on	reverse					
VEGETATION						
	Dominant Plan	t Species				
Commor	Name	Scientific	c Name	Stratum	<u> </u>	Indicator
 False Ne 	ttle	Boehme	ria cylindrica	Н		FACW+
Sensitive		Onoclea	sensibilis	Н		FACW
Red Map		Acer rub	orum	Т		FAC
•	e Stilt Grass	Microste	egium vimineum	Н		FAC
5.						
7.						
7. 3.						
7. 3. 9.						
7. 8. 9. 10.						
7. 8. 9. 10. 11.						
7. 8. 9. 10. 11. 12. Percent of dominant s	species that are OBL, FA	CW or FAC		100%		
7. 8. 9. 10. 11. 12. Percent of dominant s (excluding FAC-)	species that are OBL, FA0	CW or FAC		100%		_
7. 8. 9. 10. 11. 12. Percent of dominant s (excluding FAC-)	species that are OBL, FA	CW or FAC		100%		_
7. 3. 9. 10. 11. 12. Percent of dominant s (excluding FAC-)	species that are OBL, FA	CW or FAC		100%		_
7. 8. 9. 10. 11. 12. Percent of dominant s (excluding FAC-) Remarks:	species that are OBL, FAG	CW or FAC		100%		_
6. 7. 8. 9. 10. 11. 12. Percent of dominant s (excluding FAC-) Remarks: HYDROLOGY Recorded Data (Desc		CW or FAC	Wetland Hydrolog			_
7. 8. 9. 10. 11. 12. Percent of dominant s (excluding FAC-) Remarks:		CW or FAC	Wetland Hydrolog Primary Indicators	y Indicators:		_
7. 8. 9. 10. 11. 12. Percent of dominant s (excluding FAC-) Remarks:	ribe in Remarks):	CW or FAC	, ,	y Indicators:		
7. 8. 9. 10. 11. 12. Percent of dominant s (excluding FAC-) Remarks:	ribe in Remarks):Streams	CW or FAC	Primary Indicators	y Indicators: s: dated	inches	
7. 8. 9. 10. 11. 12. Percent of dominant s (excluding FAC-) Remarks: HYDROLOGY Recorded Data (Desc	ribe in Remarks): Streams Aerial Photographs	CW or FAC	Primary Indicators Inunc	y Indicators:	inches	
7. 8. 9. 10. 11. 12. Percent of dominant s (excluding FAC-) Remarks: HYDROLOGY Recorded Data (Desc	cribe in Remarks): Streams Aerial Photographs Other	CW or FAC	Primary Indicators Inunc Satu Wate	y Indicators: :: lated ated in Upper 12	inches	
7. 8. 9. 10. 11. 12. Percent of dominant s (excluding FAC-) Remarks: HYDROLOGY Recorded Data (Desc	cribe in Remarks): Streams Aerial Photographs Other	CW or FAC	Primary Indicators Inunc Satu Wate	y Indicators: s: dated rated in Upper 12 r Marks Lines	inches	
7. 8. 9. 10. 11. 12. Percent of dominant s (excluding FAC-) Remarks: HYDROLOGY Recorded Data (Desc	cribe in Remarks): Streams Aerial Photographs Other	CW or FAC	Primary Indicators Inunc Satu Wate Drift Sedi	y Indicators: :: dated rated in Upper 12 r Marks		
7. 3. 9. 10. 11. 12. Percent of dominant service (excluding FAC-) Remarks: HYDROLOGY Recorded Data (Desconded	eribe in Remarks): Streams Aerial Photographs Other rded Data Available		Primary Indicators Inunc Satu Wate Drift Sedi	y Indicators: :: dated rated in Upper 12 r Marks Lines ment Deposits age Patterns in V	Vetlands	
7. 8. 9. 10. 11. 12. Percent of dominant s (excluding FAC-) Remarks: HYDROLOGY Recorded Data (Descondent of the properties of the propert	eribe in Remarks): Streams Aerial Photographs Other rded Data Available	(in.)	Primary Indicators Inunc Satu Wate Drift Sedii X Drair Secondary Indica	y Indicators: dated rated in Upper 12 r Marks Lines ment Deposits age Patterns in V	Vetlands quired):	inches
7. 8. 9. 10. 11. 12. Percent of dominant s (excluding FAC-) Remarks: HYDROLOGY Recorded Data (Description of Surface Water Depth to Free Water)	eribe in Remarks): Streams Aerial Photographs Other rded Data Available er: n Pit:	(in.)	Primary Indicators Inunc Satu Wate Drift Sedil X Drair Secondary Indica Oxid	y Indicators: stated rated in Upper 12 r Marks Lines ment Deposits rage Patterns in Vers (2 or more re	Vetlands quired): els in Upper 12	inches
7. 8. 9. 10. 11. 12. Percent of dominant s (excluding FAC-) Remarks: HYDROLOGY Recorded Data (Descondant of the property of Surface Water Depth to Free Water)	eribe in Remarks): Streams Aerial Photographs Other rded Data Available er: n Pit:	(in.)	Primary Indicators Inunc Satu Wate Drift Sedii X Drair Secondary Indica Oxid X Wate	y Indicators: Stated Fated in Upper 12 Ir Marks Lines Inent Deposits Itage Patterns in Vers (2 or more rezed Root Channer-Stained Leaves	Vetlands quired): els in Upper 12	inches
7. 8. 9. 10. 11. 12. Percent of dominant s (excluding FAC-) Remarks: HYDROLOGY Recorded Data (Desc	eribe in Remarks): Streams Aerial Photographs Other rded Data Available er: n Pit:	(in.)	Primary Indicators Inunc Satu Wate Drift Sedii X Drair Secondary Indica Oxid X Wate Loca	y Indicators: Stated Stated in Upper 12 r Marks Lines ment Deposits sage Patterns in Verors (2 or more recorded and the core recorded and the core stained Leaves I Soil Survey Data	Vetlands quired): els in Upper 12	inches
7. 8. 9. 10. 11. 12. Percent of dominant s (excluding FAC-) Remarks: HYDROLOGY Recorded Data (Description of Surface Water) Depth of Surface Water)	eribe in Remarks): Streams Aerial Photographs Other rded Data Available er: n Pit:	(in.)	Primary Indicators Inunc Satu Wate Drift Sedii X Drair Secondary Indica Oxid X Wate Loca FAC:	y Indicators: Stated Fated in Upper 12 Ir Marks Lines Inent Deposits Itage Patterns in Vers (2 or more rezed Root Channer-Stained Leaves	Vetlands quired): els in Upper 12	inches

Commun	ity ID:	PFO	Transect ID): A	Plot ID:	WET 15S
SOILS						
Map Unit Na	me					
(Series and	Phase):			D	rainage Class:	
Field Observ	ations Conf	firm Mapped Type?	Yes	No	_	
Taxonomy (Subgroup):		<u> </u>		_	
		Matrix Color	Mottle Colors	Mottle	Textures, Con	cretions, Structures,
Depth (in)	Horizon	(Munsell Moist)	(Munsell Moist)	Abundance/Contrast	etc.	
0-12	А	7.5 YR 3/1			Sandy loam	
12-16	В	7.5 YR 5/1	5 YR 4/6	10%	Sandy loam	
					·	
Hydric Soil II		Yes	X N	0		
(If yes, check	k them)					
		_Histosol		Concretions		
		Histic Epidon		High Organic Content in	Surface Layer	n Sandy Soils
·	Χ	Sulfidic Odor		Organic Streaking in Sa	ndy Soils	
•		Aquic Moisture Regime		Listed on Local Hydric S	Soils List	
		Reducing Conditions		Listed on National Hydri		
	Х	Gleyed or Low-Chroma C	Colors	Other (explain in remark		
•		,			/	
Remarks:						
rtomants.						
WETLAND!	DETERMIN	ATION				
WETLAND I			V 1	1 1. a.c.	Commilier Della	١٨/ ١٠ - ١٠ - ١٨/ - ١٠ - ١
Hydrophytic					s sampling Point	Within a Wetland
Wetland Hyd		•	X N			N.
Hydric Soils	Present?	Yes	X N	oYe:	s <u>X</u>	No
_						
	Pic 1070					
Invasive Jap	anese Stilt	Grass				

A		a			Date:	7/6/201	<u> </u>
Applicant/Owner:	VDOT				County:	New Kent	
Investigator:	Scot Aitkenhe	ad			State:	Virginia	
Community ID:	PFC)	Transect ID: _	Α		Plot ID:	WET17S
	ons exist on the site?		Yes_	Χ	1	lo	_
•	tly disturbed (Atypic	cal situation)?	Yes_		i e	lo X	_
Is the area a potent			Yes_			lo X	_
If needed, explain o	n reverse						
VEGETATION							
		ant Plant Species					
	on Name	Scienti	fic Name		Stratum	_	Indicator
1. Lizard's		Saurur	rus cernuus		Н		OBL
Red Ma	aple	Acer R	Pubrum		Т		FAC
Sensiti	ve Fern	Onocle	ea sensibilis		Н		FACW
4. Green	Ash	Fraxin	us pennsylvanica		Т		FACW
5.							
6.							
7.							
3.							
9.							
10.							
10. 11.							
10. 11. 12.	t species that are O	BL, FACW or FAC	_		100%		_
10. 11. 12. Percent of dominan	t species that are O	BL, FACW or FAC	_		100%		_
10. 11. 12. Percent of dominan (excluding FAC-)	t species that are O	BL, FACW or FAC	<u>_</u>		100%		_
10. 11. 12. Percent of dominan (excluding FAC-)	t species that are O	BL, FACW or FAC	_		100%		_
10. 11. 12. Percent of dominan (excluding FAC-) Remarks:	t species that are O	BL, FACW or FAC	_		100%		_
10. 11. 12. Percent of dominan (excluding FAC-) Remarks: HYDROLOGY	t species that are O			ology Indica			_
10. 11. 12. Percent of dominan (excluding FAC-) Remarks: HYDROLOGY			Wetland Hydr				_
10. 11. 12. Percent of dominan (excluding FAC-) Remarks: HYDROLOGY	scribe in Remarks):Streams		Wetland Hydr Primary Indica				
10. 11. 12. Percent of dominan (excluding FAC-) Remarks: HYDROLOGY	scribe in Remarks):		Wetland Hydr Primary Indica	itors: nundated	ators:	inches	
10. 11. 12. Percent of dominan (excluding FAC-) Remarks: HYDROLOGY Recorded Data (De:	scribe in Remarks): Streams Aerial Photog	raphs	Wetland Hydr Primary Indica	itors: nundated aturated in	ators: Upper 12	inches	
10. 11. 12. Percent of dominan (excluding FAC-) Remarks: HYDROLOGY Recorded Data (De:	scribe in Remarks): Streams Aerial Photog	raphs	Wetland Hydr Primary Indica	ntors: nundated aturated in Vater Marks	ators: Upper 12	inches	_
10. 11. 12. Percent of dominan (excluding FAC-) Remarks: HYDROLOGY Recorded Data (De:	scribe in Remarks): Streams Aerial Photog	raphs	Wetland Hydr Primary Indica Ir X S	ntors: nundated aturated in Vater Marks rift Lines	ators: Upper 12	inches	_
10. 11. 12. Percent of dominan (excluding FAC-) Remarks: HYDROLOGY Recorded Data (Decorded Data	scribe in Remarks): Streams Aerial Photog Other corded Data Availab	raphs	Wetland Hydr Primary Indica Ir X S	ntors: nundated aturated in /ater Marks rift Lines ediment De	ators: Upper 12		
10. 11. 12. Percent of dominan (excluding FAC-) Remarks: HYDROLOGY Recorded Data (Defended Data	scribe in Remarks):StreamsAerial PhotogiOther corded Data Availab	raphs	Wetland Hydr Primary Indica Ir X S V	ators: hundated aturated in later Marks rift Lines ediment De rainage Pa	upper 12 S eposits eposits in W	/etlands	
10. 11. 12. Percent of dominan (excluding FAC-) Remarks: HYDROLOGY Recorded Data (Decorded Data	scribe in Remarks): Streams Aerial Photog Other corded Data Availab	raphs ple(in.)	Wetland Hydr Primary Indica Ir X S V C X S Secondary Indica	ators: hundated aturated in later Marks rift Lines ediment De rainage Pa dicators (2 o	utors: Upper 12 Seposits atterns in Wor more rec	/etlands quired):	inches
10. 11. 12. Percent of dominan (excluding FAC-) Remarks: HYDROLOGY Recorded Data (Demonstrated Description of Surface With Depth to Free Wate	scribe in Remarks): Streams Aerial Photogi Other corded Data Availab	raphs ole (in.) 9 (in.)	Wetland Hydr Primary Indica Ir X S V C S X C Secondary Indica	ators: hundated aturated in vater Marks wrift Lines ediment De vainage Pa dicators (2 de)	utors: Upper 12 seposits utterns in Wor more recott Channe	/etlands quired): Is in Upper 12	inches
10. 11. 12. Percent of dominan (excluding FAC-) Remarks: HYDROLOGY Recorded Data (De:	scribe in Remarks): Streams Aerial Photogi Other corded Data Availab	raphs ple(in.)	Wetland Hydr Primary Indica II X S V C Secondary Inc	ators: nundated aturated in vater Marks wrift Lines ediment De brainage Pa dicators (2 o bxidized Ro vater-Staine	ators: Upper 12 seposits atterns in Woor more recot Channeed Leaves	/etlands quired): Is in Upper 12	inches
10. 11. 12. Percent of dominan (excluding FAC-) Remarks: HYDROLOGY Recorded Data (Decorded Data	scribe in Remarks): Streams Aerial Photogi Other corded Data Availab	raphs ole (in.) 9 (in.)	Wetland Hydr Primary Indica Ir X S V S X C Secondary Ind X	ators: hundated aturated in later Marks rift Lines ediment De rainage Pa dicators (2 o pxidized Ro later-Stain ocal Soil So	Upper 12 s eposits etterns in W or more rec ot Channe ed Leaves urvey Data	/etlands quired): Is in Upper 12	inches
10. 11. 12. Percent of dominan (excluding FAC-) Remarks: HYDROLOGY Recorded Data (Decorded Data	scribe in Remarks): Streams Aerial Photogi Other corded Data Availab	raphs ole (in.) 9 (in.)	Wetland Hydr Primary Indica Ir X S V I S S X C Secondary Inc X V I S	ators: hundated aturated in later Marks wrift Lines ediment De rainage Pa dicators (2 o xidized Ro later-Stain ocal Soil Si AC-Neutra	upper 12 s eposits etterns in W or more rec ot Channe ed Leaves urvey Data	/etlands quired): ls in Upper 12	inches
10. 11. 12. Percent of dominan (excluding FAC-) Remarks: HYDROLOGY Recorded Data (Demonstrated Description of Surface With Depth to Free Wate	scribe in Remarks): Streams Aerial Photogi Other corded Data Availab	raphs ole (in.) 9 (in.)	Wetland Hydr Primary Indica Ir X S V I S S X C Secondary Inc X V I S	ators: hundated aturated in later Marks rift Lines ediment De rainage Pa dicators (2 o pxidized Ro later-Stain ocal Soil So	upper 12 s eposits etterns in W or more rec ot Channe ed Leaves urvey Data	/etlands quired): ls in Upper 12	inches
10. 11. 12. Percent of dominan (excluding FAC-) Remarks: HYDROLOGY Recorded Data (Decorded Data	scribe in Remarks): Streams Aerial Photogi Other corded Data Availab	raphs ole (in.) 9 (in.)	Wetland Hydr Primary Indica Ir X S V I S S X C Secondary Inc X V I S	ators: hundated aturated in later Marks wrift Lines ediment De rainage Pa dicators (2 o xidized Ro later-Stain ocal Soil Si AC-Neutra	upper 12 s eposits etterns in W or more rec ot Channe ed Leaves urvey Data	/etlands quired): ls in Upper 12	inches

Commur	nity ID:	PFO	Transect	ID: A	Plot ID:	WET 17S
SOILS						
Map Unit Na						
(Series and					Orainage Class:	
		firm Mapped Type?	Yes	No	_	
Taxonomy ((Subgroup):					
		Matrix Color	Mottle Colors	Mottle		retions, Structures,
Depth (in)	Horizon	(Munsell Moist)	(Munsell Moist)	Abundance/Contrast		
0-15	Α	G1 5/N	5 YR 3/4		Loamy sand	
Hydric Soil	Indicators:	Yes	X	No		
(If yes, chec	ck them)	•				
		Histosol		Concretions		
		Histic Epidon		High Organic Content i	n Surface Layer ir	າ Sandy Soils
		Sulfidic Odor		Organic Streaking in Sa	andy Soils	
		Aquic Moisture Regime		Listed on Local Hydric	Soils List	
	Χ	Reducing Conditions		Listed on National Hyd	ric Soils List	
	X	_Gleyed or Low-Chroma C	colors	Other (explain in remar	·ks)	
Remarks:						
WETLAND						NAPAL : NAV AL L
Hydrophytic					is Sampling Point	Within a Wetland
Wetland Hy			X	No	V	N.I.
Hydric Soils	resent?	Yes	X	No Ye	es X	No
Domestra	Dio 1000					
Remarks:	Pic 1083					

Project/Site:	I-64 Peninsula			Date:	7/6/201	
Applicant/Owner:	VDOT			County:	New Kent	
Investigator:	Scot Aitkenhead			State:	Virginia	
Community ID:	PFO		Transect ID:	Α	Plot ID:	WET 19S
Do Normal Condition					No	
-	y disturbed (Atypical situ	ation)?	Yes		No X	
Is the area a potentia			Yes	N	NoX	_
If needed, explain on	reverse					
VEGETATION						
	Dominant Pla	nt Species				
Commo		Scientific	Name	Stratum	<u> </u>	Indicator
1. Lizard's	Tail	Saururus	s cernuus	Н		OBL
Sensitive	e Fern	Onoclea	sensibilis	Н		FACW
3. Cinnam		Osmund	a cinnamomea	Н		FACW
4. Red Ma	ple	Acer rub	rum	Т		FAC
5. Marsh M		Caltha p	alustris	Н		OBL
Highbus	h Blueberry	Vacciniu	m corymbosum	Н		FACW-
		Eravinus	pennsylvanica	Т		FACW
7. Green A	sh	Παλίπαδ	permisyrvanica			
7. Green A 3.	sh	TTAXITIUS	permayivarma			
7. Green A 8. 9.	sh	Παλίπας	permsyrvamea			
7. Green A 3. 9. 10.	sh	TTAXIIIUS	permisyrvarnoa			
7. Green A 8. 9. 10. 11.	sh	i razinus	permegricarioa			
7. Green A 8. 9. 10. 11.			permegricarioa			
7. Green A 8. 9. 10. 11. 12. Percent of dominant	sh species that are OBL, FA			100%		_
7. Green A 8. 9. 10. 11. 12. Percent of dominant (excluding FAC-)				100%		_
7. Green A 8. 9. 10. 11. 12. Percent of dominant (excluding FAC-)				100%		_
7. Green A 8. 9. 10. 11. 12. Percent of dominant (excluding FAC-)				100%		_
7. Green A 8. 9. 10. 11. 12. Percent of dominant (excluding FAC-) Remarks:				100%		_
7. Green A 8. 9. 10. 11. 12. Percent of dominant (excluding FAC-) Remarks:	species that are OBL, FA		Wetland Hydrolog			_
7. Green A 3. 9. 10. 11. 12. Percent of dominant (excluding FAC-) Remarks:	species that are OBL, FA		Wetland Hydrolog	y Indicators:		_
7. Green A 3. 9. 10. 11. 12. Percent of dominant (excluding FAC-) Remarks:	species that are OBL, FA			y Indicators: ::		
7. Green A 3. 9. 10. 11. 12. Percent of dominant (excluding FAC-) Remarks:	species that are OBL, FA		Wetland Hydrolog Primary Indicators	y Indicators: ::	inches	_
7. Green A 8. 9. 10. 11. 12. Percent of dominant (excluding FAC-) Remarks: HYDROLOGY Recorded Data (Des	species that are OBL, FA cribe in Remarks):StreamsAerial Photographs		Wetland Hydrolog Primary Indicators Inunc	y Indicators: :: lated	inches	_
7. Green A 3. 9. 10. 11. 12. Percent of dominant (excluding FAC-) Remarks: HYDROLOGY Recorded Data (Des	species that are OBL, FA cribe in Remarks): Streams Aerial Photographs Other		Wetland Hydrolog Primary Indicators Inunc	y Indicators: :: lated :ated in Upper 12 r Marks	inches	
7. Green A 8. 9. 10. 11. 12. Percent of dominant (excluding FAC-) Remarks: HYDROLOGY Recorded Data (Des	species that are OBL, FA cribe in Remarks): Streams Aerial Photographs Other		Wetland Hydrolog Primary Indicators Inunc Satur Wate	y Indicators: :: lated ated in Upper 12 r Marks Lines	inches	_
7. Green A 3. 9. 10. 11. 12. Percent of dominant (excluding FAC-) Remarks: HYDROLOGY Recorded Data (Des	species that are OBL, FA cribe in Remarks): Streams Aerial Photographs Other		Wetland Hydrolog Primary Indicators Inunc Satur Wate	y Indicators: :: lated rated in Upper 12 r Marks Lines nent Deposits		
7. Green A 3. 9. 10. 11. 12. Percent of dominant (excluding FAC-) Remarks: HYDROLOGY Recorded Data (Des No Recorded	species that are OBL, FA	ACW or FAC	Wetland Hydrolog Primary Indicators Inunc Satur Wate Drift Sedir X Drain	y Indicators: :: lated :ated in Upper 12 r Marks Lines nent Deposits age Patterns in W	Vetlands	
7. Green A 3. 9. 10. 11. 12. Percent of dominant (excluding FAC-) Remarks: HYDROLOGY Recorded Data (Des No Recorded Observations: Depth of Surface Wa	species that are OBL, FA	ACW or FAC	Wetland Hydrolog Primary Indicators Inunc Satur Wate Drift Sedir X Drain Secondary Indicat	y Indicators: :: lated ated in Upper 12 r Marks Lines nent Deposits age Patterns in Wors (2 or more rec	Vetlands quired):	inches
7. Green A 3. 9. 110. 111. 12. Percent of dominant (excluding FAC-) Remarks: HYDROLOGY Recorded Data (Des No Recorded Des Depth of Surface Water	species that are OBL, FA	ACW or FAC	Wetland Hydrolog Primary Indicators Inunc Satur Wate Drift Sedir X Drain Secondary Indicat Oxidi	y Indicators: :: lated :ated in Upper 12 r Marks Lines nent Deposits age Patterns in W	Vetlands quired): els in Upper 12	inches
7. Green A 8. 9. 10. 11. 12. Percent of dominant (excluding FAC-) Remarks: HYDROLOGY Recorded Data (Des No Recorded Des Depth of Surface Water	species that are OBL, FA	ACW or FAC	Wetland Hydrolog Primary Indicators Inunc Satur Wate Drift Sedir X Drain Secondary Indicat Oxidi X Wate	y Indicators: :: !ated :ated in Upper 12 r Marks Lines nent Deposits age Patterns in Wors (2 or more received Root Channer-Stained Leaves	Vetlands quired): els in Upper 12	inches
7. Green A 8. 9. 10. 11. 12. Percent of dominant (excluding FAC-) Remarks: HYDROLOGY Recorded Data (Des	species that are OBL, FA	ACW or FAC	Wetland Hydrolog Primary Indicators Inunc Satur Wate Drift Sedir X Drain Secondary Indicators Oxidi X Wate Loca	y Indicators: :: lated ated in Upper 12 r Marks Lines ment Deposits age Patterns in W rors (2 or more recovered	Vetlands quired): els in Upper 12	inches
7. Green A 8. 9. 10. 11. 12. Percent of dominant (excluding FAC-) Remarks: HYDROLOGY Recorded Data (Des No Recorded Des Pield Observations: Depth of Surface Wa Depth to Free Water	species that are OBL, FA	ACW or FAC	Wetland Hydrolog Primary Indicators Inunc Satur Wate Drift X Drain Secondary Indicat Oxidi X Wate Loca FAC-	y Indicators: :: lated :ated in Upper 12 r Marks Lines nent Deposits age Patterns in Wors (2 or more red zed Root Channe r-Stained Leaves Soil Survey Data	Vetlands quired): els in Upper 12	inches

Community ID:	PFO	Transect I	D: <u>A</u>	Plot ID:	WET 19S
SOILS					
Map Unit Name			_		
(Series and Phase):			D	rainage Class: _	
Field Observations Con	firm Mapped Type?	Yes	No	_	
Taxonomy (Subgroup):					
	Matrix Color	Mottle Colors	Mottle		cretions, Structures,
Depth (in) Horizon	(Munsell Moist)	(Munsell Moist)	Abundance/Contrast	etc.	
0-15 A	7.5 YR 2.5/1			Loamy sand	
Hydric Soil Indicators:	Yes	1 X	No		
(If yes, check them)	·				
	Histosol		Concretions		
	Histic Epidon		High Organic Content in	n Surface Layer i	n Sandy Soils
X	Sulfidic Odor		Organic Streaking in Sa		•
	Aquic Moisture Regime		Listed on Local Hydric S		
	Reducing Conditions		Listed on National Hydr		
X	Gleyed or Low-Chroma C	Colors	Other (explain in remark		
	- ′			,	
Remarks:					
WETLAND DETERMIN	ATION				
Hydrophytic Vegetation		1 X	No Is this	s Sampling Point	Within a Wetland
Wetland Hydrology Pres			No Is this	o camping rollit	vvidili a vvetiana
Hydric Soils Present?				o V	No
riyunc Sons Present?	Yes		NoYe	sX	No
Demonto 4404/4405					
Remarks: 1104/1105					

State: Virgin Plot II No No	
No No No Stratum	D: WET 20S
No No No No Stratum	X
No No Stratum	
No No Stratum	
NoStratum	
Stratum	<u>x</u>
Н	Indicator
	OBL
Н	FACW+
Н	OBL
Н	FACW
Т	FAC
Н	OBL
100%	
Indicators:	
ated in Upper 12 inches	
• • •	
•	
	ner 12 inches
• •	501 12 1101100
Neutral Test	
(Explain in Remarks)	
	T H 100% / Indicators: :ated ated in Upper 12 inches : Marks ines nent Deposits age Patterns in Wetlands ors (2 or more required): red Root Channels in Upper-Stained Leaves Soil Survey Data

Commur	nity ID:	PFO	Transect	ID: A	Plot ID:	WET 20S
SOILS						
Map Unit Na						
(Series and					Prainage Class:	
		firm Mapped Type?	Yes	No	_	
Taxonomy ((Subgroup):					
		Matrix Color	Mottle Colors	Mottle		retions, Structures,
Depth (in)	Horizon	(Munsell Moist)	(Munsell Moist)	Abundance/Contrast		
0-16	Α	10 YR 2/1			Loamy sand	
Hydric Soil	Indicators:	Yes	Χ	No		
(If yes, ched		100				
(11) 00, 01100	on thomy	Histosol		Concretions		
		Histic Epidon		High Organic Content in	n Surface Laver ir	n Sandy Soils
	X	Sulfidic Odor		Organic Streaking in Sa		· canay come
		Aquic Moisture Regime		Listed on Local Hydric		
		Reducing Conditions		Listed on National Hydi		
	X	Gleyed or Low-Chroma (Colors	Other (explain in remar		
		,			- /	
Remarks:						
WETLAND	DETERMIN	IATION				
Hydrophytic	Vegetation	Present? Yes	Х	No Is thi	s Sampling Point	Within a Wetland
Wetland Hy	-			No	. •	
Hydric Soils	Present?	Yes	X	No Ye	es X	No
Remarks:	108	6		<u> </u>		
						

Project/Site:	I-64 Peninsula			Date:	7/6/201	
Applicant/Owner:	VDOT			County:	James City	
Investigator:	Scot Aitkenhead			State:	Virginia	
Community ID:	PEM		Transect ID:	Α	Plot ID:	WET 21S
Do Normal Condition			Yes		No	
	y disturbed (Atypical situ	ation)?	Yes		No X	_
Is the area a potentia			Yes		No X	_
If needed, explain on	reverse					
VEGETATION						
	Dominant Pla	int Species				
Commor		Scientific	c Name	Stratum	<u></u>	Indicator
1. Lizard's		Saururu	s cernuus	Н		OBL
2. False Ne	ettle	Boehme	eria cylindrica	Н		FACW+
Japanes	e Stilt Grass	Microste	egium vimineum	Н		FAC
4.						
5.						
6.						
7.						
7. 3.						
7. 3. 9.						
7. 3. 9.						
7. 3. 9. 10. 11.						
7. 8. 9. 10. 11.						
7. 8. 9. 10. 11. 12. Percent of dominants	species that are OBL, F <i>F</i>	ACW or FAC		100%		_
7. 8. 9. 10. 11. 12. Percent of dominant : (excluding FAC-)	species that are OBL, FA	ACW or FAC		100%		
7. 8. 9. 10. 11. 12. Percent of dominant : (excluding FAC-)	species that are OBL, FA	ACW or FAC		100%		_
7. 3. 9. 10. 11. 12. Percent of dominant (excluding FAC-)	species that are OBL, F <i>l</i>	ACW or FAC		100%		
7. 8. 9. 10. 11. 12. Percent of dominant (excluding FAC-) Remarks:	species that are OBL, FA	ACW or FAC		100%		_
7. 8. 9. 10. 11. 12. Percent of dominant (excluding FAC-) Remarks:		ACW or FAC	Wetland Hydrolc			_
7. 3. 9. 10. 11. 12. Percent of dominant (excluding FAC-) Remarks:		ACW or FAC	Wetland Hydrold Primary Indicato	gy Indicators:		
7. 3. 9. 10. 11. 12. Percent of dominant sexcluding FAC-) Remarks:	cribe in Remarks):	ACW or FAC	Primary Indicato	gy Indicators:		
7. 3. 9. 10. 11. 12. Percent of dominant (excluding FAC-) Remarks:	cribe in Remarks):	ACW or FAC	Primary Indicato	gy Indicators: rs:		_
7. 3. 9. 10. 11. 12. Percent of dominant (excluding FAC-) Remarks: HYDROLOGY Recorded Data (Desc	cribe in Remarks):StreamsAerial Photographs	ACW or FAC	Primary Indicato Inur Sat	gy Indicators: rs: ndated		
7. 3. 9. 10. 11. 12. Percent of dominant (excluding FAC-) Remarks: HYDROLOGY Recorded Data (Desc	cribe in Remarks):StreamsAerial PhotographsOther	ACW or FAC	Primary Indicato Inur Sate	gy Indicators: rs: ndated urated in Upper 12		
7. 3. 9. 10. 11. 12. Percent of dominant (excluding FAC-) Remarks: HYDROLOGY Recorded Data (Desc	cribe in Remarks):StreamsAerial PhotographsOther	ACW or FAC	Primary Indicato Inur Sati	gy Indicators: rs: ndated urated in Upper 12 er Marks		
7. 3. 9. 10. 11. 12. Percent of dominant sexcluding FAC-) Remarks: HYDROLOGY Recorded Data (Description of the content of the	cribe in Remarks):StreamsAerial PhotographsOther	ACW or FAC	Primary Indicato Inur Sati War Drif	gy Indicators: rs: ndated urated in Upper 12 er Marks t Lines	inches	_
7. 3. 9. 10. 11. 12. Percent of dominant sexcluding FAC-) Remarks: HYDROLOGY Recorded Data (Descriptions)	cribe in Remarks):StreamsAerial PhotographsOther orded Data Available	ACW or FAC	Primary Indicato Inur Sati War Drif Sec X Dra	gy Indicators: rs: ndated urated in Upper 12 rer Marks t Lines liment Deposits	inches	
7. 3. 9. 10. 11. 12. Percent of dominant sexcluding FAC-) Remarks: HYDROLOGY Recorded Data (Desconded Data (Desconded Data (Desconded Data)) Field Observations: Depth of Surface War	cribe in Remarks): Streams Aerial Photographs Other orded Data Available	(in.)	Primary Indicato Inur Sate Wat Drif Sec X Dra Secondary Indic	gy Indicators: rs: ndated urated in Upper 12 ter Marks t Lines liment Deposits inage Patterns in W	inches Vetlands quired):	inches
7. 3. 3. 9. 10. 11. 12. Percent of dominant : (excluding FAC-) Remarks: HYDROLOGY Recorded Data (Description of Surface Water) Depth of Surface Water	cribe in Remarks): Streams Aerial Photographs Other orded Data Available ter:	(in.)	Primary Indicato Inur Sate Wate Drif Sec X Dra Secondary Indic Oxide	gy Indicators: rs: ndated urated in Upper 12 rer Marks t Lines liment Deposits inage Patterns in Wators (2 or more rec	inches Vetlands quired): els in Upper 12	inches
7. 8. 9. 10. 11. 12. Percent of dominant : (excluding FAC-) Remarks: HYDROLOGY Recorded Data (Description of Surface War Depth of Surface War Depth to Free Water	cribe in Remarks): Streams Aerial Photographs Other orded Data Available ter:	(in.)	Primary Indicato Inur Satr War Drif Sec X Dra Secondary Indic Oxio X War	gy Indicators: rs: ndated urated in Upper 12 rer Marks t Lines liment Deposits inage Patterns in W ators (2 or more red	inches Vetlands quired): els in Upper 12	inches
7. 8. 9. 10. 11. 12. Percent of dominant (excluding FAC-) Remarks: HYDROLOGY Recorded Data (Desc	cribe in Remarks): Streams Aerial Photographs Other orded Data Available ter:	(in.)	Primary Indicato Inur Sati War Drif Sec X Dra Secondary Indic Oxio X War Loc	gy Indicators: rs: ndated urated in Upper 12 rer Marks t Lines liment Deposits inage Patterns in W ators (2 or more red dized Root Channe er-Stained Leaves	inches Vetlands quired): els in Upper 12	inches
7. 8. 9. 10. 11. 12. Percent of dominant : (excluding FAC-) Remarks: HYDROLOGY Recorded Data (Description of Surface War Depth of Surface War Depth to Free Water	cribe in Remarks): Streams Aerial Photographs Other orded Data Available ter:	(in.)	Primary Indicato Inur Sat Wai Drif Sec X Dra Secondary Indic Oxi X Wai Loc FAC	gy Indicators: rs: ndated urated in Upper 12 rer Marks t Lines liment Deposits inage Patterns in Wators (2 or more red dized Root Channe rer-Stained Leaves al Soil Survey Data	inches Vetlands quired): els in Upper 12	inches

Community ID:	PEM	Transect ID): A	Plot ID:	WET 21S
				_	
SOILS					
Map Unit Name					
(Series and Phase):				Drainage Class:	
	firm Mannad Type?	Vac	No	Dialilage Class	
Field Observations Con	iirm wapped Type?	Yes	NO		
Taxonomy (Subgroup):					
	Matrix Color	Mottle Colors	Mottle		retions, Structures,
Depth (in) Horizon	(Munsell Moist)	(Munsell Moist)	Abundance/Contras	st etc.	
0-16 A	10 YR 2/1			Loamy sand	
Hydric Soil Indicators:	Yes	X N	0		
(If yes, check them)					
(, 500, 0)	Histosol		Concretions		
-	Histic Epidon		High Organic Content	t in Surface Laver in	Sandy Soils
	Sulfidic Odor				Saridy Solis
			Organic Streaking in		
	_Aquic Moisture Regime		Listed on Local Hydric		
	_Reducing Conditions		Listed on National Hy		
X	_Gleyed or Low-Chroma C	Colors	Other (explain in remain	arks)	
Remarks:					
WETLAND DETERMIN	ATION				
Hydrophytic Vegetation		X N	0	his Sampling Point	Within a Wetland
Wetland Hydrology Pres		X N		Jamping i ont	
Hydric Soils Present?				/oc V	No
i iyunc sons Fresent?	Yes	X N	~ 	'es X	No
Damada Di 1001					
Remarks: Pic 1091	Outle C				
Invasive Ja	panses Stilt Grass				

Project/Site:	I-64 Peninsula	•			Date:	7/6/2011	
Applicant/Owner:	VDOT				County:	James City	
Investigator:	Scot Aitkenhead				State:	Virginia	
Community ID:	PEM		Transect ID:	A		Plot ID:	WET 22S
Do Normal Condition	ons exist on the site?		Yes	Х	N	0	
Is the site significar	ntly disturbed (Atypical situ	ation)?	Yes		N	lo X	•
Is the area a poten		,	Yes			lo X	•
If needed, explain			_				•
VEGETATION							
VEGETATION	Dominant Pla	nt Species					
Comm	non Name	Scientific	: Name		Stratum		Indicator
	Cutgrass		oryzoides		Н	_	OBL
2. Red M	_	Acer rub	-		Т		FAC
3. Green	•		pennsylvanica		T		FACW
	Willow	Salix nig	-		S		FACW+
	can Sycamore	•	occidentalis		Т		FACW-
6. Sensit	ive Fern	Onoclea	sensibilis		Н		FACW
7. Soft R	ush	Juncus e	effusus		Н		FACW+
8. False	Nettle	Boehme	ria cylindrica		Н		FACW+
9.							
10.							
11.							
12.							
	nt species that are OBL, F	ACW or FAC			100%		•
(excluding FAC-)							
Remarks:							
HYDROLOGY							
Recorded Data (De	escribe in Remarks):		Wetland Hydro		licators:		
	Streams		Primary Indica				
	Aerial Photographs			nundated			
	Other				in Upper 12 i	inches	
No Re	corded Data Available			Vater Ma			
				rift Lines			
Field Observations					Deposits	/ a t a . a . d a	
Field Observations Depth of Surface V		(in)		_	Patterns in W		
Depth to Free Water		(in.)	Secondary Inc			լսուеս). ls in Upper 12 ir	ochoo
Depth to Saturated		(in.) (in.)			ined Leaves	is iii Oppei 12 li	101169
Deptir to Gatarated	0	(111.)			Survey Data		
				AC-Neut	•		
					plain in Rema	arks)	
			~	(<u>-</u> /		,	
Remarks:							

Community ID:	PEM	Transect I	D: <u>A</u>	Plot ID:	WET 22S
SOILS					
Map Unit Name					
(Series and Phase):				Drainage Class: _	
Field Observations Con		Yes	No		
Taxonomy (Subgroup):					
	Matrix Color	Mottle Colors	Mottle		cretions, Structures,
Depth (in) Horizon	(Munsell Moist)	(Munsell Moist)	Abundance/Contrast		
0-16 A	5 YR 2.5/1			Loamy sand	
Hydric Soil Indicators:	Yes	X	No		
(If yes, check them)					
	Histosol		Concretions		
	Histic Epidon		High Organic Content	in Surface Layer i	n Sandy Soils
X	_Sulfidic Odor		Organic Streaking in S	Sandy Soils	
	Aquic Moisture Regime		Listed on Local Hydric	Soils List	
	Reducing Conditions		Listed on National Hyd	dric Soils List	
X	Gleyed or Low-Chroma (Colors	Other (explain in rema		
	– ,			,	
Remarks:					
WETI AND DETERMIN	IATION				
WETLAND DETERMIN			المام	io Complina Deint	Mithin a Matland
Hydrophytic Vegetation				iis Sampling Point	Within a Wetland
Wetland Hydrology Pre			No		N
Hydric Soils Present?	Yes	X1	VoY	es X	No
Remarks: Pic 1094					

Project/Site:	I-64 Peninsula				Date:	7/6/2011	
Applicant/Owner:	VDOT				County:	James City	
Investigator:	Scot Aitkenhead				State:	Virginia	
Community ID:	PFO		Transect ID:	Α		Plot ID:	WET 23S
			•		_		
Do Normal Conditions e	xist on the site?		Yes	Х	N	0	
Is the site significantly d	isturbed (Atypical situati	on)?	Yes		N	o X	
Is the area a potential P	roblem Area?		Yes		N	o X	
If needed, explain on re-	verse		•		_		
VEGETATION							
	Dominant Plant	Species					
Common N	lame	Scientific N	Name		Stratum		Indicator
1. Lizard's Tai	il	Saururus d	cernuus		H		OBL
2. American S	Sycamore	Platanus c	occidentalis		Т		FACW-
3. Spicebush		Lindera be	enzoin		S		FACW-
4. Green Ash		Fraxinus p	ennsylvanica		Т		FACW
5. Red Maple		Acer rubru	ım		Т		FAC
6.							
7.							
8.							
9.							
10.							
11.							
12.							
Percent of dominant spe	ecies that are OBL, FAC	W or FAC			100%		
(excluding FAC-)							
Remarks:							
HYDROLOGY							
Recorded Data (Describ	·		Wetland Hyd		icators:		
	Streams		Primary Indi				
	_Aerial Photographs		<u> </u>	Inundated			
	_Other				in Upper 12 i	nches	
No Recorde	ed Data Available			Water Mar			
				Drift Lines			
				Sediment	-		
Field Observations:				_	Patterns in W		
Depth of Surface Water		(in.)		•	2 or more req	•	
Depth to Free Water in I		(in.)				s in Upper 12 ir	iches
Depth to Saturated Soil:	4	(in.)			ined Leaves		
					Survey Data		
				FAC-Neuti			
			<u> </u>	Otner (Exp	olain in Rema	rks)	
Damada							
Remarks:							

Commun	nity ID:	PFO	Transect	ID: A	Plot ID:	WET 23S
SOILS						
Map Unit Na						
(Series and					Prainage Class:	
		firm Mapped Type?	Yes	No	_	
Taxonomy ((Subgroup):					
		Matrix Color	Mottle Colors	Mottle		cretions, Structures,
Depth (in)	Horizon	(Munsell Moist)	(Munsell Moist)	Abundance/Contrast		
0-15	Α	10 YR 5/1			Loamy sand	
Hydric Soil I	Indicators:	Yes	Χ	No		
(If yes, chec						
(),	,	Histosol		Concretions		
		Histic Epidon		High Organic Content in	n Surface Layer i	n Sandy Soils
	X	Sulfidic Odor		Organic Streaking in Sa		,
		Aquic Moisture Regime		Listed on Local Hydric		
		Reducing Conditions		Listed on National Hyd		
	X	Gleyed or Low-Chroma (Colors	Other (explain in remar		
		- ′			,	
Remarks:						
WETLAND	DETERMIN	ATION				
Hydrophytic	Vegetation	Present? Yes	Х	NoIs thi	s Sampling Point	Within a Wetland
Wetland Hy	drology Pre	sent? Yes	X	No		
Hydric Soils	Present?	Yes	X	No Ye	es X	No
Remarks:	Pic 1098					
· · · · · · · · · · · · · · · · · · ·						

Project/Site:	I-64 Peninsula	•			Date:	7/6/201	1
Applicant/Owner:	VDOT				County:	James City	
Investigator:	Scot Aitkenhead				State:	Virginia	
Community ID:	PFO		Transect ID: _	Α	_	Plot ID:	WET 24S
Do Normal Condi	tions exist on the site?		Yes	Х	N	0	
	antly disturbed (Atypical site	uation)?	Yes		_ '\		_
	ential Problem Area?	autorij.	Yes_			lo X	_
If needed, explain			_				_
VEGETATION							
	Dominant Pl	-					
	mon Name	Scientific	Name		Stratum	_	Indicator
	d's Tail		cernuus		Н		OBL
	sh Marigold	Caltha pa			Н		OBL
	nese Stilt Grass		gium vimineum 		H		FAC
	sitive Fern	Onoclea	sensibilis		Н		FACW
5.							
6. 7.							
8.							
9.							
10.							
11.							
12.							
Percent of domina	ant species that are OBL, F	ACW or FAC			100%		
(excluding FAC-)			_				_
Remarks: Invas	sive Japanese Stilt Grass						
HYDROLOGY							
	Describe in Remarks):		Wetland Hydr	ology Ind	licators:		
1.000.000 20.00 (2	Streams		Primary Indica				
	Aerial Photographs		1	nundated			
	Other		X	Saturated	in Upper 12 i	inches	
No R	Recorded Data Available		V	Vater Ma	rks		
				rift Lines	;		
					Deposits		
Field Observation				•	Patterns in W		
Depth of Surface		(in.)	Secondary Ind	•			
Depth to Free Wa		``				ls in Upper 12	inches
Depth to Saturate	ed Soil: 4	(in.)			ined Leaves		
					Survey Data		
				AC-Neut		arko)	
			F	λιυει. (ΕΧΙ	plain in Rema	iiks)	
Remarks:							
Tromants.							

Community ID:	PFO	Transect II	D:A	WET 24S	
SOILS					
Map Unit Name					
(Series and Phase):			D	rainage Class:	
Field Observations Conf	irm Mapped Type?	Yes			
Taxonomy (Subgroup):	11 71			_	
	Matrix Color	Mottle Colors	Mottle	Textures, Concretions, Structures,	
Depth (in) Horizon	(Munsell Moist)	(Munsell Moist)	Abundance/Contrast	etc.	
0-15 A	10 YR 2/1			Sand	
Hydric Soil Indicators:	Yes	X	lo.		
(If yes, check them)	165		lo		
(ii yes, oricon triciti)	Histosol		Concretions		
	Histic Epidon			Surface Layer in Sandy Soils	
X	Sulfidic Odor		Organic Streaking in Sa		
	Aquic Moisture Regime		Listed on Local Hydric S		
	Reducing Conditions		Listed on National Hydri		
X	Gleyed or Low-Chroma C	olors	Other (explain in remark		
Remarks:					
WETLAND DETERMINA	ATION				
Hydrophytic Vegetation I		X N	lo Is this	Sampling Point Within a Wetland	
Wetland Hydrology Pres	ent? Yes	X	lo		
Hydric Soils Present?	Yes	X	lo Yes	sX No	
Remarks: Pic 1101					

Project/Site:	I-64 Peninsula				Date:	7/6/2011	
Applicant/Owner:	VDOT				County:	James City	
Investigator:	Scot Aitkenhead				State:	Virginia	
Community ID:	PFO	_	Transect ID:	A	_	Plot ID:	WET 25S
Do Normal Conditions	exist on the site?		Yes	Х	N	lo	
	disturbed (Atypical situat	ion)?	Yes			lo X	
Is the area a potential		.011) .	Yes			lo X	
If needed, explain on						<u> </u>	
VEGETATION							
	Dominant Plant	Species					
Common		Scientific	Name		Stratum		Indicator
1. Sensitive	Fern	Onoclea s	sensibilis		Н	_	FACW
2. Poison Iv	у	Toxicoder	ndron Radicans		V		FAC
3. Marsh Ma	arigold	Caltha pa	lustris		Н		OBL
4. Red Map	le	Acer rubru	um		Т		FAC
5. Cinnamo	n Fern	Osmunda	cinnamomea		Н		FACW
6. Lizard's T	āil	Saururus	cernuus		Н		OBL
7.							
8.							
9.							
10.							
11.							
12.		540			1000/		
	pecies that are OBL, FAC	W or FAC	_		100%		
(excluding FAC-)							
Remarks:							
HYDROLOGY							
Recorded Data (Desc	•		Wetland Hydro		licators:		
	Streams		Primary Indica				
	Aerial Photographs			nundated			
	Other				in Upper 12	inches	
No Recor	ded Data Available			Vater Ma			
				rift Lines			
Field Observations					Deposits	/ - 4 - · -	
Field Observations:		(: \		_	Patterns in W		
Depth of Surface Water in		(in.)	Secondary Inc			quirea): Is in Upper 12 ir	ahaa
Depth to Saturated Sc		(in.) (in.)			ined Leaves	is in Opper 12 ir	iches
Deptir to Saturated Sc	лі. — 4	("".)			Survey Data		
				AC-Neut	-		
					plain in Rema	arks)	
				or (LA)	olani ni iNGIN		
Remarks:			1				

Community ID:	PFO	Transect ID):	Plot ID:	WET 25S
•		•			
SOILS					
Map Unit Name					
(Series and Phase):]	Drainage Class:	
Field Observations Con	firm Mapped Type?	Yes	No		
Taxonomy (Subgroup):	311		<u> </u>		
(Cabgicap).					
	Matrix Color	Mottle Colors	Mottle	Textures Cond	retions, Structures,
Depth (in) Horizon	(Munsell Moist)	(Munsell Moist)	Abundance/Contrast		rottorio, Ottaotaroo,
0-15 A	7.5 YR 5/1	(Marison Moist)	/ Ibandance/ Contrast	Loamy sand	
0-15 A	7.5 11 5/1			Loanly Sand	
Hydric Soil Indicators:	Yes	X N	0		
(If yes, check them)					
,	Histosol		Concretions		
	Histic Epidon		High Organic Content	in Surface Laver in	Sandy Soils
X	Sulfidic Odor		Organic Streaking in S		· canay cono
	Aquic Moisture Regime		Listed on Local Hydric	-	
	Reducing Conditions		Listed on National Hyd		
X	Gleyed or Low-Chroma (Coloro	Other (explain in rema		
^	_Gleyed of Low-Cilionia C		_Other (explain in rema	iks)	
Damarka					
Remarks:					
	A 710 M				
WETLAND DETERMIN					
Hydrophytic Vegetation				is Sampling Point	Within a Wetland
Wetland Hydrology Pres	sent? Yes				
Hydric Soils Present?	Yes	X N	0 Ye	es X	No
Remarks: Pics 1104/	1105				

Project/Site:	I-64 Peninsula				Date:	7/11/201	11		
Applicant/Owner:	VDOT				County: Newport News				
nvestigator:	Scot Aitkenhead				State:	Virginia			
Community ID:	PFO		Transect I	D: <u>A</u>		Plot ID:	WET 26S		
Oo Normal Condition				es X		No	_		
•	y disturbed (Atypical situa	tion)?		es		No X	_		
Is the area a potentia			Y	es		No X	<u> </u>		
If needed, explain on	reverse								
VEGETATION									
	Dominant Plan	t Species							
Commor			ic Name		Stratum	<u>1</u>	Indicator		
1. Rough F		Equiset	tum hymale		Н		OBL		
Lizard's	Tail	Saururu	us cernuus		Н		OBL		
3. False Ne	ettle	Boehme	eria cylindrica		Н		FACW+		
4.									
5.									
6.									
7.									
3.									
9.									
10.									
11.									
12.									
	species that are OBL, FAC	CW or FAC			100%		_		
(excluding FAC-)									
Remarks: PEM									
HYDROLOGY									
Recorded Data (Desc	cribe in Remarks):			Hydrology I	Indicators:				
	Streams		Primary Ir	ndicators:					
	Aerial Photographs		X	Inundat	ed				
	Other		X	Saturat	ed in Upper 12	inches			
No Reco	orded Data Available			Water N	∕larks				
				Drift Lin	nes				
			X	Sedime	ent Deposits				
Field Observations:			X	Drainag	ge Patterns in V	Vetlands			
Depth of Surface Wa	ter:	(in.)	Secondar	y Indicator	s (2 or more re	quired):			
Depth to Free Water		(in.)			d Root Channe		2 inches		
Depth to Saturated S	oil: 0	(in.)	X	Water-S	Stained Leaves	;			
		_		Local S	oil Survey Data	a			
				FAC-Ne	eutral Test				
				Other (I	Explain in Rem	arks)			
				_ _					
Remarks:									

Community ID:	PFO	Transect ID	D:A	Plot ID:	WET 26S
SOILS					
Map Unit Name					
(Series and Phase):				Drainage Class:	
Field Observations Co	onfirm Mapped Type?	Yes	No	_	
Taxonomy (Subgroup)					
, , ,					
	Matrix Color	Mottle Colors	Mottle	Textures, Con-	cretions, Structures,
Depth (in) Horizor		(Munsell Moist)	Abundance/Contra		,,
0-15 A	7.5 YR 4/1	(Marioon Moloc)	7 15 di 16 di 16 di 76 di 16 di	Sand	
010 /	7.5 11(4/1			Odrid	
Hydric Soil Indicators:	Ye	s X N	0		
(If yes, check them)					
(),,	Histosol		Concretions		
	Histic Epidon		High Organic Conter	at in Surface Layer i	n Sandy Soile
					11 Sariuy Solis
X	Sulfidic Odor		Organic Streaking in		
	Aquic Moisture Regime		Listed on Local Hydr		
	Reducing Conditions		Listed on National H		
X	Gleyed or Low-Chroma	Colors	Other (explain in rem	ıarks)	
Remarks:					
WETLAND DETERMI	INATION				
WETLAND DETERMI		- V	<u> </u>	dete Oemen P. D. L.	10/16/20 = 10/1 d
Hydrophytic Vegetatio				this Sampling Point	vvitnin a vvetland
Wetland Hydrology Pr					
Hydric Soils Present?	Ye	s N	0	Yes X	No
Remarks: Pics 1113	3/1115				
Invasive .	Japanese Stilt Grass				

Project/Site:	I-64 Peninsula				Date:	7/11/201	1
Applicant/Owner:	VDOT				County:	Newport Ne	ews
Investigator:	Scot Aitkenhead				State:	Virginia	
Community ID:	PFO		Transect ID:	А	_	Plot ID:	WET 27S
Do Normal Conditions	a oviet on the cite?		Yes		N	lo X	
	disturbed (Atypical situat	ion\2	Yes	X	_ 'N		_
Is the area a potential		1011):	Yes		_		_
If needed, explain on			103_			<u> </u>	_
VEGETATION							
	Dominant Plant	-			0		
Common		Scientific			Stratum	_	Indicator
1. Red Map 2. Lizard's 7		Acer rubi			Т		FAC OBL
 Lizard's 7 False Ne 		Saururus			Н		FACW+
4. Poison Iv			ria cylindrica Indron radicans		H V		FAC
	se Stilt Grass		gium vimineum		v H		FAC
6. Green As		-	pennsylvanica		Т		FACW
7. Marsh Ma		Caltha pa	-		H		OBL
8.	angola	Oditi a pe	11401110		• • • • • • • • • • • • • • • • • • • •		OBL
9.							
10.							
11.							
12.							
Percent of dominant s	species that are OBL, FAC	CW or FAC	_		100%		<u></u>
(excluding FAC-)							
Remarks:							
HYDROLOGY							
Recorded Data (Desc	ribe in Remarks):		Wetland Hyd	rology Ind	icators:		
	Streams		Primary Indic				
	Aerial Photographs			Inundated			
	Other		X	Saturated	in Upper 12 i	inches	
No Reco	rded Data Available			Water Mai			
				Drift Lines			
				Sediment	-		
Field Observations:				-	Patterns in W		
Depth of Surface Wat		(in.)	Secondary In	•		. ,	
Depth to Free Water i		(in.)				ls in Upper 12	inches
Depth to Saturated So	oil: <u>1</u>	(in.)			ined Leaves		
				Local Soil FAC-Neut	Survey Data		
					rai Test olain in Rema	arke)	
			<u> </u>	Outer (EX	אווו וווו הפווומ	100)	
Remarks:							

Commu	nity ID:	PFO	Transect	ID: A	Plot ID:	WET 27S
SOILS						
Map Unit N						
(Series and				D	rainage Class:	
Field Obser	vations Con	firm Mapped Type?	Yes	No	_	
Taxonomy	(Subgroup):					
		Matrix Color	Mottle Colors	Mottle	Textures, Conc	retions, Structures,
Depth (in)	Horizon	(Munsell Moist)	(Munsell Moist)	Abundance/Contrast	etc.	
0-15	Α	7.5 YR 4/1			Sandy loam	
11	la di a ataus	V	V	NI-		
Hydric Soil		Yes	X	No		
(If yes, ched	ck tnem)	18-41		0		
		_ Histosol		Concretions	. 0	0
		Histic Epidon		High Organic Content in		Sandy Solls
	X	_Sulfidic Odor		Organic Streaking in Sa	-	
		_Aquic Moisture Regime		Listed on Local Hydric S		
		_Reducing Conditions		Listed on National Hydr		
	X	_Gleyed or Low-Chroma C	olors	Other (explain in remark	KS)	
Davasadas	larra di sa da	0694 0				
Remarks:	invasive Ja	pansese Stilt Grass				
WETLAND	DETERMIN	ATION				
	DETERMIN		V	Nie le thir	. Commine Deint	\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\
Hydrophytic					s Sampling Point	Within a Wetland
	drology Pres			No	- V	Na
Hydric Soils	s Present?	Yes	X	NoYe	sX	No
Dame sulve	Diag 4404					
Remarks:	Pics 1131					

Project/Site:	I-64 Peninsula				Date:	8/18/201	1
Applicant/Owner:	VDOT				County:	Hampton	
Investigator:	Scot Aitkenhead				State:	Virginia	
Community ID:	E2EM1P		Transect ID:	Α		Plot ID:	WET 29S
							(Newmarket Cree
Do Normal Condition	s exist on the site?		Yes	X	١	10	
Is the site significantl	y disturbed (Atypical situat	ion)?	Yes		<u> </u>	lo X	
Is the area a potentia	l Problem Area?		Yes			No X	
If needed, explain on	reverse					'	_
VEGETATION							
	Dominant Plant	Species					
Commoi		Scientifi	c Name		Stratum		Indicator
1. Commoi	n Reed	Phragm	ites australis	_	Н		FACW
2.							
3.							
4.							
5.							
6.							
7.							
8.							
9.							
10.							
11.							
12.							
	species that are OBL, FAC	W or FAC			100%		
(excluding FAC-)	, .						_
Remarks:							
HYDROLOGY	avila a im Damanta):		Matlemal III	alaa la au . I			
Recorded Data (Des	·		Wetland Hy		ndicators.		
	Streams		Primary Ind				
	Aerial Photographs			Inundat		to also a	
No Door	Other		X		ed in Upper 12	inches	
No Reco	orded Data Available			Water N			
			X	_Drift Lin			
Field Observations				_	nt Deposits	/	
Field Observations:		<i>(</i> ' \	0 1	_	je Patterns in V		
Depth of Surface Wa		(in.)	Secondary		s (2 or more re		
Depth to Free Water		(in.)		-	d Root Channe Stained Leaves		inches
Depth to Saturated S	oil: 3	(in.)		_			
					oil Survey Data	l	
				_	eutral Test	- uls-)	
				_Otner (E	Explain in Rem	arks)	
Remarks:							
romano.							

Commun	ity ID:	E2EM1P		Transect		Plot ID: WET 29S		
						_		
SOILS								
Map Unit Na	ime							
(Series and	Phase):					Dı	rainage Class:	
Field Observ	ations Con	firm Mapped Type?		Yes	No		_	
Taxonomy (Subgroup):			<u> </u>			_	
		Matrix Color		Mottle Colors	Mottl	е	Textures, Con-	cretions, Structures,
Depth (in)	Horizon	(Munsell Moist)		(Munsell Moist)	Abundance/	Contrast	etc.	
,		,		,				
0-16	Α	10YR 4/1					Silt Loam	
	P 4			V				
Hydric Soil I			Yes	X	No			
(If yes, chec	k them)							
,		_Histosol			Concretions			
		_Histic Epidon					Surface Layer i	n Sandy Soils
,		_Sulfidic Odor			Organic Streal			
		_Aquic Moisture Reg			Listed on Loca			
		_Reducing Condition			Listed on Nation			
		_Gleyed or Low-Chro	ma Colors	S	Other (explain	in remark	s)	
Remarks:								
WETLAND I	DETERMIN	ATION						
Hydrophytic	Vegetation	Present?	Yes	Χ	No	Is this	Sampling Point	Within a Wetland
Wetland Hyd			Yes		No			
Hydric Soils			Yes		No	Yes	s X	No
Remarks:					I			

Project/Site:	I-64 Peninsula				Date:	8/18/201	1
Applicant/Owner:	VDOT				County:	Hampton	
Investigator:	Scot Aitkenhead				State:	Virginia	
Community ID:	E2EM1P		Transect ID:	А		Plot ID:	WET 30S
							(Newmarket Cree
Do Normal Conditions	s exist on the site?		Yes	Х	N	No	
Is the site significantly	disturbed (Atypical situat	ion)?	Yes			No X	
Is the area a potentia	Problem Area?		Yes			No X	
If needed, explain on	reverse						-
VEGETATION							
	Dominant Plant	Species					
Commor		Scientific	c Name		Stratum		Indicator
1. Commor			ites australis	•	Н		FACW
2.		J					
3.							
4.							
5.							
6.							
7.							
8.							
9.							
10.							
11.							
12.							
	species that are OBL, FAC	W or FAC			100%		
(excluding FAC-)	5p00100 triat aro 022, 1710	0			10070		_
Remarks:							
rtomanto.							
HYDROLOGY							
Recorded Data (Desc	cribe in Remarks):		Wetland Hyd		dicators:		
	Streams		Primary Indi	cators:			
	Aerial Photographs			Inundated	d		
	Other Other		X	Saturated	d in Upper 12	inches	
No Reco	rded Data Available			Water Ma	arks		
			X	Drift Line	S		
				Sediment	t Deposits		
Field Observations:				Drainage	Patterns in V	Vetlands	
Depth of Surface Wat	ter: 0	(in.)	Secondary I	ndicators	(2 or more re-	quired):	
Depth to Free Water	in Pit: 0	(in.)		Oxidized	Root Channe	els in Upper 12	inches
Depth to Saturated S	oil: 4	(in.)		Water-Sta	ained Leaves		
		_		Local Soi	Survey Data	ı	
				FAC-Neu	tral Test		
				Other (Ex	plain in Rema	arks)	
				· ·			
Remarks:							

Commun	ity ID:	E2EM1P		Transect	ID: <u>A</u>	Plot ID:	WET 30S
SOILS							
Map Unit Na	me						
(Series and						Drainage Class:	
Field Observ	ations Conf	firm Mapped Type?		Yes	No		
Taxonomy (Subgroup):						
		Matrix Colo		Mottle Colors	Mottle		cretions, Structures,
Depth (in)	Horizon	(Munsell Moi	st)	(Munsell Moist)	Abundance/Contra	ast etc.	
0-16	Α	10YR 4/1				Silt Loam	
0-10		10113 4/1				Siit Loaiii	
Hydric Soil I	ndicators:		Yes	Χ	No		
(If yes, chec	k them)						
		Histosol			Concretions		
'		Histic Epidon			High Organic Conte	nt in Surface Layer	in Sandy Soils
,	Х	Sulfidic Odor			Organic Streaking in		
•		Aquic Moisture Re	egime		Listed on Local Hyd		
•		Reducing Condition			Listed on National F		
	Χ	Gleyed or Low-Ch		ors	Other (explain in rer	-	
Remarks:							
rtemarks.							
WETLAND I	DETERMIN	ATION					
Hydrophytic			Yes	Х	NoIs	this Sampling Poin	Within a Wetland
Wetland Hyd			Yes	X	No	. •	
Hydric Soils			Yes	X	No	Yes X	No
Remarks:							
remarks:							

Project/Site:	I-64 Peninsula				Date:	8/18/2011	
Applicant/Owner:	VDOT				County:	Hampton	
Investigator:	Scot Aitkenhead				State:	Virginia	
Community ID:	PFO		Transect ID:	Α		Plot ID:	WET 31S
-							
Do Normal Conditions			Yes_	Х		lo	-
	disturbed (Atypical situat	ion)?	Yes_			lo X	-
Is the area a potential			Yes_			lo X	-
If needed, explain on r	everse						
VEGETATION							
	Dominant Plant	Species					
Common		Scientific	Name		Stratum		Indicator
1. Royal Fer	n	Osmunda			Н		OBL
2. Red Map		Acer rub	-		Т		FAC
	n Hornbeam (ı	Carpinus	s caroliniana		S		FACW+
4. Spicebus	•	Lindera I			S		FACW-
5. Lizard's		Saururus	s cernuus		Н		OBL
6.							
7.							
8.							
9.							
10.							
11.							
12.							
Percent of dominant sp	pecies that are OBL, FAC	CW or FAC			100%		_
(excluding FAC-)							
Remarks:							
HYDROLOGY							
Recorded Data (Descr	ihe in Remarks):		Wetland Hydr	ology Ind	icators:		
Trecorded Data (Descr	Streams		Primary Indica		ioators.		
	Aerial Photographs		-	nundated			
	Other				in Upper 12	inches	
No Record	ded Data Available			Vater Mar			
140 1100011	aca Bata / Wallabio			Drift Lines			
				Sediment			
Field Observations:					Patterns in W	/etlands	
Depth of Surface Water	er: 0	(in.)	Secondary In	-			
Depth to Free Water in		(in.)	1	•		ls in Upper 12 i	nches
Depth to Saturated So		(in.)			ined Leaves	ю п. оррог т. г.	1101100
Dopar to Catarated Co		()			Survey Data		
				AC-Neut	•		
					olain in Rema	arks)	
			<u> </u>	(-/		- /	
Remarks:							

Commun	ity ID:	PFO	Transect	ID: A	_ Plot ID:	WET 31S	
SOILS							
Map Unit Na	ime						
(Series and	Phase):			D	rainage Class:		
Field Observ	ations Con	firm Mapped Type?	Yes	No	_		
Taxonomy (Subgroup):				_		
		Matrix Color	Mottle Colors	Mottle	Textures, Cond	cretions, Structures,	
Depth (in)	Horizon	(Munsell Moist)	(Munsell Moist)	Abundance/Contrast			
		,	,				
0-16	Α	7.5YR 3/1			Loam		
Hudria Sail I	ndiantoro:	Ye	es X	No			
Hydric Soil I		16	<u> </u>	No			
(If yes, chec	k tnem)	I Catanal		O a sanatia sa			
		_Histosol		Concretions		0 1 0 "	
		_Histic Epidon		High Organic Content in		1 Sandy Soils	
		_Sulfidic Odor		Organic Streaking in Sa			
		_Aquic Moisture Regime	<u> </u>	Listed on Local Hydric			
		Reducing Conditions		Listed on National Hydi			
	Х	_Gleyed or Low-Chroma	a Colors	Other (explain in remar	ks)		
_							
Remarks:							
WETLAND							
Hydrophytic				No Is this	s Sampling Point	Within a Wetland	
Wetland Hyd		sent? Ye		No			
Hydric Soils	Present?	Ye	es X	No Ye	s X	No	
Remarks:							

Project/Site:		I-64 Peninsula				Date:	8/18/201	1	
Applicant/O		VDOT				County:	Hampton		
Investigator:		Scot Aitkenhead				State:	Virginia		
Community	ID:	PEM		Transect ID:	Α		Plot ID:	WET	32S
		exist on the site?		Yes	Х		0		
		disturbed (Atypical situat	ion)?	Yes			o X	_	
	-	Problem Area?		Yes		N	o X	_	
If needed, ex	xplain on re	everse							
VEGETATIO	ON								
		Dominant Plant	Species						
	Common N	Name	Scientific	Name		Stratum		Indicator	
1.	Royal Ferr	1	Osmunda	regalis		Н		OBL	
2.	Broadleaf (Cattail	Typha lat	ifolia		Н		OBL	
3.	Highbush E	Blueberry	Vacciniur	n corymbosum		Н		FACW-	
4.	Red Mapl	le	Acer rub	rum		Т		FAC	
5.	Lizard's T	ail	Saururus	s cernuus		Н		OBL	
6.	Sensitive	Fern	Onoclea	sensibilis		Н		FACW	
7.	Rice Cutgr	ass	Leersia o	ryzoides		Н		OBL	
8.	Sweet Gu	ım	Liquidan	nbar styraciflua		Т		FAC	
9.	American	Hornbeam (ı	Carpinus	s caroliniana		S		FACW+	
10.	American	Elderberry	Sambuc	us canadensis		S		FACW-	
11.	River Birch	1	Betula nig	gra		Т		FACW	
12.									
	-	ecies that are OBL, FAC	W or FAC			100%		_	
(excluding F	AC-)								
Remarks:									
HYDROLOG									
Recorded Da	ata (Descril	be in Remarks):		Wetland Hydro		icators:			
		Streams		Primary Indicat	ors:				
		Aerial Photographs			undated				
		_Other				in Upper 12 i	inches		
	No Record	led Data Available			ater Ma				
					ift Lines				
						Deposits			
Field Observ					•	Patterns in W			
Depth of Sui			(in.)	Secondary Indi	,		. ,		
Depth to Fre			(in.)				ls in Upper 12	inches	
Depth to Sat	turated Soil	l: 0	(in.)			ined Leaves			
						Survey Data			
						ral Test			
				Ot	her (Exp	plain in Rema	arks)		
Remarks:									
nemarks.									

Communit	ty ID:	PEM Transect I			D: <u>A</u>	Plot ID:	WET 32S			
			_			_				
SOILS										
Map Unit Nar										
Series and F						Drainage Class: _				
		rm Mapped Type?		Yes	No					
Гахопоту (S	Subgroup):									
		Matrix Color	r	Mottle Colors	Mottle	Textures, Con	cretions, Structures,			
Depth (in)	Horizon	(Munsell Mois	st)	(Munsell Moist)	Abundance/Contras	st etc.				
0-16	Α	10YR 4/1		5YR 4/6	10%	Clay Loam				
lydric Soil In	dicators:		Yes	X N	lo					
lf yes, check	them)									
-		Histosol			Concretions					
_		Histic Epidon				in Surface Laver	in Sandy Soils			
_	Х	Sulfidic Odor		-	High Organic Content in Surface Layer in Sandy Soils Organic Streaking in Sandy Soils					
_		Aquic Moisture Re	adime		Listed on Local Hydric	-				
_	Х	Reducing Condition			Listed on National Hyd					
_	X	•								
_		Gleyed or Low-Ch	TOTTIA COIOT		Other (explain in rema	aiks)				
Remarks:										
VETLAND D										
lydrophytic \			Yes		lols th	his Sampling Poin	t Within a Wetland			
Vetland Hydi	rology Pres	ent?	Yes	X N	lo					
Hydric Soils F			Yes	X	lo Y	'es_X	No			
-										
emarks:					•					
Remarks:					· ·					

Project/Site:	I-64 Peninsula				Date:	8/18/2011	
Applicant/Owner:	VDOT				County:	Hampton	
Investigator:	Scot Aitkenhead				State:	Virginia	
Community ID:	PEM		Transect ID:	Α	_	Plot ID:	WET 34S
Do Normal Condi	tions exist on the site?		Yes	X	N	lo	
	antly disturbed (Atypical situa	tion)?	Yes			lo X	-
	ential Problem Area?		Yes			lo X	-
If needed, explain					_		-
, ,							
VEGETATION							
	Dominant Plan	t Species					
	mon Name	Scientific			Stratum	_	Indicator
	allspike False Nettle	Boehme	eria cylindrica		Н		FACW+
	stal Sweetpepperbush	Clethra a			S		FAC+
	anese Stilt Grass		egium vimineum		Н		FAC
	sitive Fern	Onoclea	a sensibilis		Н		FACW
5. Fring	ged Sedge	Carex cr	inita		Н		OBL
6. Ame	erican Hornbeam (ı	Carpinu	s caroliniana		S		FACW+
7. Red	Maple	Acer rul	brum		Т		FAC
8.							
9.							
10.							
11.							
12.							
Percent of domina	ant species that are OBL, FA	CW or FAC			100%		
(excluding FAC-)							-
Remarks:							
LIVEROL OCV							
HYDROLOGY Recorded Data (F	Describe in Remarks):		Wetland Hydro	logy Ind	licators:		
Trecorded Data (L	Streams		Primary Indicat		iicators.		
	Aerial Photographs		-	undated			
	Other				in Upper 12	inches	
No F	Recorded Data Available			ater Mai		IIICIICS	
110 1	Recorded Data Available			ift Lines			
					Deposits		
Field Observation	20.				Patterns in W	/otlanda	
Depth of Surface		(in)	Secondary Indi	•			
		(in.)		-			achas
Depth to Free Wa		(in.)				ls in Upper 12 in	nches
Depth to Saturate		(in.)			ined Leaves		
					Survey Data		
					ral Test	arleo)	
			Ot	ner (EX	plain in Rema	aiks)	
Remarks:							
itterriarks.							
I							

Communi	ity ID:	PEM		Transect ID):A	Plot ID:	WET 34S	
SOILS								
Map Unit Na	me							
(Series and I					I	Drainage Class:		
Field Observ	ations Conf	irm Mapped Type?		Yes		_		
Taxonomy (S	Subgroup):							
		Matrix Color		ottle Colors	Mottle	Textures, Concretions, Structures,		
Depth (in)	Horizon	(Munsell Moist)	(M	unsell Moist)	Abundance/Contrast	etc.		
0-16	А	10YR 5/1		7.5YR 5/6		Sandy Clay Lo	am	
						-		
Hydric Soil Ir		Y	es X	N	0			
(If yes, check	k them)							
		Histosol			Concretions			
		_Histic Epidon			High Organic Content		n Sandy Soils	
		_Sulfidic Odor			Organic Streaking in S			
		_Aquic Moisture Regim	ie		_Listed on Local Hydric			
-		Reducing Conditions			_Listed on National Hyd			
	Х	Gleyed or Low-Chrom	a Colors		Other (explain in rema	rks)		
Remarks:								
MET AND		A-TION						
WETLAND I Hydrophytic			es X	NI.	o Is th	is Sampling Doint	Within a Wetland	
Wetland Hyd						is Sampling Point	vviuiiii a vvelianu	
Hydric Soils				N		00 V	No	
Tyunc Soils	riesent?	Y	es X	N	о <u>———</u>	es X	No	
Remarks:					I			

Project/Site:	I-64 Peninsula				Date:	8/18/2011	
Applicant/Owner:	VDOT				County:	Hampton	
Investigator:	Scot Aitkenhead				State:	Virginia	
Community ID:	PFO		Transect ID:	Α		Plot ID:	WET 35S
Do Normal Conditions	s exist on the site?		Yes	Х	N	0	
	disturbed (Atypical situa	tion)?	Yes			lo X	•
Is the area a potential			Yes		N		•
If needed, explain on					_		•
VEGETATION							
	Dominant Plan	•					
Common		Scientific I			Stratum		Indicator
1. Lizard's		Saururus			Н		OBL
2. Sensitiv			sensibilis		Н		FACW
· ·	ike False Nettle		ria cylindrica		Н		FACW+
4. Cinnamo			cinnamomea		Н		FACW
	an Hornbeam (ı	•	caroliniana		S		FACW+
6. Sweet G	Gum		bar styraciflua		Т		FAC
7. Red Ma	•	Acer rubi	rum		Т		FAC
8. Net-Veir	ned Chain Fern		rdia areolata		Н		FACW+
9. (Soft) C	ommon Rush	Juncus e	ffusus		Н		FACW+
10.							
11.							
12.							
Percent of dominant s	species that are OBL, FA	CW or FAC			100%		
(excluding FAC-)							
Remarks:							
HYDROLOGY							
Recorded Data (Desc	cribe in Remarks):		Wetland Hydro	logy Ind	icators:		
Trocordod Bala (Bood	Streams		Primary Indicat		ioatoro.		
	Aerial Photographs		-	undated			
	Other				in Upper 12 i	inches	
No Reco	rded Data Available			ater Mar		11101100	
140 14000	rada Bata / tvaliable			rift Lines			
					Deposits		
Field Observations:					Patterns in W	letlands	
Depth of Surface Wat	ter: 0	(in.)	Secondary Indi	_			
Depth to Free Water i		(in.)	1	•		ls in Upper 12 ir	nchae
Depth to Saturated So		(in.)			ined Leaves	is iii Opper 12 ii	101163
Deptil to Gaturated St	OII	(\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\			Survey Data		
				AC-Neut	•		
1					olain in Rema	arke)	
			⁰¹	ci (LX)	J. G. H. I.		
Remarks:							

Communi	ty ID:	PFO		Transect I	ID: <u>A</u>	Plot ID:	WET 35S	
OILS								
lap Unit Nai								
Series and F						Drainage Class: _		
		irm Mapped Type?		Yes	No			
axonomy (S	Subgroup):							
		Matrix Colo		Mottle Colors	Mottle		cretions, Structures,	
Depth (in)	Horizon	(Munsell Mois	st)	(Munsell Moist)	Abundance/Contra	ast etc.		
0-16	A	10YR 5/1				Silty Clay Loar	<u>n</u>	
	Р							
lydric Soil Ir			Yes	X1	No			
f yes, check	them)							
_		Histosol			Concretions			
_		Histic Epidon			High Organic Conter		n Sandy Soils	
_		Sulfidic Odor			Organic Streaking in	•		
_		_Aquic Moisture Re	egime:		Listed on Local Hydr	ric Soils List		
_		Reducing Condition	ons		Listed on National H	lydric Soils List		
-	Х	Gleyed or Low-Ch	roma Col	ors	Other (explain in ren	narks)		
_		•			_	•		
emarks:								
/ETLAND [ETEDMIN/	ATION						
ydrophytic \			Voc	1 X	No lo	this Sampling Point	Mithin a Matland	
			Yes			una sampiing Poin	vviuiiii a vveuaiid	
Vetland Hyd		ent?	Yes		No		N.	
lydric Soils I	resent?		Yes	X1	No	Yes X	No	
emarks:								

Project/Site:	I-64 Peninsula				Date:	8/18/201	<u>1</u>
Applicant/Owner:	VDOT				County:	Hampton	
Investigator:	Scot Aitkenhead				State:	Virginia	
Community ID:	PFO		Transect ID:	Α	_	Plot ID:	WET 36S
Do Normal Condition			Yes	Χ		lo	_
-	ly disturbed (Atypical situa	ition)?	Yes			No X	_
Is the area a potenti			Yes		^	lo X	_
If needed, explain or	n reverse						
VEGETATION							
	Dominant Plar	•					
	n Name	Scientifi			Stratum		Indicator
	Marigold	Caltha p			Н		OBL
	on Fern	Osmund	da cinnamomea		Н		FACW
Royal F	ern	Osmund	da regalis		Н		OBL
	ve Fern	Onocle	a sensibilis		Н		FACW
Coastal	Sweetpepperbush	Clethra	alnifolia		S		FAC+
6. Red M	aple	Acer ru	ıbrum		Т		FAC
7.							
8.							
9.							
10.							
11.							
12.							
Percent of dominant	species that are OBL, FA	CW or FAC			100%		
(excluding FAC-)			•				_
Remarks:							
HYDROLOGY Recorded Data (Des	cribe in Remarks):		Wetland Hyd	trology Ind	licators:		
recorded Data (Des	Streams		Primary Indi	•••	ilcators.		
	Aerial Photographs		-	Inundated	l		
	Other					inahaa	
No Doo	orded Data Available			Water Ma	in Upper 12	inches	
No Rec	orded Data Available			Drift Lines			
Field Observations				Sediment	-	/	
Field Observations:		<i>(</i> :)	X	•	Patterns in V		
Depth of Surface Wa		(in.)	Secondary II		2 or more re		
Depth to Free Water		(in.)				ls in Upper 12	inches
Depth to Saturated S	Soil: 3	(in.)	Х		ined Leaves		
					Survey Data	l	
				FAC-Neut			
				Other (Ex	plain in Rema	arks)	
Remarks:							

Commun	ity ID:	PFO	Transect II	D:A	Plot ID:	WET 36S	
SOILS							
Map Unit Na	me						
(Series and	Phase):			D	rainage Class:		
Field Observ	ations Con	firm Mapped Type?	Yes	No	_		
Taxonomy (Subgroup):				_		
		Matrix Color	Mottle Colors	Mottle	Textures, Cond	cretions, Structures,	
Depth (in)	Horizon	(Munsell Moist)	(Munsell Moist)	Abundance/Contrast	etc.		
		·	·				
0-16	Α	10YR 5/2	7.5YR 5/6	15%	Clay Loam		
Hydric Soil I	ndicators:	Yes	X N	lo			
(If yes, chec		1.00					
(ii yes, ence	it tricini)	Histosol		Concretions			
		Histic Epidon		High Organic Content in	Surface Laver i	n Sandy Soils	
		Sulfidic Odor		Organic Streaking in Sa		1 Salidy Solis	
		_Aquic Moisture Regime		Listed on Local Hydric S			
,		_Reducing Conditions		Listed on National Hydr			
	X	_Gleyed or Low-Chroma (Other (explain in remark	(S)		
Damada							
Remarks:							
		A 710 M					
WETLAND							
Hydrophytic					Sampling Point	Within a Wetland	
Wetland Hyd				lo			
Hydric Soils	Present?	Yes	X N	loYe:	sX	No	
Remarks:							

1. Lizard's Tail Saururus cernuus H 2. Cinnamon Fern Osmunda cinnamomea H 3. Royal Fern Osmunda regalis H 4. Sensitive Fern Onoclea sensibilis H	WET 37S
Community ID: PFO Transect ID: A Plot ID: Do Normal Conditions exist on the site? Is the site significantly disturbed (Atypical situation)? Is the site significantly disturbed (Atypical situation)? Is the area a potential Problem Area? Yes No X If needed, explain on reverse VEGETATION Dominant Plant Species Common Name Scientific Name Scientific Name It Lizard's Tail Saururus cernuus H Cinnamon Fern Smunda cinnamomea H Sensitive Fern Osmunda regalis H Sensitive Fern Onoclea sensibilis H H H H H H H H H H H H H	WET 37S
Do Normal Conditions exist on the site? Is the site significantly disturbed (Atypical situation)? Is the area a potential Problem Area? If needed, explain on reverse Ves	WET 37S
Is the site significantly disturbed (Atypical situation)? Yes No X Is the area a potential Problem Area? Yes No X If needed, explain on reverse VEGETATION	
Is the site significantly disturbed (Atypical situation)? Yes No X Is the area a potential Problem Area? Yes No X If needed, explain on reverse VEGETATION	
Is the area a potential Problem Area? Yes	
VEGETATION	
Dominant Plant Species Scientific Name Stratum I	
Dominant Plant Species Common Name Scientific Name Stratum I	
Common Name Scientific Name Stratum I 1. Lizard's Tail Saururus cernuus H 2. Cinnamon Fern Osmunda cinnamomea H 3. Royal Fern Osmunda regalis H 4. Sensitive Fern Onoclea sensibilis H 5. Highbush Blueberry Vaccinium corymbosum H 6. 7. 8. 9. 10. 11. 11. 12. Percent of dominant species that are OBL, FACW or FAC 100% (excluding FAC-) 100%	
1. Lizard's Tail Saururus cernuus H 2. Cinnamon Fern Osmunda cinnamomea H 3. Royal Fern Osmunda regalis H 4. Sensitive Fern Onoclea sensibilis H 5. Highbush Blueberry Vaccinium corymbosum H 6. 7. 8. 9. 10. 11. 12. Percent of dominant species that are OBL, FACW or FAC (excluding FAC-)	
2. Cinnamon Fern Osmunda cinnamomea H 3. Royal Fern Osmunda regalis H 4. Sensitive Fern Onoclea sensibilis H 5. Highbush Blueberry Vaccinium corymbosum H 6. 7. 8. 9. 10. 11. 12. Percent of dominant species that are OBL, FACW or FAC (excluding FAC-)	Indicator
3. Royal Fern Osmunda regalis H 4. Sensitive Fern Onoclea sensibilis H 5. Highbush Blueberry Vaccinium corymbosum H 6. 7. 8. 9. 10. 11. 12. Percent of dominant species that are OBL, FACW or FAC (excluding FAC-)	OBL
4. Sensitive Fern Onoclea sensibilis H 5. Highbush Blueberry Vaccinium corymbosum H 6. 7. 8. 9. 10. 11. 12. Percent of dominant species that are OBL, FACW or FAC	FACW
5. Highbush Blueberry Vaccinium corymbosum H 6. 7. 8. 9. 10. 11. 12. Percent of dominant species that are OBL, FACW or FAC	OBL
6. 7. 8. 9. 10. 11. 12. Percent of dominant species that are OBL, FACW or FAC	FACW
7. 8. 9. 10. 11. 12. Percent of dominant species that are OBL, FACW or FAC	FACW-
8. 9. 10. 11. 12. Percent of dominant species that are OBL, FACW or FAC	
9. 10. 11. 12. Percent of dominant species that are OBL, FACW or FAC	
10. 11. 12. Percent of dominant species that are OBL, FACW or FAC	
11. 12. Percent of dominant species that are OBL, FACW or FAC 100% (excluding FAC-)	
12. Percent of dominant species that are OBL, FACW or FAC	
12. Percent of dominant species that are OBL, FACW or FAC	
Percent of dominant species that are OBL, FACW or FAC	
(excluding FAC-)	
HYDROLOGY	
Recorded Data (Describe in Remarks): Wetland Hydrology Indicators:	
Streams Primary Indicators:	
Aerial Photographs Inundated	
Other X Saturated in Upper 12 inches	
No Recorded Data Available Water Marks	
Drift Lines	
Sediment Deposits	
Field Observations: Drainage Patterns in Wetlands	
Depth of Surface Water: (in.) Secondary Indicators (2 or more required):	
Depth to Free Water in Pit: (in.) Oxidized Root Channels in Upper 12 inch	hos
	162
· · · · · · · · · · · · · · · · · · ·	
Local Soil Survey Data	
FAC-Neutral Test	
Other (Explain in Remarks)	
Remarks:	

Commun	ity ID:	PFO	Transect I	D: A	Plot ID:	WET 37S	
			_		_		
SOILS							
Map Unit Na	me						
(Series and	Phase):				Prainage Class:		
Field Observ	ations Con	firm Mapped Type?	Yes	No	_		
Taxonomy (Subgroup):		·		_		
		Matrix Color	Mottle Colors	Mottle	Textures, Conc	retions, Structures,	
Depth (in)	Horizon	(Munsell Moist)	(Munsell Moist)	Abundance/Contrast	etc.		
		,	•				
0-16	Α	10YR 2/1			Loam Sand		
Hydric Soil I	ndicators.	Ye	s X 1	No			
(If yes, chec		10	<u> </u>				
(ii yes, chec	K tiletii)	Histosol		Concretions			
		_			n Curfoco Lovor i	Sandy Saila	
		Histic Epidon		High Organic Content i		1 Sandy Solls	
		_Sulfidic Odor		Organic Streaking in Sa			
		_Aquic Moisture Regime		Listed on Local Hydric			
		_Reducing Conditions		Listed on National Hyd			
,	X	_Gleyed or Low-Chroma	Colors	Other (explain in remar	ks)		
Remarks:							
WETLAND							
Hydrophytic				No Is thi	s Sampling Point	Within a Wetland	
Wetland Hyd		sent? Ye		No			
Hydric Soils	Present?	Ye	sX	NoYe	es X	No	
Remarks:							

Project/Site:	I-64 Peninsula				Date:	8/18/2011	
Applicant/Owner:	VDOT				County:	Hampton	
Investigator:	Scot Aitkenhead				State:	Virginia	
Community ID:	PFO		Transect ID:	Α		Plot ID:	WET 38S
D - N 1 O 1'4'			V		N.I	1-	
Do Normal Condition		4:-m)0	Yes_	Х		lo	
_	ly disturbed (Atypical situa	tion)?	Yes_			lo X lo X	
Is the area a potential of the area and potential of the area and potential of the area and area area.			Yes_			lo X	
ii rieeded, explain oi	i ieveise						
VEGETATION							
TEGET/AMOR	Dominant Plan	t Species					
Commo	on Name	Scientific	Name		Stratum		Indicator
1. Cinnam	on Fern	Osmunda	a cinnamomea		Н	_	FACW
	sh Blueberry	Vacciniur	n corymbosum		Н		FACW-
3. Red M	-	Acer rub	-		Т		FAC
4. Sensiti	ve Fern	Onoclea	sensibilis		Н		FACW
5. Royal F	ern	Osmunda	a regalis		Н		OBL
6. Red M	aple	Acer rub	rum		Т		FAC
7. Americ	an Sycamore	Platanus	occidentalis		Т		FACW-
8.							
9.							
10.							
11.							
12.							
	species that are OBL, FA	CW or FAC	_		100%		
(excluding FAC-)							
Remarks:							
HYDROLOGY							
Recorded Data (Des	scribe in Remarks):		Wetland Hydr	ology Ind	icators:		
	Streams		Primary Indica	ators:			
	Aerial Photographs		lı lı	nundated			
	Other		S	Saturated	in Upper 12 i	inches	
No Rec	orded Data Available		V	Vater Ma	rks		
				Orift Lines	i		
				Sediment	-		
Field Observations:				•	Patterns in W		
Depth of Surface Wa		(in.)	Secondary Inc	,		. ,	
Depth to Free Water		(in.)				ls in Upper 12 in	ches
Depth to Saturated S	Soil: <u>3</u>	(in.)			ined Leaves		
					Survey Data		
				AC-Neut			
			^c	ther (Exp	plain in Rema	arks)	
Domarko:							
Remarks:							
i .							

Commun	ity ID:	PFO	Transect	ID:A	Plot ID:	WET 38S
			_		_	
SOILS						
Map Unit Na	ime					
(Series and	Phase):			D	rainage Class:	
Field Observ	ations Con	firm Mapped Type?	Yes	No		
Taxonomy (Subgroup):				_	
		Matrix Color	Mottle Colors	Mottle	Textures, Cond	cretions, Structures,
Depth (in)	Horizon	(Munsell Moist)	(Munsell Moist)	Abundance/Contrast		
/		,	,			
0-16	Α	7.5YR 4/1			Loam	
Hudria Sail I	ndiantoro:	Ye	s X	No		
Hydric Soil I		re	S	No		
(If yes, chec	k tnem)	115-41		O - n - n - ti - n -		
		_Histosol		Concretions		0 1 0 "
		_Histic Epidon		High Organic Content in		1 Sandy Soils
		_Sulfidic Odor		Organic Streaking in Sa		
		_Aquic Moisture Regime		Listed on Local Hydric S		
		Reducing Conditions		Listed on National Hydr		
	Х	_Gleyed or Low-Chroma	Colors	Other (explain in remar	ks)	
_						
Remarks:						
WETLAND						
Hydrophytic				No Is this	s Sampling Point	Within a Wetland
Wetland Hyd		sent? Ye		No		
Hydric Soils	Present?	Ye	s X	No Ye	s X	No
Remarks:						
						

Project/Site:	I-64 Peninsula				Date:	8/18/2011	
Applicant/Owner:	VDOT				County:	Hampton	
Investigator:	Scot Aitkenhead				State:	Virginia	
Community ID:	PFO		Transect ID: _	Α	_	Plot ID:	WET 39S
D - N 1 O 1't'					N.	1-	
Do Normal Condition		4:)0	Yes_	Х		lo	•
_	tly disturbed (Atypical situa	ition)?	Yes_			lo X lo X	
Is the area a potentia			Yes_		N	10 X	
If needed, explain or	Treverse						
VEGETATION							
VEGETATION	Dominant Plan	nt Species					
Commo	on Name	Scientific N	ame		Stratum		Indicator
1. River B		Betula nigra	_		T	_	FACW
	ve Fern	Onoclea s			H		FACW
	eined Chain Fern		dia areolata		Н		FACW+
	pike False Nettle		a cylindrica		H		FACW+
	Sweetpepperbush	Clethra aln	-		S		FAC+
6. Royal F		Osmunda r			Н		OBL
7. Red M		Acer rubru	•		 T		FAC
	Common Rush	Juncus efi			H		FACW+
9.		00.700.00.					
10.							
11.							
12.							
	species that are OBL, FA	CW or FAC			100%		
(excluding FAC-)	•		_				
Remarks:							
HYDROLOGY	in December)		DA/-41				
Recorded Data (Des	•		Wetland Hydr	0.	icators:		
	Streams		Primary Indica				
	Aerial Photographs			nundated	in Hanar 10 i	inahaa	
No Boo	Other orded Data Available			Vater Mar	in Upper 12 i	inches	
No Rec	orded Data Available			Valer Mai Drift Lines			
				Bediment			
Field Observations:					Patterns in W	/otlands	
Depth of Surface Wa	ator:	(in.)	Secondary Inc				
Depth to Free Water		(in.)				ls in Upper 12 ir	nchae
Depth to Saturated S					ined Leaves	is iii Oppei 12 ii	101162
Deptil to Saturated C	3011.	(in.)			Survey Data		
				AC-Neut	•		
					rai rest blain in Rema	arke)	
			—— <u>`</u>	Zuiei (EX		arno)	
Remarks:			1				

Commun	ity ID:	PFO		Transect ID:	: <u>A</u>	Plot ID:	WET 39S
SOILS							
Map Unit Na							
Series and						Drainage Class: _	
		irm Mapped Type?		Yes	No		
Taxonomy (Subgroup):						
		Matrix Color	M	ottle Colors	Mottle	Textures, Con	cretions, Structures,
Depth (in)	Horizon	(Munsell Mois	t) (M	unsell Moist)	Abundance/Contras	t etc.	
0-16	Α	7.5YR 4/1		5YR 3/4	30%	Loam Sand	
Hydric Soil II	ndicators:		Yes X	No)		
If yes, check							
,, , , , , , , , , , , , , , , , , , , ,		Histosol			Concretions		
•		Histic Epidon			High Organic Content	in Surface Layer	in Sandy Sails
•		- · · · · · · · · · · · · · · · · · · ·					in Sandy Solis
		_Sulfidic Odor			Organic Streaking in S		
		_Aquic Moisture Re	-		Listed on Local Hydric		
	X	Reducing Conditio			Listed on National Hyd		
	Х	Gleyed or Low-Chi	roma Colors		Other (explain in rema	arks)	
Remarks:							
VETLAND I	DETERMINA	ATION					
	Vegetation		Yes X	No) Is th	nis Sampling Poin	t Within a Wetland
	drology Pres		Yes X	No			
Tydric Soils		J. 1.	Yes X	No		es X	No
Tyuric Soils	1 1030111!		169 V		′ '		INO
) a ma a wl							
Remarks:							

Project/Site:	I-64 Peninsula				Date:	8/18/2011	
Applicant/Owner:	VDOT				County:	Hampton	
Investigator:	Scot Aitkenhead				State:	Virginia	
Community ID:	PFO		Transect ID: _	Α		Plot ID:	WET 41S
D 11 10 111							
Do Normal Conditions			Yes_	X		lo	
	disturbed (Atypical situat	ion)?	Yes_			lo X	•
Is the area a potential F			Yes_			lo X	•
If needed, explain on re	everse						
VEGETATION							
VEGETATION	Dominant Plant	Species					
Common N		Scientific I	Name		Stratum		Indicator
1. Marsh Mar		Caltha pai			Н	_	OBL
2. Sensitive	_		sensibilis		Н		FACW
3. Lizard's T		Saururus			Н		OBL
4. Red Mapl		Acer rubi			T		FAC
5. Highbush B			corymbosum		H		FACW-
6.							
7.							
8.							
9.							
10.							
11.							
12.							
Percent of dominant sp	ecies that are OBL, FAC	W or FAC			80%		
(excluding FAC-)			_				•
Remarks:							
HYDROLOGY	ha in Damanka).		Wetland Hydr		inatawa		
Recorded Data (Descril	Streams		Primary Indica	٠.	icators.		
	Streams Aerial Photographs		-	ators. nundated			
	Other				in Upper 12 i	inches	
No Pecord	Other led Data Available			Vater Ma		IIICHES	
No ixecolu	led Data Available			Orift Lines			
				Sediment			
Field Observations:					Patterns in W	letlands	
Depth of Surface Water	r•	(in.)	Secondary In	-			
Depth to Free Water in		— (in.)	-			ls in Upper 12 ir	nches
Depth to Saturated Soil		— (in.)			ined Leaves	ю ит оррог т2 и	101100
Dopan to Cataratoa Con		()			Survey Data		
				AC-Neut	•		
					olain in Rema	arks)	
			<u> </u>	(<u>-</u> /			
Remarks:			1				

Commun	ity ID:	PFO	Transect	ID: A	Plot ID:	WET 41S
						
SOILS						
Map Unit Na	ime					
(Series and	Phase):			1	Drainage Class:	
Field Observ	ations Con	firm Mapped Type?	Yes	No	_	
Taxonomy (Subgroup):				_	
		Matrix Color	Mottle Colors	Mottle	Textures, Cond	cretions, Structures,
Depth (in)	Horizon	(Munsell Moist)	(Munsell Moist)	Abundance/Contrast	etc.	
,		,	,			
0-16	Α	10YR 4/1			Sandy Clay Loa	am
llordeia Caille		V	V	Ne		
Hydric Soil I		Y	es X	No		
(If yes, chec	k tnem)	18.4		0 "		
		_Histosol		Concretions		
		_Histic Epidon		High Organic Content		1 Sandy Soils
		_Sulfidic Odor		Organic Streaking in S		
		_Aquic Moisture Regime	<u></u>	Listed on Local Hydric		
		_Reducing Conditions		Listed on National Hyd		
	Х	_Gleyed or Low-Chroma	a Colors	Other (explain in remain	rks)	
Remarks:						
WETLAND						
Hydrophytic			es X	No Is th	is Sampling Point	Within a Wetland
Wetland Hyd	drology Pres	sent? Yo	es X	No		
Hydric Soils	Present?	Y	es X	No Ye	es X	No
Remarks:			<u> </u>			

	I-64 Peninsula				Date:	8/18/201	<u> </u>
Applicant/Owner:	VDOT				County:	Hampton	
Investigator:	Scot Aitkenhead				State:	Virginia	
Community ID:	PFO		Transect ID: _	Α	_	Plot ID:	WET 43S
Do Normal Conditions			Yes_	Х		lo	_
	disturbed (Atypical situa	ation)?	Yes_			lo X	_
Is the area a potentia			Yes_		^	lo X	_
If needed, explain on	reverse						
VEGETATION							
	Dominant Pla	-			a		
Commor		Scientific			Stratum	_	Indicator
1. Rice Cut	grass	Leersia	oryzoides		Н		OBL
2.							
3.							
4.							
5.							
6.							
7.							
8.							
9. 10.							
10. 11.							
10. 11. 12.							
10. 11. 12. Percent of dominant s	species that are OBL, FA	ACW or FAC	_		100%		_
10. 11. 12. Percent of dominant s (excluding FAC-)	species that are OBL, FA	ACW or FAC	_		100%		_
10. 11. 12. Percent of dominant s	species that are OBL, FA	ACW or FAC	_		100%		_
10. 11. 12. Percent of dominant s (excluding FAC-)	species that are OBL, FA	ACW or FAC	_		100%		_
10. 11. 12. Percent of dominant s (excluding FAC-)	species that are OBL, FA	ACW or FAC	_		100%		_
10. 11. 12. Percent of dominant s (excluding FAC-) Remarks:		ACW or FAC		ology Ind			_
10. 11. 12. Percent of dominant s (excluding FAC-) Remarks: HYDROLOGY		ACW or FAC	Wetland Hydro				_
10. 11. 12. Percent of dominant s (excluding FAC-) Remarks: HYDROLOGY	cribe in Remarks):	ACW or FAC	Primary Indica		licators:		_
10. 11. 12. Percent of dominant s (excluding FAC-) Remarks: HYDROLOGY	cribe in Remarks): Streams	ACW or FAC	Primary Indica	ators: nundated	licators:	inches	_
10. 11. 12. Percent of dominant s (excluding FAC-) Remarks: HYDROLOGY Recorded Data (Desc	cribe in Remarks):StreamsAerial Photographs	ACW or FAC	Primary Indica X Ir X S	ators: nundated	licators:	inches	
10. 11. 12. Percent of dominant s (excluding FAC-) Remarks: HYDROLOGY Recorded Data (Desc	cribe in Remarks):StreamsAerial PhotographsOther	ACW or FAC	Primary Indica X Ir X S	ators: nundated aturated	licators: in Upper 12 rks	inches	
10. 11. 12. Percent of dominant s (excluding FAC-) Remarks: HYDROLOGY Recorded Data (Desc	cribe in Remarks):StreamsAerial PhotographsOther	ACW or FAC	Primary Indica X Ir X S	ators: nundated aturated Vater Mai Prift Lines	licators: in Upper 12 rks	inches	
10. 11. 12. Percent of dominant s (excluding FAC-) Remarks: HYDROLOGY Recorded Data (Desco	cribe in Remarks):StreamsAerial PhotographsOther	ACW or FAC	Primary Indica X Ir X S V C S	ators: nundated aturated Vater Ma Prift Lines ediment	licators: in Upper 12 rks Deposits		
10. 11. 12. Percent of dominant s (excluding FAC-) Remarks: HYDROLOGY Recorded Data (Desconded Data (Desconde	cribe in Remarks):StreamsAerial PhotographsOther rded Data Available		Primary Indica X Ir X S V C S	ators: nundated aturated Vater Mai prift Lines dediment drainage	licators: in Upper 12 rks Deposits Patterns in W	/etlands	
10. 11. 12. Percent of dominant s (excluding FAC-) Remarks: HYDROLOGY Recorded Data (Description of Surface Water) Tield Observations: Depth of Surface Water)	cribe in Remarks): Streams Aerial Photographs Other orded Data Available	(in.)	Primary Indica X Ir X S V C S Secondary Indica	ators: nundated raturated Vater Mai Prift Lines dediment Prainage	in Upper 12 rks Deposits Patterns in W	/etlands quired):	inches
10. 11. 12. Percent of dominant s (excluding FAC-) Remarks: HYDROLOGY Recorded Data (Desconded Desconded Data (Desconded Data (Desconded Data (Desconded Desconded	cribe in Remarks): Streams Aerial Photographs Other rded Data Available ter: 3	(in.)	Primary Indica X Ir X S V C Secondary Inc.	ators: hundated laturated Vater Mai Prift Lines lediment Prainage dicators (Dxidized F	in Upper 12 rks Deposits Patterns in W	/etlands quired): Is in Upper 12	inches
10. 11. 12. Percent of dominant s (excluding FAC-) Remarks: HYDROLOGY Recorded Data (Desc	cribe in Remarks): Streams Aerial Photographs Other rded Data Available ter: 3	(in.)	Primary Indica X Ir X S V C Secondary Inc X V	ators: anundated vater Mar vrift Lines dediment vrainage dicators (vxidized F	in Upper 12 rks Deposits Patterns in W 2 or more rec Root Channe ined Leaves	/etlands quired): Is in Upper 12	inches
10. 11. 12. Percent of dominant s (excluding FAC-) Remarks: HYDROLOGY Recorded Data (Desconded Desconded Data (Desconded Data (Desconded Data (Desconded Desconded	cribe in Remarks): Streams Aerial Photographs Other rded Data Available ter: 3	(in.)	Primary Indica X Ir X S V C S Secondary Inc X V L	ators: nundated laturated Vater Mai Prift Lines lediment Prainage dicators (Dxidized F Vater-Sta ocal Soil	in Upper 12 rks Deposits Patterns in W 2 or more red Root Channe ined Leaves Survey Data	/etlands quired): Is in Upper 12	inches
10. 11. 12. Percent of dominant s (excluding FAC-) Remarks: HYDROLOGY Recorded Data (Desconded Desconded Data (Desconded Data (Desconded Data (Desconded Desconded	cribe in Remarks): Streams Aerial Photographs Other rded Data Available ter: 3	(in.)	Primary Indica X Ir X S V C Secondary Inc X V F	ators: nundated laturated Vater Mai Prift Lines rediment Prainage Dicators (Dixidized F Vater-Sta ocal Soil AC-Neut	in Upper 12 rks Deposits Patterns in W 2 or more rec Root Channe ined Leaves Survey Data rral Test	/etlands quired): ls in Upper 12	inches
10. 11. 12. Percent of dominant s (excluding FAC-) Remarks: HYDROLOGY Recorded Data (Desconded Desconded Data (Desconded Data (Desconded Data (Desconded Desconded	cribe in Remarks): Streams Aerial Photographs Other rded Data Available ter: 3	(in.)	Primary Indica X Ir X S V C Secondary Inc X V F	ators: nundated laturated Vater Mai Prift Lines rediment Prainage Dicators (Dixidized F Vater-Sta ocal Soil AC-Neut	in Upper 12 rks Deposits Patterns in W 2 or more red Root Channe ined Leaves Survey Data	/etlands quired): ls in Upper 12	inches
10. 11. 12. Percent of dominant s (excluding FAC-) Remarks: HYDROLOGY Recorded Data (Desconded Desconded Data (Desconded Data (Desconded Data (Desconded Desconded	cribe in Remarks): Streams Aerial Photographs Other rded Data Available ter: 3	(in.)	Primary Indica X Ir X S V C Secondary Inc X V F	ators: nundated laturated Vater Mai Prift Lines rediment Prainage Dicators (Dixidized F Vater-Sta ocal Soil AC-Neut	in Upper 12 rks Deposits Patterns in W 2 or more rec Root Channe ined Leaves Survey Data rral Test	/etlands quired): ls in Upper 12	inches

Community ID:	PF()	Transect	ID: A	Plot ID:	WET 43S
•						
SOILS						
Map Unit Name						
(Series and Phase):				Drainage Class:	
	Confirm Mapped Ty		Yes	No		
Taxonomy (Subgro		ρο.				
Taxonomy (Gabgie	,up).					•
	Matrix (Color	Mottle Colors	Mottle	Tayturas Co	ncretions, Structures,
Depth (in) Hori			(Munsell Moist)	Abundance/C	,	norodons, otraolaros,
Deptil (iii) Tioli	ZOII (MUIISEII	ivioist)	(Mulisell Moist)	Abulluance/C	onitast etc.	
0.46	10VD	E /4				
0-16 <i>A</i>	10YR	5/1				
Hydric Soil Indicate	ors.	Yes	Χ	No		
(If yes, check them						
(ii yos, oncok thom	Histosol			Concretions		
					antant in Surface Lavo	r in Candy Caila
	Histic Epidon Sulfidic Odor				ontent in Surface Layer	in Sandy Solis
		Б.			ing in Sandy Soils	
	Aquic Moistur	-			Hydric Soils List	
<u> </u>	Reducing Cor				nal Hydric Soils List	
	Gleyed or Lov	w-Chroma Colo	ors	Other (explain i	n remarks)	
Remarks:						
WETLAND DETER	RMINATION					
Hydrophytic Vegeta		Yes	X	No	Is this Sampling Poi	nt Within a Wetland
Wetland Hydrology		Yes	X	No	1 0	
Hydric Soils Prese		Yes	X	No	Yes X	No
, 4.10 20110 1 10001						
Remarks:						
i tomants.						

-	I-64 Peninsula				Date:	11/15/201	-
Applicant/Owner:	VDOT				County:	New Kent	
Investigator:	Scot Aitkenhead				State:	Virginia	
Community ID:	PSS		Transect ID:	А	_	Plot ID:	WET 96S
Do Normal Condition			Yes	X		lo	_
	disturbed (Atypical situa	ation)?	Yes			lo X	_
ls the area a potentia			Yes		_ ^	lo X	_
f needed, explain on	reverse						
/EGETATION							
	Dominant Plar	-					
Commor		Scientific			Stratum	_	Indicator
 River Bir 		Betula ni	-		Т		FACW
2. Red Mar		Acer rub			Т		FAC
3. Smooth	Alder	Alnus se	rrulata		Т		OBL
4.							
5. 6.							
3							
7.							
7. 3.							
7. 3. 9.							
7. 3. 9. 10.							
7. 3. 9. 10. 11.							
7. 8. 9. 10. 11.							
7. 3. 9. 10. 11. 12. Percent of dominant :	species that are OBL, FA	.CW or FAC			100%		_
7. 3. 9. 10. 11. 12. Percent of dominant : (excluding FAC-)	species that are OBL, FA	.CW or FAC			100%		_
7. 3. 9. 10. 11. 12. Percent of dominant (excluding FAC-)	species that are OBL, FA	.CW or FAC			100%		_
7. 3. 9. 10. 11. 12. Percent of dominant (excluding FAC-)	species that are OBL, FA	CW or FAC			100%		
7. 3. 9. 10. 11. 12. Percent of dominant (excluding FAC-) Remarks:	species that are OBL, FA	.CW or FAC			100%		_
7. 8. 9. 10. 11. 12. Percent of dominant (excluding FAC-) Remarks:		.CW or FAC	Wetland Hy	drology Ind			_
7. 3. 9. 10. 11. 12. Percent of dominant (excluding FAC-) Remarks:		.CW or FAC	Wetland Hy Primary Ind				_
7. 3. 9. 10. 11. 12. Percent of dominant sexcluding FAC-) Remarks:	cribe in Remarks):	.CW or FAC					
7. 3. 9. 10. 11. 12. Percent of dominant sexcluding FAC-) Remarks: HYDROLOGY Recorded Data (Description)	cribe in Remarks): Streams	.CW or FAC	Primary Ind	cators: Inundated		inches	_
7. 3. 9. 10. 11. 12. Percent of dominant sexcluding FAC-) Remarks: HYDROLOGY Recorded Data (Description)	cribe in Remarks): Streams Aerial Photographs	CW or FAC	Primary Ind X	cators: Inundated	icators: in Upper 12	inches	
7. 3. 9. 10. 11. 12. Percent of dominant sexcluding FAC-) Remarks: HYDROLOGY Recorded Data (Description)	cribe in Remarks): Streams Aerial Photographs Other	CW or FAC	Primary Ind X	cators: Inundated Saturated	icators: in Upper 12 rks	inches	
7. 3. 9. 10. 11. 12. Percent of dominant sexcluding FAC-) Remarks: HYDROLOGY Recorded Data (Description)	cribe in Remarks): Streams Aerial Photographs Other	.CW or FAC	Primary Ind X	cators: Inundated Saturated Water Mai Drift Lines	icators: in Upper 12 rks	inches	
Percent of dominant sexcluding FAC-) Remarks: HYDROLOGY Recorded Data (Description of the content of the conte	cribe in Remarks): Streams Aerial Photographs Other	.CW or FAC	Primary Ind X	cators: Inundated Saturated Water Mai Drift Lines Sediment	icators: in Upper 12 rks Deposits		
7. 3. 3. 9. 10. 11. 12. Percent of dominant sexcluding FAC-) Remarks: HYDROLOGY Recorded Data (Descriptions)	cribe in Remarks): Streams Aerial Photographs Other Irded Data Available		Primary Ind X X	cators: Inundated Saturated Water Mai Drift Lines Sediment Drainage	icators: in Upper 12 rks Deposits Patterns in W	/etlands	
7. 3. 3. 9. 10. 11. 12. Percent of dominant sexcluding FAC-) Remarks: HYDROLOGY Recorded Data (Description of the content of	cribe in Remarks): Streams Aerial Photographs Other orded Data Available	(in.)	Primary Ind X X	cators: Inundated Saturated Water Mai Drift Lines Sediment Drainage I	icators: in Upper 12 rks Deposits Patterns in W	/etlands quired):	inches
7. 3. 3. 9. 10. 11. 12. Percent of dominant : Excluding FAC-) Remarks: HYDROLOGY Recorded Data (Description of Surface Water Depth to Free Water)	cribe in Remarks): Streams Aerial Photographs Other rded Data Available	(in.)	Primary Ind X X	cators: Inundated Saturated Water Mai Drift Lines Sediment Drainage I ndicators (: Oxidized F	icators: in Upper 12 rks Deposits Patterns in W 2 or more rec	/etlands quired): Is in Upper 12	inches
7. 3. 9. 10. 11. 12. Percent of dominant : (excluding FAC-) Remarks: HYDROLOGY Recorded Data (Descriptions) No Recorded Descriptions: Depth of Surface Water	cribe in Remarks): Streams Aerial Photographs Other rded Data Available	(in.)	Primary Ind X X	cators: Inundated Saturated Water Mai Drift Lines Sediment Drainage I ndicators (Oxidized F Water-Sta	icators: in Upper 12 rks Deposits Patterns in W 2 or more rec Root Channe ined Leaves	/etlands quired): Is in Upper 12	inches
7. 8. 9. 10. 11. 12. Percent of dominant (excluding FAC-) Remarks: HYDROLOGY Recorded Data (Description)	cribe in Remarks): Streams Aerial Photographs Other rded Data Available	(in.)	Primary Ind X X	cators: Inundated Saturated Water Mai Drift Lines Sediment Drainage I ndicators (: Oxidized F Water-Sta Local Soil	icators: in Upper 12 rks Deposits Patterns in W 2 or more red Root Channe ined Leaves Survey Data	/etlands quired): Is in Upper 12	inches
7. 8. 9. 10. 11. 12. Percent of dominant : (excluding FAC-) Remarks: HYDROLOGY Recorded Data (Descriptions) No Recorded Observations: Depth of Surface Water	cribe in Remarks): Streams Aerial Photographs Other rded Data Available	(in.)	Primary Ind X X Secondary	cators: Inundated Saturated Water Mai Drift Lines Sediment Drainage I ndicators (i Oxidized F Water-Sta Local Soil FAC-Neut	icators: in Upper 12 rks Deposits Patterns in W 2 or more red Root Channe ined Leaves Survey Data	/etlands quired): ls in Upper 12	inches

SOILS Map Unit Name (Series and Phase): Field Observations Confirm Mapped Type? Taxonomy (Subgroup): Matrix Color Mottle Colors Mottle Textures, Concretions, Str. Depth (in) Horizon Munsell Moist) Hydric Soil Indicators: (If yes, check them) Histosol Histosol Sulfidic Odor Aquic Moisture Regime Aquic Moisture Regime Reducing Conditions Textures, Concretions, Str. No Concretions Histosol Concretions High Organic Content in Surface Layer in Sandy Soil Concretions Listed on Local Hydric Soils List Listed on Local Hydric Soils List Remarks: WETLAND DETERMINATION	96S
Map Unit Name Concretions	
(Series and Phase): Field Observations Confirm Mapped Type? Taxonomy (Subgroup): Matrix Color Mottle Colors Mottle Textures, Concretions, Structure Munsell Moist) Munsell Moist) Abundance/Contrast etc.	
Field Observations Confirm Mapped Type? Yes No Taxonomy (Subgroup): Matrix Color Mottle Colors Mottle Textures, Concretions, Struence Mottle Textures, Concretions, Struence Mottle Textures, Concretions, Struence Mottle Textures, Concretions, Struence Textures, Concretions, Struence, Struenc	
Taxonomy (Subgroup): Matrix Color Mottle Colors Mottle Textures, Concretions, Struber	
Depth (in) Horizon (Munsell Moist) (Munsell Moist) Abundance/Contrast etc. Hydric Soil Indicators: Yes X No Histosol Concretions Histic Epidon High Organic Content in Surface Layer in Sandy Soi Sulfidic Odor Organic Streaking in Sandy Soils Aquic Moisture Regime Listed on Local Hydric Soils List Reducing Conditions Listed on National Hydric Soils List X Gleyed or Low-Chroma Colors Other (explain in remarks) Remarks:	
Depth (in) Horizon (Munsell Moist) (Munsell Moist) Abundance/Contrast etc. Hydric Soil Indicators: Yes X No Histosol Concretions Histic Epidon High Organic Content in Surface Layer in Sandy Soi Sulfidic Odor Organic Streaking in Sandy Soils Aquic Moisture Regime Listed on Local Hydric Soils List Reducing Conditions Listed on National Hydric Soils List X Gleyed or Low-Chroma Colors Other (explain in remarks) Remarks:	
Hydric Soil Indicators: (If yes, check them) Histosol Histic Epidon Sulfidic Odor Aquic Moisture Regime Reducing Conditions X Gleyed or Low-Chroma Colors Remarks:	ictures,
(If yes, check them) Histosol Histic Epidon Sulfidic Odor Aquic Moisture Regime Reducing Conditions X Gleyed or Low-Chroma Colors Concretions High Organic Content in Surface Layer in Sandy Soi Organic Streaking in Sandy Soils Listed on Local Hydric Soils List Listed on National Hydric Soils List Other (explain in remarks) Remarks:	
(If yes, check them) Histosol Histic Epidon Sulfidic Odor Aquic Moisture Regime Reducing Conditions X Gleyed or Low-Chroma Colors Concretions High Organic Content in Surface Layer in Sandy Soil Organic Streaking in Sandy Soils Listed on Local Hydric Soils List Listed on National Hydric Soils List Other (explain in remarks) Remarks:	
(If yes, check them) Histosol Histic Epidon Sulfidic Odor Aquic Moisture Regime Reducing Conditions X Gleyed or Low-Chroma Colors Concretions High Organic Content in Surface Layer in Sandy Soi Organic Streaking in Sandy Soils Listed on Local Hydric Soils List Listed on National Hydric Soils List Other (explain in remarks) Remarks:	
(If yes, check them) Histosol Histic Epidon Sulfidic Odor Aquic Moisture Regime Reducing Conditions X Gleyed or Low-Chroma Colors Concretions High Organic Content in Surface Layer in Sandy Soi Organic Streaking in Sandy Soils Listed on Local Hydric Soils List Listed on National Hydric Soils List Other (explain in remarks) Remarks:	
(If yes, check them) Histosol Histic Epidon Sulfidic Odor Aquic Moisture Regime Reducing Conditions X Gleyed or Low-Chroma Colors Concretions High Organic Content in Surface Layer in Sandy Soil Organic Streaking in Sandy Soils Listed on Local Hydric Soils List Listed on National Hydric Soils List Other (explain in remarks) Remarks:	
(If yes, check them) Histosol Histic Epidon Sulfidic Odor Aquic Moisture Regime Reducing Conditions X Gleyed or Low-Chroma Colors Concretions High Organic Content in Surface Layer in Sandy Soi Organic Streaking in Sandy Soils Listed on Local Hydric Soils List Listed on National Hydric Soils List Other (explain in remarks) Remarks:	
(If yes, check them) Histosol Histic Epidon Sulfidic Odor Aquic Moisture Regime Reducing Conditions X Gleyed or Low-Chroma Colors Concretions High Organic Content in Surface Layer in Sandy Soi Organic Streaking in Sandy Soils Listed on Local Hydric Soils List Listed on National Hydric Soils List Other (explain in remarks) Remarks:	
(If yes, check them) Histosol Histic Epidon Sulfidic Odor Aquic Moisture Regime Reducing Conditions X Gleyed or Low-Chroma Colors Concretions High Organic Content in Surface Layer in Sandy Soil Organic Streaking in Sandy Soils Listed on Local Hydric Soils List Listed on National Hydric Soils List Other (explain in remarks) Remarks:	
(If yes, check them) Histosol Histic Epidon Sulfidic Odor Aquic Moisture Regime Reducing Conditions X Gleyed or Low-Chroma Colors Concretions High Organic Content in Surface Layer in Sandy Soi Organic Streaking in Sandy Soils Listed on Local Hydric Soils List Listed on National Hydric Soils List Other (explain in remarks) Remarks:	
(If yes, check them) Histosol Histic Epidon Sulfidic Odor Aquic Moisture Regime Reducing Conditions X Gleyed or Low-Chroma Colors Concretions High Organic Content in Surface Layer in Sandy Soi Organic Streaking in Sandy Soils Listed on Local Hydric Soils List Listed on National Hydric Soils List Other (explain in remarks) Remarks:	
(If yes, check them) Histosol Histic Epidon Sulfidic Odor Aquic Moisture Regime Reducing Conditions X Gleyed or Low-Chroma Colors Concretions High Organic Content in Surface Layer in Sandy Soil Organic Streaking in Sandy Soils Listed on Local Hydric Soils List Listed on National Hydric Soils List Other (explain in remarks) Remarks:	
(If yes, check them) Histosol Histic Epidon Sulfidic Odor Aquic Moisture Regime Reducing Conditions X Gleyed or Low-Chroma Colors Concretions High Organic Content in Surface Layer in Sandy Soil Organic Streaking in Sandy Soils Listed on Local Hydric Soils List Listed on National Hydric Soils List Other (explain in remarks) Remarks:	
Histosol Concretions High Organic Content in Surface Layer in Sandy Soi Sulfidic Odor Organic Streaking in Sandy Soils Aquic Moisture Regime Listed on Local Hydric Soils List Reducing Conditions Listed on National Hydric Soils List Other (explain in remarks) Remarks:	
High Organic Content in Surface Layer in Sandy Soi Sulfidic Odor Organic Streaking in Sandy Soils Listed on Local Hydric Soils List Reducing Conditions Listed on National Hydric Soils List Other (explain in remarks) Remarks:	
Sulfidic Odor Aquic Moisture Regime Listed on Local Hydric Soils List Reducing Conditions Listed on National Hydric Soils List X Gleyed or Low-Chroma Colors Organic Streaking in Sandy Soils Listed on Local Hydric Soils List Other (explain in remarks)	
Aquic Moisture Regime Reducing Conditions Listed on National Hydric Soils List Cleyed or Low-Chroma Colors Co	S
Reducing Conditions X Gleyed or Low-Chroma Colors Cother (explain in remarks) Remarks:	
X Gleyed or Low-Chroma Colors Other (explain in remarks) Remarks:	
Remarks:	
WETI AND DETERMINATION	
WETLAND DETERMINATION	
Hydrophytic Vegetation Present? Yes X No Is this Sampling Point Within a We	tland
Wetland Hydrology Present? Yes X No	aaria
Hydric Soils Present? Yes X No Yes X No Yes X No	
<u> </u>	
Remarks: PSS	
Photo 1501	

Project/Site:	I-64 Peninsula				Date:	11/15/201	1
Applicant/Owner:	VDOT				County:	New Kent	
Investigator:	Scot Aitkenhead				State:	Virginia	
	DE0		T			DI (ID	WET 070
Community ID:	PFO	_	Transect ID: _	A	_	Plot ID:	WET 97S
Do Normal Conditions	s exist on the site?		Yes_	Х	N	lo	
Is the site significantly	y disturbed (Atypical situat	ion)?	Yes		N	lo X	
Is the area a potentia	l Problem Area?		Yes		N	lo	
If needed, explain on	reverse						
VEGETATION							
	Dominant Plant	Species					
Commor	n Name	Scientific	Name		Stratum		Indicator
1. Red Mar	ole	Acer rubre	um		Т		FAC
Sweet G	ium	Liquidaml	bar styraciflua		Т		FAC
False ne	ettle	Boehmeri	ia cylindrica		Н		FACW+
4. Soft Rus	sh	Juncus et	fusus		Н		FACW+
Commor	n Elderberry	Sambucu	s canadensis		S		FACW-
6. Royal Fe	ern	Osmunda	regalis		Н		OBL
7.							
8.							
9.							
10.							
11.							
12.							
	species that are OBL, FAC	W or FAC	_		100%		_
(excluding FAC-)							
Remarks:							
HYDROLOGY							
Recorded Data (Desc	cribe in Remarks):		Wetland Hydi	rology Ind	licators:		
	Streams		Primary Indic	ators:			
	Aerial Photographs		I	nundated			
	Other		X S	Saturated	in Upper 12	inches	
X No Reco	orded Data Available			Nater Ma			
				Orift Lines			
				Sediment	-		
Field Observations:				-	Patterns in W		
Depth of Surface Wa		(in.)	Secondary In	-			
Depth to Free Water		(in.)				ls in Upper 12	inches
Depth to Saturated S	oil: 4	(in.)			ined Leaves		
					Survey Data		
				FAC-Neut		1 \	
			<u> </u>	Jiner (Ex	plain in Rema	arks)	
Remarks:							
i verriarks.							

Commun	ity ID:	PFO	Transect	t ID: A	Plot ID:	WET 97S
SOILS						
Map Unit Na	ime					
(Series and	Phase):			D	rainage Class:	
Field Observ	ations Con	firm Mapped Type?	Yes	No	_	
Taxonomy (Subgroup):				_	
		Matrix Color	Mottle Colors	Mottle	Textures, Con-	cretions, Structures,
Depth (in)	Horizon	(Munsell Moist)	(Munsell Moist)	Abundance/Contrast	etc.	
		,	,			
0-16	Α	10YR 3/1			Sandy Ioam	
				_		
Librataia Cail II		,	/ V	NIa		
Hydric Soil I		١	'es X	No		
(If yes, chec	k tnem)	18.4		0 "		
		_Histosol		Concretions		
		_Histic Epidon		High Organic Content in		n Sandy Soils
		_Sulfidic Odor		Organic Streaking in Sa		
		_Aquic Moisture Regin	ne	Listed on Local Hydric S		
		_Reducing Conditions		Listed on National Hydr		
	Χ	_Gleyed or Low-Chron	na Colors	Other (explain in remark	ks)	
Remarks:						
WETLAND	DETERMIN	ATION				
Hydrophytic	Vegetation	Present?	'es X	No Is this	s Sampling Point	Within a Wetland
Wetland Hyd	drology Pres	sent?	'es X	No		
Hydric Soils			'es X	No Ye	s X	No
Remarks:						
I						

Project/Site:	I-64 Peninsula			Date:	11/15/201	<u>'</u>
Applicant/Owner:	VDOT			County:	New Kent	
nvestigator:	Scot Aitkenhead			State:	Virginia	
Community ID:	PEM		Transect ID:	Α	Plot ID:	WET 98S
Oo Normal Condition			Yes		lo	_
•	y disturbed (Atypical situa	ition)?	Yes		lo X	
s the area a potentia			Yes	N	lo X	
f needed, explain or	reverse					
/EGETATION						
	Dominant Plan	nt Species				
Commo		Scientific		Stratum		Indicator
 Deerton 	~	Dichanth	elium clandestinium	Н		FAC+
2. Soft Rus	sh	Juncus e	ffusus	Н		FACW+
Sensitiv	e Fern	Onoclea	sensibilis	Н		FACW
	ned Chain Fern	Woodwa	rdia areolata	Н		FACW+
5. False N			ria cylindrica	Н		FACW+
\ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \	rtle	Morella d		S		FAC
•	1110	Worella C	erifera	0		
7.		MOI ella C	cerifera	0		
7. 3.		iviorena c	cerifera	Ü		
7. 3. 9.		<i>Могена</i> с	erifera	S		
7. 3.).		MOI GIIA C	erifera	3		
7. 3. 9. 10. 11.		MOTEIIA C	erifera	3		
7. 3. 9. 10. 11.			erifera			
7. 3. 9. 10. 11. Percent of dominant	species that are OBL, FA		erifera	100%		_
7. 3. 9. 10. 11. 12. Percent of dominant (excluding FAC-)			erifera			_
7. 3. 9. 10. 11. 12. Percent of dominant (excluding FAC-)			erifera			_
7. 3. 9. 10. 11. 12. Percent of dominant excluding FAC-)			erifera			_
7. 3. 9. 10. 11. 12. Percent of dominant (excluding FAC-) Remarks:			erifera			_
7. 8. 9. 10. 11. 12. Percent of dominant (excluding FAC-) Remarks:	species that are OBL, FA		Wetland Hydrolog	100%		_
7. 7. 8. 9. 10. 11. 12. Percent of dominant excluding FAC-) Remarks:	species that are OBL, FA		Wetland Hydrolog	100%		_
7. 3. 9. 10. 11. 12. Percent of dominant excluding FAC-) Remarks:	species that are OBL, FA cribe in Remarks):Streams		Wetland Hydrolog Primary Indicators	100%		_
7. 3. 9. 10. 11. 12. Percent of dominant excluding FAC-) Remarks:	species that are OBL, FA		Wetland Hydrolog Primary Indicator	100% gy Indicators:	inches	
7. 3. 9. 10. 11. 12. Percent of dominant excluding FAC-) Remarks: HYDROLOGY Recorded Data (Des	species that are OBL, FA cribe in Remarks): Streams Aerial Photographs		Wetland Hydrolog Primary Indicator Inun	100% By Indicators: Sidated	inches	_
7. 3. 9. 10. 11. 12. Percent of dominant excluding FAC-) Remarks: HYDROLOGY Recorded Data (Des	species that are OBL, FA cribe in Remarks): Streams Aerial Photographs Other		Wetland Hydrolog Primary Indicator Inun X Satu Wate	100% By Indicators: S: Clated rated in Upper 12	inches	
7. 3. 9. 10. 11. 12. Percent of dominant excluding FAC-) Remarks: HYDROLOGY Recorded Data (Des	species that are OBL, FA cribe in Remarks): Streams Aerial Photographs Other		Wetland Hydrolog Primary Indicators Inun X Satu Wate	100% By Indicators: Base dated rated in Upper 12 or Marks Lines	inches	_
Y	species that are OBL, FA cribe in Remarks): Streams Aerial Photographs Other		Wetland Hydrolog Primary Indicators Inun X Satu Wate Drift Sedi	JU00% By Indicators: Bis: Bis: Bis: Bis: Bis: Bis: Bis: Bi		_
7. 3. 3. 9. 10. 11. 12. Percent of dominant excluding FAC-) Remarks: HYDROLOGY Recorded Data (Des X No Recorded Observations:	species that are OBL, FA cribe in Remarks): Streams Aerial Photographs Other orded Data Available	CW or FAC	Wetland Hydrolog Primary Indicator Inun X Satu Wate Drift Sedi	Jy Indicators: S: dated rated in Upper 12 er Marks Lines ment Deposits nage Patterns in W	/etlands	
A. S.	cribe in Remarks):StreamsAerial PhotographsOther orded Data Available	CW or FAC	Wetland Hydrolog Primary Indicator Inun X Satu Wate Drift Sedi Drain Secondary Indica	Jy Indicators: s: dated rated in Upper 12 or Marks Lines ment Deposits nage Patterns in W tors (2 or more rec	√etlands quired):	
7. 3. 3. 9. 10. 11. 12. Percent of dominant (excluding FAC-) Remarks: HYDROLOGY Recorded Data (Des X No Recorded Observations: Depth of Surface Water	species that are OBL, FA cribe in Remarks): Streams Aerial Photographs Other orded Data Available ster: in Pit:	CW or FAC(in.)(in.)	Wetland Hydrolog Primary Indicator Inun X Satu Wate Drift Sedi Drain Secondary Indica Oxid	Jy Indicators: S: dated rated in Upper 12 er Marks Lines ment Deposits nage Patterns in W	/etlands quired): ls in Upper 12	
7. 3. 9. 10. 11. 12. Percent of dominant (excluding FAC-) Remarks: HYDROLOGY Recorded Data (Des X No Recorded Observations: Depth of Surface Water	species that are OBL, FA cribe in Remarks): Streams Aerial Photographs Other orded Data Available ster: in Pit:	CW or FAC	Wetland Hydrolog Primary Indicators Inun X Satu Wate Drift Sedi Drair Secondary Indica Oxid X Wate	JOO% Jy Indicators: S: dated rated in Upper 12 or Marks Lines ment Deposits nage Patterns in W tors (2 or more receized Root Channe er-Stained Leaves	/etlands quired): ls in Upper 12	
7. 3. 9. 10. 11. 12. Percent of dominant (excluding FAC-) Remarks: HYDROLOGY Recorded Data (Des	species that are OBL, FA cribe in Remarks): Streams Aerial Photographs Other orded Data Available ster: in Pit:	CW or FAC(in.)(in.)	Wetland Hydrolog Primary Indicators Inun X Satu Wate Drift Sedi Drair Secondary Indica Oxid X Wate Loca	JO0% By Indicators: S: Dated Fated in Upper 12 BY Marks Lines Finent Deposits Finage Patterns in Witters (2 or more received Root Channel Fir-Stained Leaves I Soil Survey Data	/etlands quired): ls in Upper 12	
7. 8. 9. 10. 11. 12. Percent of dominant (excluding FAC-) Remarks: HYDROLOGY Recorded Data (Des X No Recorded Observations: Depth of Surface Water	species that are OBL, FA cribe in Remarks): Streams Aerial Photographs Other orded Data Available ster: in Pit:	CW or FAC(in.)(in.)	Wetland Hydrolog Primary Indicators Inune X Satu Wate Drift Sedi Drain Secondary Indica Oxid X Wate Loca X FAC	JOO% Jy Indicators: S: dated rated in Upper 12 or Marks Lines ment Deposits nage Patterns in W tors (2 or more receized Root Channe er-Stained Leaves	Vetlands quired): ls in Upper 12	

Commun	ity ID:	PEM	Transect	ID: A	Plot ID:	WET 98S
SOILS						
Map Unit Na						
(Series and					rainage Class: _	
		firm Mapped Type?	Yes	No	_	
Taxonomy (Subgroup):					
		Matrix Color	Mottle Colors	Mottle		retions, Structures,
Depth (in)	Horizon	(Munsell Moist)	(Munsell Moist)	Abundance/Contrast	etc.	
0-16	A	10YR 3/1			Sandy loam	
Hydric Soil I	ndicators:	Yes	Χ	No		
(If yes, chec						
(11) 00, 01100		Histosol		Concretions		
		Histic Epidon		High Organic Content in	n Surface Laver in	n Sandy Soils
		Sulfidic Odor		Organic Streaking in Sa		reality cont
		Aquic Moisture Regime		Listed on Local Hydric		
		Reducing Conditions		Listed on National Hydr		
	Х	Gleyed or Low-Chroma C	olors	Other (explain in remar		
		0.0,000 0. 20.0 00			,	
Remarks:						
WETLAND	DETERMIN	ATION				
Hydrophytic	Vegetation	Present? Yes	Х	No Is this	s Sampling Point	Within a Wetland
Wetland Hyd	-	-	X	No	-	
Hydric Soils		Yes			s X	No
		-				
Remarks:	PEM			•		
	Photo 1515	5				

Project/Site:	I-64 Peninsula			Date:	11/15/201	1
Applicant/Own	er: VDOT			County:	New Kent	
nvestigator:	Scot Aitkenhead			State:	Virginia	
Community ID:	PFO		Transect ID: A		Plot ID:	WET 99S
	nditions exist on the site?		YesX		No	_
-	ficantly disturbed (Atypical s	ituation)?	Yes		No X	_
-	otential Problem Area?		Yes		NoX	_
f needed, expl	ain on reverse					
/EGETATION						
		Plant Species				
	ommon Name		ic Name	Stratum	<u> </u>	Indicator
	ensitive Fern		a sensibilis	Н		FACW
	weet Gum	Liquida	mbar styraciflua	Т		FAC
3. Re	ed Maple	Acer rui	brum	Т		FAC
	eer Tongue	Dichant	helium clandestinum	Н		FAC+
5. Ma	arsh Marigold	Caltha _l	palustris	Н		OBL
6. W	ax Myrtle	Morella	cerifera	S		FAC
7. Ha	alberd Leaved Tearthumb	Polygor	num arifolium	Н		OBL
3.						
9.						
10.						
11.						
12.						
	ninant species that are OBL,	FACW or FAC		100%		
(excluding FAC		17.017 0.17.0		10070		_
Remarks:	,					
Kemarks.						
HYDROLOGY						
Recorded Data	a (Describe in Remarks):		Wetland Hydrology I	ndicators:		
	Streams		Primary Indicators:			
	Aerial Photograph	าร	Inundat	ed		
	Other		Saturate	ed in Upper 12	inches	
X No	Recorded Data Available		Water N	/larks		
			Drift Lin	es		
			Sedime	nt Deposits		
Field Observat	ions:		X Drainag	e Patterns in V	Vetlands	
Depth of Surfa	ce Water:	(in.)	Secondary Indicators			
Depth to Free	The state of the s	(in.)	-	d Root Channe		inches
Depth to Satur		(in.)		Stained Leaves		
		,		oil Survey Data		
				eutral Test	•	
				Eutrai Test Explain in Rem	arke)	
			Other (t	-vhiaiii iii keiii	aino)	
- Domorko:						
Remarks:						

Commun	ity ID:	PFO	Transect	D: <u>A</u>	Plot ID:	WET 99S
			_		_	
SOILS						
Map Unit Na	ime					
(Series and	Phase):				Prainage Class:	
Field Observ	ations Con	firm Mapped Type?	Yes	No		
Taxonomy (Subgroup):				_	
		Matrix Color	Mottle Colors	Mottle	Textures, Conc	retions, Structures,
Depth (in)	Horizon	(Munsell Moist)	(Munsell Moist)	Abundance/Contrast	etc.	
			· · · · · · · · · · · · · · · · · · ·			
0-16	Α	7.5YR 3/1			Sandy clay	
						-
Uvdria Sail I	ndiantora	Ye	s X	Ma		
Hydric Soil I		re	S	No		
(If yes, chec	k tnem)	11:-41		0		
		_Histosol		Concretions		0 1 0 "
		_Histic Epidon		High Organic Content i		Sandy Soils
		_Sulfidic Odor		Organic Streaking in Sa		
		_Aquic Moisture Regime		Listed on Local Hydric		
		Reducing Conditions		Listed on National Hyd		
	Х	_Gleyed or Low-Chroma	Colors	Other (explain in remar	ks)	
Remarks:						
WETLAND				<u> </u>		
Hydrophytic				No Is thi	s Sampling Point \	Within a Wetland
Wetland Hyd		sent? Ye		No		
Hydric Soils	Present?	Ye	s X	No Ye	es X	No
Remarks:	Photo 1520)				

Project/Site:	I-64 Peninsula			Date:	11/16/201	<u> </u>
Applicant/Owner:	VDOT			County:	New Kent	
nvestigator:	Scot Aitkenhead			State:	Virginia	
Community ID:	PSS	Trans	ect ID:	Α	Plot ID:	WET 100S
Do Normal Condition			Yes	X	No	_
•	y disturbed (Atypical situa	ition)?	Yes		No X	<u> </u>
ls the area a potentia			Yes		No X	<u> </u>
lf needed, explain or	reverse					
/EGETATION						
	Dominant Plan	· ·				
Commo		Scientific Name		Stratu	ım	Indicator
1. Royal F		Osmunda regalis		Н		OBL
2. Soft Rus		Juncus effusus		Н		FACW+
Sensitiv		Onoclea sensibilis	3	Н		FACW
4. Wax My		Morella cerifera		S		FAC
5. Smooth		Alnus serrulata		Т		OBL
Clinnon	elm	Ulmus rubra		Т		FAC
		Omnao rabra				
7.		omnao rabra				
7. 3.		eae razra				
7. 3. 9.		omao razio				
7. 3. 9.		omao razio				
7. 3. 9. 10. 11.		omac razia				
7. 3. 9. 10. 11.						
7. 3. 9. 10. 11. 12. Percent of dominant	species that are OBL, FA			100	%	_
7. 3. 9. 10. 11. 12. Percent of dominant (excluding FAC-)				100	%	_
7. 3. 9. 10. 11. 12. Percent of dominant (excluding FAC-)				100'	%	_
7. 3. 9. 10. 11. 12. Percent of dominant (excluding FAC-)				100	%	_
7. 3. 9. 10. 11. 12. Percent of dominant (excluding FAC-) Remarks:				100'	%	_
7. 8. 9. 10. 11.	species that are OBL, FA	CW or FAC	and Hydrolc	100 ⁰	%	
7. 7. 8. 9. 10. 11. 12. Percent of dominant excluding FAC-) Remarks:	species that are OBL, FA	CW or FAC	and Hydrolo	gy Indicators:	%	
7. 7. 8. 9. 10. 11. 12. Percent of dominant excluding FAC-) Remarks:	species that are OBL, FA	CW or FAC	ary Indicato	gy Indicators:	%	_
7. 3. 9. 10. 11. 12. Percent of dominant (excluding FAC-) Remarks:	species that are OBL, FA cribe in Remarks):Streams	CW or FAC	ary Indicato	gy Indicators: rs:		
7. 3. 9. 10. 11. 12. Percent of dominant (excluding FAC-) Remarks: HYDROLOGY Recorded Data (Des	species that are OBL, FA cribe in Remarks): Streams Aerial Photographs	CW or FAC	ary Indicato Inui Sat	ngy Indicators: rs: ndated		
7. 3. 9. 10. 11. 12. Percent of dominant excluding FAC-) Remarks: HYDROLOGY Recorded Data (Des	species that are OBL, FA cribe in Remarks): Streams Aerial Photographs Other	CW or FAC	ary Indicato Inui Sat Wa	ngy Indicators: rs: ndated urated in Upper 1		
7. 3. 9. 10. 11. 12. Percent of dominant (excluding FAC-) Remarks: HYDROLOGY Recorded Data (Des	species that are OBL, FA cribe in Remarks): Streams Aerial Photographs Other	CW or FAC	ary Indicato Inui Sat Wa Drif	ngy Indicators: rs: ndated urated in Upper 1 ter Marks		
7. 3. 3. 9. 10. 11. 12. Percent of dominant excluding FAC-) Remarks: HYDROLOGY Recorded Data (Des	species that are OBL, FA cribe in Remarks): Streams Aerial Photographs Other	CW or FAC Wetla	ary Indicato Inui Sat Wa Drif	ngy Indicators: rs: ndated urated in Upper 1 ter Marks t Lines	12 inches	
7. 3. 3. 9. 10. 11. 12. Percent of dominant excluding FAC-) Remarks: HYDROLOGY Recorded Data (Des X No Recorded Observations:	species that are OBL, FA cribe in Remarks): Streams Aerial Photographs Other orded Data Available	CW or FAC Wetla	ary Indicato Inui Sat Wa Drif Sec X Dra	ogy Indicators: rs: ndated urated in Upper 1 ter Marks t Lines liment Deposits	12 inches	
7. 3. 3. 3. 3. 3. 3. 3. 3. 3. 3. 3. 3. 3.	species that are OBL, FA cribe in Remarks): Streams Aerial Photographs Other orded Data Available	CW or FAC Wetla Prima (in.) Seco	ary Indicato Inui Sat Wa Drif Sec X Dra ndary Indic	ogy Indicators: rs: ndated urated in Upper 1 ter Marks t Lines liment Deposits inage Patterns in	12 inches n Wetlands required):	inches
7. 3. 9. 10. 11. 12. Percent of dominant (excluding FAC-) Remarks: HYDROLOGY Recorded Data (Des X No Recorded Observations: Depth of Surface Water	species that are OBL, FA cribe in Remarks): Streams Aerial Photographs Other orded Data Available tter: in Pit:	CW or FAC Wetla Prima (in.) Seco	ary Indicato Inui Sat Wa Drif Sec X Dra ndary Indic	ogy Indicators: rs: ndated urated in Upper 1 ter Marks t Lines liment Deposits inage Patterns in	12 inches n Wetlands required): nels in Upper 12	rinches
7. 8. 9. 10. 11. 12. Percent of dominant (excluding FAC-) Remarks: HYDROLOGY Recorded Data (Des X No Recorded Observations: Depth of Surface Water	species that are OBL, FA cribe in Remarks): Streams Aerial Photographs Other orded Data Available tter: in Pit:	CW or FAC Wetla Prima (in.) Seco	ary Indicato Inui Sat Wa Drif Sec X Dra ndary Indic X Wa	ngy Indicators: rs: Indated Indated in Upper 1 Iter Marks It Lines Iliment Deposits Inage Patterns in Iterators (2 or more Idized Root Chan Iter-Stained Leave	12 inches 1 Wetlands required): nels in Upper 12	cinches
7. 8. 9. 10. 11. 12. Percent of dominant (excluding FAC-) Remarks: HYDROLOGY Recorded Data (Des	species that are OBL, FA cribe in Remarks): Streams Aerial Photographs Other orded Data Available tter: in Pit:	CW or FAC Wetla Prima (in.) Seco (in.)	Ary Indicato Inui Sat Wa Drif Sec X Dra ndary Indic X Wa Loc	ogy Indicators: rs: ndated urated in Upper 1 ter Marks t Lines liment Deposits inage Patterns in ators (2 or more	12 inches 1 Wetlands required): nels in Upper 12	rinches
7. 8. 9. 10. 11. 12. Percent of dominant (excluding FAC-) Remarks: HYDROLOGY Recorded Data (Des X No Recorded Observations: Depth of Surface Water	species that are OBL, FA cribe in Remarks): Streams Aerial Photographs Other orded Data Available tter: in Pit:	CW or FAC Wetla Prima (in.) Seco (in.)	Ary Indicato Inui Sat Wa Drif Sec X Dra ndary Indic X Wa Loc X FAC	ogy Indicators: rs: ndated urated in Upper 1 ter Marks t Lines liment Deposits inage Patterns in ators (2 or more dized Root Chan ter-Stained Leave al Soil Survey Da	12 inches 1 Wetlands required): nels in Upper 12 es ata	rinches

Commun	ity ID:	PSS	Transect I	D:A	_Plot ID:	WET 100S
SOILS						
Map Unit Na	ame					
(Series and				D	rainage Class:	
		irm Mapped Type?	Yes	No	_	
Taxonomy (Subgroup):					
D (1 (1)		Matrix Color	Mottle Colors	Mottle		cretions, Structures,
Depth (in)	Horizon	(Munsell Moist)	(Munsell Moist)	Abundance/Contrast	etc.	
0-16	Α	10YR 3/1			Loamy sand	
<u> </u>						
Hydric Soil I		Yes	X	No		
(If yes, chec	k them)					
		_Histosol		Concretions		
		_Histic Epidon		High Organic Content in	-	in Sandy Soils
		_Sulfidic Odor		Organic Streaking in Sa	-	
		_Aquic Moisture Regime		Listed on Local Hydric		
		_Reducing Conditions		Listed on National Hydr		
	X	_Gleyed or Low-Chroma C	olors	Other (explain in remar	ks)	
Remarks:						
WETLAND	DETERMIN	ATION				
Hydrophytic			1 X	No Is thi	s Sampling Poin	t Within a Wetland
Wetland Hy				No 13 till	- Jamping i Olli	
Hydric Soils		Yes			sX	No
, 5 00110			<u> </u>			
Remarks:	PSS			1		
	Photo 1501					

						Date:		
Applicant/Owner:	VDOT					County:	New Kent	
nvestigator:	Scot Aitkenhead					State:	Virginia	
Community ID:	PSS		Transect I	D:	Α	_	Plot ID:	WET 101S
Do Normal Condition			Y	es	Χ		lo	_
s the site significant	y disturbed (Atypical situa	ation)?	Υ	es		^	۸oX	
s the area a potentia			Y	es		^	۸o <u> </u>	
f needed, explain or	reverse							
VEGETATION								
	Dominant Plar	nt Species						
Commo		Scientific				Stratum	<u> </u>	Indicator
	af Cattail	Typha la				Н		OBL
Soft Rus	sh	Juncus e	effusus			Н		FACW+
3. Black W	illow	Salix nig	ıra			Т		FACW+
4.								
5.								
6.								
7.								
•								
3.								
3. 9.								
7. 3. 9. 10. 11.								
3. 9. 10.								
3. 9. 10. 11. 12.	species that are OBL, FA	CW or FAC				100%		
3. 9. 10. 11. 12.	species that are OBL, FA	.CW or FAC				100%		_
3. 9. 10. 11. 12. Percent of dominant	species that are OBL, FA	CW or FAC				100%		
3. 9. 10. 11. 12. Percent of dominant (excluding FAC-)	species that are OBL, FA	CW or FAC				100%		_
3. 9. 10. 11. 12. Percent of dominant (excluding FAC-) Remarks:	species that are OBL, FA	CW or FAC				100%		
3. 9. 10. 11. 12. Percent of dominant (excluding FAC-) Remarks:		CW or FAC	Wetland I		av Indi			
3. 9. 10. 11. 12. Percent of dominant (excluding FAC-) Remarks:	cribe in Remarks):	CW or FAC	Wetland I	-				_
3. 9. 10. 11. 12. Percent of dominant (excluding FAC-) Remarks:	cribe in Remarks):Streams	CW or FAC	Wetland I	ndicator	s:			
3. 9. 10. 11. 12. Percent of dominant (excluding FAC-) Remarks:	cribe in Remarks):StreamsAerial Photographs	CW or FAC	Primary I	ndicator	s: dated	icators:	inches	
3. 9. 10. 11. 12. Percent of dominant (excluding FAC-) Remarks: HYDROLOGY Recorded Data (Des	cribe in Remarks):StreamsAerial PhotographsOther	CW or FAC		ndicator Inun Satu	s: dated rated	icators: in Upper 12	inches	
3. 9. 10. 11. 12. Percent of dominant (excluding FAC-) Remarks: HYDROLOGY Recorded Data (Des	cribe in Remarks):StreamsAerial Photographs	CW or FAC	Primary I	ndicator Inun Satu Wate	s: dated rated er Mar	icators: in Upper 12 rks	inches	_
3. 9. 10. 11. 12. Percent of dominant (excluding FAC-) Remarks: HYDROLOGY Recorded Data (Des	cribe in Remarks):StreamsAerial PhotographsOther	CW or FAC	Primary I	ndicator Inun Satu Wate Drift	s: dated rated er Mar Lines	icators: in Upper 12 rks	inches	
3. 9. 10. 11. 12. Percent of dominant (excluding FAC-) Remarks: HYDROLOGY Recorded Data (Des	cribe in Remarks):StreamsAerial PhotographsOther	CW or FAC	Primary I	ndicator Inun Satu Wate Drift Sedi	s: dated rated er Mar Lines ment	icators: in Upper 12 rks Deposits		
3. 9. 10. 11. 12. Percent of dominant (excluding FAC-) Remarks: HYDROLOGY Recorded Data (Des No Recorded Observations:	cribe in Remarks):StreamsAerial PhotographsOther orded Data Available		Primary I	ndicator Inun- Satu Wate Drift Sedi	s: dated rated er Mar Lines ment l	icators: in Upper 12 rks Deposits Patterns in W	Vetlands	
3. 9. 10. 11. 12. Percent of dominant (excluding FAC-) Remarks: HYDROLOGY Recorded Data (Des No Recorded Observations: Depth of Surface Wa	cribe in Remarks): Streams Aerial Photographs Other orded Data Available	(in.)	Primary I	ndicator: Inun Satu Wate Drift Sedi Drain Ty Indica	s: dated rated er Mar Lines ment I nage F	icators: in Upper 12 rks Deposits Patterns in W	Vetlands quired):	inches
B. B	cribe in Remarks):StreamsAerial PhotographsOther orded Data Available tter: in Pit:	(in.)	X Secondar	ndicator: Inun Satu Wate Drift Sedi Drair y Indica Oxid	s: dated rated rated Lines ment hage F tors (2	icators: in Upper 12 rks Deposits Patterns in W 2 or more rec	Vetlands quired): els in Upper 12	inches
3. 9. 10. 11. 12. Percent of dominant (excluding FAC-) Remarks: HYDROLOGY Recorded Data (Des	cribe in Remarks):StreamsAerial PhotographsOther orded Data Available tter: in Pit:	(in.)	Primary I	ndicator: Inun Satu Wate Drift Sedi Drain Ty Indica Wate	dated rated rated Lines ment lage Ftors (2 ized Fer-Stail	icators: in Upper 12 rks Deposits Patterns in W 2 or more received.	Vetlands quired): els in Upper 12	inches
B. B	cribe in Remarks):StreamsAerial PhotographsOther orded Data Available tter: in Pit:	(in.)	X Secondar	ndicator Inun Satu Wate Drift Sedi Drain y Indica Oxid Wate Loca	dated rated rated Lines ment lage F tors (2 ized F - Stail Soil	icators: in Upper 12 rks Deposits Patterns in W 2 or more rer Root Channe ined Leaves Survey Data	Vetlands quired): els in Upper 12	inches
B. B	cribe in Remarks):StreamsAerial PhotographsOther orded Data Available tter: in Pit:	(in.)	X Secondar	ndicator Inun Satu Wate Drift Sedi Drain Vy Indica Oxid Wate Loca FAC	dated rated er Mar Lines ment later fors (2 ized Fer-Stail Soil -Neutr	icators: in Upper 12 rks Deposits Patterns in W 2 or more rec Root Channe ined Leaves Survey Data ral Test	Vetlands quired): lls in Upper 12	inches
B. B	cribe in Remarks):StreamsAerial PhotographsOther orded Data Available tter: in Pit:	(in.)	X Secondar	ndicator Inun Satu Wate Drift Sedi Drain Vy Indica Oxid Wate Loca FAC	dated rated er Mar Lines ment later fors (2 ized Fer-Stail Soil -Neutr	icators: in Upper 12 rks Deposits Patterns in W 2 or more rer Root Channe ined Leaves Survey Data	Vetlands quired): lls in Upper 12	inches

Commun	nity ID:	PSS	Transect I	ID:A	Plot ID:	WET 101S
SOILS						
Map Unit Na	ame					
(Series and				С	rainage Class:	
		irm Mapped Type?	Yes	No	_	
Taxonomy (Subgroup):		-			
D (1 (1)		Matrix Color	Mottle Colors	Mottle		cretions, Structures,
Depth (in)	Horizon	(Munsell Moist)	(Munsell Moist)	Abundance/Contrast	etc.	
0-16	Α	10YR 3/1			Loamy sand	
Hydric Soil I		Yes	X	No		
(If yes, chec	k them)	I Pata and		0		
		_ Histosol		Concretions	- Curfo - Lavar	in Candy Caila
		_ Histic Epidon		High Organic Content in	-	in Sandy Solls
		_Sulfidic Odor		Organic Streaking in Sa	•	
		_Aquic Moisture Regime		Listed on Local Hydric		
	X	Reducing Conditions		Listed on National Hydr		
	^	_Gleyed or Low-Chroma C		Other (explain in remar	KS)	
Remarks:						
WETLAND				Ma I i ii i	- Committee D. I	4 \\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\
Hydrophytic					s sampling Poin	t Within a Wetland
Wetland Hy		-		No	. V	No
Hydric Soils	riesent?	Yes	X	NoYe	s X	No
Remarks:	PSS			1		
	Photo 1506	;				

Project/Site:	I-64 Peninsula			Date:	11/16/201	1
Applicant/Owner:	VDOT			County:	New Kent	
nvestigator:	Scot Aitkenhead			State:	Virginia	
Community ID:	PFO		Transect ID:	Α	Plot ID:	WET 102S
Oo Normal Condition			Yes		lo	_
	y disturbed (Atypical situa	ation)?	Yes		lo <u>X</u>	_
Is the area a potentia			Yes	N	lo X	_
If needed, explain on	reverse					
VEGETATION						
	Dominant Plar	nt Species				
Commo		Scientific		Stratum		Indicator
1. False No			eria cylindrica	Н		FACW+
Sensitive			sensibilis	Н		FACW
3. Soft Rus		Juncus e		Н		FACW+
4. Sycamo			s occidentalis	Т		FACW-
5. Red Ma _l		Acer rub	orum	Т		FAC
	ium	Liquidan	mbar styraciflua	Т		FAC
7.	ium	Liquidan	nbar styraciflua	Т		FAC
7. 3.	ium	Liquidan	nbar styraciflua	Т		FAC
7. 3. 9.	sum	Liquidan	nbar styraciflua	Т		FAC
7. 3. 9.	sum	Liquidan	nbar styraciflua	Т		FAC
7. 3. 9. 10.	sum	Liquidan	nbar styraciflua	Т		FAC
7. 8. 9. 10. 11.			nbar styraciflua	Т		FAC
7. 8. 9. 10. 11. 12. Percent of dominant	sum species that are OBL, FA		nbar styraciflua	T 100%		FAC
7. 3. 9. 10. 11. 12. Percent of dominant			nbar styraciflua			FAC
7. 3. 9. 10. 11. 12. Percent of dominant (excluding FAC-)			nbar styraciflua			FAC
7. 3. 9. 10. 11. 12. Percent of dominant (excluding FAC-)			nbar styraciflua			FAC
7. 8. 9. 10. 11. 12. Percent of dominant (excluding FAC-) Remarks:			nbar styraciflua			FAC
7. 8. 9. 10. 11.	species that are OBL, FA			100%		FAC
7. 3. 9. 10. 11. 12. Percent of dominant (excluding FAC-) Remarks:	species that are OBL, FA		Wetland Hydrolo	100%		FAC
7. 3. 9. 10. 11. 12. Percent of dominant (excluding FAC-) Remarks:	species that are OBL, FA cribe in Remarks):Streams		Wetland Hydrolo Primary Indicato	100%		FAC
7. 3. 9. 10. 11. 12. Percent of dominant (excluding FAC-) Remarks:	species that are OBL, FA cribe in Remarks): Streams Aerial Photographs		Wetland Hydrolo Primary Indicato X Inur	gy Indicators:	inches	FAC
7. 3. 9. 10. 11. 12. Percent of dominant (excluding FAC-) Remarks: HYDROLOGY Recorded Data (Desc	species that are OBL, FA cribe in Remarks): Streams Aerial Photographs Other		Wetland Hydrolo Primary Indicato X Inur X Satu	gy Indicators: rs: idated urated in Upper 12	inches	FAC
7. 3. 9. 10. 11. 12. Percent of dominant (excluding FAC-) Remarks: HYDROLOGY Recorded Data (Desc	species that are OBL, FA cribe in Remarks): Streams Aerial Photographs		Wetland Hydrolo Primary Indicato X Inur X Satu	gy Indicators: rs: idated urated in Upper 12 er Marks	inches	FAC
7. 3. 9. 10. 11. 12. Percent of dominant (excluding FAC-) Remarks: HYDROLOGY Recorded Data (Desc	species that are OBL, FA cribe in Remarks): Streams Aerial Photographs Other		Wetland Hydrolo Primary Indicato X Inur X Satu Wat	gy Indicators: rs: idated urated in Upper 12 er Marks Lines	inches	FAC
7. 3. 9. 10. 11. 12. Percent of dominant (excluding FAC-) Remarks: HYDROLOGY Recorded Data (Desc	species that are OBL, FA cribe in Remarks): Streams Aerial Photographs Other		Wetland Hydrolo Primary Indicato X Inur X Satu Wat Drift	gy Indicators: rs: idated urated in Upper 12 er Marks Lines iment Deposits		FAC
7. 3. 3. 9. 10. 11. 12. Percent of dominant excluding FAC-) Remarks: HYDROLOGY Recorded Data (Descriptions)	species that are OBL, FA cribe in Remarks): Streams Aerial Photographs Other orded Data Available	CW or FAC	Wetland Hydrolo Primary Indicato X Inur X Satu Wat Drift Sed	gy Indicators: rs: adated arated in Upper 12 er Marks Lines iment Deposits nage Patterns in W	/etlands	FAC
7. 3. 9. 10. 11. 12. Percent of dominant excluding FAC-) Remarks: HYDROLOGY Recorded Data (Description of Surface Warface War	species that are OBL, FA cribe in Remarks): Streams Aerial Photographs Other orded Data Available	CW or FAC	Wetland Hydrolo Primary Indicato X Inur X Satu Wat Drift Sed Dra Secondary Indica	gy Indicators: rs: idated urated in Upper 12 er Marks Lines iment Deposits nage Patterns in Wators (2 or more rec	√etlands quired):	
7. 3. 9. 10. 11. 12. Percent of dominant (excluding FAC-) Remarks: HYDROLOGY Recorded Data (Description of Surface Water) Depth of Surface Water	species that are OBL, FA cribe in Remarks): Streams Aerial Photographs Other orded Data Available ter: 1 in Pit:	CW or FAC	Wetland Hydrolo Primary Indicato X Inur X Satu Wat Drift Sed Dra Secondary Indica	gy Indicators: rs: idated urated in Upper 12 er Marks Lines iment Deposits nage Patterns in Wators (2 or more red	Vetlands quired): Is in Upper 12	
7. 3. 9. 10. 11. 12. Percent of dominant (excluding FAC-) Remarks: HYDROLOGY Recorded Data (Description of Surface Water) Depth of Surface Water	species that are OBL, FA cribe in Remarks): Streams Aerial Photographs Other orded Data Available ter: 1 in Pit:	CW or FAC	Wetland Hydrolo Primary Indicato X Inur X Satu Wat Drift Sed Dra Secondary Indica	gy Indicators: rs: rdated urated in Upper 12 er Marks Lines iment Deposits nage Patterns in Wators (2 or more red dized Root Channe er-Stained Leaves	Vetlands quired): Is in Upper 12	
7. 8. 9. 10. 11. 12. Percent of dominant (excluding FAC-) Remarks: HYDROLOGY Recorded Data (Desc	species that are OBL, FA cribe in Remarks): Streams Aerial Photographs Other orded Data Available ter: 1 in Pit:	CW or FAC	Wetland Hydrolo Primary Indicato X Inur X Satu Wat Drift Sed Dra Secondary Indica Oxio	gy Indicators: TS: Indated Jurated in Upper 12 Lines Jurated in Upper 12 Lines Jurated Patterns in Wators (2 or more red Jurated Root Channe Lines Jurated Root Channe Lines Jurated Root Channe Lines Root Channe	Vetlands quired): Is in Upper 12	
7. 8. 9. 10. 11. 12. Percent of dominant (excluding FAC-) Remarks: HYDROLOGY Recorded Data (Descriptions) X No Recorded Observations: Depth of Surface Waller	species that are OBL, FA cribe in Remarks): Streams Aerial Photographs Other orded Data Available ter: 1 in Pit:	CW or FAC	Wetland Hydrolo Primary Indicato X Inur X Satu Drift Sed Dra Secondary Indica Oxio Wat Loc X FAC	gy Indicators: rs: rdated urated in Upper 12 er Marks Lines iment Deposits nage Patterns in Wators (2 or more red dized Root Channe er-Stained Leaves	Vetlands quired): ls in Upper 12	

Community ID: PFO		Transect ID: A			Plot ID:	WET 102S		
			_					
OILS								
lap Unit Nar								
Series and F						Dra	inage Class:	
		irm Mapped Type?		Yes	No			
axonomy (S	Subgroup):							
		Matrix Color		Mottle Colors	Mottle		Textures, Co	ncretions, Structures,
Depth (in)	Horizon	(Munsell Mois	st)	(Munsell Moist)	Abundance/0	Contrast	etc.	
0-16	А	7.5YR 2.5/1					Sandy clay lo	am
ydric Soil In	ndicators:		Yes	X	No			
-			Yes	X	No			
-		Histosol	Yes	X	No			
			Yes	X	Concretions	Content in S	Surface Laye	r in Sandy Soils
-		Histic Epidon	Yes	X	Concretions High Organic C			r in Sandy Soils
-		Histic Epidon Sulfidic Odor		X	Concretions High Organic C Organic Streak	ing in Sand	dy Soils	r in Sandy Soils
-		Histic Epidon Sulfidic Odor Aquic Moisture Re	egime	X	Concretions High Organic C Organic Streak Listed on Loca	ting in Sand I Hydric So	dy Soils ils List	r in Sandy Soils
-	(them)	Histic Epidon Sulfidic Odor Aquic Moisture Re Reducing Conditio	egime ons		Concretions High Organic C Organic Streak Listed on Loca Listed on Natio	ting in Sand I Hydric So onal Hydric	dy Soils ils List Soils List	r in Sandy Soils
-		Histic Epidon Sulfidic Odor Aquic Moisture Re	egime ons		Concretions High Organic C Organic Streak Listed on Loca	ting in Sand I Hydric So onal Hydric	dy Soils ils List Soils List	r in Sandy Soils
f yes, check - - - - - -	(them)	Histic Epidon Sulfidic Odor Aquic Moisture Re Reducing Conditio	egime ons		Concretions High Organic C Organic Streak Listed on Loca Listed on Natio	ting in Sand I Hydric So onal Hydric	dy Soils ils List Soils List	r in Sandy Soils
yes, check - - - - - -	(them)	Histic Epidon Sulfidic Odor Aquic Moisture Re Reducing Conditio	egime ons		Concretions High Organic C Organic Streak Listed on Loca Listed on Natio	ting in Sand I Hydric So onal Hydric	dy Soils ils List Soils List	r in Sandy Soils
yes, check - - - - - -	(them)	Histic Epidon Sulfidic Odor Aquic Moisture Re Reducing Conditio	egime ons		Concretions High Organic C Organic Streak Listed on Loca Listed on Natio	ting in Sand I Hydric So onal Hydric	dy Soils ils List Soils List	r in Sandy Soils
f yes, check - - - - - -	(them)	Histic Epidon Sulfidic Odor Aquic Moisture Re Reducing Conditio	egime ons		Concretions High Organic C Organic Streak Listed on Loca Listed on Natio	ting in Sand I Hydric So onal Hydric	dy Soils ils List Soils List	r in Sandy Soils
f yes, check - - - - - -	(them)	Histic Epidon Sulfidic Odor Aquic Moisture Re Reducing Conditio	egime ons		Concretions High Organic C Organic Streak Listed on Loca Listed on Natio	ting in Sand I Hydric So onal Hydric	dy Soils ils List Soils List	r in Sandy Soils
f yes, check - - - - - emarks:	X DETERMINA	Histic Epidon Sulfidic Odor Aquic Moisture Re Reducing Conditic Gleyed or Low-Ch	egime ons		Concretions High Organic C Organic Streak Listed on Loca Listed on Natio	ing in Sand I Hydric So onal Hydric in remarks)	dy Soils ils List Soils List)	
f yes, check - - - - - emarks:	X DETERMINA	Histic Epidon Sulfidic Odor Aquic Moisture Re Reducing Conditic Gleyed or Low-Ch	egime ons		Concretions High Organic C Organic Streak Listed on Loca Listed on Natio	ing in Sand I Hydric So onal Hydric in remarks)	dy Soils ils List Soils List)	r in Sandy Soils
f yes, check	X DETERMINA Vegetation I	Histic Epidon Sulfidic Odor Aquic Moisture Re Reducing Conditic Gleyed or Low-Ch	egime ons roma Col	ors	Concretions High Organic C Organic Streak Listed on Loca Listed on Natio Other (explain	ing in Sand I Hydric So onal Hydric in remarks)	dy Soils ils List Soils List)	
ydric Soil In f yes, check emarks: /ETLAND C	X X DETERMINA Vegetation I rology Pres	Histic Epidon Sulfidic Odor Aquic Moisture Re Reducing Conditic Gleyed or Low-Ch	egime ons roma Col Yes Yes	ors X	Concretions High Organic Conganic Streak Listed on Loca Listed on Natio Other (explain	ting in Sand I Hydric So anal Hydric in remarks)	dy Soils ils List Soils List) Sampling Poir	nt Within a Wetland
ydrophytic Vetland Hyd	X X DETERMINA Vegetation I rology Pres	Histic Epidon Sulfidic Odor Aquic Moisture Re Reducing Conditic Gleyed or Low-Ch	egime ons roma Col	ors	Concretions High Organic C Organic Streak Listed on Loca Listed on Natio Other (explain	ting in Sand I Hydric So anal Hydric in remarks)	dy Soils ils List Soils List)	nt Within a Wetland
f yes, check	X X DETERMINA Vegetation I rology Pres	Histic Epidon Sulfidic Odor Aquic Moisture Re Reducing Conditic Gleyed or Low-Ch	egime ons roma Col Yes Yes	ors X	Concretions High Organic Conganic Streak Listed on Loca Listed on Natio Other (explain	ting in Sand I Hydric So anal Hydric in remarks)	dy Soils ils List Soils List) Sampling Poir	nt Within a Wetland

Project/Site:	I-64 Peninsula			Date:	11/16/201	<u>1</u>
Applicant/Owner:	VDOT			County:	New Kent	
nvestigator:	Scot Aitkenhead			State:	Virginia	
Community ID:	PFO		Transect ID:	Α	Plot ID:	WET 103S
Do Normal Condition			Yes		lо	_
	y disturbed (Atypical situ	ation)?	Yes		lo <u>X</u>	_
Is the area a potentia			Yes		No X	<u> </u>
If needed, explain on	reverse					
VEGETATION						
	Dominant Pla	-				
Commo		Scientific		Stratum		Indicator
1. Marsh M	_	Caltha p		Н		OBL
River Bir		Betula n	•	Т		FACW
Sycamo			occidentalis	Т		FACW-
4. Red Ma _l		Acer rub		Т		FAC
5. Sensitive	e Fern	Onoclea	sensibilis	Н		FACW
•						
7.						
7. 3.						
7. 3. 9.						
7. 3. 9. 10.						
7. 3. 9. 10. 11.						
7. 8. 9. 10. 11.						
7. 8. 9. 10. 11. 12. Percent of dominant	species that are OBL, FA	ACW or FAC		100%		_
7. 3. 9. 10. 11. 12. Percent of dominant (excluding FAC-)	species that are OBL, FA	ACW or FAC		100%		_
7. 3. 9. 10. 11. 12. Percent of dominant (excluding FAC-)	species that are OBL, FA	ACW or FAC		100%		_
7. 3. 9. 10. 11. 12. Percent of dominant (excluding FAC-)	species that are OBL, FA	ACW or FAC		100%		_
7. 3. 9. 10. 11. 12. Percent of dominant (excluding FAC-) Remarks:	species that are OBL, FA	ACW or FAC		100%		_
7. 8. 9. 10. 11. 12. Percent of dominant (excluding FAC-) Remarks:		ACW or FAC	Wetland Hydrolog			_
7. 3. 9. 10. 11. 12. Percent of dominant (excluding FAC-) Remarks:		ACW or FAC	Wetland Hydrolog Primary Indicators	gy Indicators:		_
7. 3. 9. 10. 11. 12. Percent of dominant excluding FAC-) Remarks:	cribe in Remarks):	ACW or FAC	Primary Indicators	gy Indicators:		
7. 3. 9. 10. 11. 12. Percent of dominant excluding FAC-) Remarks:	cribe in Remarks):Streams	ACW or FAC	Primary Indicators X Inunc	gy Indicators: s:	inches	
7. 3. 9. 10. 11. 12. Percent of dominant (excluding FAC-) Remarks: HYDROLOGY Recorded Data (Desc	cribe in Remarks):StreamsAerial Photographs	ACW or FAC	Primary Indicators X Inune X Satu	gy Indicators: s: dated	inches	
7. 3. 9. 10. 11. 12. Percent of dominant (excluding FAC-) Remarks: HYDROLOGY Recorded Data (Desc	cribe in Remarks): Streams Aerial Photographs Other	ACW or FAC	Primary Indicators X Inune X Satu Wate	gy Indicators: s: dated rated in Upper 12	inches	
7. 3. 9. 10. 11. 12. Percent of dominant (excluding FAC-) Remarks: HYDROLOGY Recorded Data (Desc	cribe in Remarks): Streams Aerial Photographs Other	ACW or FAC	Primary Indicators X Inun X Satu Wate Drift	gy Indicators: s: dated rated in Upper 12 er Marks	inches	
7. 3. 3. 10. 11. 12. Percent of dominant (excluding FAC-) Remarks: HYDROLOGY Recorded Data (Desc	cribe in Remarks): Streams Aerial Photographs Other	ACW or FAC	Primary Indicators X Inun X Satu Wate Drift Sedi	gy Indicators: s: dated rated in Upper 12 er Marks Lines ment Deposits		
7. 3. 9. 10. 11. 12. Percent of dominant excluding FAC-) Remarks: HYDROLOGY Recorded Data (Descriptions)	cribe in Remarks):StreamsAerial PhotographsOther orded Data Available		Primary Indicators X Inunc X Satu Wate Drift Sedi X Drair	gy Indicators: s: dated rated in Upper 12 er Marks Lines ment Deposits nage Patterns in W	Vetlands	
7. 3. 3. 9. 10. 11. 12. Percent of dominant excluding FAC-) Remarks: HYDROLOGY Recorded Data (Description of the content of t	cribe in Remarks): Streams Aerial Photographs Other orded Data Available	(in.)	Primary Indicators X Inunc X Satu Wate Drift Sedi X Drair Secondary Indica	gy Indicators: 3: dated rated in Upper 12 er Marks Lines ment Deposits nage Patterns in W tors (2 or more rec	Vetlands quired):	inches
7. 3. 9. 10. 11. 12. Percent of dominant (excluding FAC-) Remarks: HYDROLOGY Recorded Data (Description of Surface Water) Depth of Surface Water	cribe in Remarks): Streams Aerial Photographs Other orded Data Available ter: 1	(in.)	Primary Indicators X Inunc X Satu Wate Drift Sedi X Drair Secondary Indica Oxid	gy Indicators: s: dated rated in Upper 12 er Marks Lines ment Deposits nage Patterns in W	Vetlands quired): els in Upper 12	inches
7. 3. 9. 10. 11. 12. Percent of dominant (excluding FAC-) Remarks: HYDROLOGY Recorded Data (Description of Surface Water) Depth of Surface Water	cribe in Remarks): Streams Aerial Photographs Other orded Data Available ter: 1	(in.)	Primary Indicators X Inunc X Satu Wate Drift Sedi X Drair Secondary Indica Oxid X Wate	gy Indicators: s: dated rated in Upper 12 er Marks Lines ment Deposits nage Patterns in W tors (2 or more red ized Root Channe	Vetlands quired): els in Upper 12	inches
(excluding FAC-) Remarks: HYDROLOGY Recorded Data (Desc	cribe in Remarks): Streams Aerial Photographs Other orded Data Available ter: 1	(in.)	Primary Indicators X Inunc X Satu Wate Drift Sedi X Drair Secondary Indica Oxid X Wate Loca	gy Indicators: s: dated rated in Upper 12 er Marks Lines ment Deposits nage Patterns in W tors (2 or more red ized Root Channe er-Stained Leaves I Soil Survey Data	Vetlands quired): els in Upper 12	inches
7. 8. 9. 10. 11. 12. Percent of dominant (excluding FAC-) Remarks: HYDROLOGY Recorded Data (Description of Surface Ward Depth of Surface Ward Depth to Free Water)	cribe in Remarks): Streams Aerial Photographs Other orded Data Available ter: 1	(in.)	Primary Indicators X Inunc X Satu Wate Drift Sedi X Drair Secondary Indica Oxid X Wate Loca X FAC	gy Indicators: s: dated rated in Upper 12 er Marks Lines ment Deposits nage Patterns in W tors (2 or more red ized Root Channe	Vetlands quired): lls in Upper 12	inches

Commun	ity ID:	PFO	Transect II	D: <u> </u>	Plot ID:	WET 103S
SOILS						
Map Unit Na	ame					
(Series and	Phase):]	Drainage Class:	
Field Observ	vations Con	firm Mapped Type?	Yes	No		
Taxonomy (Subgroup):				_	
		Matrix Color	Mottle Colors	Mottle	Textures, Conc	retions, Structures,
Depth (in)	Horizon	(Munsell Moist)	(Munsell Moist)	Abundance/Contrast	etc.	
,		,	,			
0-16	Α	7.5YR 5/1			Sandy clay loan	n
I Ivalaia Cail I		Va	- V	la.		
Hydric Soil I		Ye	sX	lo		
(If yes, chec	k tnem)	1.12 4 1		0 "		
		_ Histosol		Concretions		
		_Histic Epidon		High Organic Content		Sandy Soils
		_Sulfidic Odor		Organic Streaking in S		
		_Aquic Moisture Regime		Listed on Local Hydric		
		Reducing Conditions		Listed on National Hyd		
	X	_Gleyed or Low-Chroma	Colors	Other (explain in rema	rks)	
Remarks:						
WETLAND	DETERMIN	ATION				
Hydrophytic	Vegetation	Present? Ye	s X N	No Is th	is Sampling Point \	Nithin a Wetland
Wetland Hyd	drology Pres	sent? Ye	s X	lo		
Hydric Soils		Ye	s X	10 Ye	es X	No
Remarks:	PFO			•		
	Photo 1512	2				

Project/Site:	I-64 Peninsula					Date:	11/16/201	1	
Applicant/Owner:	VDOT					County:	New Kent		
nvestigator:	Scot Aitkenhead					State:	Virginia		
Community ID:	PEM		Transect	ID:	Α	_	Plot ID:	WET 1	04S
o Normal Condition				Yes	Χ		No	_	
	y disturbed (Atypical situat	tion)?		Yes			No X	_	
s the area a potentia			`	Yes		^	No X		
f needed, explain on	reverse								
/EGETATION									
	Dominant Plan	-							
Commor		Scientific				Stratum	<u> </u>	Indicator	
1. Fringed	_	Carex cri	inita			Н		OBL	
2. Lizards	Гаil	Saururus	s cernuus			Н		OBL	
3.									
4.									
5.									
6.									
7.									
3.									
).									
10.									
11.									
12.									
	species that are OBL, FAC	CW or FAC				100%			
(excluding FAC-)	, , ,								
Remarks:									
LIVEROL OCV									
HYDROLOGY Recorded Data (Desc	cribe in Remarks):		Wetland	Hvdrol	oav Ind	icators:			
tooorada Bata (Book	Streams		Primary			iodioio.			
	Aerial Photographs		1 milary		indated				
	Other		X			in Upper 12	inches		
X No Reco	orded Data Available				ater Mai		11101103		
NO NOCC	nded Data Available				ft Lines				
						Deposits			
			X			-	Matle a de		
Field Observations:		(: \			•	Patterns in V			
Depth of Surface Wa		(in.)	Seconda	-	-	2 or more re			
Depth to Free Water		(in.)					els in Upper 12	inches	
Depth to Saturated S	oil: 3	(in.)				ined Leaves			
						Survey Data	ı		
						ral Test			
				Ot	her (Exp	olain in Rem	arks)		
Remarks:									

Commun	ity ID:	PEM	Transect	ID: A	Plot ID:	WET 104S
			_			
SOILS						
Map Unit Na	ıme					
(Series and					Drainage Class:	
		firm Mapped Type?	Voc	No	Diamage Olass.	
		птт марреи туре?	Yes			
Taxonomy (Subgroup):					
		Matrix Color	Mottle Colors	Mottle		cretions, Structures,
Depth (in)	Horizon	(Munsell Moist)	(Munsell Moist)	Abundance/Contras	st etc.	
0-16	Α	7.5YR 3/1			Sandy loam	
Hydric Soil I	ndicators:	Yes	s X	No		
(If yes, chec						
, , , , , , , ,	,	Histosol		Concretions		
		Histic Epidon		High Organic Content	in Surface Laver i	n Sandy Soils
		Sulfidic Odor		Organic Streaking in S		ii Carlay Colls
		_Aquic Moisture Regime		Listed on Local Hydric		
		_Reducing Conditions		Listed on National Hyd		
	X	_Gleyed or Low-Chroma	Colors	Other (explain in rema	arks)	
Remarks:						
WETLAND	DETERMIN.	ATION				
Hydrophytic			s X	No Is th	nis Sampling Point	Within a Wetland
Wetland Hyd				No lo ti		
Hydric Soils		Yes			'es X	No
I Iyuno oons	1 10301111	163		110		110
Domestics	DEM					
Remarks:	PEM					
	Photo 1514	 				

Project/Site:	I-64 Peninsula			Date:	11/16/201	<u>. </u>
Applicant/Owner:	VDOT			County:	New Kent	
nvestigator:	Scot Aitkenhead			State:	Virginia	
Community ID:	PFO		Transect ID:	Α	Plot ID:	WET 105S
			.,			
Oo Normal Condition			Yes		lo	_
	y disturbed (Atypical situa	ation)?	Yes		lo X	_
s the area a potentia			Yes	N	lo X	_
f needed, explain on	reverse					
/EGETATION						
_	Dominant Plar	-		_		
Commo		Scientific		Stratum	<u></u>	Indicator
1. River Bi		Betula ni	_	Т		FACW
2. Sycamo			occidentalis	Т		FACW-
3. Deer To	-		elium clandestinum	Н		FAC+
4. Sensitiv			sensibilis	Н		FACW
5. Royal F		Osmunda	-	Н		OBL
6. Red Ma	ole	Acer rubi	rum	Т		FAC
			um			
7.			um			
7. 3.			um			
7. 3. 9.			um			
7. 3. 9.			um			
7. 3. 9. 10. 11.			um			
7. 3. 9. 10. 11.			um			
7. 3. 9. 10. 11. Percent of dominant	species that are OBL, FA			100%		_
7. 3. 9. 10. 11. 12. Percent of dominant (excluding FAC-)				100%		_
7. 3. 9. 10. 11. 12. Percent of dominant (excluding FAC-)				100%		_
7. 3. 9. 10. 11. 12. Percent of dominant (excluding FAC-)				100%		_
7. 3. 9. 10. 11. 12. Percent of dominant (excluding FAC-) Remarks:				100%		_
7. 3. 9. 10. 11. 12. Percent of dominant (excluding FAC-) Remarks:	species that are OBL, FA		Wetland Hydrolog			_
7. 3. 9. 10. 11. 12. Percent of dominant excluding FAC-) Remarks:	species that are OBL, FA			gy Indicators:		_
7. 3. 9. 10. 11. 12. Percent of dominant excluding FAC-) Remarks:	species that are OBL, FA		Wetland Hydrolog Primary Indicator	gy Indicators:		
7. 3. 9. 10. 11. 12. Percent of dominant excluding FAC-) Remarks:	species that are OBL, FA cribe in Remarks):Streams		Wetland Hydrolo Primary Indicator Inun	gy Indicators: s:	inches	_
7. 3. 9. 10. 11. 12. Percent of dominant excluding FAC-) Remarks: HYDROLOGY Recorded Data (Designation)	species that are OBL, FA cribe in Remarks): Streams Aerial Photographs		Wetland Hydrolog Primary Indicator Inun Satu	gy Indicators: s: dated	inches	_
7. 3. 9. 10. 11. 12. Percent of dominant (excluding FAC-) Remarks: HYDROLOGY Recorded Data (Designation)	species that are OBL, FA cribe in Remarks): Streams Aerial Photographs Other		Wetland Hydrolog Primary Indicator Inun Satu Wate	gy Indicators: s: dated rated in Upper 12	inches	
7. 3. 9. 10. 11. 12. Percent of dominant (excluding FAC-) Remarks: HYDROLOGY Recorded Data (Designation)	species that are OBL, FA cribe in Remarks): Streams Aerial Photographs Other		Wetland Hydrolog Primary Indicator Inun Satu Wate	gy Indicators: s: dated rated in Upper 12 er Marks	inches	
A. S.	species that are OBL, FA cribe in Remarks): Streams Aerial Photographs Other		Wetland Hydrolog Primary Indicator Inun Satu Wate	gy Indicators: s: dated rated in Upper 12 er Marks Lines		
7. 3. 3. 9. 10. 11. 12. Percent of dominant excluding FAC-) Remarks: HYDROLOGY Recorded Data (Desi	species that are OBL, FA cribe in Remarks): Streams Aerial Photographs Other orded Data Available		Wetland Hydrolog Primary Indicator Inun Satu Wate Drift Sedi X Drai	gy Indicators: s: dated rated in Upper 12 er Marks Lines ment Deposits	/etlands	
7. 3. 3. 9. 10. 11. 12. Percent of dominant excluding FAC-) Remarks: HYDROLOGY Recorded Data (Desired Management of Surface Warface W	species that are OBL, FA cribe in Remarks): Streams Aerial Photographs Other orded Data Available	CW or FAC	Wetland Hydrolog Primary Indicator Inun Satu Wate Drift Sedi X Drai Secondary Indica	gy Indicators: s: dated rated in Upper 12 er Marks Lines ment Deposits nage Patterns in W ttors (2 or more rec	√etlands quired):	inches
7. 3. 3. 9. 10. 11. 12. Percent of dominant (excluding FAC-) Remarks: HYDROLOGY Recorded Data (Description of Surface Water) Depth of Surface Water	species that are OBL, FA cribe in Remarks): Streams Aerial Photographs Other orded Data Available ter:	CW or FAC	Wetland Hydrolog Primary Indicator Inun Satu Wate Drift Sedi X Drai Secondary Indica	gy Indicators: s: dated rated in Upper 12 er Marks Lines ment Deposits nage Patterns in W	/etlands quired): ls in Upper 12	inches
7. 3. 9. 10. 11. 12. Percent of dominant (excluding FAC-) Remarks: HYDROLOGY Recorded Data (Description of Surface Water) Depth of Surface Water	species that are OBL, FA cribe in Remarks): Streams Aerial Photographs Other orded Data Available ter:	CW or FAC	Wetland Hydrolog Primary Indicator Inun Satu Wate Drift Sedi X Drai Secondary Indica Oxic X Wate	gy Indicators: s: dated rated in Upper 12 er Marks Lines ment Deposits nage Patterns in W ttors (2 or more red ized Root Channe	/etlands quired): ls in Upper 12	inches
7. 8. 9. 10. 11. 12. Percent of dominant (excluding FAC-) Remarks: HYDROLOGY Recorded Data (Designation)	species that are OBL, FA cribe in Remarks): Streams Aerial Photographs Other orded Data Available ter:	CW or FAC	Wetland Hydrolog Primary Indicator Inun Satu Wate Drift Sedi X Drai Secondary Indica Oxio X Wate	gy Indicators: s: dated rated in Upper 12 er Marks Lines ment Deposits hage Patterns in W ttors (2 or more red ized Root Channe	/etlands quired): ls in Upper 12	inches
7. 3. 9. 10. 11. 12. Percent of dominant (excluding FAC-) Remarks: HYDROLOGY Recorded Data (Description of Surface Wat Depth to Free Water)	species that are OBL, FA cribe in Remarks): Streams Aerial Photographs Other orded Data Available ter:	CW or FAC	Wetland Hydrolog Primary Indicator Inun Satu Wate Drift Sedi X Drai Secondary Indica Oxio X Wate Loca X FAC	gy Indicators: s: dated rated in Upper 12 er Marks Lines ment Deposits nage Patterns in W stors (2 or more red ized Root Channe er-Stained Leaves al Soil Survey Data	Vetlands quired): ls in Upper 12	inches

Commun	ity ID:	PFO	Transect	ID: A	Plot ID:	WET 105S
			-			
SOILS						
Map Unit Na	ıme					
(Series and					Drainage Class:	
		firm Mapped Type?	Yes	No		
		iiiii wapped Type?	162	INU		
Taxonomy (Subgroup):					
		Matrix Color	Mottle Colors	Mottle		cretions, Structures,
Depth (in)	Horizon	(Munsell Moist)	(Munsell Moist)	Abundance/Contra	st etc.	
0-16	Α	7.5YR 4/1			Loamy sand	
Hydric Soil I	ndicators:	Yes	X 1	No		
(If yes, chec						
, , , , , , , ,	,	Histosol		Concretions		
		Histic Epidon		High Organic Conten	t in Surface Laver i	n Sandy Soils
		Sulfidic Odor		Organic Streaking in		Touridy dolls
		_Aquic Moisture Regime		Listed on Local Hydri		
		_Reducing Conditions		Listed on National Hy		
	Х	_Gleyed or Low-Chroma (Colors	Other (explain in rem	arks)	
Remarks:						
WETLAND	DETERMIN	ATION				
Hydrophytic			X	No Is t	this Sampling Point	Within a Wetland
Wetland Hyd				No No		ar
Hydric Soils		Yes			Yes X	No
I Iyuno oons	1 1030111!	162				
Domestics	DEO					
Remarks:	PFO					
	Photo 1516)				

Project/Site:	I-64 Peninsula				Date:	11/16/2011	
Applicant/Owner:	VDOT				County:	James City	
Investigator:	Scot Aitkenhead				State:	Virginia	
Community ID:	PFO	_	Transect ID:	Α	_	Plot ID:	WET 106S
Do Normal Conditions			Yes_	X	_ N		_
	disturbed (Atypical situat	ion)?	Yes_		_ N		_
Is the area a potential			Yes_		N	o X	-
If needed, explain on	reverse						
VEGETATION							
	Dominant Plant	Species					
Common	Name	Scientific	Name		Stratum	<u></u>	Indicator
1. Spicebus	sh	Linder be	nzoin		S		FACW-
2. Marsh M	_	Caltha pa			Н		OBL
Sensitive	Fern	Onoclea s	sensibilis		Н		FACW
4. Red Map		Acer rubr			Т		FAC
5. Ironwood			caroliniana		Т		FACW+
6. Lizards T	ail	Saururus	cernuus		Н		OBL
7.							
8.							
9.							
10.							
11.							
12.		NA/ - - - - - -			4000/		
	species that are OBL, FAC	w or FAC			100%		-
(excluding FAC-) Remarks:							
Remarks.							
HYDROLOGY							
Recorded Data (Desc	ribe in Remarks):		Wetland Hydro	logy Ind	icators:		
	Streams		Primary Indica	tors:			
	Aerial Photographs			undated			
	Other				in Upper 12 i	inches	
X No Reco	rded Data Available			ater Mai			
				rift Lines			
					Deposits		
Field Observations:		<i>(</i> : \)		•	Patterns in W		
Depth of Surface Wat		(in.)	Secondary Ind	•			
Depth to Free Water i		(in.)				ls in Upper 12 i	ncnes
Depth to Saturated So	oil: 0	(in.)			ined Leaves Survey Data		
				AC-Neut	•		
					rai Test blain in Rema	arke)	
			├	uiei (⊏XI	Jani III Neilla	uno)	
Remarks:							
Tromano.							

Commun	nity ID:	PFO	Transect I	ID: A	Plot ID:	WET 106S
SOILS						
Map Unit Na	ame					
(Series and	Phase):				rainage Class:	
		irm Mapped Type?	Yes	No	_	
Taxonomy (Subgroup):					
		M (C O I	M (1) O I	NA oil	T (0	0
Donth (in)	Horizon	Matrix Color (Munsell Moist)	Mottle Colors	Mottle Abundance/Contrast		cretions, Structures,
Depth (in)	Horizon	(IVIUNSEII IVIOISI)	(Munsell Moist)	Abundance/Contrast	etc.	
0-16	А	10YR 2/1			Loamy sand	
Hydric Soil I		Yes	X	No		
(If yes, chec	k them)	History		Companyations		
		_ Histosol		Concretions	- Curtosa Lavar	in Condu Coile
		_ Histic Epidon		High Organic Content in	-	in Sandy Solls
		_Sulfidic Odor		Organic Streaking in Sa	•	
		_Aquic Moisture Regime Reducing Conditions		Listed on Local Hydric Listed on National Hydronian		
	X	Gleyed or Low-Chroma C	olore	Other (explain in remar		
		_ Gleyed of Low-Officina C		Other (explain in remai	K3)	
Remarks:						
14/ET! AND	DETERMIN	ATION				
WETLAND Hydrophytic			V !	No Is thi	s Campling Dais	t Within a Wetland
Wetland Hy				No Is thi	s sampling Poin	i vviiiiii a vvelianu
Hydric Soils		Yes			s_X	No
i iyuno oons	1 10301111	165			.s	110
Remarks:	PFO			<u> </u>		
	Photo 1519					
1						

Project/Site:	I-64 Peninsula			Date:	11/16/201	1
Applicant/Owner:	VDOT			County:	James City	
nvestigator:	Scot Aitkenhead			State:	Virginia	
Community ID:	PFO		Transect ID: A		Plot ID:	WET 107S
Oo Normal Condition			Yes X		lo	_
-	y disturbed (Atypical situ	uation)?	Yes		lo X	
s the area a potentia			Yes		10 X	
f needed, explain on	reverse					
/EGETATION						
_	Dominant Pla	-		_		
Commo		Scientific		Stratum	<u> </u>	Indicator
I. Black W		Salix nig		T/S		FACW+
2. Red Maj		Acer rub		T/S		FAC
B. Deer To			helium clandestinum	Н		FAC+
. Soft Rus		Juncus		Н		FACW+
5. Sycamo			s occidentalis	Т		FACW-
	lum	l iguidar	whor of modified	Т		FAC
	iuiii	=.9000	nbar styraciflua			
.	ouri	=-qa-aa	ribar styracıllua			
	uiii		nbar styracında			
7. 3.).	uiii	_ quasa.	nbar styracında			
7. 8. 0. 0.	uiii		nbar styracıllua			
7. 3. 0. 10.	uiii	_, _, _,	mbar styracilida			
7. 3. 9. 10. 11.			mbar styracında			
7. 3. 9. 10. 11. Percent of dominant	species that are OBL, F		mbar styracında	100%		_
7. 3. 9. 10. 11. 12. Percent of dominant excluding FAC-)			mbar styraciliua	100%		_
7. 3. 9. 10. 11. 12. Percent of dominant excluding FAC-)			mbar styracilida	100%		_
7. 3. 9. 10. 11. 2. Percent of dominant excluding FAC-)			mbar styracilida	100%		_
7. 3. 9. 10. 11. 12. Percent of dominant excluding FAC-) Remarks:			mbar styracilida	100%		_
7. 3. 9. 10. 11. 12. Percent of dominant excluding FAC-) Remarks:	species that are OBL, F		Wetland Hydrology			_
7. 3. 9. 10. 11. 12. Percent of dominant excluding FAC-) Remarks:	species that are OBL, F					_
2. Percent of dominant excluding FAC-) Remarks:	species that are OBL, F cribe in Remarks): Streams	ACW or FAC	Wetland Hydrology	Indicators:		
2. Percent of dominant excluding FAC-) Remarks:	species that are OBL, F	ACW or FAC	Wetland Hydrology Primary Indicators: Inunda	Indicators:	inches	_
2. Percent of dominant excluding FAC-) Remarks: HYDROLOGY Recorded Data (Desc	species that are OBL, F cribe in Remarks): Streams Aerial Photographs	ACW or FAC	Wetland Hydrology Primary Indicators: Inunda	Indicators: ted ted in Upper 12	inches	
2. Percent of dominant excluding FAC-) Remarks: HYDROLOGY Recorded Data (Desc	species that are OBL, F cribe in Remarks): Streams Aerial Photographs Other	ACW or FAC	Wetland Hydrology Primary Indicators: Inunda X Satura	Indicators: ted ted in Upper 12 Marks	inches	
2. Percent of dominant excluding FAC-) Remarks: HYDROLOGY Recorded Data (Desc	species that are OBL, F cribe in Remarks): Streams Aerial Photographs Other	ACW or FAC	Wetland Hydrology Primary Indicators: Inunda X Satura Water Drift Li	Indicators: ted ted in Upper 12 Marks nes	inches	
2. 0. 1. 2. Percent of dominant excluding FAC-) Remarks: HYDROLOGY Recorded Data (Desc	species that are OBL, F cribe in Remarks): Streams Aerial Photographs Other	ACW or FAC	Wetland Hydrology Primary Indicators: Inunda X Satura Water Drift Li	Indicators: ted ted in Upper 12 Marks nes ent Deposits		
2. O. 1. 2. Percent of dominant excluding FAC-) Remarks: HYDROLOGY Recorded Data (Descriptions)	species that are OBL, F cribe in Remarks): Streams Aerial Photographs Other orded Data Available	ACW or FAC	Wetland Hydrology Primary Indicators: Inunda X Satura Water Drift Li	Indicators: ted ted in Upper 12 Marks nes ent Deposits ge Patterns in W	Vetlands	
2. 0. 1. 2. Percent of dominant excluding FAC-) Remarks: HYDROLOGY Recorded Data (Description of Surface Warface Warf	species that are OBL, F cribe in Remarks): Streams Aerial Photographs Other orded Data Available	ACW or FAC	Wetland Hydrology Primary Indicators: Inunda X Satura Water Drift Lie Sedime Draina Secondary Indicato	Indicators: ted ted in Upper 12 Marks nes ent Deposits ge Patterns in W rs (2 or more rec	Vetlands quired):	inches
A No Recorded Observations: Depth of Surface Water Percent of dominant excluding FAC-) Remarks: AYDROLOGY Recorded Data (Description of Surface Water) Depth of Surface Water	cribe in Remarks): Streams Aerial Photographs Other orded Data Available ter:	ACW or FAC	Wetland Hydrology Primary Indicators: Inunda X Satura Water Drift Lii Sedime Draina Secondary Indicato Oxidize	Indicators: ted ted in Upper 12 Marks nes ent Deposits ge Patterns in W	Vetlands quired): els in Upper 12	inches
7. 3. 9. 10. 11. 12. Percent of dominant excluding FAC-) Remarks: HYDROLOGY Recorded Data (Description of Surface Water) Depth of Surface Water	cribe in Remarks): Streams Aerial Photographs Other orded Data Available ter:	ACW or FAC	Wetland Hydrology Primary Indicators: Inunda X Satura Water Drift Lii Sedime Draina Secondary Indicato Oxidize X Water-	Indicators: ted ted in Upper 12 Marks nes ent Deposits ge Patterns in W rs (2 or more reced Root Channe Stained Leaves	Vetlands quired): els in Upper 12	inches
7. 3. 9. 10. 11. 12. Percent of dominant excluding FAC-) Remarks: HYDROLOGY Recorded Data (Desc	cribe in Remarks): Streams Aerial Photographs Other orded Data Available ter:	ACW or FAC	Wetland Hydrology Primary Indicators: Inunda X Satura Water Drift Lii Sedime Draina Secondary Indicato Oxidize X Water- Local S	Indicators: ted ted in Upper 12 Marks nes ent Deposits ge Patterns in W rs (2 or more receded Root Channe Stained Leaves Soil Survey Data	Vetlands quired): els in Upper 12	inches
7. 3. 9. 10. 11. 12. Percent of dominant excluding FAC-) Remarks: HYDROLOGY Recorded Data (Description of Surface Water) Depth of Surface Water	cribe in Remarks): Streams Aerial Photographs Other orded Data Available ter:	ACW or FAC	Wetland Hydrology Primary Indicators: Inunda X Satura Water Drift Lin Sedime Draina Secondary Indicato Oxidize X Water- Local S X FAC-N	Indicators: ted ted in Upper 12 Marks nes ent Deposits ge Patterns in W rs (2 or more rec ed Root Channe Stained Leaves	Vetlands quired): lls in Upper 12	inches

Commun	ity ID:	PFO		Transect	ID: <u>A</u>	Plot ID:	WET 107S
						_	
SOILS							
Map Unit Na	ime						
(Series and	Phase):					Drainage Class:	
Field Observ	ations Con	firm Mapped Type?		Yes	No	_	
Taxonomy (_	
,	• . ,						
		Matrix Color		Mottle Colors	Mottle	Textures, Con-	cretions, Structures,
Depth (in)	Horizon	(Munsell Moist)	(Munsell Moist)	Abundance/Contras		
		(1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	/	(
0-16	Α	10YR 5/1				Sandy loam	
0 .0						- Carray rearri	
Hydric Soil II			Yes	X	No		
(If yes, check	k them)						
		_Histosol			Concretions		
		_Histic Epidon			High Organic Content	in Surface Layer i	n Sandy Soils
		Sulfidic Odor			Organic Streaking in S	Sandy Soils	
		Aquic Moisture Reg	jime		Listed on Local Hydric	Soils List	
		Reducing Condition	ıs		Listed on National Hyd	dric Soils List	
	Х	Gleyed or Low-Chro		rs	Other (explain in rema		
		_ ′				•	
Remarks:							
WETLAND I	DETERMIN	ATION					
Hydrophytic			Yes	Χ	No Is th	nis Sampling Point	Within a Wetland
Wetland Hyd	-		Yes		No Is ti	no oamping rollit	vvidini a vvetiana
Hydric Soils		JOHE:				'es V	No
i iyunc SoliS	i ieseill?		Yes		NoY	es X	No
Domorlia	Dhote 4500	<u> </u>					
Remarks:	Photo 1523)					

Project/Site:	I-64 Peninsula				Date:	11/16/201	11
Applicant/Owner:	VDOT				County:	James City	/
Investigator:	Scot Aitkenhead				State:	Virginia	
Community ID:	PEM		Transect I	D:A	<u> </u>	Plot ID:	WET 108S
Do Normal Condition				es X		No	_
•	y disturbed (Atypical situa	tion)?		es		No X	_
Is the area a potentia			Y	es		No X	_
If needed, explain on	reverse						
VEGETATION							
	Dominant Plan	t Species					
Commo	n Name	Scientif	ic Name		Stratum	<u>1</u>	Indicator
1. False No	ettle	Boehm	eria cylindrica		Н		FACW+
Deer To	ngue	Dichant	thelium clandes	stinum	Н		FAC+
Japanes	e Stiltgrass	Microst	tegium vimineu	m	Н		FAC
4.							
5.							
6.							
7.							
8.							
9.							
10.							
11.							
12.							
	species that are OBL, FAC	CW or FAC			100%		<u></u>
(excluding FAC-)							
Remarks:							
HYDROLOGY							
Recorded Data (Des	cribe in Remarks):		Wetland I	Hydrology	Indicators:		
•	Streams		Primary Ir				
X	Aerial Photographs			Inunda	ated		
	Other			 Satura	ited in Upper 12	inches	
No Reco	orded Data Available			 Water			
				— Drift Li	ines		
				Sedim	ent Deposits		
Field Observations:			Х		ige Patterns in V	Vetlands	
Depth of Surface Wa	ter:	(in.)	Secondar		ors (2 or more re		
Depth to Free Water		(in.)		Oxidiz	ed Root Channe	els in Upper 12	2 inches
Depth to Saturated S	oil:	(in.)	Х	Water-	-Stained Leaves		
·				Local	Soil Survey Data	a	
			Х		leutral Test		
				Other	(Explain in Rem	arks)	
					•	•	
Remarks:			•				

Commun	ity ID:	PEM	_ Transect ID	D:A	Plot ID:	WET 108S	
SOILS							
Map Unit Na	ime						
(Series and	Phase):			D	rainage Class:		
		firm Mapped Type?	Yes		_		
axonomy (Subgroup):		-11 71 -		_	_		
	o a.o g. o a.p/.						
		Matrix Color	Mottle Colors	Mottle	Taytures Cond	cretions, Structures,	
Depth (in)	Horizon	(Munsell Moist)	(Munsell Moist)	Abundance/Contrast	etc.	retions, ottoctores,	
Deptil (III)	TIONZON	(IVIUIISEII IVIOISI)	(IVIUITSEII IVIOISI)	Abundance/Contrast	eic.		
0.40	^	40VD 0/4	EVD 4/0	400/	0		
0-16	A	10YR 3/1	5YR 4/6	10%	Sandy loam		
			<u> </u>				
Lludeia Cail li		Vaa	. V N	la.			
Hydric Soil I		Yes	<u>X</u> N	lo			
(If yes, chec	k them)						
		_Histosol		Concretions			
		Histic Epidon		High Organic Content in	n Surface Layer in	n Sandy Soils	
•		Sulfidic Odor		Organic Streaking in Sa		•	
•		Aquic Moisture Regime		Listed on Local Hydric S			
,	Х	Reducing Conditions		Listed on National Hydr			
		_ ~	0-1				
	X	_Gleyed or Low-Chroma	Colors	Other (explain in remark	(S)		
Remarks:							
WETLAND I	DETERMIN	ATION					
Hydrophytic			X N	lo Is this	Sampling Point	Within a Wetland	
	-				, camping rollit	vvitimi a vvotianu	
Wetland Hyd				0		N.I.	
Hydric Soils	Present?	Yes	<u>X</u> N	o Ye:	sX	No	
Remarks:	PEM						
	Photo 1525	5					

Project/Site:	I-64 Peninsula				Date:	11/16/201	1	
Applicant/Owner:	VDOT				County:	James City		
Investigator:	Scot Aitkenhead				State:	Virginia		
Community ID:	PEM	_	Transect ID:	Α	_	Plot ID:	WET	109S
Do Normal Conditions	exist on the site?		Yes	Х	N	0		
Is the site significantly	disturbed (Atypical situation	on)?	Yes		N	o X	_	
Is the area a potential	Problem Area?		Yes		N	o X	_	
If needed, explain on I	reverse							
VEGETATION								
	Dominant Plant	Species						
Common		Scientific I			Stratum	<u> </u>	Indicator	
1. Sensitive	Fern	Onoclea s	ensibilis		Н		FACW	
2. 3.								
4.								
5.								
6.								
7.								
8.								
9.								
10.								
11.								
12.		., 5.0			4000/			
	pecies that are OBL, FAC	W or FAC			100%		_	
(excluding FAC-)								
Remarks:								
HYDROLOGY	ribo in Domarko):		Wotland Hye	drology Indi	iootoro:			
Recorded Data (Desc	·		Wetland Hyd		icators:			
	Streams		Primary Indi					
	Aerial Photographs			Inundated	in Hanar 10 i	nahaa		
V No Poor	Other ded Data Available			Water Mar	in Upper 12 i	nches		
X No Recor	ded Data Available			Drift Lines				
				Sediment				
Field Observations:					Patterns in W	lotlands		
Depth of Surface Water	er: 6	(in.)		-	2 or more rec			
Depth to Free Water in						s in Upper 12	inches	
Depth to Saturated So		(in.) (in.)			ined Leaves	s in Opper 12	ITICHES	
Deptil to Saturated Sc	JII. 0	("".)			Survey Data			
				FAC-Neuti				
					rai rest blain in Rema	arke)		
				Oniei (EX	nalli III NEIlla	unoj		
Remarks: At the tir	ne of investigation, this	area was fu	ll of water.					

Communi	y ID:	PEM	Transect II	D: <u>A</u>	Plot ID:	WET 109S
			_			
SOILS						
Map Unit Nar	ne					
(Series and F	hase):				Drainage Class:	
Field Observa	ations Conf	firm Mapped Type?	Yes	No		
Taxonomy (S	ubgroup):					
		Matrix Color	Mottle Colors	Mottle	Textures, Conc	retions, Structures,
Depth (in)	Horizon	(Munsell Moist)	(Munsell Moist)	Abundance/Contras		
. , ,		,	,			
No soils						
lludeia Caille	d: t - u	Va	- V	l _a		
Hydric Soil In		Yes	sXN	lo		
(If yes, check	tnem)	LU-tL		0		
_		_Histosol		Concretions		0 1 0 "
_		_Histic Epidon		High Organic Content		Sandy Soils
_	X	Sulfidic Odor	-	Organic Streaking in S		
_		_Aquic Moisture Regime		Listed on Local Hydric		
_		_Reducing Conditions		Listed on National Hy		
_		_Gleyed or Low-Chroma	Colors	Other (explain in remain	arks)	
Remarks: 0	Culvert bloo	cked. No soils because in	undated.			
WETLAND D						
Hydrophytic \	/egetation	Present? Yes	s X N	lo Is ti	his Sampling Point	Within a Wetland
Wetland Hyd	rology Pres	sent? Yes	s X N	lo		
Hydric Soils I		Yes	s X N	lo Y	res X	No
Remarks: I	Photo 1526	3		•		

Project/Site:	I-64 Peninsula			Date:	11/17/201	<u> 11 </u>
Applicant/Owner	: VDOT			County:	James City	1
Investigator:	Scot Aitkenhea	d		State:	Virginia	
Community ID:	PEM		Transect ID:	Α	Plot ID:	WET 111S
	itions exist on the site?		Yes	<u> </u>	No	
-	cantly disturbed (Atypica	I situation)?	Yes		No X	
-	ential Problem Area?		Yes		No X	<u> </u>
If needed, explain	n on reverse					
VEGETATION						
		t Plant Species				
Con	nmon Name	Scientif	fic Name	Stratum	<u>1</u>	Indicator
 Fals 	e Nettle	Boehm	eria cylindrica	Н		FACW+
	ged Sedge	Carex	crinita	Н		OBL
3. Dee	r Tongue	Dichan	thelium clandestinum	Н		FAC+
	anese Stiltgrass	Microst	tegium viminuem	Н		FAC
5.						
6.						
7.						
8.						
9.						
10.						
11.						
12.						
	ant species that are OB	L, FACW or FAC		100%		
(excluding FAC-)						
Remarks:						
HYDROLOGY						
Recorded Data (Describe in Remarks):		Wetland Hydrology	/ Indicators:		
	Streams		Primary Indicators:	ŀ		
	Aerial Photogra	phs	Inunda	ated		
	Other		Satura	ated in Upper 12	inches	
X No F	Recorded Data Available)	Water	Marks		
			Drift L	ines		
			Sedim	nent Deposits		
Field Observation	ns:		X Draina	age Patterns in V	Vetlands	
Depth of Surface	Water:	(in.)	Secondary Indicate	ors (2 or more re	quired):	
Depth to Free Wa	ater in Pit:	(in.)	Oxidiz	ed Root Channe	els in Upper 12	2 inches
Depth to Saturate	ed Soil:	(in.)	X Water	-Stained Leaves	i	
			Local	Soil Survey Data	a	
				Neutral Test		
			Other	(Explain in Rem	arks)	
Remarks:			•			

Commun	ity ID:	PEM	Transect II	D: A	Plot ID:	WET 111S
			•		_	
SOILS						
Map Unit Na	ıme					
(Series and				D	rainage Class:	
	•	firm Mapped Type?	Yes	No	_	
Taxonomy (<u> </u>	_	
(o a.o g. o a.p.).					
		Matrix Color	Mottle Colors	Mottle	Textures Cond	retions, Structures,
Depth (in)	Horizon	(Munsell Moist)	(Munsell Moist)	Abundance/Contrast	etc.	rottorio, Otraotaroo,
Deptii (iii)	110112011	(Manaeli Moiat)	(IVIGITSEII IVIOISI)	Abundance/Contrast	etc.	
0-16	۸	10VP 2/2	EVD 4/6	3%	Loomy cond	
0-16	A	10YR 3/2	5YR 4/6	3%	Loamy sand	
Hydric Soil I	ndicators:	Yes	X N	lo		
(If yes, chec		. 55				
(11 you, once	it thomy	Histosol		Concretions		
		Histic Epidon		High Organic Content in	n Surface Laver i	n Sandy Soils
		Sulfidic Odor				1 Salidy Solis
				Organic Streaking in Sa Listed on Local Hydric S		
		_Aquic Moisture Regime				
	X	_Reducing Conditions		Listed on National Hydr		
	X	_Gleyed or Low-Chroma (Colors	Other (explain in remark	KS)	
Remarks:						
WETLAND						
Hydrophytic	Vegetation	Present? Yes	X N	lo Is this	s Sampling Point	Within a Wetland
Wetland Hyd			N	lo		
Hydric Soils		Yes			s X	No
Remarks:	PEM: large	r wetland outside of ROW		<u> </u>		
	Photo 1498					
I						

Project/Site:	I-64 Peninsula				Date:	11/17/201	<u>1</u>
Applicant/Owner:	VDOT				County:	James City	
Investigator:	Scot Aitkenhead				State:	Virginia	
Community ID:	PFO		Transect ID:	А	_	Plot ID:	WET 112S
Do Normal Condition			Yes	Χ		No	
•	y disturbed (Atypical situa	tion)?	Yes			No X	_
Is the area a potentia			Yes		^	No X	_
If needed, explain on	reverse						
VEGETATION							
	Dominant Plan	t Species					
Commo		Scientif	ic Name		Stratum	<u> </u>	Indicator
1. Red Ma	ple	Acer ru	brum		Т		FAC
Sycamo			ıs occidentalis		Т		FACW-
3. False N	ettle	Boehm	eria cylindrica		Н		FACW+
4. Sweet G	Gum	Liquida	mbar styraciflua		Т		FAC
5.							
6.							
7.							
8.							
9.							
10.							
11.							
12.							
	species that are OBL, FAG	CW or FAC			100%		_
(excluding FAC-)							
Remarks:							
HYDROLOGY							
Recorded Data (Des	cribe in Remarks):		Wetland Hyd		dicators:		
	Streams		Primary Indi	cators:			
	Aerial Photographs		X	Inundated	i		
	Other		X		in Upper 12	inches	
X No Reco	orded Data Available			Water Ma			
				Drift Lines			
				Sediment	Deposits		
Field Observations:			X		Patterns in V		
Depth of Surface Wa		(in.)	Secondary I		(2 or more re		
Depth to Free Water		(in.)				els in Upper 12	inches
Depth to Saturated S	Soil: 0	(in.)	X		ained Leaves		
					Survey Data	ı	
			X	FAC-Neut			
				Other (Ex	plain in Rem	arks)	
Dama adva							
Remarks:							

Commun	ity ID:	PFO	Transect ID	D: A	Plot ID:	WET 112S
			•			
SOILS						
Map Unit Na	ame					
(Series and				D	rainage Class:	
		firm Mapped Type?	Yes	No	_	
Taxonomy (_	
raxonomy (cabgicap).					
		Matrix Color	Mottle Colors	Mottle	Taytures Conc	retions, Structures,
Depth (in)	Horizon	(Munsell Moist)	(Munsell Moist)	Abundance/Contrast	etc.	Totions, Otractares,
Deptil (iii)	TIONZON	(Mulisell Moist)	(Mulisell Moist)	Abundance/Contrast	eic.	
0.16	٨	7 EVD 4/4	EVD 4/6	E0/	Condy day loo	~
0-16	A	7.5YR 4/1	5YR 4/6	5%	Sandy clay loar	n
Hydric Soil I	ndicators:	Yes	X N	0		
-		165				
(If yes, chec	k triem)	LEstand		0		
		_Histosol		Concretions		
		_Histic Epidon		High Organic Content in		1 Sandy Soils
		_Sulfidic Odor		Organic Streaking in Sa	•	
		_Aquic Moisture Regime		Listed on Local Hydric S		
	X	Reducing Conditions		Listed on National Hydri	ic Soils List	
	X	Gleyed or Low-Chroma (Colors	Other (explain in remark	<s)< td=""><td></td></s)<>	
		_		_		
Remarks:						
WETLAND	DETERMIN	ATION				
Hydrophytic			X N	o la thia	Sampling Doint	Within a Wetland
					sampling Point	vviuiiii a vvellanu
Wetland Hyd					.,	
Hydric Soils	Present?	Yes	X N	o Yes	sX	No
_						
Remarks:	PFO					
	Photo 1506	5				

VDOT Scot Aitkenhead PFO				County: State:	James City Virginia	<u></u>
				State:	Virginia	
PFO						
		Transect ID	: <u>A</u>		Plot ID:	WET 113S
exist on the site?		Yes	sX			
, ,,	ion)?					<u> </u>
Problem Area?		Yes	S		loX	
everse						
	-			_		
			_	_		Indicator
						FACW-
1	Betula nig	gra		Т		FACW
ecies that are OBL, FAC	W or FAC			100%		_
be in Remarks):		Wetland Hy	drology Inc	dicators:		
Streams						
Aerial Photographs		X	Inundated	d		
Other		Х	Saturated	d in Upper 12	inches	
ded Data Available						
			Drift Line	S		
			Sediment	t Deposits		
				-	Vetlands	
r: 1	(in.)	Secondary	_			
		1				inches
	` ` /			I Survey Data		
			FAC-Neu	•		
			_	plain in Rema	arks)	
	Dominant Plant Name becies that are OBL, FAC ibe in Remarks): Streams Aerial Photographs Other ded Data Available	Dominant Plant Species Name Scientific Platanus h Decies that are OBL, FACW or FAC ibe in Remarks): Streams Aerial Photographs Other ded Data Available er: Pit: 1 (in.)	Dominant Plant Species Name Scientific Name Platanus occidentalis Betula nigra Decies that are OBL, FACW or FAC Streams Aerial Photographs Other Aerial Photographs Other Aerial Available Decies 1 (in.) Secondary Aprit:	disturbed (Atypical situation)? Yes Problem Area? Yes Dominant Plant Species Name Scientific Name Platanus occidentalis Betula nigra Decies that are OBL, FACW or FAC Decies that are OBL, FACW or FAC	disturbed (Atypical situation)? Yes Neverse	disturbed (Atypical situation)? Problem Area? Problem Area? Dominant Plant Species Name Scientific Name Platanus occidentalis Betula nigra Decies that are OBL, FACW or FAC Wetland Hydrology Indicators: Streams Aerial Photographs Other Dother Dot

Commur	nity ID:	PFO	Transe	ect ID: A	Plot ID:	WET 113S
SOILS						
Map Unit Na	ame					
(Series and	Phase):				Drainage Class:	
Field Obser	vations Con	firm Mapped Type?	Yes	No	_	
Taxonomy (Subgroup):					
		Matrix Color	Mottle Colors	Mottle	Textures, Con	cretions, Structures,
Depth (in)	Horizon	(Munsell Moist)	(Munsell Moist	t) Abundance/Co	ontrast etc.	
1 (/		,	,	,		
No soi	ls taken					
Lludria Caill	la dia atawa.		/ V	Na		
Hydric Soil		Y	'es X	No		
(If yes, chec	ck tnem)	18.4		0 "		
		_Histosol		Concretions		
		_Histic Epidon			ontent in Surface Layer i	n Sandy Soils
		_Sulfidic Odor			ng in Sandy Soils	
		_Aquic Moisture Regim	ne	Listed on Local I		
		_Reducing Conditions			al Hydric Soils List	
		_Gleyed or Low-Chrom	na Colors	Other (explain in	ı remarks)	
Remarks:	No soils - in	nundated				
WETLAND	DETERMIN	ATION				
Hydrophytic	Vegetation	Present? Y	'es X	No	Is this Sampling Point	Within a Wetland
Wetland Hy	drology Pres	sent? Y	'es X	No	-	
Hydric Soils			'es X	No	Yes X	No
_						
Remarks:	PFO					
	Photo 1507	7				

Project/Site:	I-64 Peninsula			Date:	11/17/201	1
Applicant/Owner:	VDOT			County:	York	
nvestigator:	Scot Aitkenhead			State:	Virginia	
Community ID:	PFO		Transect ID:	Α	Plot ID:	WET 115S
o Normal Condition					lo	_
-	y disturbed (Atypical si	ituation)?	Yes		lo X	_
s the area a potentia			Yes		lo X	_
f needed, explain or	reverse					
/EGETATION						
	Dominant P	Plant Species				
Commo		Scientific		Stratum		Indicator
I. Green A			s pennsylvanica	Т		FACW
2. Sycamo		Platanu	ıs occidentalis	Т		FACW-
3. Lizards	Tail		us cernuus	Н		OBL
l. Sensitiv	e Fern	Onocle	a sensibilis	Н		FACW
5. Marsh N	-	Caltha p		Н		OBL
Ironwoo	~		ıs caroliniana	Т		FACW+
		Doohm	'	Н		FACW+
. False N	ettle	boenin	eria cylindrica			
7. False N 3.	ettle	Боепт	eria cylindrica			
7. False N 3.).	ettle	БОЕПП	eria cylindrica			
7. False N 3.).	ettle	БОЕПП	eria cylindrica			
7. False N 3.). 10. 11.	ettle	БОЕЛПП	eria cylindrica			
7. False N 3. 9. 10. 11.			eria cylindrica			
7. False N 3. 9. 10. 11. 12. Percent of dominant	ettle species that are OBL,		eria cylindrica	100%		_
7. False N 3. 9. 10. 11. 12. Percent of dominant excluding FAC-)			eria cylindrica	100%		_
7. False N 3. 9. 10. 11. 12. Percent of dominant excluding FAC-)			eria cylindrica	100%		_
7. False N 3. 9. 10. 11. 12. Percent of dominant excluding FAC-)			eria cylindrica	100%		_
7. False N 3. 9. 10. 11. 12. Percent of dominant excluding FAC-) Remarks:			епа сушпапса	100%		_
7. False N 3. 9. 10. 11. 12. Percent of dominant (excluding FAC-) Remarks:	species that are OBL,		Wetland Hydrolog			
7. False N 3. 9. 10. 11. 12. Percent of dominant excluding FAC-) Remarks:	species that are OBL,			y Indicators:		_
7. False N 3. 9. 10. 11. 12. Percent of dominant excluding FAC-) Remarks:	species that are OBL,	FACW or FAC	Wetland Hydrolog	y Indicators: ::		
7. False N 8. 9. 0. 1. 2. Percent of dominant excluding FAC-) Remarks:	species that are OBL, cribe in Remarks):Streams	FACW or FAC	Wetland Hydrolog Primary Indicators	y Indicators: ::	inches	_
7. False N 3. 9. 10. 11. 12. Percent of dominant excluding FAC-) Remarks: HYDROLOGY Recorded Data (Des	species that are OBL, cribe in Remarks): Streams Aerial Photograph	FACW or FAC	Wetland Hydrolog Primary Indicators Inunc	y Indicators: :: lated	inches	_
7. False N 3. 9. 10. 11. 12. Percent of dominant excluding FAC-) Remarks: HYDROLOGY Recorded Data (Des	species that are OBL, cribe in Remarks): Streams Aerial Photograph Other	FACW or FAC	Wetland Hydrolog Primary Indicators Inunc	y Indicators: :: lated :ated in Upper 12 r Marks	inches	
7. False N 3. 9. 10. 11. 12. Percent of dominant excluding FAC-) Remarks: HYDROLOGY Recorded Data (Des	species that are OBL, cribe in Remarks): Streams Aerial Photograph Other	FACW or FAC	Wetland Hydrolog Primary Indicators Inunc Satur Wate	y Indicators: :: lated :ated in Upper 12 r Marks	inches	
7. False N 3. 9. 10. 11. 12. Percent of dominant excluding FAC-) Remarks: HYDROLOGY Recorded Data (Des	species that are OBL, cribe in Remarks): Streams Aerial Photograph Other	FACW or FAC	Wetland Hydrolog Primary Indicators Inunc Satur Wate Drift Sedir	y Indicators: :: lated ated in Upper 12 r Marks Lines		
7. False N 3. 9. 10. 11. 12. Percent of dominant excluding FAC-) Remarks: HYDROLOGY Recorded Data (Des	species that are OBL, cribe in Remarks): Streams Aerial Photograph Other orded Data Available	FACW or FAC	Wetland Hydrolog Primary Indicators Inunc Satur Wate Drift Sedir	y Indicators: :: lated :ated in Upper 12 r Marks Lines nent Deposits age Patterns in W	/etlands	
7. False N 3. 9. 10. 11. 12. Percent of dominant excluding FAC-) Remarks: HYDROLOGY Recorded Data (Des X No Recorded Observations: Depth of Surface Wa	species that are OBL, cribe in Remarks): Streams Aerial Photograph Other orded Data Available	FACW or FAC	Wetland Hydrolog Primary Indicators Inunc Satur Wate Drift Sedir X Drain Secondary Indicators	y Indicators: :: lated :ated in Upper 12 r Marks Lines nent Deposits age Patterns in W	√etlands quired):	inches
7. False N 3. 9. 10. 11. 12. Percent of dominant (excluding FAC-) Remarks: HYDROLOGY Recorded Data (Des X No Recorded Observations: Depth of Surface Water	species that are OBL, cribe in Remarks): Streams Aerial Photograph Other orded Data Available	FACW or FAC	Wetland Hydrolog Primary Indicators Inunc Satur Wate Drift Sedir X Drain Secondary Indicat	y Indicators: :: lated ated in Upper 12 r Marks Lines nent Deposits age Patterns in Wors (2 or more rec	Vetlands quired): Is in Upper 12	inches
7. False N 3. 9. 10. 11. 12. Percent of dominant (excluding FAC-) Remarks: HYDROLOGY Recorded Data (Des X No Recorded Observations: Depth of Surface Water	species that are OBL, cribe in Remarks): Streams Aerial Photograph Other orded Data Available	FACW or FAC	Wetland Hydrolog Primary Indicators Inunc Satur Wate Drift Sedir X Drain Secondary Indicat Oxidi X Wate	y Indicators: :: !ated ated in Upper 12 r Marks Lines ment Deposits age Patterns in Wards res (2 or more recovered Root Channe	Vetlands quired): Is in Upper 12	inches
7. False N 8. 9. 10. 11. 12. Percent of dominant (excluding FAC-) Remarks: HYDROLOGY Recorded Data (Des	species that are OBL, cribe in Remarks): Streams Aerial Photograph Other orded Data Available	FACW or FAC	Wetland Hydrolog Primary Indicators Inunc Satur Wate Drift Sedir X Drain Secondary Indicat Oxidi X Wate	y Indicators: :: !ated :ated in Upper 12 r Marks Lines nent Deposits age Patterns in Wors (2 or more received Root Channer-Stained Leaves	Vetlands quired): Is in Upper 12	inches
7. False N 3. 9. 10. 11. 12. Percent of dominant (excluding FAC-) Remarks: HYDROLOGY Recorded Data (Des X No Recorded Observations: Depth of Surface Water	species that are OBL, cribe in Remarks): Streams Aerial Photograph Other orded Data Available	FACW or FAC	Wetland Hydrolog Primary Indicators Inunc Satur Wate Drift Sedir X Drain Secondary Indicat Oxidi X Wate Loca X FAC-	y Indicators: :: lated :ated in Upper 12 r Marks Lines nent Deposits age Patterns in Wors (2 or more red zed Root Channe r-Stained Leaves Soil Survey Data	√etlands quired): ls in Upper 12	inches

Community ID:	PFO	Transect	ID: A	Plot ID:	WET 115S	
SOILS						
Map Unit Na				_		
(Series and				D	rainage Class: _	
		firm Mapped Type?	Yes	No	_	
Taxonomy (Subgroup):					
			11 (1) 0 1	B.A. (c)	T	
D (1 (1)		Matrix Color	Mottle Colors	Mottle		cretions, Structures,
Depth (in)	Horizon	(Munsell Moist)	(Munsell Moist)	Abundance/Contrast	etc.	
0-16	۸	7.5VD 4/4	EVD 4/6	2%	Loomy aand	
0-16	A	7.5YR 4/1	5YR 4/6	Z 70	Loamy sand	
Hydric Soil I	ndicators:	Yes	X	No		
(If yes, chec		163				
(ii yes, ence	it triciri)	Histosol		Concretions		
		Histic Epidon		High Organic Content in	Surface Laver i	n Sandy Soils
		Sulfidic Odor		Organic Streaking in Sa		Touridy Collo
		Aquic Moisture Regime		Listed on Local Hydric S	•	
	Х	Reducing Conditions		Listed on National Hydr		
	X	Gleyed or Low-Chroma C	Colors	Other (explain in remark		
		,			,	
Remarks:						
WETLAND						
Hydrophytic	-				Sampling Point	Within a Wetland
Wetland Hyd				No		
Hydric Soils	Present?	Yes	X	No Yes	sX	No
Daws - ::l	DEC					
Remarks:	PFO					

Project/Site:	I-64 Peninsula				Date:	11/17/201	<u> </u>
Applicant/Owner:	VDOT				County:	York	
nvestigator:	Scot Aitkenhead				State:	Virginia	
Community ID:	PEM		Transect ID:	Α	_	Plot ID:	WET 116S
o Normal Condition			Yes_	Χ	N	lo	_
	disturbed (Atypical situa	tion)?	Yes_			lo X	
s the area a potentia			Yes_		N	lo X	
f needed, explain on	reverse						
/EGETATION							
	Dominant Plan	-					
Commor		Scientific			Stratum		Indicator
1. Commor	Reed	Phragmi	tes australis		Н		FACW
2.							
3.							
4.							
5.							
6.							
7							
3.							
3. 9.							
3.). 0.							
3. 9. 10.							
3. 9. 10. 11.							
3. 9. 10. 11.	species that are OBL, FA0	CW or FAC	_		100%		_
3. 9. 10. 11. 12. Percent of dominants	species that are OBL, FA0	CW or FAC	-		100%		_
3. 9. 10. 11. 12. Percent of dominant s (excluding FAC-)	species that are OBL, FA0	CW or FAC	-		100%		_
3. 9. 10. 11. 12. Percent of dominant sexcluding FAC-)	species that are OBL, FAG	CW or FAC	_		100%		_
3. 10. 11. 12. Percent of dominant sexcluding FAC-) Remarks:	species that are OBL, FA0	CW or FAC	_		100%		_
(excluding FAC-) Remarks: HYDROLOGY		CW or FAC	- Wetland Hyd	rology Ind			_
3. 9. 10. 11. 12. Percent of dominant seculating FAC-) Remarks:	ribe in Remarks):	CW or FAC	Wetland Hyd Primary Indic				_
3. 9. 10. 11. 12. Percent of dominant sexcluding FAC-) Remarks:	ribe in Remarks):Streams	CW or FAC	Primary Indic				
3. 9. 10. 11. 12. Percent of dominant sexcluding FAC-) Remarks:	ribe in Remarks): Streams Aerial Photographs	CW or FAC	Primary Indic	ators: nundated	icators:	inches	
3. 9. 10. 11. 12. Percent of dominant sexuluding FAC-) Remarks: HYDROLOGY Recorded Data (Desc	cribe in Remarks): Streams Aerial Photographs Other	CW or FAC	Primary Indic	ators: nundated Saturated	icators:	inches	
3. 9. 10. 11. 12. Percent of dominant sexcluding FAC-) Remarks: HYDROLOGY Recorded Data (Desc	ribe in Remarks): Streams Aerial Photographs	CW or FAC	Primary Indic	ators: nundated	icators: in Upper 12 rks	inches	
3. 9. 10. 11. 12. Percent of dominant sexuluding FAC-) Remarks: HYDROLOGY Recorded Data (Desc	cribe in Remarks): Streams Aerial Photographs Other	CW or FAC	Primary Indic	ators: nundated Saturated Water Mar Drift Lines	icators: in Upper 12 rks	inches	
3. 9. 10. 11. 12. Percent of dominant sexcluding FAC-) Remarks: HYDROLOGY Recorded Data (Description of the content of the co	cribe in Remarks): Streams Aerial Photographs Other	CW or FAC	Primary Indic	ators: nundated Saturated Water Mar Drift Lines Sediment	icators: in Upper 12 rks Deposits		
3. 3. 3. 3. 3. 3. 3. 3. 3. 3. 3. 3. 3. 3	eribe in Remarks): Streams Aerial Photographs Other rded Data Available		Primary Indic	ators: nundated Saturated Water Mar Drift Lines Sediment Drainage I	icators: in Upper 12 rks Deposits Patterns in W	/etlands	
3. 3. 3. 3. 3. 3. 3. 3. 3. 3. 3. 3. 3. 3	eribe in Remarks): Streams Aerial Photographs Other rded Data Available	(in.)	Primary Indic	ators: nundated Saturated Water Mai Drift Lines Sediment Drainage I dicators (:	icators: in Upper 12 rks Deposits Patterns in W 2 or more rec	/etlands quired):	inches
3. 9. 10. 11. 12. Percent of dominant sexcluding FAC-) Remarks: HYDROLOGY Recorded Data (Desconded Data (Desc	eribe in Remarks): Streams Aerial Photographs Other rded Data Available er: n Pit:	(in.)	Primary Indic	ators: nundated Saturated Water Mai Drift Lines Sediment Drainage I dicators (; Dxidized F	icators: in Upper 12 rks Deposits Patterns in W 2 or more rec	/etlands	inches
3. 9. 10. 11. 12. Percent of dominant sexuluding FAC-) Remarks: HYDROLOGY Recorded Data (Desconded Data (Desc	eribe in Remarks): Streams Aerial Photographs Other rded Data Available er: n Pit:	(in.)	Primary Indic	ators: nundated Saturated Water Mai Drift Lines Sediment Drainage I dicators (3 Dxidized F Water-Sta	icators: in Upper 12 rks Deposits Patterns in W 2 or more rec Root Channe ined Leaves	/etlands quired): Is in Upper 12	inches
8. 9. 10. 11. 12. Percent of dominant s (excluding FAC-) Remarks: HYDROLOGY Recorded Data (Desc	eribe in Remarks): Streams Aerial Photographs Other rded Data Available er: n Pit:	(in.)	Primary Indic	ators: nundated Saturated Water Mar Drift Lines Sediment Drainage I dicators (: Dxidized F Water-Sta Local Soil	icators: in Upper 12 rks Deposits Patterns in W 2 or more rec Root Channe ined Leaves Survey Data	/etlands quired): Is in Upper 12	inches
8. 9. 10. 11. 12. Percent of dominant service (excluding FAC-) Remarks: HYDROLOGY Recorded Data (Description of Surface Ward Depth of Surface Ward Depth to Free Water)	eribe in Remarks): Streams Aerial Photographs Other rded Data Available er: n Pit:	(in.)	Primary Indic	ators: nundated Saturated Water Mai Drift Lines Sediment Drainage I dicators (2 Dxidized F Water-Sta Local Soil FAC-Neut	icators: in Upper 12 rks Deposits Patterns in W 2 or more rec Root Channe ined Leaves Survey Data	/etlands quired): ls in Upper 12	inches

Commun	ity ID:	PEM	Transect I	D:A	Plot ID:	WET 116S
			_		_	
SOILS						
Map Unit Na	me					
(Series and	Phase):				Prainage Class:	
Field Observ	ations Con	firm Mapped Type?	Yes	No		
Taxonomy (Subgroup):			<u> </u>	_	
		Matrix Color	Mottle Colors	Mottle	Textures, Conc	retions, Structures,
Depth (in)	Horizon	(Munsell Moist)	(Munsell Moist)	Abundance/Contrast	etc.	
		·	·			
0-16	Α	7.5YR 5/1			Sandy loam	
I						
Hydric Soil I	adicators:	Yes	s X 1	No		
(If yes, chec		163	<u> </u>	NO		
(II yes, chec	K (IIIeIII)	Histosol		Concretions		
					n Curtaga Lavarir	Candy Caila
,		_ Histic Epidon		High Organic Content in		Sandy Solls
,		_Sulfidic Odor		Organic Streaking in Sa		
,		_Aquic Moisture Regime		Listed on Local Hydric		
		_Reducing Conditions		Listed on National Hydi		
	Х	_Gleyed or Low-Chroma	Colors	Other (explain in remar	ks)	
Remarks:						
WETLAND						
Hydrophytic				ls thi	s Sampling Point \	Within a Wetland
Wetland Hyd		sent? Yes		lo		
Hydric Soils	Present?	Yes	sX	√oYe	es X	No
Remarks:	Photo 1528	3				
·			·		·	

Project/Site:	I-64 Peninsula				Date:	12/7/201	<u>1</u>
Applicant/Owner:	VDOT				County:	Newport No	ews
Investigator:	Scot Aitkenhead				State:	Virginia	
Community ID:	PFO		Transect ID:	Α		Plot ID:	WET 123S
Do Normal Condition	s exist on the site?		Yes	Χ		No	
Is the site significantl	y disturbed (Atypical situat	ion)?	Yes			۸o <u>X</u>	_
Is the area a potentia	l Problem Area?		Yes			No X	_
If needed, explain on	reverse						
VEGETATION							
	Dominant Plant	Species					
Commo	n Name	Scientifi	c Name		Stratum	<u></u>	Indicator
1. Sweet G	ium	Liquida	mbar styraciflua		Т		FAC
2. Red Ma _l	ole	Acer ruk	orum		Т		FAC
3.							
4.							
5.							
6.							
7.							
8.							
9.							
10.							
11.							
12.							
	species that are OBL, FAC	W or FAC	_		100%		<u> </u>
(excluding FAC-)							
Remarks:							
HYDROLOGY							
Recorded Data (Des	·		Wetland Hyd		dicators:		
	Streams		Primary Indic				
	Aerial Photographs			Inundated			
	Other				l in Upper 12	inches	
X No Reco	orded Data Available			Water Ma			
				Drift Lines			
					Deposits		
Field Observations:				-	Patterns in V		
Depth of Surface Wa		(in.)	Secondary Ir				
Depth to Free Water		(in.)				els in Upper 12	inches
Depth to Saturated S	OII:	(in.)			ained Leaves		
					Survey Data	ı	
				FAC-Neut			
				Other (Ex	plain in Rem	arks)	
Remarks: Ponded			L				

Commun	ity ID:	PFO	Transect ID	D:A	Plot ID:	WET 123S
			•			
SOILS						
Map Unit Na	ıme					
(Series and	Phase):			D	rainage Class:	
Field Observ	ations Con	firm Mapped Type?	Yes	No	_	
Taxonomy (_	
	•					
		Matrix Color	Mottle Colors	Mottle	Textures, Cond	retions, Structures,
Depth (in)	Horizon	(Munsell Moist)	(Munsell Moist)	Abundance/Contrast	etc.	
· · · · /		,	,			
0-16	Α	7.5YR 4/1	7.5YR 4/6	3%	Sandy clay	
Libratuia Cail II		Vaa	V	la.		
Hydric Soil I		Yes	X N	lo		
(If yes, chec	k tnem)	Ullatarat		0		
		_Histosol		_ Concretions		0 1 0 "
		_Histic Epidon		High Organic Content in		n Sandy Soils
		_Sulfidic Odor		Organic Streaking in Sa	•	
		_Aquic Moisture Regime		Listed on Local Hydric S		
	X	Reducing Conditions		Listed on National Hydr		
	X	_Gleyed or Low-Chroma C	Colors	Other (explain in remark	ks)	
Remarks:						
WETLAND	DETERMIN	ATION				
Hydrophytic	Vegetation	Present? Yes	X N	lo Is this	s Sampling Point	Within a Wetland
Wetland Hyd	drology Pres	sent? Yes	X	lo		
Hydric Soils		Yes	X	lo Ye	s X	No
Remarks:	PFO			•		
	Photo 1544	1				

PFO site? Atypical situation	on)?	Transect ID Ye Ye Ye Ye	s X		Newport New Virginia Plot ID:	WET 124S
PFO site? Atypical situation	on)?	Ye Ye	s X		Plot ID:	WET 124S
site? Atypical situation	 on)?	Ye Ye	s X			WET 124S
Atypical situation	on)?	Ye	s		lo	
Atypical situation	on)?	Ye	s		lo	
ea?	on)?					_
		Ye			lo X	_
aminant Disc.			s		lo X	_
uminant Diagra						
minant Dlact						
ominant Plant	Species					
	Scientific		_	Stratum		Indicator
	Carex cr			Н		OBL
	Acer rub	rum		T/S		FAC
		pennsylvanica		T/S		FACW
	Scirpus (cyperinus		Н		FACW+
are OBL, FAC	W or FAC			100%		_
arks):		Wetland H		ndicators:		
		Primary Ind	dicators:			
notographs		X	_Inundat	ed		
		Х	_Saturate	ed in Upper 12	inches	
/ailable			_Water N			
			_			
			_Sedime	nt Deposits		
			_			
4	(in.)	Secondary	Indicator	s (2 or more red	quired):	
6	(in.)		_Oxidize	d Root Channe	ls in Upper 12	inches
0	(in.)	X	_			
				-		
		Х	_			
			Other (I	Explain in Rema	arks)	
	6	6 (in.)	6 (in.) X	Sedime	4 (in.) 6 (in.) Oxidized Root Channe 0 (in.) X Water-Stained Leaves Local Soil Survey Data X FAC-Neutral Test	Sediment Deposits Drainage Patterns in Wetlands 4 (in.) Secondary Indicators (2 or more required): Oxidized Root Channels in Upper 12 X Water-Stained Leaves Local Soil Survey Data

Commun	ity ID:	PFO	Transect ID	D: A	Plot ID:	WET 124S
					_	
SOILS						
Map Unit Na	ıme					
(Series and				D	rainage Class:	
		firm Mapped Type?	Yes	No		
Taxonomy (_	
	o a.o g. o a.p/.					
		Matrix Color	Mottle Colors	Mottle	Textures Conc	retions, Structures,
Depth (in)	Horizon	(Munsell Moist)	(Munsell Moist)	Abundance/Contrast	etc.	otiono, otradiareo,
Deptii (iii)	110112011	(Mulisell Moist)	(Marisell Moist)	Abundance/Contrast	610.	
0-4	Α	10YR 5/1			Sandy clay loan	n
0-4	A	10113/1			Sariuy Clay Ioan	11
4.46	_	40VD E/4	7/EVD 4/6	E0/	Condy alov loor	~
4-16	E	10YR 5/1	7/5YR 4/6	5%	Sandy clay loan	Л
Hydric Soil I	ndicators:	Yes	X N	0		
(If yes, chec	k them)	•				
	•	Histosol		Concretions		
		Histic Epidon		High Organic Content in	Surface Laver in	Sandy Soils
,		Sulfidic Odor		Organic Streaking in Sa		,
		Aquic Moisture Regime		Listed on Local Hydric S		
	Х	Reducing Conditions		Listed on National Hydri		
	X	Gleyed or Low-Chroma C	`olore	Other (explain in remark		
	^	_ Gleyed of Low-Cilionia C			(3)	
Demontra						
Remarks:						
WETLAND						
Hydrophytic	•		X N	o Is this	Sampling Point \	Within a Wetland
Wetland Hyd		sent? Yes	XN			
Hydric Soils	Present?	Yes	X N	oYes	sX	No
Remarks:	PFO					
	Photo 1546	3				

DATA FORM ROUTINE WETLAND DETERMINATION (1987 COE Wetlands Delineation Manual)

Project/Site:	I-64 Peninsula				Date:	12/7/201	<u> </u>
Applicant/Owner:	VDOT				County:	Newport Ne	ews
Investigator:	Scot Aitkenhead				State:	Virginia	
Community ID:	PFO		Transect ID:	A		Plot ID:	WET 125S
Do Normal Condition			Yes_	X	N		_
-	disturbed (Atypical situa	tion)?	Yes_		N		
ls the area a potentia			Yes		N	o <u>X</u>	_
If needed, explain on	reverse						
/EGETATION							
	Dominant Plan						
Commor		Scientific		-	Stratum	<u>—</u>	Indicator
1. Fringed	_	Carex cr			Н		OBL
2. Wool Gr			cyperinus		Н		FACW+
Green A			pennsylvanica		T/S		FACW
4. Red Mar	ole	Acer rub	rum		T/S		FAC
5.							
ô.							
7.							
7. 3.							
7. 3. 9.							
7. 3. 9. 10.							
7. 3. 9. 10. 11.							
7. 8. 9. 10. 11.							
7. 8. 9. 10. 11. 12. Percent of dominants	species that are OBL, FA	CW or FAC	_		100%		_
7. 3. 9. 10. 11. 12. Percent of dominant : (excluding FAC-)	species that are OBL, FA	CW or FAC			100%		_
7. 3. 9. 10. 11. 12. Percent of dominant : (excluding FAC-)	species that are OBL, FA	CW or FAC	_		100%		_
7. 3. 9. 10. 11. 12. Percent of dominant (excluding FAC-)	species that are OBL, FA	CW or FAC	_		100%		
7. 3. 9. 10. 11. 12. Percent of dominant (excluding FAC-) Remarks:	species that are OBL, FA	CW or FAC	_		100%		
7. 3. 9. 10. 11. 12. Percent of dominant (excluding FAC-) Remarks:		CW or FAC	Wetland Hydro	ology Indica			_
7. 3. 9. 10. 11. 12. Percent of dominant (excluding FAC-) Remarks:		CW or FAC	Wetland Hydro	٠.			
7. 3. 9. 10. 11. 12. Percent of dominant sexcluding FAC-) Remarks:	cribe in Remarks):	CW or FAC	Primary Indica	٠.			_
7. 3. 9. 10. 11. 12. Percent of dominant sexcluding FAC-) Remarks:	cribe in Remarks): Streams	CW or FAC	Primary Indica X In	tors: undated		nches	
7. 3. 9. 10. 11. 12. Percent of dominant (excluding FAC-) Remarks: HYDROLOGY Recorded Data (Desc	cribe in Remarks): Streams Aerial Photographs	CW or FAC	Primary Indica X In Sa	tors: undated	ators: Upper 12 i	inches	
7. 3. 9. 10. 11. 12. Percent of dominant (excluding FAC-) Remarks: HYDROLOGY Recorded Data (Desc	cribe in Remarks): Streams Aerial Photographs Other	CW or FAC	Primary Indica X In Si	tors: undated aturated in	ators: Upper 12 i	inches	
7. 3. 9. 10. 11. 12. Percent of dominant (excluding FAC-) Remarks: HYDROLOGY Recorded Data (Desc	cribe in Remarks): Streams Aerial Photographs Other	CW or FAC	Primary Indica X In Si W	tors: undated aturated in ater Marks	ators: Upper 12 i	nches	
7. 3. 9. 10. 11. 12. Percent of dominant sexcluding FAC-) Remarks: HYDROLOGY Recorded Data (Description of the content of the	cribe in Remarks): Streams Aerial Photographs Other	CW or FAC	Primary Indica X In Si W D	tors: undated aturated in ater Marks rift Lines ediment De	ators: Upper 12 i		
7. 3. 9. 10. 11. 12. Percent of dominant sexcluding FAC-) Remarks: HYDROLOGY Recorded Data (Descriptions)	cribe in Remarks): Streams Aerial Photographs Other Irded Data Available	CW or FAC	Primary Indica X In Si W D	tors: undated aturated in ater Marks rift Lines ediment De rainage Pa	upper 12 is eposits eterns in W	etlands	
7. 3. 9. 10. 11. 12. Percent of dominant service (excluding FAC-) Remarks: HYDROLOGY Recorded Data (Description of Surface War	cribe in Remarks): Streams Aerial Photographs Other rded Data Available		Primary Indica X In Si W D Secondary Indica	tors: undated aturated in ater Marks rift Lines ediment De rainage Pa icators (2 c	upper 12 is eposits etterns in Wor more rec	etlands	inches
7. 3. 9. 10. 11. 12. Percent of dominant : (excluding FAC-) Remarks: HYDROLOGY Recorded Data (Descriptions) X No Recorded Descriptions: Depth of Surface Water	cribe in Remarks): Streams Aerial Photographs Other rded Data Available	(in.)	Primary Indica X In Si W D Sc D Secondary Ind	tors: undated aturated in ater Marks rift Lines ediment De rainage Pa icators (2 c	upper 12 is eposits etterns in Wor more reco	/etlands quired):	inches
7. 3. 9. 10. 11. 12. Percent of dominant : (excluding FAC-) Remarks: HYDROLOGY Recorded Data (Descriptions) X No Recorded Descriptions: Depth of Surface Water	cribe in Remarks): Streams Aerial Photographs Other rded Data Available	(in.)	Primary Indica X In Si W D Si Secondary Indica	tors: undated aturated in ater Marks rift Lines ediment De rainage Pa icators (2 c	upper 12 is eposits etterns in Wor more recot Channeled Leaves	/etlands quired):	inches
7. 8. 9. 10. 11. 12. Percent of dominant (excluding FAC-) Remarks: HYDROLOGY Recorded Data (Desc	cribe in Remarks): Streams Aerial Photographs Other rded Data Available	(in.)	Primary Indica X In Si W D Si Secondary Ind X Lo	tors: undated aturated in fater Marks rift Lines ediment De rainage Par icators (2 c xidized Roc fater-Staine	upper 12 is eposits etterns in Wor more recott Channeled Leaves urvey Data	/etlands quired):	inches
7. 8. 9. 10. 11. 12. Percent of dominant : (excluding FAC-) Remarks: HYDROLOGY Recorded Data (Descondance) X No Recorded Descondance X Depth of Surface Water	cribe in Remarks): Streams Aerial Photographs Other rded Data Available	(in.)	Primary Indica X In Si W D Secondary Ind X W LC X F	tors: undated aturated in later Marks rift Lines ediment De rainage Pa icators (2 c xidized Roc later-Staine ocal Soil Su AC-Neutral	upper 12 is eposits etterns in Wor more recott Channeled Leaves urvey Data	/etlands quired): s in Upper 12	inches

Communit	y ID:	PFO	_ Transect II	D: <u>A</u>	Plot ID:	WET 125S
			_		_	
SOILS						
Map Unit Nan	ne					
(Series and P	hase):				Drainage Class:	
Field Observa	ations Conf	irm Mapped Type?	Yes	No	_	
Taxonomy (S	ubgroup):					
		Matrix Color	Mottle Colors	Mottle	Textures, Conc	cretions, Structures,
Depth (in)	Horizon	(Munsell Moist)	(Munsell Moist)	Abundance/Contras		
,		,	,			
No soils						
lludeia Caille	diantous.	Vas	. N			
Hydric Soil In		Yes		0		
(If yes, check	tnem)	LP ()		O ''		
_		_Histosol		Concretions		
_		_Histic Epidon		High Organic Content		1 Sandy Soils
_		_Sulfidic Odor		Organic Streaking in S		
_		_Aquic Moisture Regime		_Listed on Local Hydric		
_		Reducing Conditions		Listed on National Hyd		
_		_Gleyed or Low-Chroma	Colors	Other (explain in rema	arks)	
Remarks: N	No soils - c	ould not access beyond fe	ence			
WETLAND D	ETERMIN	ATION				
Hydrophytic \	/egetation	Present? Yes	X N	o Is th	nis Sampling Point	Within a Wetland
Wetland Hydr	ology Pres	sent? Yes	X N	0		
Hydric Soils F		Yes	- X N	О Y	'es X	No
Remarks: F	PFO			•		
	Photo 1547	,				
· · · · · ·						

DATA FORM ROUTINE WETLAND DETERMINATION (1987 COE Wetlands Delineation Manual)

Project/Site:	I-64 Peninsula			Date:	12/8/201	1
Applicant/Owner:	VDOT			County:		
nvestigator:	Scot Aitkenhead		·	State:	Virginia	
Community ID:	PFO		Transect ID:	<u> </u>	Plot ID:	WET 133S
Oo Normal Conditions					lo	_
	disturbed (Atypical situa	ation)?	Yes		lo X	
s the area a potentia			Yes	N	No X	_
f needed, explain on	reverse					
/EGETATION						
	Dominant Plai	nt Species				
Commor		Scientifi		Stratum		Indicator
1. Red Map		Acer ruk		Т		FAC
2. Green A			s pennsylvanica	Т		FACW
Sycamor			s occidentalis	Т		FACW-
4. False Ne	ttle	Boehme	eria cylindrica	Н		FACW+
5.						
_						
7.						
7. 3.						
7. 3.						
7. 3.).						
7. 3.). 10.						
7. 3. 9. 10. 11.						
7. 3. 9. 10. 11.	species that are OBL, FA	ACW or FAC				
7. 3. 9. 10. 11. Percent of dominant s	species that are OBL, FA	ACW or FAC				_
7. 3. 9. 10. 11. 12. Percent of dominant s (excluding FAC-)	species that are OBL, FA	ACW or FAC				_
7. 3. 9. 10. 11. 12. Percent of dominant s excluding FAC-)	species that are OBL, FA	ACW or FAC				_
7. 3. 9. 10. 11. 12. Percent of dominant services (excluding FAC-) Remarks:	species that are OBL, FA	ACW or FAC				
6. 7. 8. 9. 10. 11. 12. Percent of dominant s (excluding FAC-) Remarks: HYDROLOGY Recorded Data (Desc		ACW or FAC	Wetland Hydrology	/ Indicators:		_
7. 3. 9. 10. 11. 12. Percent of dominant sexcluding FAC-) Remarks:		ACW or FAC	Wetland Hydrology Primary Indicators			_
7. 3. 9. 10. 11. 12. Percent of dominant sexcluding FAC-) Remarks:	ribe in Remarks):	ACW or FAC		:		
7. 3. 9. 10. 11. 12. Percent of dominant sexcluding FAC-) Remarks:	eribe in Remarks):Streams	ACW or FAC	Primary Indicators X Inund	:	inches	_
7. 3. 9. 10. 11. 12. Percent of dominant sexcluding FAC-) Remarks: HYDROLOGY Recorded Data (Desc	ribe in Remarks): Streams Aerial Photographs	ACW or FAC	Primary Indicators X Inund X Satur	: ated	inches	_
7. 3. 9. 10. 11. 12. Percent of dominant sexcluding FAC-) Remarks: HYDROLOGY Recorded Data (Desc	eribe in Remarks): Streams Aerial Photographs Other	ACW or FAC	Primary Indicators X Inund X Satur	tated ated in Upper 12 Marks	inches	
7. 3. 9. 10. 11. 12. Percent of dominant sexcluding FAC-) Remarks: HYDROLOGY Recorded Data (Desc	eribe in Remarks): Streams Aerial Photographs Other	ACW or FAC	Primary Indicators X Inund X Satura Water Drift L	tated ated in Upper 12 Marks	inches	
7. 3. 3. 9. 10. 11. 12. Percent of dominant sexcluding FAC-) Remarks: HYDROLOGY Recorded Data (Description of the content of	eribe in Remarks): Streams Aerial Photographs Other	ACW or FAC	Primary Indicators X Inund X Satura Watel Drift L Sedin	eted ated in Upper 12 Marks ines nent Deposits		
7. 3. 3. 9. 10. 11. 12. Percent of dominant sexcluding FAC-) Remarks: HYDROLOGY Recorded Data (Descriptions)	eribe in Remarks):StreamsAerial PhotographsOther rded Data Available		Primary Indicators X Inund X Satura Water Drift L Sedin Draina	eted ated in Upper 12 Marks ines nent Deposits age Patterns in W	Vetlands	
A. S.	eribe in Remarks): Streams Aerial Photographs Other rded Data Available	(in.)	Primary Indicators X Inund X Satur: Water Drift L Sedin Drain: Secondary Indicate	ated ated in Upper 12 Marks ines nent Deposits age Patterns in Wors (2 or more rec	Vetlands quired):	inches
A. S.	eribe in Remarks): Streams Aerial Photographs Other rded Data Available er: 1 n Pit: 6	(in.)	Primary Indicators X Inund X Satur: Watel Drift L Sedin Drain: Secondary Indicate Oxidiz	ated ated in Upper 12 Marks ines nent Deposits age Patterns in Wors (2 or more receded	Vetlands quired): els in Upper 12	inches
7. 3. 9. 10. 11. 12. Percent of dominant sexcluding FAC-) Remarks: HYDROLOGY Recorded Data (Description of Surface Water Depth to Free Water)	eribe in Remarks): Streams Aerial Photographs Other rded Data Available er: 1 n Pit: 6	(in.)	Primary Indicators X Inund X Satur Watel Drift L Sedin Drain: Secondary Indicate Oxidiz Watel	ated ated in Upper 12 Marks ines nent Deposits age Patterns in Wors (2 or more receded Root Channe	Vetlands quired): els in Upper 12	inches
7. 3. 3. 9. 10. 11. 12. Percent of dominant services (excluding FAC-) Remarks: HYDROLOGY Recorded Data (Descriptions) X No Recorded Observations: Depth of Surface Water Depth to Free Water	eribe in Remarks): Streams Aerial Photographs Other rded Data Available er: 1 n Pit: 6	(in.)	Primary Indicators X Inund X Satura Water Drift L Sedin Draina Secondary Indicate Oxidia Water Local	ated ated in Upper 12 Marks ines nent Deposits age Patterns in Wors (2 or more reced Root Channe Stained Leaves Soil Survey Data	Vetlands quired): els in Upper 12	inches
7. 3. 9. 10. 11. 12. Percent of dominant s (excluding FAC-) Remarks: HYDROLOGY Recorded Data (Desc	eribe in Remarks): Streams Aerial Photographs Other rded Data Available er: 1 n Pit: 6	(in.)	Primary Indicators X Inund X Satur: Water Drift L Sedin Drain: Secondary Indicate Oxidiz Water Local X FAC-	ated ated in Upper 12 Marks ines nent Deposits age Patterns in Wors (2 or more receded Root Channe	Vetlands quired): lls in Upper 12	inches

Commun	ity ID:	PFO	Transect II	D: <u>A</u>	Plot ID:	WET 133S
SOILS						
Map Unit Na	me					
(Series and	Phase):				rainage Class:	
Field Observ	ations Con	firm Mapped Type?	Yes	No	_	
Taxonomy (Subgroup):			<u> </u>	—	
		Matrix Color	Mottle Colors	Mottle	Textures, Conc	cretions, Structures,
Depth (in)	Horizon	(Munsell Moist)	(Munsell Moist)	Abundance/Contrast		
		,	,			
0-16	Α	G1/4N			Sandy loam	
						-
llivalaia Cailli		Vaa	V .	la.		
Hydric Soil I		Yes	X	lo		
(If yes, chec	k tnem)			O "		
		_ Histosol		Concretions		
		_Histic Epidon		High Organic Content in		1 Sandy Soils
		_Sulfidic Odor		Organic Streaking in Sa		
,		_Aquic Moisture Regime		Listed on Local Hydric S		
		Reducing Conditions		Listed on National Hydr		
	Χ	_Gleyed or Low-Chroma C	Colors	Other (explain in remark	ks)	
Remarks:						
WETLAND I	DETERMIN	ATION				
Hydrophytic	Vegetation	Present? Yes	X N	lo Is this	s Sampling Point	Within a Wetland
Wetland Hyd	drology Pres	sent? Yes	X	lo		
Hydric Soils		Yes	X	lo Ye	sX	No
Remarks:	50% PFO /	50% PEM		<u>.</u>		

		Stre	Unit	fied Stream N	lethodology 1	Form	ginia	m 1)			
Project #		Project Name		Locality	cowardin Class.	HUC	Date Date	SAR#	Impact/SAR length	Impact Factor	
5337	I-64	Peninsula S	tudy	Newport News		02080108	6-28-11		266		
Name	e(s) of Evaluat	tor(s)	Stream Nam	e and Informa	ation						
	Bode / Doucette		WUS 10N								
. Channel C	Condition: Asse			C	Conditional Catego	ry					
	Opti	mal	Subo	ptimal	Mar	ginal	Po	oor	Se	vere	
	1	AND THE REAL PROPERTY OF THE PARTY OF THE PA		ew areas of active cted banks. Majority	Poor. Banks more	less than Severe or stable than Severe	Vertically/laterally	ned/incised. unstable. Likely to		nstability. Severe	
Channel Condition	Very little incision on 100% stable bar surface protection prominent (80-10 Stable point bars/bc present. Access floodplain or fully bankfull benches. and transverse ba sediment depositio 10% of 1	nks. Vegetative n or natural rock, 00%). AND/OR ankfull benches are to their original developed wide Mid-channel bars, ars few. Transient n covers less than	Vegetative protect prominent (60- Depositional feat stability. The bar channels are well likely has access to rnewly develope portions of the rediment covers 10	table (60-80%). tion or natural rock -80%) AND/OR tures contribute to nkfull and low flow II defined. Stream o bankfull benches, ad floodplains along reach. Transient 0-40% of the stream	Erosion may be pr both banks. Veget 40-60% of banks. bevertical or unde 60% of stream sediment. Se- temporary/tran instability. Depositi stability, may be	ower bank slopes. esent on 40-60% of tative protection on Streambanks may ercut. AND/OR 40- n is covered by diment may be sient, contribute on that contribute to e forming/present.	are near vertical. 60-80% of bar protection prese banks, and is inst erosion. AND/O stream is cover Sediment is temp nature, and contri AND/OR V-shap	jority of both banks Erosion present on iks. Vegetative ent on 20-40% of ufficient to prevent IR 60-80% of the ed by sediment. porary/transient in buting to instability. ed channels have	banks. Streamb rooting depth, r vertical/undern protection present banks, is not pro Obvious bank s Erosion/raw ban AND/OR Aggradir than 80% of strear	ed below average najority of banks cut. Vegetative on less than 20% of eventing erosion. loughing present. nks on 80-100%. In bed is covered by outing to instability.	
			boti	tom.	vegetative protect	ed channels have ion on > 40% of the ional features which	40% of the banks a	tion is present on > and stable sediment is absent.		channels and/or nean flow.	CI
Score	3	3	2	2.4		2	1	.6		1	2.4
. RIPARIAN	N BUFFERS: A		Con	n areas along the	gory	ugh measurement		n may be accepta	NOTES>>		
RIPARIAN Riparian Buffers	Opti Tree stratum (dbh > with > 60% tree ca	mal 3 inches) present, unopy cover and a lerstory. Wetlands	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area,	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or	,		
Riparian	Option Tree stratum (dbh > with > 60% tree canon-maintained unc	mal 3 inches) present, unopy cover and a lerstory. Wetlands	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory.	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation).	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover.	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh >3 inches) present, with <30% tree canopy cover with maintained understory.	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable condition.	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions.	,		
Riparian	Option Tree stratum (dbh > with > 60% tree canon-maintained unc	3 inches) present, inopy cover and a derstory. Wetlands e riparian areas.	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh >3 inches) present, with <30% tree canopy cover with maintained	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable	,		
Riparian Buffers Condition Scores Delineate ripa escriptors. Determine sq elow.	Tree stratum (dbh > with > 60% tree ca non-maintained unc located within the	imal 3 inches) present, anopy cover and a lerstory. Wetlands e riparian areas.	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 into Condition C	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Coungth and width. Coungth	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh >3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5	,		
Riparian Buffers Condition Scores Delineate ripa sescriptors. Determine sq elow.	Tree stratum (dbh > with > 60% tree ca non-maintained unc located within the	imal 3 inches) present, unopy cover and a ferstory. Wetlands e riparian areas. 5 each stream bank ach by measurin.	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 into Condition C	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Coungth and width. Coungth	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh >3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5	,		
Riparian Buffers Condition Scores Delineate ripa escriptors. Determine squelow. Enter the % F	Tree stratum (dbh > with > 60% tree ca non-maintained unc located within the	imal 3 inches) present, anopy cover and a lerstory. Wetlands e riparian areas.	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 into Condition C	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Coungth and width. Coungth	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh >3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5	NOTES>>		
Riparian Buffers Condition Scores Delineate ripaescriptors. Determine squelow. Enter the % F	Tree stratum (dbh > with > 60% tree ca non-maintained unc located within the located with	imal 3 inches) present, unopy cover and a lerstory. Wetlands e riparian areas. 5 each stream bank ach by measurin Score for each ri 100% 0.6	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 into Condition C	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Coungth and width. Coungth	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh >3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5 the sums Riparian equal 100	NOTES>>		2
Riparian Buffers Condition Scores Delineate ripaescriptors. Determine squelow. Enter the % F	Tree stratum (dbh > with > 60% tree ca non-maintained uncolocated within the located with	imal 3 inches) present, unopy cover and a lerstory. Wetlands e riparian areas. 5 each stream bank ach by measurin Score for each ri 100% 0.6	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 into Condition C	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Coungth and width. Coungth	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh >3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5	NOTES>> CI= (Sum % RA**) Rt Bank CI >	0.60	CI
Condition Scores Delineate ripalescriptors. Determine squelow. Enter the % Right Bank Left Bank B. INSTREAN	Tree stratum (dbh > with > 60% tree ca non-maintained unc located within the located with	imal 3 inches) present, unopy cover and a lerstory. Wetlands e riparian areas. 5 ach stream bank ach by measuring the stream bank	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 k into Condition C g or estimating ler parian category in	Inditional Cate ptimal Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Coungth and width. Coungth and width. Coungth and width. Coungth and depths; wodes.	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85 Indition Scores us calculators are production of the produc	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh > 3 inches) present, with < 30% tree canopy cover with maintained understory: Low 0.75 ing the evided for you	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F Blocks 6	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5 the sums Riparian equal 100 100%	NOTES>>		_
Condition Scores Delineate ripa escriptors. Determine squelow. Enter the % R Right Bank Left Bank INSTREAN	Tree stratum (dbh > with > 60% tree ca non-maintained unc located within the located with	imal 3 inches) present, nopy cover and a lerstory. Wetlands e riparian areas. 5 each stream bank ach by measuring the stream bank	Riph Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 Into Condition C g or estimating ler parian category in	Inditional Cate ptimal Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Coungth and width. Coungth and width. Coungth and width. Coungth and depths; wores. Conditional	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <a>3 inches) present, with <a>3 inches) present, or a tree canopy cover. High 0.85 Indition Scores us calculators are production of the control of th	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh >3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75 ing the vided for you	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F Blocks 6	Low Poor: Impervious surfaces, mine pool lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5 the sums Riparian equal 100 100% 100%	NOTES>> CI= (Sum % RA * S Rt Bank CI > Lt Bank CI >	0.60	
Condition Scores Delineate ripalescriptors. Determine squelow. Enter the % Right Bank Left Bank B. INSTREAN	Tree stratum (dbh > with > 60% tree ca non-maintained unc located within the located with	5 Score for each ri 100% 0.6 100% 0.6 100% 100% 100% 100% 100% 100% 100% 10	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 Into Condition C g or estimating let parian category in Zes, water velocity ixes, stable featur Subo Stable habitat ele present in 30-50% are adequate fo	Inditional Cate ptimal Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Coungth and width. Coungth and width. Coungth and width. Coungth and depths; wodes.	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85 Indition Scores us calculators are production of the present in 10-30 are adequate for a seadequate for the present in 10-30 are adequate for the present in 10-30 are adeq	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh > 3 inches) present, with < 30% tree canopy cover with maintained understory: Low 0.75 ing the evided for you	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F Blocks 6	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5 the sums Riparian equal 100 100%	NOTES>> CI= (Sum % RA * S Rt Bank CI > Lt Bank CI >	0.60	CI 0.60

	St	ream In	npact A	ssessm	ent Fo	rm Pag	e 2		
Project #	Applicant		Locality	Cowardin Class.	HUC	Date	Data Point	SAR length	Impact Factor
								500	1
	L ALTERATION: Stream cross poil piles, constrictions, livestock		Conditiona	al Category				NOTES>>	
	Negligible	Mir	nor		erate	Se	vere		
Channel Alteration	Channelization, dredging, alteration, or hardening absent. Stream has an unaltered pattern or has naturalized.	Less than 20% of the stream reach is disrupted by any of the channel alterations listed in the parameter guidelines.	20-40% of the stream reach is disrupted by any of the channel	is disrupted by any of the channel	of the channel	Greater than 80% by any of the char in the parameter 80% of banks s	of reach is disrupted nnel alterations listed guidelines AND/OR hored with gabion, or cement.		
SCORE	1.5	1.3	1.1	0.9	0.7	(0.5		
	REACH C	ONDITION I	NDEX and S	TREAM CO	NDITION UN	ITS FOR TH	IIS REACH		
IOTE: The Cle and R	RCI should be rounded to 2 decimal places.	The CR should be rour	nded to a whole numb	er			THE REACH (CONDITION IN	DEX (RCI) >>

COMPENSATION REQUIREMENT (CR) >> 0

CR = RCI X LF X IF



DESCRIBE PROPOSED IMPACT:		

		Stre	Unit	fied Stream N	lethodology 1	•	ginia	m 1)			
Project #		Project Name		Locality	cowardin Class.	HUC	Date Date	SAR#	Impact/SAR length	Impact Factor	
5337	I-64	Peninsula S	tudy	Newport News		02080206	6-29-11		636		
Name	e(s) of Evalua	tor(s)	Stream Nam	e and Informa	ation						
	Bode / Doucette		WUS 12N								
. Channel C	Condition: Asse			C	Conditional Catego	ry			1		
	Opti	imal	Subo	ptimal	Mar	ginal	Po	oor	Se	vere	
	1	ALL SOME SOME SOME SOME SOME SOME SOME SOME	erecion or upproted	ew areas of active cted banks. Majority	Poor. Banks more	less than Severe or stable than Severe	Vertically/laterally	ned/incised. unstable. Likely to		nstability. Severe	
Channel Condition	Very little incision o 100% stable bar surface protection prominent (80-1) Stable point bars/bc present. Access floodplain or fully bankfull benches. and transverse bc sediment depositio 10% of 1	nks. Vegetative n or natural rock, 00%). AND/OR ankfull benches are to their original or developed wide Mid-channel bars, ars few. Transient in covers less than	Vegetative protect prominent (60- Depositional feat stability. The bar channels are well likely has access to or newly develope portions of the resediment covers 10 to definite the covers of the resediment covers 10 to definite the covers of the resediment covers 10 to definite the covers of the resediment covers 10 to definite the covers 10 to definite	table (60-80%). tion or natural rock -80%) AND/OR tures contribute to nkfull and low flow ll defined. Stream o bankfull benches, ad floodplains along reach. Transient 0-40% of the stream	Erosion may be pr both banks. Veget 40-60% of banks. bevertical or unde 60% of stream sediment. Se- temporary/tran instability. Depositi stability, may be	ower bank slopes. esent on 40-60% of tative protection on Streambanks may ercut. AND/OR 40-n is covered by diment may be sient, contribute on that contribute to forming/present.	are near vertical. 60-80% of bar protection prese banks, and is insi erosion. AND/O stream is cover Sediment is temp nature, and contri AND/OR V-shap	jority of both banks Erosion present on kis. Vegetative ent on 20-40% of ufficient to prevent R 60-80% of the red by sediment. porary/transient in buting to instability. ed channels have	banks. Streamb rooting depth, r vertical/under vertical/under protection present banks, is not pr Obvious bank s Erosion/raw bankD/OR Aggradir than 80% of strear deposition, contril	ed below average majority of banks cut. Vegetative on less than 20% of eventing erosion. loughing present. nks on 80-100%. ng channel. Greater bed is covered by buting to instability.	
			boti	tom.	vegetative protect	ed channels have ion on > 40% of the ional features which	40% of the banks a	tion is present on > and stable sediment is absent.		channels and/or nean flow.	CI
Score	3	3	2	2.4		2	1	.6		1	3.0
. RIPARIAN	N BUFFERS: A	Assess both bank	s's 100 foot riparia	an areas along the	entire SAR. (rou	ugh measurement	s of length & widtl	n may be accepta	ble)		
2. RIPARIAN	N BUFFERS: A		Con	n areas along the nditional Cate ptimal	gory	ginal	Po	n may be accepta	NOTES>>		
RIPARIAN Riparian Buffers	Opti	imal - 3 inches) present, anopy cover and a derstory. Wetlands	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy	gory						
Riparian Buffers	Tree stratum (dbh > with > 60% tree conon-maintained unclocated within the	imal 3 inches) present, anopy cover and a derstory. Wetlands e riparian areas.	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation).	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover.	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh > 3 inches) present, with <30% tree canopy cover with maintained understory. Low	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, recently seeded and stabilized, or other comparable condition.	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions.			
Riparian	Option Tree stratum (dbh > with > 60% tree canon-maintained unc	imal 3 inches) present, anopy cover and a derstory. Wetlands e riparian areas.	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory.	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation).	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover.	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh >3 inches) present, with <30% tree canopy cover with maintained understory.	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable condition.	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions.			
Riparian Buffers Condition Scores Delineate ripaescriptors. Determine sq	Tree stratum (dbh > with > 60% tree conon-maintained unclocated within the	imal 3 inches) present, anopy cover and a derstory. Wetlands e riparian areas.	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Con	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh > 3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable condition. High 0.6	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions.			
Riparian Buffers Condition Scores Delineate ripasscriptors. Determine sq	Tree stratum (dbh > with > 60% tree cc onon-maintained und located within the	imal 3 inches) present, anopy cover and a derstory. Wetlands e riparian areas.	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 k into Condition C	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Coungth and width. Coungth	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh > 3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F	Low Poor: Impervious surfaces, mine spoil lands, founded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5			
Riparian Buffers Condition Scores Delineate ripascriptors. Determine squelow. Enter the % F	Tree stratum (dbh > with > 60% tree ca non-maintained unc located within the located with	imal 3 inches) present, anopy cover and a derstory. Wetlands e riparian areas. 5 ach stream bank ach by measuring Score for each riparian areas.	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 k into Condition C	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Coungth and width. Coungth	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh > 3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5			
Riparian Buffers Condition Scores Delineate ripascriptors. Determine squelow. Enter the % F	Tree stratum (dbh > with > 60% tree ca non-maintained unc located within the located with	imal 3 inches) present, anopy cover and a derstory. Wetlands e riparian areas. 5 ach stream bank ach by measuring.	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 k into Condition C	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Coungth and width. Coungth	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh > 3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5		Scores*0.01)/2	
Riparian Buffers Condition Scores Delineate ripa secriptors. Determine sq slow. Enter the % R	Tree stratum (dbh > with > 60% tree ca non-maintained unc located within the located with	imal 3 inches) present, anopy cover and a derstory. Wetlands e riparian areas. 5 ach stream bank ach by measuring Score for each riparian areas.	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 k into Condition C	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Coungth and width. Coungth	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh > 3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5	NOTES>>	Scores*0.01)/2	CI
Riparian Buffers Condition Scores Delineate ripascriptors. Determine squelow. Enter the % F	Tree stratum (dbh > with > 60% tree canon-maintained unc located within the located withi	imal 3 inches) present, anopy cover and a derstory. Wetlands e riparian areas. 5 each stream bank ach by measuring 100% 0.6	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 into Condition C g or estimating ler parian category in	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Coungth and width. Coungth	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh > 3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5 the sums Riparian equal 100	NOTES>>	1	CI 0.62
Riparian Buffers Condition Scores Delineate ripa escriptors. Determine sq elow. Enter the % R Right Bank	Tree stratum (dbh > with > 60% tree canon-maintained unc located within the located withi	imal 3 inches) present, anopy cover and a derstory. Wetlands e riparian areas. 5 each stream bank ach by measuring 100% 0.6 20% 0.75 aried substrate si	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 into Condition C g or estimating ler parian category in 80% 0.6	Inditional Cate ptimal Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Coungth and width. Coungth and width. Coungth and width. Coungth and depths; wodes.	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85 Indition Scores us alculators are production of the product	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh > 3 inches) present, with < 30% tree canopy cover with maintained understory. Low 0.75 ing the ovided for you	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F Blocks 6	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5 the sums Riparian equal 100 100%	NOTES>> CI= (Sum % RA** Rt Bank CI >	0.60	
Condition Scores Delineate ripa escriptors. Determine sq elow. Enter the % R Right Bank Left Bank I. INSTREAN Indercut banks;	Tree stratum (dbh > with > 60% tree ca non-maintained unc located within the located with	imal 3 inches) present, anopy cover and a derstory. Wetlands e riparian areas. 5 each stream bank ach by measuring 100% 0.6 20% 0.75 aried substrate significations in the complete complete in the complet	Riphramatics of the street of	Inditional Cate ptimal Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Coungth and width. Coungth and width. Coungth and width. Coungth and depths; wores. Conditional	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <a>30 tree canopy cover. High 0.85 Indition Scores us alculators are production of the pr	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh >3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75 ing the price of the production of the present of the	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F Blocks 6	Low Poor: Impervious surfaces, mine pool lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5 the sums Riparian equal 100 100% 100%	NOTES>> CI= (Sum % RA *: Rt Bank CI > Lt Bank CI >	0.60	
Condition Scores Delineate ripa escriptors. Determine sq elow. Enter the % R Right Bank Left Bank	Tree stratum (dbh > with > 60% tree ca non-maintained unc located within the located with	imal 3 inches) present, anopy cover and a derstory. Wetlands e riparian areas. 5 5 cach stream bank ach by measuring 100% 0.6 20% 0.75 aried substrate si ffle poole completimal	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 into Condition C g or estimating let parian category in 80% 0.6 Zes, water velocity exes, stable featur Subo Stable habitat ele present in 30-50% are adequate fo	Inditional Cate ptimal Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Coungth and width. Coungth and width. Coungth and width. Coungth and depths; wodes.	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85 Indition Scores us alculators are production of the present in 10-30 are adequate for a sealequate for the present in 10-30 are adequate for the present in 10-30 are adequ	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh > 3 inches) present, with < 30% tree canopy cover with maintained understory. Low 0.75 ing the ovided for you	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F Blocks 6	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5 the sums Riparian equal 100 100%	NOTES>> CI= (Sum % RA *: Rt Bank CI > Lt Bank CI >	0.60	

	St	ream In	npact A	ssessm	ent Fo	rm Pag	e 2		
Project #	Applicant		Locality	Cowardin Class.	HUC	Date	Data Point	SAR length	Impact Factor
								500	1
	L ALTERATION: Stream cross poil piles, constrictions, livestock		Conditiona	al Category				NOTES>>	
	Negligible	Mir	nor		erate		evere		
Channel Alteration	Channelization, dredging, alteration, or hardening absent. Stream has an unaltered pattern or has naturalized.	Less than 20% of the stream reach is disrupted by any of the channel alterations listed in the parameter guidelines.	20-40% of the stream reach is disrupted by any of the channel	is disrupted by any of the channel	of the channel	Greater than 80% by any of the char in the parameter 80% of banks s	o of reach is disrupted nnel alterations listed guidelines AND/OR shored with gabion, or cement.	1	
SCORE	1.5	1.3	1.1	0.9	0.7	(0.5		
	REACH C	ONDITION II	NDEX and S	TREAM CO	NDITION UN	ITS FOR TH	IIS REACH		
NOTE: The Cls and F	RCI should be rounded to 2 decimal places.	The CR should be rour	nded to a whole numb	er.			THE REACH	CONDITION IN	DEX (RCI) >>

CR = RCI X LF X IF



DESCRIBE PROPOSED IMPACT:

		Stre	Unit	fied Stream N	lethodology 1	Form	ginia	m 1)			
Project #		Project Name		Locality	cowardin Class.	HUC	Date Date	SAR#	Impact/SAR length	Impact Factor	
5337	I-64	Peninsula S	tudy	Newport News	0.0.00	02080206	6-29-11		97		
Name	e(s) of Evaluat	tor(s)	Stream Nam	e and Informa	ation						
	Bode / Doucette		WUS 13N								
. Channel C	Condition: Asse	ess the cross-sec	ction of the stream		ondition (erosion, conditional Catego						
	Opti	imal	Subo	ptimal	Mar	ginal	Po	oor	Se	vere	
	Very little incision o	ration arraign; 90	erosion or unproted	ew areas of active cted banks. Majority	Poor. Banks more	less than Severe or stable than Severe	Vertically/laterally	ied/incised. unstable. Likely to		nstability. Severe	
Channel Condition	100% stable bar surface protection prominent (80-10 Stable point bars/be present. Access floodplain or fully bankfull benches. and transverse be sediment depositio 10% of 1	nks. Vegetative n or natural rock, 00%). AND/OR ankfull benches are to their original developed wide Mid-channel bars, ars few. Transient n covers less than	Vegetative protect prominent (60- Depositional feat stability. The bar channels are well likely has access to or newly develope portions of the resediment covers 10 to be a covers.	table (60-80%), titon or natural rock -80%) AND/OR tures contribute to nkfull and low flow II defined. Stream o bankfull benches, at floodplains along reach. Transient 0-40% of the stream tom.	Erosion may be pr both banks. Veget 40-60% of banks. bevertical or unde 60% of stream sediment. Se- temporary/tran instability. Depositi stability, may be	ower bank slopes. resent on 40-60% of tative protection on Streambanks may ercut. AND/OR 40- n is covered by diment may be isient, contribute to e forming/present. sed channels have	are near vertical. 60-80% of bar protection prese banks, and is inst erosion. AND/O stream is cover Sediment is temp nature, and contri AND/OR V-shap	iority of both banks Erosion present on ks. Vegetative ent on 20-40% of ufficient to prevent R 60-80% of the ed by sediment. corary/transient in bouting to instability. ed channels have ion is present on >	banks. Streamb rooting depth, r vertical/under protection present banks, is not pr Obvious bank s Erosion/raw ba AND/OR Aggradir than 80% of streat deposition, contril	ped below average majority of banks cut. Vegetative on less than 20% of eventing erosion. Bloughing present. Inks on 80-100%. Ing channel. Greater m bed is covered by buting to instability.	
			500	tom.	vegetative protect	ion on > 40% of the ional features which	40% of the banks a	and stable sediment is absent.		I channels and/or nean flow.	CI
Score	3	3	2	2.4		2	1	.6		1	2.0
	N BUFFERS: A		Con	n areas along the	gory	ginal Low Marginal: Non-maintained,	Po High Poor:	n may be accepta	NOTES>>		
	Opti Tree stratum (dbh > with > 60% tree ca	mal 3 inches) present, unopy cover and a lerstory. Wetlands	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy	gory	ginal Low Marginal:	Po		NOTES>>		
. RIPARIAN	Option Tree stratum (dbh > with > 60% tree canon-maintained unc	mal 3 inches) present, unopy cover and a lerstory. Wetlands	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory.	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation).	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover.	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh >3 inches) present, with <30% tree canopy cover with maintained understory.	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable condition.	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions.	NOTES>>		
Riparian	Option Tree stratum (dbh > with > 60% tree canon-maintained unc	3 inches) present, inopy cover and a derstory. Wetlands e riparian areas.	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh >3 inches) present, with <30% tree canopy cover with maintained	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable	NOTES>>		
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Riparian Buffers Condition Scores Delineate ripasscriptors. Determine squadow.	Tree stratum (dbh > with > 60% tree ca non-maintained unc located within the	imal 3 inches) present, unopy cover and a ferstory. Wetlands e riparian areas. 5 each stream bank ach by measurin.	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 k into Condition C g or estimating ler	Inditional Cate ptimal Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Coungth and width. Coungth and width. Coungth and coungth and width.	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh > 3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5	NOTES>>		
Riparian Buffers Condition Scores Delineate rips escriptors. Determine squelow. Enter the % F	Tree stratum (dbh > with > 60% tree ca non-maintained unc located within the	imal 3 inches) present, incopy cover and a lerstory. Wetlands e riparian areas.	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 k into Condition C	Inditional Cate ptimal Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Coungth and width. Coungth and width. Coungth and coungth and width.	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh > 3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5	NOTES>>		
Riparian Buffers Condition Scores Delineate ripaescriptors. Determine squelow.	Tree stratum (dbh > with > 60% tree canon-maintained unclocated within the located within	imal 3 inches) present, unopy cover and a lerstory. Wetlands e riparian areas. 5 each stream bank ach by measurin. Score for each ri 50% 0.5	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 k into Condition C g or estimating ler parian category in 50% 0.85	Inditional Cate ptimal Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Coungth and width. Coungth and width. Coungth and coungth and width.	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh > 3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5	NOTES>>		CI
Riparian Buffers Condition Scores Delineate ripa secriptors. Determine squelow. Enter the % F	Tree stratum (dbh > with > 60% tree ca non-maintained unc located within the located with	imal 3 inches) present, unopy cover and a ferstory. Wetlands e riparian areas. 5 each stream bank ach by measurin. Score for each ri	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 k into Condition C g or estimating ler parian category in	Inditional Cate ptimal Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Coungth and width. Coungth and width. Coungth and coungth and width.	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh > 3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5	NOTES>>	Scores*0.01)/2 0.68 0.61	C1 0.64
Riparian Buffers Condition Scores Delineate ripa escriptors. Determine squelow. Enter the % F Right Bank Left Bank B. INSTREAR	Tree stratum (dbh > with > 60% tree canon-maintained unc located within the located withi	imal 3 inches) present, unopy cover and a lerstory. Wetlands e riparian areas. 5 bach stream bank ach by measuring score for each riparian areas. 70% 0.5 aried substrate si	Riphrian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 k into Condition C g or estimating ler parian category in 50% 0.85	Inditional Cate ptimal Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Coungth and width. Coungth and width. Coungth and width. Coungth and depths; wodes.	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85 Indition Scores us calculators are production of the produc	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh > 3 inches) present, with < 30% tree canopy cover with maintained understory: Low 0.75 ing the povided for you	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F Blocks 6	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5 the sums Riparian equal 100 100%	NOTES>> Cl= (Sum % RA*: Rt Bank Cl >	0.68	CI 0.64
Riparian Buffers Condition Scores Delineate ripalescriptors. Determine squescriptors. Enter the % F. Right Bank Left Bank INSTREAM Indercut banks;	Tree stratum (dbh > with > 60% tree ca non-maintained unc located within the located with	imal 3 inches) present, nopy cover and a lerstory. Wetlands e riparian areas. 5 each stream bank ach by measuring 50% 0.5 70% 0.5 aried substrate siffle poole comple	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 k into Condition C g or estimating ler parian category in 50% 0.85 30% 0.85	Inditional Cate ptimal Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Coungth and width. Coungth and width. Coungth and width. Coungth and depths; wores. Conditional	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <a>3 inches) present, with <a>3 inches) present, or a tree canopy cover. High 0.85 Indition Scores us calculators are production of the control of th	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh >3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75 ing the povided for you	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F Blocks 6	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5 the sums Riparian equal 100 100% 100%	NOTES>> Ci= (Sum % RA *: Rt Bank Ci > Lt Bank Ci >	0.68	
Riparian Buffers Condition Scores Delineate ripalescriptors. Determine squelow. Enter the % F. Right Bank Left Bank B. INSTREAN	Tree stratum (dbh > with > 60% tree canon-maintained unclocated within the located within	5 Score for each ri 50% 0.5 70% 0.5 aried substrate siffle poole comple	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 k into Condition C g or estimating ler parian category in 50% 0.85 30% 0.85 zes, water velocity exes, stable featur Subo Stable habitat ele present in 30-509 are adequate fo	Inditional Cate ptimal Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Coungth and width. Coungth and width. Coungth and width. Coungth and depths; wodes.	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85 Indition Scores us calculators are production of the present in 10-30 are adequate for a seadequate for the present in 10-30 are adequate for the present in 10-30 are adeq	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh > 3 inches) present, with < 30% tree canopy cover with maintained understory: Low 0.75 ing the povided for you	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F Blocks 6	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5 the sums Riparian equal 100 100%	CI= (Sum % RA *: Rt Bank CI > Lt Bank CI > NOTES>>	0.68	

									-
	St	ream In	npact A	ssessm	ent Fo	rm Pag	e 2		
Project #	Applicant		Locality	Cowardin Class.	HUC	Date	Data Point	SAR length	Impact Factor
								500	1
	L ALTERATION: Stream cross spoil piles, constrictions, livestock	ings, riprap, conci	rete, gabions, or o	concrete blocks, s	traightening of ch	annel, channeliz	ation,	NOTES>>	
			Condition	al Category					
	Negligible	Mir	nor		erate	Se	evere		
Channel Alteration	or hardening absent. Stream has an	Less than 20% of the stream reach is disrupted by any of the channel alterations listed in the parameter guidelines.	20-40% of the stream reach is disrupted by any of the channel alterations listed in the parameter guidelines.	is disrupted by any of the channel	of the channel	Greater than 80% by any of the char in the parameter 80% of banks s	of reach is disrupted nnel alterations listed guidelines AND/OR hored with gabion, or cement.		
SCORE	1.5	1.3	1.1	0.9	0.7	(0.5		
	REACH C	ONDITION II	NDEX and S	TREAM CO	NDITION UN	ITS FOR TH	IIS REACH		
NOTE: The CIs and F	RCI should be rounded to 2 decimal places.	The CR should be rour	nded to a whole numb	er.			THE REACH (CONDITION IN	DEX (RCI) >>
							RC	= (Sum of all C	l's)/5

COMPENSATION REQUIREMENT (CR) >>

CR = RCI X LF X IF

INSERT PHOTOS:





		Stre	Unit	fied Stream N	lethodology 1	Form	ginia	m 1)			
Project #		Project Name		Locality	nels classified a Cowardin Class.	HUC	Date Date	SAR#	Impact/SAR length	Impact Factor	
5337	I-64	Peninsula S	tudy	Newport News	0.0000	02080206	6-29-11		782		
Name	e(s) of Evalua	tor(s)	Stream Nam	e and Informa	ation						
	Bode / Doucette		WUS 14N								
. Channel C	Condition: Asse			C	Conditional Catego	ory					
	Opti	imal	Subo	ptimal	Mar	ginal	Po	oor	Se	vere	
	m dela	ALL MARKET	erecion or upproted	ew areas of active cted banks. Majority		less than Severe or stable than Severe		ned/incised. unstable. Likely to		nstability. Severe	
Channel Condition	Very little incision o 100% stable bar surface protection prominent (80-1) Stable point bars/bc present. Access floodplain or fully bankfull benches. and transverse bc sediment depositio 10% of 1	nks. Vegetative n or natural rock, 00%). AND/OR ankfull benches are to their original or developed wide Mid-channel bars, ars few. Transient in covers less than	of banks are si Vegetative protec prominent (60- Depositional feat stability. The bar channels are wel likely has access to or newly develope portions of the r	table (60-80%). tion or natural rock -80%) AND/OR tures contribute to nkfull and low flow Il defined. Stream o bankfull benches, id floodplains along reach. Transient 0-40% of the stream	Erosion may be pr both banks. Veget 40-60% of banks. bevertical or unde 60% of stream sediment. Se- temporary/tran instability. Depositi stability, may be	ower bank slopes. resent on 40-60% of tative protection on Streambanks may ercut. AND/OR 40- n is covered by diment may be sient, contribute ton that contribute to e forming/present.	are near vertical. 60-80% of bar protection prese banks, and is inst erosion. AND/O stream is cover Sediment is temp nature, and contri AND/OR V-shap	jority of both banks Erosion present on kks. Vegetative ent on 20-40% of difficient to prevent IR 60-80% of the red by sediment. oborary/transient in buting to instability.	banks. Streamb rooting depth, r vertical/under protection present banks, is not pr Obvious bank s Erosion/raw ba AND/OR Aggradir than 80% of strear	eed below average majority of banks cut. Vegetative on less than 20% of eventing erosion. loughing present. nks on 80-100%. ng channel. Greater m bed is covered by buting to instability.	
	10% 011	bottom.	boti	tom.	vegetative protect	ed channels have ion on > 40% of the ional features which	40% of the banks a	tion is present on > and stable sediment n is absent.	Multiple thread	channels and/or nean flow.	CI
Score	3	3	2	.4		2	1	.6		1	2.0
RIPARIAN	N BUFFERS: A	Assess both bank		n areas along the	<u> </u>	ugh measurement	s of length & widtl	n may be accepta	ble)		
2. RIPARIAN	N BUFFERS: A		Con Subo High Suboptimal: Riparian areas	ditional Cate ptimal Low Suboptimal: Riparian areas with tree stratum	gory Mar High Marginal: Non-maintained,	Low Marginal: Non-maintained, dense herbaceous vegetation,	High Poor: Lawns, mowed, and maintained	Low Poor:	,		
RIPARIAN Riparian Buffers	Opti Tree stratum (dbh > with > 60% tree ca	imal 3 inches) present, anopy cover and a derstory. Wetlands	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree	ditional Cate ptimal Low Suboptimal: Riparian areas	gory Mar High Marginal:	ginal Low Marginal: Non-maintained, dense herbaceous	High Poor: Lawns, mowed,	por	,		
Riparian Buffers	Opti Tree stratum (dbh > with > 60% tree canon-maintained uncellocated within the	imal 3 inches) present, anopy cover and a derstory. Wetlands e riparian areas.	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh > 3 inches) present, with <30% tree canopy cover with maintained	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable	,		
Riparian	Option Tree stratum (dbh > with > 60% tree canon-maintained unc	imal 3 inches) present, anopy cover and a derstory. Wetlands e riparian areas.	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory.	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation).	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover.	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh >3 inches) present, with <30% tree canopy cover with maintained understory.	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable condition.	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions.	,		
Riparian Buffers Condition Scores Delineate ripa escriptors.	Opti Tree stratum (dbh > with > 60% tree canon-maintained uncellocated within the	imal 3 inches) present, anopy cover and a derstory. Wetlands e riparian areas.	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Con	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh >3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable condition. High 0.6	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions.	,		
Riparian Buffers Condition Scores Delineate ripa escriptors. Determine squelow.	Tree stratum (dbh > with > 60% tree cc non-maintained und located within the	imal 3 inches) present, anopy cover and a derstory. Wetlands e riparian areas.	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 into Condition C	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Coungth and width. Coungth	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh >3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F	Low Poor: Impervious surfaces, mine spoil lands, founded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5	,		
Riparian Buffers Condition Scores Delineate ripaescriptors. Determine squelow. Enter the % R	Tree stratum (dbh > with > 60% tree ca non-maintained unc located within the located with	imal 3 inches) present, anopy cover and a derstory. Wetlands e riparian areas. 5 ach stream bank ach by measurin. Score for each ri	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 k into Condition C g or estimating ler parian category in 30%	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Coungth and width. Coungth	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh >3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5	,		
Riparian Buffers Condition Scores Delineate ripa escriptors. Determine squelow.	Tree stratum (dbh > with > 60% tree ca non-maintained unc located within the located with	imal 3 inches) present, anopy cover and a derstory. Wetlands e riparian areas. 5 ach stream bank ach by measurin.	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 k into Condition C g or estimating ler parian category in	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Coungth and width. Coungth	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh >3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5	,	Scores*0.01)/2	
Riparian Buffers Condition Scores Delineate ripa escriptors. Determine squelow. Enter the % R Right Bank	Tree stratum (dbh > with > 60% tree ca non-maintained unc located within the located with	imal 3 inches) present, anopy cover and a derstory. Wetlands e riparian areas. 5 ach stream bank ach by measurin. Score for each ri	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 k into Condition C g or estimating ler parian category in 30%	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Coungth and width. Coungth	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh >3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5	NOTES>>	Scores*0.01)/2	CI
Riparian Buffers Condition Scores Delineate ripaescriptors. Determine squelow. Enter the % R	Tree stratum (dbh > with > 60% tree canon-maintained unc located within the located withi	imal 3 inches) present, anopy cover and a derstory. Wetlands e riparian areas. 5 each stream bank ach by measurin Score for each ri 70% 0.5	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 into Condition C g or estimating ler parian category in 30% 0.85	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Coungth and width. Coungth	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh >3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5 the sums Riparian equal 100	NOTES>>	1	CI 0.64
Condition Scores Delineate ripa escriptors. Determine squelow. Enter the % R Right Bank Left Bank	Tree stratum (dbh > with > 60% tree canon-maintained unc located within the located withi	imal 3 inches) present, anopy cover and a derstory. Wetlands e riparian areas. 5 ach stream bank ach by measuring 70% 0.5 50% 0.5 aried substrate si	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 into Condition C g or estimating ler parian category in 30% 0.85	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Coungth and width. Coungth and width. Coungth and width. Coungth and depths; wodes.	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85 Indition Scores us alculators are production of the product	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh >3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75 ing the povided for you	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F Blocks 6	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5 the sums Riparian equal 100 100%	NOTES>> CI= (Sum % RA*: Rt Bank CI >	0.61	
Condition Scores Delineate ripa escriptors. Determine squelow. Enter the % R Right Bank Left Bank I. INSTREAM Indercut banks;	Tree stratum (dbh > with > 60% tree ca non-maintained unc located within the located with	imal 3 inches) present, enopy cover and a derstory. Wetlands e riparian areas. 5 each stream bank ach by measuring the coverance of the cove	Right Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 Into Condition C g or estimating ler parian category in 30% 0.85	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Coungth and width. Coungth and width. Coungth and width. Coungth and depths; wores. Conditiona	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <a>30 tree canopy cover. High 0.85 Indition Scores us alculators are production of the pr	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh >3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75 ing the povided for you	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F Blocks 6	Low Poor: Impervious surfaces, mine pool lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5 the sums Riparian equal 100 100% 100%	NOTES>> CI= (Sum % RA *: Rt Bank CI > Lt Bank CI >	0.61	
Condition Scores 1. Delineate ripadescriptors. 2. Determine squelow. 3. Enter the % R Right Bank Left Bank 3. INSTREAN	Tree stratum (dbh > with > 60% tree ca non-maintained unc located within the located with	imal 3 inches) present, anopy cover and a derstory. Wetlands e riparian areas. 5 5 cach stream bani ach by measurin. Score for each ri 70% 0.5 50% 0.5 aried substrate si ffle poole completimal.	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 into Condition C g or estimating ler parian category in 30% 0.85 50% 0.85 zes, water velocity exes, stable featur Subo Stable habitat ele present in 30-50% are adequate fo	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Coungth and width. Coungth and width. Coungth and width. Coungth and depths; wodes.	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85 Indition Scores us alculators are production of the present in 10-30 are adequate for a sealequate for the present in 10-30 are adequate for the present in 10-30 are adequ	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh >3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75 ing the povided for you	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F Blocks 6	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5 the sums Riparian equal 100 100%	NOTES>> CI= (Sum % RA *: Rt Bank CI > Lt Bank CI >	0.61	

	St	ream In	npact A	ssessm	nent Fo	rm Pag	e 2		
Project #	Applicant		Locality	Cowardin Class.	HUC	Date	Data Point	SAR length	Impact Factor
								500	1
	L ALTERATION: Stream cross spoil piles, constrictions, livestock Negligible			al Category	traightening of ch		evere	NOTES>>	
Channel Alteration		Less than 20% of the stream reach is disrupted by any of the channel alterations listed in the parameter guidelines.	20-40% of the stream reach is disrupted by any of the channel	40 - 60% of reach is disrupted by any of the channel	60 - 80% of reach is disrupted by any of the channel	Greater than 80% by any of the char in the parameter 80% of banks s	o of reach is disrupted nnel alterations listed guidelines AND/OR shored with gabion, or cement.		
SCORE	1.5	1.3	1.1	0.9	0.7	(0.5		
	REACH C	ONDITION II	NDEX and S	TREAM CO	NDITION UN	ITS FOR TH	IIS REACH		
NOTE: The Cls and F	RCI should be rounded to 2 decimal places.	The CR should be rour	nded to a whole numb	er.			THE REACH (CONDITION IN	DEX (RCI) >>

RCI= (Sum of all CI's)/5

COMPENSATION REQUIREMENT (CR) >> 0

CR = RCI X LF X IF

INSERT PHOTOS:





		Stre	Unit	fied Stream N	lethodology 1	Form	ginia	m 1)			
Project #		Project Name		Locality	cowardin Class.	HUC	Date Date	SAR#	Impact/SAR length	Impact Factor	
5337	I-64	Peninsula S	tudy	Newport News	0.000	02080206	6-29-11		500	1 4010.	
Name	e(s) of Evaluat	tor(s)	Stream Nam	e and Informa	ation						Ī
	Bode		WUS 15N								
. Channel C	Condition: Asse	ess the cross-sec	tion of the stream		ondition (erosion, Conditional Catego						
	Opti	mal	Subo	ptimal	Mar	ginal	Po	oor	Se	vere	4
	Vary little incision of	ratio arction 90	erosion or unproted	ew areas of active cted banks. Majority	Poor. Banks more	less than Severe or stable than Severe	Vertically/laterally	ned/incised. unstable. Likely to		nstability. Severe	
Channel Condition	Very little incision on 100% stable bar surface protection prominent (80-10 Stable point bars/bc present. Access floodplain or fully bankfull benches. and transverse ba sediment depositio 10% of 1	nks. Vegetative n or natural rock, 00%). AND/OR ankfull benches are to their original developed wide Mid-channel bars, ars few. Transient n covers less than	Vegetative protect prominent (60- Depositional feat stability. The bar channels are well likely has access to rnewly develope portions of the rediment covers 10	table (60-80%). tion or natural rock -80%) AND/OR tures contribute to nkfull and low flow ll defined. Stream o bankfull benches, ad floodplains along reach. Transient 0-40% of the stream	Erosion may be pr both banks. Veget 40-60% of banks. bevertical or unde 60% of stream sediment. Se- temporary/tran instability. Depositi stability, may be	ower bank slopes. resent on 40-60% of tative protection on Streambanks may ercut. AND/OR 40- n is covered by diment may be isient, contribute to e forming/present. sed channels have	are near vertical. 60-80% of bar protection prese banks, and is inst erosion. AND/O stream is cover Sediment is temp nature, and contri AND/OR V-shap	jority of both banks Erosion present on iks. Vegetative ent on 20-40% of afficient to prevent Re 60-80% of the red by sediment. corary/transient in buting to instability. ed channels have ion is present on >	banks. Streamb rooting depth, r vertical/under vertical/under protection present banks, is not pr Obvious bank s Erosion/raw bankD/OR Aggradir than 80% of strear deposition, contril	ed below average majority of banks cut. Vegetative on less than 20% of eventing erosion. loughing present. nks on 80-100%. ng channel. Greater bed is covered by buting to instability.	,
			DOI	tom.	vegetative protect	ion on > 40% of the	40% of the banks a	and stable sediment is absent.		channels and/or nean flow.	CI
Score	3	3	2	2.4		2	1	.6		1	2.0
. RIPARIAN	N BUFFERS: A		Con	nditional Cate ptimal	gory	ginal Low Marginal:		n may be accepta	NOTES>>		
RIPARIAN Riparian Buffers	Opti Tree stratum (dbh > with > 60% tree ca	imal - 3 inches) present, nopy cover and a lerstory. Wetlands	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy	gory	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh >3 inches) present, with 30% lockes) canopy cover with	Po				
Riparian	Option Tree stratum (dbh > with > 60% tree canon-maintained unc	imal - 3 inches) present, nopy cover and a lerstory. Wetlands	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory.	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation).	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover.	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh >3 inches) present, with <30% tree canopy cover with maintained understory.	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable condition.	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions.			
Riparian	Option Tree stratum (dbh > with > 60% tree canon-maintained unc	3 inches) present, inopy cover and a derstory. Wetlands e riparian areas.	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh >3 inches) present, with <30% tree canopy cover with maintained	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable			
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Riparian Buffers Condition Scores Delineate ripasecriptors. Determine squelow. Enter the % F	Tree stratum (dbh > with > 60% tree ca non-maintained unc located within the located with	imal 3 inches) present, unopy cover and a lerstory. Wetlands e riparian areas. 5 each stream bank ach by measuring Score for each riparian areas.	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 into Condition C	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Coungth and width. Coungth	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh > 3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5 the sums Riparian equal 100	NOTES>>		
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Riparian Buffers Condition Scores Delineate ripa escriptors. Determine squelow. Enter the % F Right Bank Left Bank	Tree stratum (dbh > with > 60% tree ca non-maintained unc located within the located with	imal 3 inches) present, unopy cover and a lerstory. Wetlands e riparian areas. 5 ach stream bank ach by measuring 100% 0.85 100% 0.85 aried substrate si	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 k into Condition C g or estimating ler parian category in	Inditional Cate ptimal Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Coungth and width. Coungth and width. Coungth and width. Coungth and depths; wodes.	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85 Indition Scores us calculators are production of the produc	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh > 3 inches) present, with < 30% tree canopy cover with maintained understory: Low 0.75 ing the povided for you	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F Blocks 6	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5 the sums Riparian equal 100 100%	NOTES>> CI= (Sum % RA** Rt Bank CI >	0.85	CI 0.85
Condition Scores Delineate ripa escriptors. Determine squelow. Enter the % F Right Bank Left Bank I. INSTREAN ndercut banks;	Tree stratum (dbh > with > 60% tree ca non-maintained unc located within the located with	imal 3 inches) present, nopy cover and a lerstory. Wetlands e riparian areas. 5 each stream bank ach by measuring 100% 0.85 100% 0.85 aried substrate significations in the poole complete.	Riph Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 Into Condition C g or estimating ler parian category in	Inditional Cate ptimal Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Coungth and width. Coungth and width. Coungth and width. Coungth and depths; wores. Conditional	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <a>3 inches) present, with <a>3 inches) present, or a tree canopy cover. High 0.85 Indition Scores us calculators are production of the control of th	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh >3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75 ing the povided for you	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F Blocks 6	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5 the sums Riparian equal 100 100%	NOTES>> CI= (Sum % RA *: Rt Bank CI > Lt Bank CI >	0.85	
Condition Scores Delineate ripalescriptors. Determine squelow. Enter the % F. Right Bank Left Bank	Tree stratum (dbh > with > 60% tree ca non-maintained unc located within the located with	5 Score for each ri 100% 0.85 100% 0.85 riped substrate siffle poole comple	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 Into Condition C g or estimating let parian category in Zes, water velocity ixes, stable featur Subo Stable habitat ele present in 30-50% are adequate fo	Inditional Cate ptimal Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Coungth and width. Coungth and width. Coungth and width. Coungth and depths; wodes.	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85 Indition Scores us calculators are production of the present in 10-30 are adequate for a seadequate for the present in 10-30 are adequate for the present in 10-30 are adeq	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh > 3 inches) present, with < 30% tree canopy cover with maintained understory: Low 0.75 ing the povided for you	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F Blocks 6	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5 the sums Riparian equal 100 100%	NOTES>> CI= (Sum % RA *: Rt Bank CI > Lt Bank CI >	0.85	

	St	ream In	npact A	ssessm	ent Fo	rm Page	e 2		
Project #	Applicant		Locality	Cowardin Class.	HUC	Date	Data Point	SAR length	Impact Factor
								500	1
	L ALTERATION: Stream cross poil piles, constrictions, livestock	ings, riprap, conci		concrete blocks, s	traightening of ch	annel, channeliza	ation,	NOTES>>	
	Negligible	Mii	nor		erate		vere		
Channel Alteration	Channelization, dredging, alteration, or hardening absent. Stream has an unaltered pattern or has naturalized.	Less than 20% of the stream reach is disrupted by any of the channel alterations listed in the parameter guidelines.	20-40% of the stream reach is disrupted by any of the channel alterations listed in the parameter guidelines.	is disrupted by any of the channel	of the channel	Greater than 80% of by any of the chann in the parameter g	of reach is disrupted nel alterations listed juidelines AND/OR lored with gabion, r cement.		
SCORE	1.5	1.3	1.1	0.9	0.7	0	.5		
	REACH C	ONDITION II	NDEX and S	TREAM CO	NDITION UN	ITS FOR TH	IS REACH		
NOTE: The Cls and F	RCI should be rounded to 2 decimal places.	The CR should be rour	nded to a whole numb	er.	•		THE REACH (CONDITION IN	DEX (RCI) >>

CR = RCI X LF X IF



DESCRIBE PROPOSED IMPACT:	

		Stre	Unit	fied Stream N	lethodology 1	Form	ginia	m 1)			
Project #		Project Name		Locality	nels classified a Cowardin Class.	HUC	Date Date	SAR#	Impact/SAR length	Impact Factor	
5337	I-64	Peninsula S	tudy	Newport News	0.000.	02080206	6-29-11		2314		
Name	e(s) of Evalua	tor(s)	Stream Nam	e and Informa	ation						
	Doucette		WUS 16N								
. Channel C	Condition: Asse	ess the cross-sec	tion of the stream		ondition (erosion, conditional Catego						
	Opti	imal	Subo	ptimal	Mar	ginal	Po	oor	Se	vere	-
	10	JAK.		ew areas of active cted banks. Majority		less than Severe or stable than Severe		ned/incised. unstable. Likely to		nstability. Severe	
Channel Condition	Very little incision o 100% stable bar surface protection prominent (80-1) Stable point bars/bs present. Access floodplain or fully bankfull benches. and transverse bs sediment depositio 10% of 1	nks. Vegetative n or natural rock, 00%). AND/OR ankfull benches are to their original v developed wide Mid-channel bars, ars few. Transient on covers less than	Vegetative protect prominent (60- Depositional feat stability. The bar channels are well likely has access to rnewly develope portions of the rediment covers 10	table (60-80%). tion or natural rock -80%) AND/OR tures contribute to nkfull and low flow II defined. Stream o bankfull benches, ad floodplains along reach. Transient 0-40% of the stream	Erosion may be pr both banks. Veget 40-60% of banks. bevertical or unde 60% of stream sediment. Se- temporary/tran instability. Depositi stability, may be	ower bank slopes. resent on 40-60% of tative protection on Streambanks may ercut. AND/OR 40- n is covered by diment may be issient, contribute ton that contribute to a forming/present.	are near vertical. 60-80% of bar protection prese banks, and is insi erosion. AND/O stream is cover Sediment is temp nature, and contri AND/OR V-shap	jority of both banks Erosion present on iks. Vegetative ent on 20-40% of ufficient to prevent IR 60-80% of the ed by sediment. porary/transient in buting to instability. ed channels have	banks. Streamb rooting depth, r vertical/under protection present banks, is not pr Obvious bank s Erosion/raw ba AND/OR Aggradir than 80% of strear	ed below average majority of banks cut. Vegetative on less than 20% o eventing erosion. loughing present. nks on 80-100%. In channel. Greate m bed is covered by buting to instability.	,
			boti	tom.	vegetative protect	ed channels have ion on > 40% of the ional features which	40% of the banks a	tion is present on > and stable sediment is absent.		channels and/or nean flow.	CI
Score	3	3	2	2.4		2	1	.6		1	1.6
. RIPARIAN	N BUFFERS: A		Con	an areas along the	gory	ginal	Po	n may be accepta	NOTES>>		
RIPARIAN Riparian Buffers	Opti Tree stratum (dbh > with > 60% tree ca	imal > 3 inches) present, anopy cover and a derstory. Wetlands	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy	gory	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh > 3 inches) present, with < 30% tree			,		
Riparian	Option Tree stratum (dbh > with > 60% tree canon-maintained unc	imal > 3 inches) present, anopy cover and a derstory. Wetlands	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, injarian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh > 3 inches) present,	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable	,		
Riparian	Option Tree stratum (dbh > with > 60% tree canon-maintained unc	imal 3 inches) present, anopy cover and a derstory. Wetlands e riparian areas.	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh >3 inches) present, with <30% tree canopy cover with maintained	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable	,		
Riparian Buffers Condition Scores Delineate ripaescriptors. Determine squelow.	Tree stratum (dbh > with > 60% tree ca non-maintained unc located within the	imal 3 inches) present, anopy cover and a derstory. Wetlands e riparian areas. 5 each stream bankach by measuring	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 into Condition C	Inditional Cate ptimal Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Coungth and width. Coungth and width. Coungth and coungth and width.	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh > 3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5	,		
Riparian Buffers Condition Scores Delineate ripasscriptors. Determine sq	Tree stratum (dbh > with > 60% tree ca non-maintained unc located within the located with	imal 3 inches) present, anopy cover and a derstory. Wetlands e riparian areas. 5 each stream bank ach by measurin.	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 into Condition C g or estimating ler	Inditional Cate ptimal Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Coungth and width. Coungth and width. Coungth and coungth and width.	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh > 3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5	,		
Riparian Buffers Condition Scores Delineate ripaescriptors. Determine squelow. Enter the % F	Tree stratum (dbh > with > 60% tree ca non-maintained unc located within the	imal 3 inches) present, anopy cover and a derstory. Wetlands e riparian areas. 5 each stream bankach by measuring	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 into Condition C	Inditional Cate ptimal Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Coungth and width. Coungth and width. Coungth and coungth and width.	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh > 3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5	NOTES>>		
Riparian Buffers Condition Scores Delineate ripascriptors. Determine squelow. Enter the % F	Tree stratum (dbh > with > 60% tree canon-maintained unc located within the located withi	imal 3 inches) present, anopy cover and a derstory. Wetlands e riparian areas. 5 each stream bank ach by measurin Score for each ri	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 into Condition C g or estimating ler parian category in 70% 0.5	Inditional Cate ptimal Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Coungth and width. Coungth and width. Coungth and coungth and width.	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh > 3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5 the sums Riparian equal 100	NOTES>>		
Riparian Buffers Condition Scores Delineate ripasscriptors. Determine squelow. Enter the % F	Tree stratum (dbh > with > 60% tree ca non-maintained unc located within the located with	imal 3 inches) present, anopy cover and a derstory. Wetlands e riparian areas. 5 each stream bank ach by measurin Score for each ri 30% 1.5	Right Suboptimal: Riparian areas with tree stratum (dbh s 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 Into Condition C g or estimating ler parian category in 70% 0.5	Inditional Cate ptimal Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Coungth and width. Coungth and width. Coungth and coungth and width.	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh > 3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5	NOTES>>	0.80	CI 0.80
Riparian Buffers Condition Scores Delineate ripaescriptors. Determine squelow. Enter the % R Right Bank Left Bank	Tree stratum (dbh > with > 60% tree canon-maintained unc located within the located withi	imal 3 inches) present, anopy cover and a derstory. Wetlands e riparian areas. 5 each stream bank ach by measurin 30% 1.5 30% 1.5 aried substrate si	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 into Condition C g or estimating ler parian category in 70% 0.5	Inditional Cate ptimal Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Coungth and width. Coungth and width. Coungth and width. Coungth and depths; wodes.	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85 Indition Scores us alculators are production of the product	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh > 3 inches) present, with < 30% tree canopy cover with maintained understory: Low 0.75 ing the povided for you	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F Blocks 6	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5 the sums Riparian equal 100 100%	NOTES>> CI= (Sum % RA*: Rt Bank CI >		CI 0.80
Riparian Buffers Condition Scores Delineate ripa escriptors. Determine sq elow. Enter the % R Right Bank Left Bank INSTREAN ndercut banks;	Tree stratum (dbh > with > 60% tree ca non-maintained unc located within the located with	imal 3 inches) present, anopy cover and a derstory. Wetlands e riparian areas. 5.5 each stream bank ach by measuring 30% 1.5 30% 1.5 aried substrate siffle poole comple	Right Suboptimal: Riparian areas with tree stratum (dbh s 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 Into Condition C g or estimating ler parian category in 70% 0.5	Inditional Cate ptimal Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Coungth and width. Coungth and width. Coungth and width. Coungth and depths; wores. Conditional	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <a>30 tree canopy cover. High 0.85 Indition Scores us alculators are production of the pr	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh >3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75 ing the povided for you	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F Blocks 6	Low Poor: Impervious surfaces, mine pool lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5 the sums Riparian equal 100 100% 100%	NOTES>> CI= (Sum % RA *: Rt Bank CI > Lt Bank CI >	0.80	
Condition Scores Delineate ripalescriptors. Determine squelow. Enter the % Right Bank Left Bank B. INSTREAN	Tree stratum (dbh > with > 60% tree ca non-maintained unc located within the located with	imal 3 inches) present, anopy cover and a derstory. Wetlands e riparian areas. 5 ach stream bani ach by measuring ach by m	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 into Condition C g or estimating ler parian category in 70% 0.5 70% 0.5 Zes, water velocity ixes, stable featur Subo Stable habitat ele present in 30-50% are adequate fo	Inditional Cate ptimal Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Coungth and width. Coungth and width. Coungth and width. Coungth and depths; wodes.	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85 Indition Scores us alculators are production of the present in 10-30 are adequate for a sealequate for the present in 10-30 are adequate for the present in 10-30 are adequ	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh > 3 inches) present, with < 30% tree canopy cover with maintained understory: Low 0.75 ing the povided for you	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F Blocks 6	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5 the sums Riparian equal 100 100%	NOTES>> CI= (Sum % RA *: Rt Bank CI > Lt Bank CI >	0.80	

Stream Impact Assessment Form Page 2 Applicant Project # Cowardin Class Data Point SAR length Impact Factor 4. CHANNEL ALTERATION: Stream crossings, riprap, concrete, gabions, or concrete blocks, straightening of channel, channelization, NOTES>> embankments, spoil piles, constrictions, livestock Conditional Category Moderate Minor Negligible Severe 40 - 60% of reach is disrupted by any of the channel 20-40% of the stream reach is Less than 20% of alterations listed in the parameter guidelines. If Channel Iterations listed in Greater than 80% of reach is disrupted the stream reach the parameter Channelization, dredging, alteration, or hardening absent. Stream has an unaltered pattern or has naturalized. by any of the channel alterations listed in the parameter guidelines AND/OR 80% of banks shored with gabion, s disrupted by any disrupted by any Alteration of the channel Iterations listed i of the channel Iterations listed i guidelines. If stream has been channelized, normal stable stream has been channelized, normal stable the parameter the parameter riprap, or cement. guidelines. guidelines. stream meander stream meander pattern has not pattern has not SCORE 1.5 1.3 1.1 0.9 0.7 0.5 0.50 REACH CONDITION INDEX and STREAM CONDITION UNITS FOR THIS REACH THE REACH CONDITION INDEX (RCI) >> NOTE: The CIs and RCI should be rounded to 2 decimal places. The CR should be rounded to a whole number.

0.68

RCI= (Sum of all CI's)/5

COMPENSATION REQUIREMENT (CR) >> 0

CR = RCI X LF X IF

INSERT PHOTOS:







		Stre	Uni	fied Stream N	lethodology 1	for use in Virg	-	m 1)			
Project #	ı	Project Name		Locality	Cowardin Class.	HUC	Date Date	SAR#	Impact/SAR length	Impact Factor	
5337	I-64	Peninsula S	tudy	Newport News		02080206	6-29-11		42		
Name	e(s) of Evaluat	tor(s)	Stream Nam	e and Informa	ation						
	Bode		WUS 17N								
. Channel C	Condition: Asse	ess the cross-sec	ction of the stream								
	Opti	imal	Subo	ptimal	Conditional Catego Mar	ginal	Po	oor	Se	vere	
Channel Condition	Very little incision or 100% stable bar surface protection prominent (80-11	nks. Vegetative n or natural rock, 00%). AND/OR	erosion or unproter of banks are s Vegetative protec prominent (60	ew areas of active cted banks. Majoritable (60-80%). tion or natural rock -80%). AND/OR tures contribute to	Poor. Banks more or Poor due to lo Erosion may be pr both banks. Vege 40-60% of banks.	less than Severe or stable than Severe wer bank slopes. resent on 40-60% of tative protection on Streambanks may	Vertically/laterally widen further. Ma are near vertical. 60-80% of bar protection prese	ned/incised. unstable. Likely to jority of both banks Erosion present on liks. Vegetative ent on 20-40% of	incision, flow co banks. Streamb rooting depth, r vertical/under	ustability. Severe ntained within the ed below average najority of banks zut. Vegetative on less than 20% of	
	present. Access floodplain or fully bankfull benches. and transverse be sediment depositio 10% of I	v developed wide Mid-channel bars, ars few. Transient on covers less than bottom.	stability. The bar channels are we likely has access t or newly develope portions of the i sediment covers 10 bot	nkfull and low flow Il defined. Stream o bankfull benches, defloodplains along reach. Transient 0-40% of the stream tom.	bevertical or unde 60% of stream sediment. Se temporary/tran instability. Depositi stability, may be AND/OR V-shap vegetative protect banks and depositi	ercut. AND/OR 40- n is covered by diment may be issient, contribute ion that contribute to a forming/present. wed channels have ion on > 40% of the ional features which	erosion. AND/O stream is cover Sediment is temp nature, and contri AND/OR V-shap vegetative protect 40% of the banks a deposition	ufficient to prevent R 60-80% of the ed by sediment. or orary/transient in buting to instability. ed channels have ion is present on > and stable sediment is absent.	banks, is not pr Obvious bank s Erosion/raw ba AND/OR Aggradii than 80% of strear deposition, contril Multiple thread subterra	eventing erosion. loughing present. nks on 80-100%. Ig channel. Greater to bed is covered by buting to instability. channels and/or nean flow.	CI
Score	3	3	2	2.4		2	1	.6		1	2.4
	Opti		Con	n areas along the nditional Cate ptimal	gory	ginal	Po	n may be accepta	NOTES>> R 40' long and	originates	
Riparian Buffers	Opti Tree stratum (dbh > with > 60% tree ca	imal > 3 inches) present, anopy cover and a derstory. Wetlands	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy	gory	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh > 3 inches) present, with <30% tree canopy cover with maintained			NOTES>> R 40' long and from BMP at flows throug	originates parking lot -	
Riparian Buffers	Optia Tree stratum (dbh > with > 60% tree ca	imal > 3 inches) present, anopy cover and a derstory. Wetlands	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh > 3 inches) present, with <30% tree canopy cover with	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable	NOTES>> R 40' long and from BMP at flows throug	originates parking lot -	
Riparian	Optia Tree stratum (dbh > with > 60% tree ca	imal 3 inches) present, anopy cover and a derstory. Wetlands e riparian areas.	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory.	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation).	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover.	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh >3 inches) present, with <30% tree canopy cover with maintained understory.	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, recently seeded and stabilized, or other comparable condition.	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions.	NOTES>> R 40' long and from BMP at flows throug	originates parking lot -	
Riparian Buffers Condition Scores Delineate ripaescriptors. Determine squelow.	Tree stratum (dbh > with > 60% tree ca non-maintained unc located within the	imal 3 inches) present, anopy cover and a derstory. Wetlands e riparian areas. 5 each stream banl ach by measurin	Com Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 into Condition C	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Coungth and width. Coungth	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh > 3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5	NOTES>> R 40' long and from BMP at flows throug	originates parking lot -	
Riparian Buffers Condition Scores Delineate ripa sescriptors. Determine sq	Tree stratum (dbh > with > 60% tree canon-maintained unch located within the	imal 3 inches) present, anopy cover and a derstory. Wetlands e riparian areas. 5 ach stream banl ach by measurin.	Com Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 into Condition C	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Coungth and width. Coungth	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh > 3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5	NOTES>> R 40' long and from BMP at flows throug	originates parking lot -	
Riparian Buffers Condition Scores Delineate ripascriptors. Determine squelow. Enter the % F	Tree stratum (dbh > with > 60% tree ca non-maintained unc located within the	imal 3 inches) present, anopy cover and a derstory. Wetlands e riparian areas. 5 each stream banl ach by measurin	Com Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 into Condition C	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Coungth and width. Coungth	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh > 3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5	NOTES>> R 40' long and from BMP at flows throug	originates parking lot -	
Riparian Buffers Condition Scores Delineate ripascriptors. Determine squelow. Enter the % F	Tree stratum (dbh > with > 60% tree canon-maintained unclocated within the located within	imal 3 inches) present, anopy cover and a derstory. Wetlands e riparian areas. 5 ach stream bank ach by measurin. Score for each ri	Com Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 into Condition C	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Coungth and width. Coungth	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh > 3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5	NOTES>> R 40' long and from BMP at flows throug	originates t parking lot - gh forest.	
Riparian Buffers Condition Scores Delineate ripa secriptors. Determine sq slow. Enter the % R	Tree stratum (dbh > with > 60% tree canon-maintained unclocated within the located within	imal 3 inches) present, anopy cover and a derstory. Wetlands e riparian areas. 5 each stream bank ach by measuring the stream bank and by measuring the stream bank ach by measuring the stream ban	Com Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 into Condition C	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Coungth and width. Coungth	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh > 3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5	NOTES>> R 40' long and from BMP at flows through Cl= (Sum % RA * 1	originates t parking lot - gh forest. Scores*0.01)/2 1.20	CI
Riparian Buffers Condition Scores Delineate ripasscriptors. Determine square. Enter the % F Right Bank Left Bank	Tree stratum (dbh > with > 60% tree canon-maintained unclocated within the located within	imal 3 inches) present, anopy cover and a derstory. Wetlands e riparian areas. 5 each stream banl ach by measuring 100% 1.2 100% 1.2	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 Into Condition C g or estimating ler parian category in	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 attegories and Co ongth and width. Co	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh > 3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75 ing the povided for you	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F Blocks 6	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5 the sums Riparian equal 100 100%	NOTES>> R 40' long and from BMP at flows through CI= (Sum % RA *: Rt Bank CI > Lt Bank CI >	originates t parking lot - the forest.	CI 1.20
Riparian Buffers Condition Scores Delineate ripa Secriptors. Determine sq low. Enter the % R Right Bank Left Bank	Tree stratum (dbh > with > 60% tree ca non-maintained unc located within the located with	imal 3 inches) present, anopy cover and a derstory. Wetlands e riparian areas. 5 each stream bank ach by measuring the stream bank ach by measuring the stream bank ach by ach	Com Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 Into Condition C g or estimating let parian category in	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Congth and width. Control with the blocks below yand depths; woo	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh > 3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75 ing the povided for you	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F Blocks 6	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5 the sums Riparian equal 100 100%	NOTES>> R 40' long and from BMP at flows through Cl= (Sum % RA * 1	originates t parking lot - gh forest. Scores*0.01)/2 1.20	
Condition Scores Delineate ripa escriptors. Determine sq elow. Enter the % R Right Bank Left Bank INSTREAN ndercut banks;	Tree stratum (dbh > with > 60% tree ca non-maintained unc located within the located with	imal 3 inches) present, anopy cover and a derstory. Wetlands e riparian areas. 5.5 each stream bank ach by measuring the stream bank and by measuring the stream bank and the stream bank ach by measuring the stream bank and the stream bank ach by measuring the st	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 s into Condition C g or estimating let parian category in zes, water velocit ixes, stable featur	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Co ngth and width. Co n the blocks below y and depths; wodes. Conditiona	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85 Indition Scores us calculators are production of the product	Ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh >3 inches) present, with <a>30 % tree canopy cover with maintained understory. Low 0.75 ing the price of the product of the present of t	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F Blocks 6	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5 the sums Riparian equal 100 100%	NOTES>> R 40' long and from BMP at flows through CI= (Sum % RA *: Rt Bank CI > Lt Bank CI >	originates t parking lot - gh forest. Scores*0.01)/2 1.20	
Riparian Buffers Condition Scores Delineate ripa escriptors. Determine sq elow. Enter the % R Right Bank Left Bank B. INSTREAN ndercut banks;	Tree stratum (dbh > with > 60% tree ca non-maintained unc located within the located with	imal 3 inches) present, anopy cover and a derstory. Wetlands e riparian areas. 5.5 each stream bank ach by measuring the stream bank and by measuring the stream bank and the stream bank ach by measuring the stream bank and the stream bank ach by measuring the st	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 s into Condition C g or estimating let parian category in zes, water velocit ixes, stable featur	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Coungth and width. Coungth and width. Coungth and width. Coungth and depths; woo es.	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85 Indition Scores us calculators are production of the product	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh > 3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75 ing the povided for you	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F Blocks 6	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5 the sums Riparian equal 100 100%	NOTES>> R 40' long and from BMP at flows through CI= (Sum % RA *: Rt Bank CI > Lt Bank CI >	originates t parking lot - gh forest. Scores*0.01)/2 1.20	
Condition Scores Delineate ripa escriptors. Determine squelow. Enter the % R Right Bank Left Bank INSTREAN	Tree stratum (dbh > with > 60% tree ca non-maintained unc located within the located with	imal 3 inches) present, anopy cover and a derstory. Wetlands e riparian areas. 5 beach stream bani ach by measurin 100% 1.2 100% 1.2 aried substrate si iffle poole completimal re typically present	Com Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 Into Condition C g or estimating let parian category in zes, water velocit exes, stable featur Subo Stable habitat ele present in 30-509 are adequate fo	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Co ngth and width. Co n the blocks below y and depths; wodes. Conditiona	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85 Indition Scores us calculators are production of the present in 10-30 are adequate for a sedequate for the present in 10-30 are adequate for the present in 10-30 are adequa	Ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh >3 inches) present, with <a>30 % tree canopy cover with maintained understory. Low 0.75 ing the price of the product of the present of t	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F Blocks 6	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5 the sums Riparian equal 100 100%	NOTES>> R 40' long and from BMP at flows through CI= (Sum % RA *: Rt Bank CI > Lt Bank CI >	originates t parking lot - gh forest. Scores*0.01)/2 1.20	

	St	ream In	npact A	ssessm	nent Fo	rm Pag	e 2		
Project #	Applicant		Locality	Cowardin Class.	HUC	Date	Data Point	SAR length	Impact Factor
								500	1
	ALTERATION: Stream cross poil piles, constrictions, livestock	sings, riprap, conc		concrete blocks, s	traightening of ch	annel, channeliza	ation,	NOTES>>	
	Negligible	Mi	nor		erate	Se	vere		
Channel Alteration	Channelization, dredging, alteration, or hardening absent. Stream has an unaltered pattern or has naturalized.	Less than 20% of the stream reach is disrupted by any of the channel alterations listed in the parameter guidelines.	20-40% of the stream reach is disrupted by any of the channel	is disrupted by any	60 - 80% of reach is disrupted by any of the channel alterations listed in the parameter guidelines. If stream has been channelized, normal stable stream meander pattern has not	Greater than 80% by any of the chan in the parameter 80% of banks sh	of reach is disrupted nel alterations listed guidelines AND/OR nored with gabion, or cement.		
SCORE	1.5	1.3	1.1	0.9	0.7	O).5		
	REACH C	ONDITION I	NDEX and S	TREAM CO	NDITION UN	ITS FOR TH	IS REACH		
NOTE: The CIs and R	CI should be rounded to 2 decimal places.	The CR should be rou	nded to a whole numb	er.			THE REACH (CONDITION IN	DEX (RCI) >>
							RC	= (Sum of all C	l's)/5

COMPENSATION REQUIREMENT (CR) >> 0

CR = RCI X LF X IF



DESCRIBE PROPOSED IMPACT:		

	Stream Assessment Form (Form 1) Unified Stream Methodology for use in Virginia For use in wadeable channels classified as intermittent or perennial										
Project #	F	Project Name		Locality	Cowardin Class.	HUC	Date	SAR#	Impact/SAR length	Impact Factor	
5337	I-64	Peninsula S	tudy	Newport News		02080206	6-29-11		1203		
Name	e(s) of Evaluat	or(s)		e and Informa	ation						
	Bode		WUS 18N								
. Channel C	Condition: Assess the cross-section of Optimal		tion of the stream		ondition (erosion, Conditional Catego						
	Opti	mal	Subo	ptimal		ginal	Po	oor	Sev	/ere	
Channel Condition	Very little incision or 100% stable ban surface protection prominent (80-10	ks. Vegetative or natural rock,	erosion or unproted of banks are st Vegetative protect prominent (60-	ew areas of active cted banks. Majority table (60-80%). tion or natural rock -80%) AND/OR	Poor. Banks more or Poor due to lo Erosion may be pr both banks. Veget	less than Severe or stable than Severe ower bank slopes. esent on 40-60% of tative protection on	Vertically/laterally widen further. Ma are near vertical. 60-80% of bar	ned/incised. unstable. Likely to jority of both banks Erosion present on iks. Vegetative ent on 20-40% of	incision, flow cor banks. Streamb rooting depth, n	teu,, stability. Severe ntained within the ed below average najority of banks but. Vegetative	
	Stable point bars/ba present. Access floodplain or fully bankfull benches. I and transverse ba sediment deposition 10% of b	nkfull benches are to their original developed wide Mid-channel bars, rs few. Transient n covers less than	stability. The bar channels are wel likely has access to or newly develope portions of the r	tures contribute to hkfull and low flow Il defined. Stream o bankfull benches, id floodplains along reach. Transient 0-40% of the stream tom.	bevertical or unde 60% of stream sediment. See temporary/tran instability. Depositi stability, may be AND/OR V-shap vegetative protecti	Streambanks may arcut. AND/OR 40-n to covered by diment may be sient, contribute on that contribute to forming/present. ed channels have ion on > 40% of the ional features which	banks, and is insi erosion. AND/C stream is cover Sediment is tem nature, and contri AND/OR V-shap vegetative protect 40% of the banks a	ant on 20-40% of ufficient to prevent R 60-80% of the red by sediment. porary/transient in buting to instability. eed channels have tion is present on > and stable sediment is absent.	banks, is not pre Obvious bank sl Erosion/raw ban AND/OR Aggradir than 80% of strear deposition, contrib Multiple thread	on less than 20% of eventing erosion. loughing present. hks on 80-100%. Ig channel. Greater n bed is covered by juting to instability. channels and/or nean flow.	CI
Score	3		2	.4		2	1	.6		1	2.0
DIDADIAN	M DIJECTOR. A		l- 400 (1 - 1 1 -				()		1.1.3		
. RIPARIAI	N BUFFERS: A		Con	n areas along the aditional Cate ptimal	gory	ugh measurement		n may be accepta	NOTES>>		
Riparian Buffers		mal 3 inches) present, nopy cover and a erstory. Wetlands	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory.	ditional Cate ptimal Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation).	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover.	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh >3 inches) present, with <30% tree canopy cover with maintained understory.	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable condition.	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions.	NOTES>>		
Riparian Buffers	Option Tree stratum (dbh > with > 60% tree can non-maintained und	mal 3 inches) present, nopy cover and a erstory. Wetlands riparian areas.	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh s 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh > 3 inches) present, with <30% tree canopy cover with maintained	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable	NOTES>>		
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Riparian Buffers Condition Scores Delineate ripa escriptors. Determine squelow.	Tree stratum (dbh > with > 60% tree can non-maintained und located within the strain areas along e quare footage for ea Riparian Area and \$ % Riparian Area > \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$	3 inches) present, nopy cover and a erstory. Wetlands riparian areas. 5 ach stream bank ach by measuring 70% 1.2	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 into Condition Co g or estimating ler parian category in 30% 0.6	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Coungth and width. Co	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh > 3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5	NOTES>> CI= (Sum % RA*S Rt Bank CI >	1.02	CI
Condition Scores Delineate ripalescriptors. Determine squelow. Enter the % Right Bank Left Bank I. INSTREAM	Tree stratum (dbh > with > 60% tree can non-maintained und located within the strain areas along e quare footage for each partial area and \$ % Riparian Area and \$ % Riparian Area > \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$	3 inches) present, nopy cover and a erstory. Wetlands riparian areas. 5 ach stream bank ach by measuring 70% 1.2 70% 1.2 ried substrate si	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 into Condition Co g or estimating ler parian category in 30% 0.6 30% 0.5 zes, water velocity	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Coungth and width. Coungth and width. Coungth and width. Coungth and depths; woo	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh > 3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75 ing the povided for you	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % B Blocks 6	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5 the sums Riparian equal 100 100%	NOTES>>		CI 1.01
Condition Scores Delineate ripa escriptors. Determine squelow. Enter the % R Right Bank Left Bank INSTREAN	Tree stratum (dbh > with > 60% tree car non-maintained und located within the strain areas along e quare footage for each score > % Riparian Area and \$ % Riparian Area	3 inches) present, nopy cover and a erstory. Wetlands riparian areas. 5 ach stream bank ach by measuring 70% 1.2 70% 1.2 ried substrate site goole complete the poole complete stream and the poole complete the poole complete stream and the poole complete the p	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 sinto Condition Co g or estimating ler parian category in 30% 0.6 30% 0.5 zes, water velocity xes, stable featur	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Coungth and width. Coungth and width. Coungth and width. Coungth and depths; wores. Conditiona	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85 Indition Scores using alculators are production of the prod	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh >3 inches) present, with <a>30 % tree canopy cover with maintained understory. Low 0.75 ing the provided for you	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F Blocks 6	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5 the sums Riparian equal 100 100%	NOTES>> Cl= (Sum % RA * S Rt Bank Cl > Lt Bank Cl >	1.02	
Condition Scores Delineate ripalescriptors. Deltermine squelow. Enter the % R Right Bank Left Bank INSTREAM	Tree stratum (dbh > with > 60% tree can non-maintained und located within the located located within the located locate	mal 3 inches) present, nopy cover and a erstory. Wetlands riparian areas. 5 ach stream bank ach by measuring 70% 1.2 70% 1.2 ried substrate si fle poole comple mal	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 into Condition Co g or estimating ler parian category in 30% 0.6 30% 0.5 Zes, water velocity xes, stable featur Subo Stable habitat eler present in 30-509 are adequate for	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Coungth and width. Counter the blocks below y and depths; wodes.	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85 Indition Scores using the state of the state	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh > 3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75 ing the povided for you	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F Blocks 6 Habitat element: lacking or are u elements are typic	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5 the sums Riparian equal 100 100%	CI= (Sum % RA * S Rt Bank CI > Lt Bank CI >	1.02	

	St	ream In	npact A	ssessm	nent Fo	rm Pag	e 2		
Project #	Applicant		Locality	Cowardin Class.	HUC	Date	Data Point	SAR length	Impact Factor
								500	1
	L ALTERATION: Stream cross spoil piles, constrictions, livestock	sings, riprap, conc		concrete blocks, s	traightening of ch	annel, channeliz	ation,	NOTES>>	
	Negligible	Mi	nor	Mod	erate	Se	evere		
Channel Alteration	Channelization, dredging, alteration, or hardening absent. Stream has an unaltered pattern or has naturalized.	Less than 20% of the stream reach is disrupted by any of the channel alterations listed in the parameter guidelines.	20-40% of the stream reach is disrupted by any of the channel alterations listed in the parameter guidelines.	is disrupted by any of the channel	is disrupted by any of the channel	Greater than 80% by any of the char in the parameter 80% of banks s	of reach is disrupted nnel alterations listed guidelines AND/OR hored with gabion, or cement.		
SCORE	1.5	1.3	1.1	0.9	0.7	(0.5		
	REACH (CONDITION	NDEX and S	TREAM CO	NDITION UN	ITS FOR TH	IIS REACH		
NOTE: The CIs and I	RCI should be rounded to 2 decimal places.	The CR should be rou	nded to a whole numb	er.			THE REACH (CONDITION IN	DEX (RCI) >>

CR = RCI X LF X IF

INSERT PHOTOS:



		Stre	Unit	fied Stream N	lethodology 1	Form	ginia	m 1)			
Project #		Project Name		Locality	cowardin Class.	HUC	perennial Date	SAR#	Impact/SAR length	Impact Factor	
5337	I-64	Peninsula S	tudy	Newport News	0.000	02080206	6-29-11		22	1 4010.	
Name	e(s) of Evalua	tor(s)	Stream Nam	e and Informa	ation						
	Bode		WUS 19N								
. Channel C	Condition: Asse	ess the cross-sec	tion of the stream		ondition (erosion, Conditional Catego						
	Opti	imal	Subo	ptimal		ginal	Po	oor	Se	vere	
	Very little incision o	racting erector: 80	erosion or unproted	ew areas of active cted banks. Majority	Poor. Banks more	less than Severe or a stable than Severe	Vertically/laterally	ned/incised. unstable. Likely to		nstability. Severe	
Channel Condition	100% stable bar surface protection prominent (80-1) Stable point bars/ba present. Access floodplain or fully bankfull benches. and transverse ba sediment depositio 10% of	nks. Vegetative n or natural rock, 00%). AND/OR ankfull benches are to their original developed wide Mid-channel bars, ars few. Transient n covers less than	Vegetative protect prominent (60- Depositional feat stability. The bar channels are well likely has access to rnewly develope portions of the rediment covers 10	table (60-80%), titon or natural rock -80%) AND/OR tures contribute to nkfull and low flow II defined. Stream o bankfull benches, at floodplains along reach. Transient 0-40% of the stream tom.	Erosion may be pr both banks. Veget 40-60% of banks. bevertical or unde 60% of stream sediment. Se- temporary/tran instability. Depositi stability, may be	ower bank slopes. resent on 40-60% of tative protection on Streambanks may ercut. AND/OR 40- n is covered by diment may be isient, contribute to e forming/present. sed channels have	are near vertical. 60-80% of bar protection prese banks, and is inst erosion. AND/O stream is cover Sediment is temp nature, and contri AND/OR V-shap	jority of both banks Erosion present on iks. Vegetative ent on 20-40% of afficient to prevent R 60-80% of the red by sediment. corary/transient in buting to instability. ed channels have ion is present on >	banks. Streamb rooting depth, r vertical/under vertical/under protection present banks, is not pr Obvious bank s Erosion/raw bankD/OR Aggradir than 80% of strear deposition, contril	ed below average majority of banks cut. Vegetative on less than 20% of eventing erosion. loughing present. Nks on 80-100%. ng channel. Greater m bed is covered by buting to instability. channels and/or	
					banks and depositi	ion on > 40% of the ional features which	deposition	and stable sediment is absent.	subterra	nean flow.	CI
Score	3	3	2	2.4		2	1	.6		1	2.4
. RIPARIAN	N BUFFERS: A		Con Subo	nditional Cate	gory Mar	ginal Low Marginal: Non-maintained,	Po High Poor:	n may be accepta	NOTES>>		
RIPARIAN Riparian Buffers	Opti Tree stratum (dbh > with > 60% tree ca	imal - 3 inches) present, nopy cover and a lerstory. Wetlands	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy	gory	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh >3 inches) present, with 30% lockes) canopy cover with	Po				
Riparian	Option Tree stratum (dbh > with > 60% tree canon-maintained uncompaintained u	imal - 3 inches) present, nopy cover and a lerstory. Wetlands	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory.	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation).	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover.	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh >3 inches) present, with <30% tree canopy cover with maintained understory.	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable condition.	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions.			
Riparian	Option Tree stratum (dbh > with > 60% tree canon-maintained uncompaintained u	3 inches) present, inopy cover and a derstory. Wetlands e riparian areas.	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh >3 inches) present, with <30% tree canopy cover with maintained	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable			
Riparian Buffers Condition Scores Delineate ripa sescriptors. Determine sq elow.	Tree stratum (dbh > with > 60% tree ca non-maintained unc located within the	imal 3 inches) present, inopy cover and a lerstory. Wetlands e riparian areas.	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 into Condition C	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Coungth and width. Coungth	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh > 3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5			
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Riparian Buffers Condition Scores Delineate ripa escriptors. Determine squelow. Enter the % F Right Bank Left Bank	Tree stratum (dbh > with > 60% tree canon-maintained unc located within the located withi	5 sach stream bank ach by measuring 100% 1.2 100% 1.2 aried substrate si	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 k into Condition C g or estimating ler parian category in	Inditional Cate ptimal Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Coungth and width. Coungth and width. Coungth and width. Coungth and depths; wodes.	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85 Indition Scores us calculators are production of the produc	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh > 3 inches) present, with < 30% tree canopy cover with maintained understory: Low 0.75 ing the povided for you	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F Blocks 6	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5 the sums Riparian equal 100 100%	NOTES>> CI= (Sum % RA**; Rt Bank CI >	1.20	CI 1.20
Riparian Buffers Condition Scores Delineate ripa escriptors. Determine sq elow. Enter the % R Right Bank Left Bank INSTREAN ndercut banks;	Tree stratum (dbh > with > 60% tree ca non-maintained unc located within the located with	imal 3 inches) present, nopy cover and a lerstory. Wetlands e riparian areas. 5 each stream bank ach by measuring 100% 1.2 100% 1.2 aried substrate significations in the proofe complete in the proofe complete in the proofe in the proofe in the proofe complete in the proofe in t	Riph Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 Into Condition C g or estimating ler parian category in	Inditional Cate ptimal Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Coungth and width. Coungth and width. Coungth and width. Coungth and depths; wores. Conditional	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <a>3 inches) present, with <a>3 inches) present, or a tree canopy cover. High 0.85 Indition Scores us calculators are production of the control of th	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh >3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75 ing the povided for you	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F Blocks 6	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5 the sums Riparian equal 100 100%	NOTES>> CI= (Sum % RA * S Rt Bank CI > Lt Bank CI >	1.20	_
Condition Scores Delineate ripa escriptors. Determine sq elow. Enter the % F Right Bank Left Bank	Tree stratum (dbh > with > 60% tree ca non-maintained unc located within the located with	5 Score for each ri 100% 1.2 100% 1.2 100% 1.2 100% 1.2 100% 1.2 100% 1.2 100% 1.2 100% 1.2 100% 1.2 100% 1.2	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 Into Condition C g or estimating let parian category in Zes, water velocity ixes, stable featur Subo Stable habitat ele present in 30-50% are adequate fo	Inditional Cate ptimal Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Coungth and width. Coungth and width. Coungth and width. Coungth and depths; wodes.	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85 Indition Scores us calculators are production of the present in 10-30 are adequate for a seadequate for the present in 10-30 are adequate for the present in 10-30 are adeq	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh > 3 inches) present, with < 30% tree canopy cover with maintained understory: Low 0.75 ing the povided for you	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F Blocks 6	Low Poor: Impervious surfaces, mine pool lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5 the sums Riparian equal 100 100% 100%	NOTES>> CI= (Sum % RA * S Rt Bank CI > Lt Bank CI >	1.20	

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	St	ream In	າpact A	ssessm	ent Fo	rm Pag	e 2		
Project #	Applicant		Locality	Cowardin Class.	HUC	Date	Data Point	SAR length	Impact Factor
								500	1
	L ALTERATION: Stream cross spoil piles, constrictions, livestock	ings, riprap, conci	rete, gabions, or o	concrete blocks, s	traightening of ch	annel, channeliz	ation,	NOTES>>	
			Condition	al Category					
	Negligible	Mir	nor		erate	Se	evere		
Channel Alteration	or hardening absent. Stream has an	Less than 20% of the stream reach is disrupted by any of the channel alterations listed in the parameter guidelines.	20-40% of the stream reach is disrupted by any of the channel alterations listed in the parameter guidelines.	is disrupted by any of the channel	of the channel	Greater than 80% by any of the char in the parameter 80% of banks s	of reach is disrupted nnel alterations listed guidelines AND/OR hored with gabion, or cement.		
SCORE	1.5	1.3	1.1	0.9	0.7		0.5		
	REACH C	ONDITION II	NDEX and S	TREAM CO	NDITION UN	ITS FOR TH	IIS REACH		
NOTE: The CIs and R	RCI should be rounded to 2 decimal places.	The CR should be rour	nded to a whole numb	er.			THE REACH (CONDITION IN	DEX (RCI) >>
							RC	= (Sum of all C	l's)/5

COMPENSATION REQUIREMENT (CR) >> 0

CR = RCI X LF X IF



DESCRIBE PROPOSED IMPACT:		

		Stre	Unit		lethodology 1	for use in Vir	ginia	m 1)			
Project #	I	Project Name		Locality	cowardin Class.	HUC	Date Date	SAR #	Impact/SAR length	Impact Factor	
5337	I-64	Peninsula S	tudy	Hampton	R1UB2	02080108	6-27-11		4073		
Name	e(s) of Evalua	tor(s)	Stream Nam	e and Informa	ation						
	Doucette		WUS 1N								
. Channel C	Condition: Asse			C	Conditional Catego	ry					
	Opti	imal	Subo	ptimal	Mar	ginal	Po	oor	Se	vere	
	Wallet States		erecion or upproted	ew areas of active	Poor. Banks more	less than Severe or stable than Severe	Vertically/laterally	ned/incised. unstable. Likely to		nstability. Severe	
Channel Condition	Very little incision o 100% stable bar surface protection prominent (80-1) Stable point bars/bc present. Access floodplain or fully bankfull benches. and transverse bc sediment depositio 10% of 1	nks. Vegetative n or natural rock, 00%). AND/OR ankfull benches are to their original v developed wide Mid-channel bars, ars few. Transient on covers less than	Vegetative protect prominent (60- Depositional feat stability. The bar channels are wellikely has access to or newly develope portions of the r	table (60-80%), tion or natural rock -80%) AND/OR tures contribute to nkfull and low flow II defined. Stream o bankfull benches, id floodplains along reach. Transient 0-40% of the stream	Erosion may be pr both banks. Veget 40-60% of banks. bevertical or unde 60% of strean sediment. Se temporary/tran instability. Depositi	ower bank slopes. resent on 40-60% of tative protection on Streambanks may prout. AND/OR 40- n is covered by diment may be sient, contribute on that contribute to forming/present.	are near vertical. 60-80% of bar protection press banks, and is insu erosion. AND/O stream is cover Sediment is temp nature, and contri	jority of both banks Erosion present on iks. Vegetative ent on 20-40% of ufficient to prevent R 60-80% of the red by sediment. orary/transient in buting to instability. led channels have	banks. Streamb rooting depth, r vertical/under protection present banks, is not pr Obvious bank s Erosion/raw ba AND/OR Aggradir than 80% of strear	ed below average majority of banks cut. Vegetative on less than 20% of eventing erosion. loughing present. nks on 80-100%. ng channel. Greater m bed is covered by buting to instability.	
	10% 01	bottom.		tom.	vegetative protect	ed channels have ion on > 40% of the ional features which	40% of the banks a	tion is present on > and stable sediment is absent.	Multiple thread	channels and/or nean flow.	CI
Score	3	3	2	.4		2	1	.6		1	3.0
. RIPARIAN	BUFFERS: A	Assess both bank	s's 100 foot riparia	in areas along the	entire SAR. (rou	ugh measurement	s of length & widtl	n may be accepta	ble)		
2. RIPARIAN	BUFFERS: A		Con	ditional Cate	gory	ginal Low Marginal:	Po	n may be accepta	NOTES>>		
Riparian Buffers	Opti Tree stratum (dbh > with > 60% tree ca	imal > 3 inches) present, anopy cover and a derstory. Wetlands	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree	ditional Cate	gory	ginal			,		
Riparian Buffers	Opti Tree stratum (dbh > with > 60% tree canon-maintained uncolocated within the	imal 3 inches) present, anopy cover and a derstory. Wetlands e riparian areas.	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover.	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh > 3 inches) present, with <30% tree canopy cover with maintained	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable	,		
Riparian	Option Tree stratum (dbh > with > 60% tree canon-maintained unc	imal 3 inches) present, anopy cover and a derstory. Wetlands e riparian areas.	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory.	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation).	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover.	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh >3 inches) present, with <30% tree canopy cover with maintained understory.	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable condition.	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions.	,		
Riparian Buffers Condition Scores Delineate ripa lescriptors.	Opti Tree stratum (dbh > with > 60% tree canon-maintained uncolocated within the	imal 3 inches) present, anopy cover and a derstory. Wetlands e riparian areas.	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Con	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh > 3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable condition. High 0.6	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions.	,		
Riparian Buffers Condition Scores Delineate ripa escriptors. Determine squelow.	Tree stratum (dbh > with > 60% tree cc non-maintained und located within the	imal 3 inches) present, anopy cover and a derstory. Wetlands e riparian areas. 5 each stream bank ach by measuring.	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 into Condition C	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Coungth and width. Coungth	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh > 3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5	,		
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Riparian Buffers Condition Scores Delineate ripa escriptors. Determine squelow.	Tree stratum (dbh > with > 60% tree canon-maintained unce located within the located with	imal 3 inches) present, anopy cover and a derstory. Wetlands e riparian areas. 5 each stream bank each by measuring 100% 1.5	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 into Condition C g or estimating ler parian category in	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Coungth and width. Coungth	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh > 3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5 the sums Riparian equal 100	NOTES>>		CI 1.25
Condition Scores Delineate ripa escriptors. Determine squelow. Enter the % R Right Bank Left Bank B. INSTREAN	Tree stratum (dbh > with > 60% tree canon-maintained unclocated within the located within	imal 3 inches) present, anopy cover and a derstory. Wetlands e riparian areas. 5 each stream bank ach by measuring 100% 1.5 50% 1.5 aried substrate si	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 into Condition C g or estimating ler parian category in 50% 0.5 zes, water velociti	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Coungth and width. Coungth and width. Coungth and width. Coungth and depths; woo yeard de	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh > 3 inches) present, with < 30% tree canopy cover with maintained understory. Low 0.75 ing the ovided for you	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F Blocks 6	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5 the sums Riparian equal 100 100%	NOTES>> CI= (Sum % RA*: Rt Bank CI >	1.50	
Condition Scores Delineate ripa elescriptors. Denter the % R Right Bank Left Bank Instream	Tree stratum (dbh > with > 60% tree ca non-maintained unc located within the located with	imal 3 inches) present, anopy cover and a derstory. Wetlands e riparian areas. 5.5 Each stream bank ach by measuring 100% 1.5 50% 1.5 aried substrate si iffle poole comple	Riphramatics of the street of	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Coungth and width. Coungth and width. Coungth and width. Coungth and depths; wores. Conditiona	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <a>30 tree canopy cover. High 0.85 Indition Scores us alculators are production of the pr	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh >3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75 ing the price of the production of the present of the	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F Blocks 6	Low Poor: Impervious surfaces, mine pool lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5 the sums Riparian equal 100 100% 100%	NOTES>> CI= (Sum % RA *: Rt Bank CI > Lt Bank CI >	1.50	
Condition Scores Delineate ripa descriptors. Delto Bellow. Enter the % R Right Bank Left Bank INSTREAN	Tree stratum (dbh > with > 60% tree ca non-maintained unc located within the located with	imal 3 inches) present, anopy cover and a derstory. Wetlands e riparian areas. 5 5 cach stream bank ach by measuring 100% 1.5 50% 1.5 aried substrate si iffle poole completimal re typically present	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 into Condition C g or estimating let parian category in 50% 0.5 zes, water velocity exes, stable featur Subo Stable habitat ele present in 30-50% are adequate fo	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Coungth and width. Coungth and width. Coungth and width. Coungth and depths; wodes.	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85 Indition Scores us alculators are production of the present in 10-30 are adequate for a sealequate for the present in 10-30 are adequate for the present in 10-30 are adequ	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh > 3 inches) present, with < 30% tree canopy cover with maintained understory. Low 0.75 ing the ovided for you	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F Blocks 6	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5 the sums Riparian equal 100 100%	NOTES>> CI= (Sum % RA *: Rt Bank CI > Lt Bank CI >	1.50	

Stream Impact Assessment Form Page 2 Project # Applicant Cowardin Class Data Point SAR length Impact Factor 4. CHANNEL ALTERATION: Stream crossings, riprap, concrete, gabions, or concrete blocks, straightening of channel, channelization, NOTES>> embankments, spoil piles, constrictions, livestock Conditional Category Moderate Minor Negligible Severe 40 - 60% of reach is disrupted by any of the channel of the channel 20-40% of the stream reach is Less than 20% of Channel alterations listed in alterations listed in Greater than 80% of reach is disrupted the stream reach the parameter guidelines. If the parameter Channelization, dredging, alteration, or hardening absent. Stream has an unaltered pattern or has naturalized. by any of the channel alterations listed in the parameter guidelines AND/OR 80% of banks shored with gabion, s disrupted by any disrupted by any Alteration of the channel Iterations listed i of the channel lterations listed i guidelines. If tream has been channelized, stream has been channelized, the parameter the parameter riprap, or cement. guidelines. guidelines. normal stable normal stable stream meander stream meander pattern has not pattern has not SCORE 1.5 1.3 1.1 0.9 0.7 0.5 1.50 REACH CONDITION INDEX and STREAM CONDITION UNITS FOR THIS REACH THE REACH CONDITION INDEX (RCI) >> NOTE: The CIs and RCI should be rounded to 2 decimal places. The CR should be rounded to a whole number. 1.45

RCI= (Sum of all Cl's)/5

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COMPENSATION REQUIREMENT (CR) >>

> 0

CR = RCI X LF X IF

INSERT PHOTOS:

Pic 1580



DESCRIBE PROPOSED IMPACT:	

	Str		fied Stream N	lethodology 1	for use in Vir	ginia				
Project #	Project Nan		Locality	Cowardin Class.	HUC	Date	SAR#	Impact/SAR length	Impact Factor	
5337	I-64 Peninsula	Study	Newport News		02080206	6-30-11		43		
Name	e(s) of Evaluator(s)	Stream Nam	e and Informa	ation						
	Bode	WUS 20N								
. Channel C	Condition: Assess the cross-s	ection of the stream		ondition (erosion, Conditional Catego						
	Optimal	Subo	ptimal		ginal	Po	oor	Sev	vere	
Channel Condition	Very little incision or active erosion; 100% stable banks. Vegetative surface protection or natural rock,	of banks are s Vegetative protect	ew areas of active cted banks. Majority table (60-80%). tion or natural rock	Poor. Banks more or Poor due to lo Erosion may be pr	less than Severe or stable than Severe ower bank slopes. esent on 40-60% of tative protection on	Vertically/laterally widen further. Ma are near vertical.	ned/incised. unstable. Likely to jority of both banks Erosion present on	incision, flow cor banks. Streamber rooting depth, n	istability. Severe ntained within the ed below average najority of banks	
	prominent (80-100%). AND/OR Stable point bars/bankfull benches a present. Access to their original floodplain or fully developed wide bankfull benches. Mid-channel bars and transverse bars few. Transient sediment deposition covers less tha 10% of bottom.	Depositional feat stability. The bar channels are we likely has access t or newly develope portions of the i sediment covers 10	-80%) AND/OR tures contribute to nkfull and low flow II defined. Stream o bankfull benches, def loodplains along reach. Transient 0-40% of the stream tom.	40-60% of banks. bevertical or unde 60% of strean sediment. See temporary/tran instability. Depositi stability, may be AND/OR V-shap vegetative protect	Streambanks may ercut. AND/OR 40- n is covered by diment may be issient, contribute on that contribute to forming/present. ed channels have ion on > 40% of the ional features which	protection press banks, and is ins erosion. AND/C stream is cove Sediment is tem nature, and contri AND/OR V-shap vegetative protec 40% of the banks	ant on 20-40% of ufficient to prevent IR 60-80% of the red by sediment. porary/transient in buting to instability. led channels have tion is present on > and stable sediment in is absent.	protection present of banks, is not pre Obvious bank sl Erosion/raw bar AND/OR Aggradin than 80% of strean deposition, contrib Multiple thread	cut. Vegetative on less than 20% of eventing erosion. loughing present. nks on 80-100%. In channel. Greater m bed is covered by outing to instability. channels and/or nean flow.	CI
Score	3	2	2.4		2	1	.6		1	2.0
. RIPARIAN	N BUFFERS: Assess both ba	nk's 100 foot riparia	an areas along the	entire SAR. (rou	ugh measurement	s of length & widt	h may be accepta	able)		
2. RIPARIAN	N BUFFERS: Assess both ba	Con	n areas along the nditional Cate ptimal	gory	ginal	Pe	h may be accepta	NOTES>>		
RIPARIAN Riparian Buffers		High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree is canopy cover and containing both herbaceous and shrub layers or a non-maintained understory.	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation).	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover.	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh >3 inches) present, with <30% tree canopy cover with maintained understory.	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable condition.	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions.	NOTES>>		
Riparian Buffers	Optimal Tree stratum (dbh > 3 inches) prese with > 60% tree canopy cover and non-maintained understory. Wetland	High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) to 60% tree is canopy cover and containing both herbaceous and shrub layers or a non-maintained	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh > 3 inches) present, with <30% tree canopy cover with maintained	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable	NOTES>>		
Riparian Buffers Condition Scores Delineate ripa descriptors. Locate representation of the second	Optimal Tree stratum (dbh > 3 inches) preser with > 60% tree canopy cover and non-maintained understory. Wetland located within the riparian areas.	High Suboptimal: Riparian areas with tree stratum (Idoh > 3 inches) present, with 30% to 60% tree ds canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 not into Condition C	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Coungth and width. Coungth	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh > 3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % I	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions.	NOTES>>	Scores*0.01)/2	
Riparian Buffers Condition Scores Delineate ripz escriptors. Determine squelow. Enter the % F	Optimal Tree stratum (dbh > 3 inches) preserwith > 60% tree canopy cover and a non-maintained understory. Wethan located within the riparian areas. 1.5 Tarian areas along each stream barguare footage for each by measure footage for each by measure. Riparian Area and Score for each % Riparian Area 100% Score > 1.2	High Suboptimal: Riparian areas with tree stratum (Idoh > 3 inches) present, with 30% to 60% tree ds canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 not into Condition C	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Coungth and width. Coungth	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh > 3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % I	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5	NOTES>> CI= (Sum % RA * S Rt Bank CI >	1.20	CI
Condition Scores Delineate ripalescriptors. Determine squelow. Right Bank Left Bank I. INSTREAM	Optimal Tree stratum (dbh > 3 inches) preserwith > 60% tree canopy cover and a non-maintained understory. Wetlan located within the riparian areas. 1.5 Tarian areas along each stream be quare footage for each by measure. Riparian Area and Score for each % Riparian Area and Score for each % Riparian Area 100% Score > 1.2 M Riparian Area 100% HABITAT: Varied substrate	High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree is canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 Ink into Condition C Ing or estimating let riparian category in	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Congth and width. Control with the blocks below yand depths; woo	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh > 3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75 ing the povided for you	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % I Blocks 6	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5 the sums Riparian equal 100 100%	NOTES>>		CI 1.20
Condition Scores Delineate ripalescriptors. Determine squelow. Enter the % F. Right Bank Left Bank	Optimal Tree stratum (dbh > 3 inches) preser with > 60% tree canopy cover and inon-maintained understory. Wetland located within the riparian areas. 1.5 arian areas along each stream baquare footage for each by measure. Riparian Area and Score for each % Riparian Area 100% Score > 1.2 % Riparian Area 100% Score > 1.2 M HABITAT: Varied substrate root mats; SAV; riffle poole comp	High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree to canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 nk into Condition C riparian category in sizes, water velocit lexes, stable featur	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Co ngth and width. Co n the blocks below y and depths; wodes. Conditiona	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85 Indition Scores us alculators are production of the producti	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh >3 inches) present, with <a>30 % tree canopy cover with maintained understory. Low 0.75 ing the provided for you	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % I Blocks 6	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5 the sums Riparian equal 100 100%	CI= (Sum % RA * S Rt Bank CI > Lt Bank CI >	1.20	
Condition Scores Delineate ripa descriptors. Determine squelow. Right Bank Left Bank INSTREAL	Optimal Tree stratum (dbh > 3 inches) preserwith > 60% tree canopy cover and a non-maintained understory. Wetlan located within the riparian areas. 1.5 Tarian areas along each stream be quare footage for each by measure. Riparian Area and Score for each % Riparian Area and Score for each % Riparian Area 100% Score > 1.2 M Riparian Area 100% HABITAT: Varied substrate	High Suboptimal: Riparian areas with tree stratum (dob > 3 inches) present, with 30% to 60% tree is canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 Ink into Condition C Ing or estimating let riparian category in Sizes, water velocit lexes, stable featur Subo Stable habitat ele present in 30-50 are adequate fo are adequate fo	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Coungth and width. Coungth and width. Coungth and width. Coungth and depths; woo es.	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85 addulators are production of the control of the	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh > 3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75 ing the povided for you	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % I Blocks 6 Habitat element lacking or are Lelements are typic	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5 the sums Riparian equal 100 100%	CI= (Sum % RA * S Rt Bank CI > Lt Bank CI >	1.20	

	St	ream In	npact A	ssessm	nent Fo	rm Pag	e 2		
Project #	Applicant		Locality	Cowardin Class.	HUC	Date	Data Point	SAR length	Impact Factor
								500	1
	L ALTERATION: Stream cross poil piles, constrictions, livestock	ings, riprap, conc	rete, gabions, or c		traightening of ch	annel, channeliza	ation,	NOTES>>	
	Negligible	Mi	nor		erate		vere		
Channel Alteration	Channelization, dredging, alteration, or hardening absent. Stream has an unaltered pattern or has naturalized.	Less than 20% of the stream reach is disrupted by any of the channel alterations listed in the parameter guidelines.	20-40% of the stream reach is disrupted by any of the channel	is disrupted by any of the channel	60 - 80% of reach is disrupted by any of the channel alterations listed in the parameter guidelines. If stream has been channelized, normal stable stream meander pattern has not	Greater than 80% by any of the chan in the parameter 80% of banks sh	of reach is disrupted nel alterations listed guidelines AND/OR nored with gabion, or cement.		
SCORE	1.5	1.3	1.1	0.9	0.7	0).5		
	REACH C	ONDITION I	NDEX and S	TREAM CO	NDITION UN	ITS FOR TH	IIS REACH		
VOTE: The Cls and F	RCI should be rounded to 2 decimal places.	The CR should be rou	nded to a whole numb	er.			THE REACH	CONDITION IN	DEX (RCI) >>

CR = RCI X LF X IF



ESCRIBE PROPOSED IMPACT:	
	<u> </u>

		Stre		fied Stream N	lethodology f	for use in Vir	ginia				
Project #		Project Name		Locality	Cowardin Class.	HUC	Date Date	SAR#	Impact/SAR length	Impact Factor	
5337	I-64	Peninsula S	tudy	Newport News		02080206	6-30-11			1	
Name	e(s) of Evalua	e(s) of Evaluator(s) Stream Name a		e and Inform	ation	<u> </u>					
	Bode		WUS 21N								
1. Channel C	Condition: Asse	ess the cross-sec	ction of the stream								
	Opti	mal	Subo	ptimal	Conditional Catego Mar	ginal	Po	oor	Sev	/ere	
	-	W.		ew areas of active		less than Severe or stable than Severe		ed/incised. unstable. Likely to		tability. Severe	
Channel Condition	Very little incision or 100% stable bar surface protection prominent (80-11 Stable point bars/bc present. Access floodplain or fully bankfull benches. and transverse ba sediment depositio 10% of 1	nks. Vegetative n or natural rock, 00%). AND/OR ankfull benches are to their original developed wide Mid-channel bars, ars few. Transient n covers less than	of banks are s Vegetative protect prominent (60 Depositional feat stability. The ban channels are we likely has access t or newly develope portions of the sediment covers 10	table (60-80%). tion or natural rock- 80%) AND/OR tures contribute to heful and low flow Il defined. Stream o bankfull benches, d floodplains along reach. Transient 0-40% of the stream tom.	Erosion may be pr both banks. Vege' 40-60% of banks. bevertical or unde 60% of strean sediment. Se temporary/tran instability. Depositi stability, may be AND/OR V-shap vegetative protect	ower bank slopes. resent on 40-60% of tative protection on Streambanks may recut. AND/OR 40- nis covered by diment may be sisent, contribute to on that contribute to forming/present. red channels have ion on > 40% of the ional features which	are near vertical. 60-80% of bar protection press banks, and is inst erosion. AND/O stream is cover Sediment is tem nature, and contri AND/OR V-shap vegetative protect 40% of the banks a	iority of both banks Erosion present on ks. Vegetative ent on 20-40% of ifficient to prevent R 60-80% of the ed by sediment. porary/transient in buting to instability. ed channels have ion is present on > and stable sediment is absent.	banks. Streamberooting depth, novertical/undercoprotection present banks, is not pre Obvious bank sl Erosion/raw bar AND/OR Aggradin than 80% of strean deposition, contrib	ad below average hajority of banks ut. Vegetative on less than 20% of eventing erosion. ooughing present. iks on 80-100%. If channels Greater is bed is covered by uting to instability. channels and/or	CI
Score	3	3	2	.4	- 1	2	·	.6		1	2.4
NOTES>>			I		1		I		1		
2. RIPARIAI	N BUFFERS: A		Con Subo	n areas along the ditional Cate ptimal	gory	ginal Low Marginal: Non-maintained,	Po High Poor:	n may be accepta	NOTES>> Refrom culvert	outlet to	
Riparian Buffers		imal 3 inches) present, unopy cover and a lerstory. Wetlands	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy	gory	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh > 3 inches) present, with <30% tree canopy cover with maintained	Po		NOTES>> Reference of the control of	outlet to	
Riparian Buffers	Optia Tree stratum (dbh > with > 60% tree ca	imal 3 inches) present, unopy cover and a lerstory. Wetlands	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh >3 inches) present, with <30% tree canopy cover with	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable	NOTES>> Refrom culvert	outlet to	
Riparian	Optia Tree stratum (dbh > with > 60% tree ca	3 inches) present, anopy cover and a derstory. Wetlands e riparian areas.	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory.	ditional Cate ptimal Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation).	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover.	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh >3 inches) present, with <30% tree canopy cover with maintained understory.	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, recently seeded and stabilized, or other comparable condition.	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions.	NOTES>> Refrom culvert	outlet to	
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Condition Scores 1. Delineate ripadescriptors. 2. Determine squelow. 3. Enter the % Right Bank Left Bank 3. INSTREAN	Tree stratum (dbh > with > 60% tree ca non-maintained unc located within the located with	imal 3 inches) present, intopy cover and a derstory. Wetlands a riparian areas. 5 bach stream bank ach by measuring 100% 1.2 100% 1.2 aried substrate si	Com Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 Into Condition C g or estimating let parian category in	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Co ongth and width. Co the blocks below y and depths; woo	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh > 3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75 ing the povided for you	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F Blocks 6	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5 the sums Riparian equal 100 100%	NOTES>> Refrom culvert ROW fence - buffer. CI= (Sum % RA * S Rt Bank CI >	outlet to forested on	
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	St	ream In	npact A	ssessm	ent Fo	rm Pag	e 2		
Project #	Applicant		Locality	Cowardin Class.	HUC	Date	Data Point	SAR length	Impact Factor
								500	1
	L ALTERATION: Stream cross poil piles, constrictions, livestock	ings, riprap, conci		concrete blocks, s	traightening of ch	annel, channeliz	ation,	NOTES>>	
	Negligible	Mir	nor		erate	Se	evere		
Channel Alteration	Channelization, dredging, alteration, or hardening absent. Stream has an unaltered pattern or has naturalized.	Less than 20% of the stream reach is disrupted by any of the channel alterations listed in the parameter guidelines.	20-40% of the stream reach is disrupted by any of the channel	is disrupted by any of the channel	of the channel	Greater than 80% by any of the char in the parameter 80% of banks s	of reach is disrupted nnel alterations listed guidelines AND/OR hored with gabion, or cement.		
SCORE	1.5	1.3	1.1	0.9	0.7	(0.5		
	REACH C	ONDITION II	NDEX and S	TREAM CO	NDITION UN	ITS FOR TH	IIS REACH		
VOTE: The Cls and R	RCI should be rounded to 2 decimal places.	The CR should be rour	nded to a whole numb	er.			THE REACH (CONDITION IN	DEX (RCI) >>

CR = RCI X LF X IF



DESCRIBE PROPOSED IMPACT:		

		Stre	Uni	fied Stream N	lethodology 1	for use in Vir	-				
Project #	ı	Project Name		Locality	Cowardin Class.	HUC	Date	SAR#	Impact/SAR length	Impact Factor	
5337	I-64	Peninsula S	tudy	Newport News		02080206	6-30-11		81		
Nam	e(s) of Evalua	tor(s)	Stream Nam	e and Informa	ation	<u>'</u>	•				
	Doucette		WUS 23N								
. Channel (Condition: Asse	ess the cross-sec	ction of the stream								
	Opti	imal	Subo	ptimal	Conditional Catego Mar	ginal	Po	oor	Se	vere	
	Very little incision o	r active erosion: 80	erosion or unproted	ew areas of active cted banks. Majority	Poor. Banks more	less than Severe or stable than Severe	Vertically/laterally	ed/incised. unstable. Likely to	incision flow co	nstability. Severe	
Channel Condition	100% stable bar surface protection prominent (80-10	nks. Vegetative n or natural rock, 00%). AND/OR ankfull benches are to their original of developed wide Mid-channel bars, ars few. Transient in covers less than	Vegetative protect prominent (60 Depositional feat stability. The ban channels are we likely has access to or newly develope portions of the to sediment covers 10	table (60-80%), tition or natural rock- 80%) AND/OR tures contribute to Midull and low flow Il defined. Stream o bankfull benches, defloodplains along reach. Transient 0-40% of the stream tom.	Erosion may be pr both banks. Vege' 40-60% of banks. bevertical or unde 60% of strean sediment. Se temporary/tran instability. Depositi stability, may be AND/OR V-shap vegetative protect	ower bank slopes. essent on 40-60% of tative protection on Streambanks may recut. AND/OR 40-n is covered by diment may be sisent, contribute on that contribute to forming/present. ed channels have ion on > 40% of the ional features which	are near vertical. 60-80% of bar protection press banks, and is inst erosion. AND/O stream is cover Sediment is tem nature, and contri AND/OR V-shap vegetative protect 40% of the banks a	jority of both banks Erosion present on ks. Vegetative int on 20-40% of ifficient to prevent R 60-80% of the ed by sediment. porary/transient in buting to instability. ed channels have ion is present on > and stable sediment is absent.	rooting depth, r vertical/under protection present banks, is not pre Obvious bank s Erosion/raw ban AND/OR Aggradir than 80% of strear deposition, contril Multiple thread	ed below average majority of banks cut. Vegetative on less than 20% of eventing erosion. loughing present. nks on 80-100%. ng channel. Greater n bed is covered by buting to instability. channels and/or nean flow.	CI
Score	3	3	2	2.4		2	1	.6		1	2.0
2. RIPARIAI	N BUFFERS: A		Con	n areas along the	gory	ugh measurement		n may be accepta	able)		
2. RIPARIAI Riparian Buffers	Opti Tree stratum (dbh > with > 60% tree ca	imal 3 inches) present, anopy cover and a derstory. Wetlands	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory.	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation).	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover.	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh >3 inches) present, with <30% tree canopy cover with maintained understory.	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, recently seeded and stabilized, or other comparable condition.	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions.	NOTES>>		
Riparian	Tree stratum (dbh > with > 60% tree ca	• 3 inches) present, anopy cover and a derstory. Wetlands e riparian areas.	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory, Recent cutover (dense vegetation).	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover.	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh > 3 inches) present, with <30% tree canopy cover with maintained understory. Low	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, recently seeded and stabilized, or other comparable condition.	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions.	NOTES>>		
Riparian Buffers	Option Tree stratum (dbh > with > 60% tree canon-maintained unc	• 3 inches) present, anopy cover and a derstory. Wetlands e riparian areas.	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory.	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation).	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover.	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh >3 inches) present, with <30% tree canopy cover with maintained understory.	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, recently seeded and stabilized, or other comparable condition.	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions.	NOTES>>		
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Riparian Buffers Condition Scores Delineate rip: lescriptors. Determine scielow. Enter the % f Right Bank Left Bank Instream Habitat/	Tree stratum (dbh > with > 60% tree ca non-maintained und located within the located with	imal 3 inches) present, anopy cover and a derstory. Wetlands e riparian areas. 5 each stream bani ach by measurin 100% 1.2 100% 1.2 aried substrate si ffle poole completimal	Com Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 Into Condition C g or estimating let parian category in zes, water velocit exes, stable featur Subo Stable habitat ele present in 30-509 are adequate fo	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Congth and width. Congth and width. Congth and width. Congth and depths; wores. Conditional ments are typically ments are typically ments are typically	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85 Indition Scores us calculators are processed of the control of	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh > 3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75 ing the pvided for you ginal ments are typically	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F Blocks 6	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5 the sums Riparian riqual 100 100% 100%	CI= (Sum % RA * : Rt Bank CI > Lt Bank CI > NOTES>>	1.20	

	St	ream In	າpact A	ssessm	nent Fo	rm Pago	e 2		
Project #	Applicant		Locality	Cowardin Class.	HUC	Date	Data Point	SAR length	Impact Factor
								500	1
	_ ALTERATION: Stream cross poil piles, constrictions, livestock	ings, riprap, conci	rete, gabions, or o	concrete blocks, s	traightening of ch	annel, channeliza	ation,	NOTES>>	
			Condition	al Category					
	Negligible	Mir	nor	Mod	erate	Ser	vere		
Channel Alteration	or hardening absent. Stream has an	Less than 20% of the stream reach is disrupted by any of the channel alterations listed in the parameter guidelines.	20-40% of the stream reach is disrupted by any of the channel	is disrupted by any of the channel	is disrupted by any of the channel	Greater than 80% of by any of the chan in the parameter g	of reach is disrupted nel alterations listed guidelines AND/OR nored with gabion, or cement.		
SCORE	1.5	1.3	1.1	0.9	0.7	0).5		
	REACH C	ONDITION II	NDEX and S	TREAM CO	NDITION UN	ITS FOR TH	IS REACH		

. 0

CR = RCI X LF X IF

INSERT PHOTOS:





		Stre	Uni	fied Stream N	lethodology 1	Form	ginia	m 1)			
Project #	ı	Project Name		Locality	Cowardin Class.	HUC	Date	SAR#	Impact/SAR length	Impact Factor	
5337	I-64	Peninsula S	tudy	Newport News		02080206	6-30-11		92		
Name	e(s) of Evalua	tor(s)	Stream Nam	e and Informa	ation			<u> </u>			
	Bode		WUS 24N								
. Channel C	Condition: Asse	ess the cross-sec	ction of the stream								
	Opti	imal	Subo	ptimal	Conditional Catego Mar	ginal	Po	oor	Se	vere	
Channel	Very little incision of		erosion or unproted	ew areas of active cted banks. Majority table (60-80%).	Poor. Banks more	less than Severe or e stable than Severe ower bank slopes.	Vertically/laterally	ned/incised. unstable. Likely to jority of both banks	incision, flow co	Istability. Severe ntained within the ed below average	
Condition	100% stable bar surface protection prominent (80-11 Stable point bar/sbc present. Access floodplain or fully bankfull benches. and transverse ba sediment depositio 10% of I	n or natural rock, 00%). AND/OR ankfull benches are s to their original of developed wide, Mid-channel bars, ars few. Transient on covers less than	Vegetative protect prominent (60 Depositional feat stability. The ban channels are we likely has access to or newly develope portions of the to sediment covers 10	tion or natural rock -80%) AND/OR Itures contribute to nkfull and low flow Il defined. Stream o bankfull benches, ad floodplains along reach. Transient 0-40% of the stream tom.	both banks. Veget 40-60% of banks. bevertical or unde 60% of strean sediment. Se- temporary/tran instability. Depositi stability, may be AND/OR V-shap vegetative protect	resent on 40-60% of tative protection on Streambanks may ercut. AND/OR 40- in is covered by diment may be sisient, contribute to forming/present. sed channels have ion on > 40% of the ional features which	60-80% of bar protection press banks, and is insi erosion. AND/C stream is cover Sediment is temporature, and contri AND/OR V-shap vegetative protect 40% of the banks at the protect of the stream of	Erosion present on kis. Vegetative and to 20-40% of afficient to prevent R 60-80% of the ed by sediment. porary/transient in buting to instability. ed channels have ion is present on > and stable sediment it is absent.	rooting depth, r vertical/under protection present banks, is not pr Obvious bank s Erosion/raw ba AND/OR Aggradir than 80% of strear deposition, contril Multiple thread	anajority of banks cut. Vegetative on less than 20% of eventing erosion. loughing present. ks on 80-100%. lig channel. Greater n bed is covered by puting to instability. channels and/or nean flow.	CI
Score	3	3	2	2.4		2	1	.6		1	3.0
				ditional Cate		ugh measurement	s of length & widt	n may be accepta	NOTES>>		
Riparian Buffers	Opti Tree stratum (dbh > with > 60% tree ca non-maintained unclocated within the	> 3 inches) present, anopy cover and a derstory. Wetlands	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy	gory	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh >3 inches) present, with <30% tree canopy cover with maintained understory.		Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions.	NOTES>>		
Buffers	Tree stratum (dbh > with > 60% tree ca non-maintained unc located within the	> 3 inches) present, anopy cover and a derstory. Wetlands e riparian areas.	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory, Recent cutover (dense vegetation).	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover.	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh >3 inches) present, with <30% tree canopy cover with maintained understory. Low	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, recently seeded and stabilized, or other comparable condition.	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions.	NOTES>>		
•	Tree stratum (dbh > with > 60% tree ca	> 3 inches) present, anopy cover and a derstory. Wetlands e riparian areas.	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory.	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation).	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover.	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh >3 inches) present, with <30% tree canopy cover with maintained understory.	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable condition.	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions.	NOTES>>		
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Condition Scores Delineate ripa escriptors. Determine sq elow.	Tree stratum (dbh > with > 60% tree can non-maintained unc located within the located wit	o 3 inches) present, anopy cover and a derstory. Wetlands e riparian areas. 5 ach stream banl ach by measurin.	Com Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 into Condition C	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Coungth and width. Coungth	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, porduction, ponds, open water. If present, tree stratum (dbh > 3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5	NOTES>>		
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Condition Scores Delineate ripa escriptors. Determine squelow. Enter the % F	Tree stratum (dbh > with > 60% tree canon-maintained unc located within the located withi	5 3 inches) present, anopy cover and a derstory. Wetlands e riparian areas. 5 each stream bank ach by measurin 100% 1.5	Com Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 into Condition C	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Coungth and width. Coungth	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, porduction, ponds, open water. If present, tree stratum (dbh > 3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5	NOTES>> Cl= (Sum % RA*: Rt Bank Cl >	1.50	CI
Condition Scores Delineate ripa secriptors. Determine sq elow. Enter the % R Right Bank	Tree stratum (dbh > with > 60% tree ca non-maintained unc located within the located with	5 sach stream banlach by measurin. Score for each ri. 100% 1.5	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 Into Condition C g or estimating ler parian category in	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 attegories and Co ongth and width. Co	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh > 3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75 ing the povided for you	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % B Blocks 6	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5 the sums Riparian equal 100 100%	CI= (Sum % RA *: Rt Bank CI > Lt Bank CI >		CI 1.50
Condition Scores Delineate ripa secriptors. Determine sq slow. Enter the % F Right Bank Left Bank INSTREAM	Tree stratum (dbh > with > 60% tree canon-maintained unc located within the located withi	s 3 inches) present, anopy cover and a derstory. Wetlands e riparian areas. 5 seach stream bank ach by measurin 100% 1.5 100% 1.5 aried substrate si	Com Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 Into Condition C g or estimating let parian category in	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Congth and width. Control with the blocks below yand depths; woo	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh > 3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75 ing the povided for you	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % B Blocks 6	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5 the sums Riparian equal 100 100%	NOTES>> Cl= (Sum % RA*: Rt Bank Cl >	1.50	
Condition Scores Delineate rips elescriptors. Determine squelow. Enter the % F Right Bank Left Bank Left Bank INSTREAN	Tree stratum (dbh > with > 60% tree ca non-maintained unc located within the located with	s 3 inches) present, anopy cover and a derstory. Wetlands e riparian areas. 5.5 each stream bank ach by measurin 100% 1.5 100% 1.5 aried substrate si fffle poole comple	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 s into Condition C g or estimating let parian category in zes, water velocit ixes, stable featur	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Co ngth and width. Co n the blocks below y and depths; wodes. Conditiona	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85 Indition Scores us calculators are production of the product	Ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (bdh > 3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75 ing the povided for you	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F Blocks 6	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5 the sums Riparian equal 100 100%	CI= (Sum % RA *: Rt Bank CI > Lt Bank CI >	1.50	
Condition Scores Delineate ripa descriptors. Determine squelow. Enter the % F Right Bank Left Bank Left Bank	Tree stratum (dbh > with > 60% tree ca non-maintained und located within the located with	ach stream baniach by measurin Score for each ri 100% 1.5 100% 1.5 aried substrate si iffle poole comple imal	Com Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 Into Condition C g or estimating let parian category in zes, water velocit exes, stable featur Subo Stable habitat ele present in 30-509 are adequate fo	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Coungth and width. Coungth and width. Coungth and width. Coungth and depths; woo es.	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85 Indition Scores us calculators are production of the present in 10-30 are adequate for a sedequate for the present in 10-30 are adequate for the present in 10-30 are adequa	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh > 3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75 ing the povided for you	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F Blocks 6 Habitat element: lacking or are u elements are typic	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5 the sums Riparian equal 100 100%	CI= (Sum % RA *: Rt Bank CI > Lt Bank CI > NOTES>>	1.50	

	St	ream In	npact A	ssessm	nent Fo	rm Pag	e 2		
Project #	Applicant		Locality	Cowardin Class.	HUC	Date	Data Point	SAR length	Impact Factor
								500	1
	L ALTERATION: Stream cross spoil piles, constrictions, livestock		Conditiona	al Category				NOTES>>	
	Negligible	Mi	nor		erate 60 - 80% of reach	Se	evere		
Channel Alteration	Channelization, dredging, alteration, or hardening absent. Stream has an unaltered pattern or has naturalized.	Less than 20% of the stream reach is disrupted by any of the channel alterations listed in the parameter guidelines.	20-40% of the stream reach is disrupted by any of the channel alterations listed in the parameter guidelines.	40 - 60% of reach is disrupted by any of the channel alterations listed in the parameter guidelines. If stream has been channelized, normal stable stream meander pattern has not	is disrupted by any of the channel alterations listed in	Greater than 80% by any of the char in the parameter 80% of banks s	of reach is disrupted nnel alterations listed guidelines AND/OR hored with gabion, or cement.		
SCORE	1.5	1.3	1.1	0.9	0.7		0.5		
	REACH C	ONDITION I	NDEX and S	TREAM CO	NDITION UN	ITS FOR TH	IIS REACH		
TE: The Cls and	RCI should be rounded to 2 decimal places.	The CR should be rou	nded to a whole numb	per.			THE REACH (CONDITION IN	DEX (RCI) >>

CR = RCI X LF X IF



DESCRIBE PROPOSED IMPACT:		

		Stre	Unit	fied Stream N	lethodology 1	Form	ginia	m 1)			
Project #	I	Project Name		Locality	Cowardin Class.	HUC	Date Date	SAR#	Impact/SAR length	Impact Factor	
5337	I-64	Peninsula S	tudy	York	0.0.00	02080206	6-30-11		509		
Name	e(s) of Evaluat	tor(s)	Stream Nam	e and Informa	ation						
	Doucette		WUS 27N								
. Channel C	Condition: Asse			C	Conditional Catego	ory			Con		
	Opti	mai	Subo	ptimal	Mar	ginal	Po	oor	Se	vere	
	" du	JEAN .	erecion or upproted	ew areas of active		less than Severe or stable than Severe		ned/incised. unstable. Likely to		nstability. Severe	
Channel Condition	Very little incision or 100% stable bar surface protection prominent (80-10 Stable point bars/ba present. Access floodplain or fully bankfull benches. and transverse ba sediment deposition	nks. Vegetative n or natural rock, 00%). AND/OR unkfull benches are to their original developed wide Mid-channel bars, urs few. Transient n covers less than	of banks are si Vegetative protec prominent (60- Depositional feat stability. The bar channels are wel likely has access to or newly develope portions of the r	table (60-80%). tion or natural rock-80%) AND/OR tures contribute to nkfull and low flow Il defined. Stream o bankfull benches, d floodplains along reach. Transient 0-40% of the stream	Erosion may be pr both banks. Veget 40-60% of banks. bevertical or unde 60% of strean sediment. Se temporary/tran instability. Depositi	ower bank slopes. resent on 40-60% of tative protection on Streambanks may ercut. AND/OR 40- n is covered by diment may be isient, contribute ion that contribute to forming/present.	are near vertical. 60-80% of bar protection press banks, and is inst erosion. AND/O stream is cover Sediment is temp nature, and contri	jority of both banks Erosion present on iks. Vegetative ent on 20-40% of difficient to prevent IR 60-80% of the red by sediment. corary/transient in buting to instability.	banks. Streamb rooting depth, r vertical/under protection present banks, is not pr Obvious bank s Erosion/raw ban AND/OR Aggradir than 80% of strear	ed below average majority of banks cut. Vegetative on less than 20% of eventing erosion. loughing present. nkg on 80-100%. In g channel. Greater n bed is covered by	
	10% of b	oottom.		tom.	AND/OR V-shap vegetative protect	ped channels have tion on > 40% of the ional features which	vegetative protect 40% of the banks a	tion is present on > and stable sediment is absent.	Multiple thread	buting to instability. channels and/or nean flow.	CI
Score	3	}	2	2.4		2	1	.6		1	3.0
. RIPARIAN	BUFFERS: A	ssess both bank	s's 100 foot riparia	an areas along the	entire SAR. (rou	ugh measurement	s of length & widtl	n may be accepta	ıble)		
2. RIPARIAN	Opti		Con	nditional Cate ptimal	gory	ugh measurement	Po	n may be accepta	NOTES>>		
Riparian Buffers		mal 3 inches) present, nopy cover and a lerstory. Wetlands	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy	gory	ginal					
Riparian Buffers	Opti Tree stratum (dbh > with > 60% tree ca non-maintained und located within the	mal 3 inches) present, nopy cover and a lerstory. Wetlands e riparian areas.	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover.	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh > 3 inches) present, with <30% tree canopy cover with maintained	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable			
Riparian	Opti Tree stratum (dbh > with > 60% tree ca non-maintained und	mal 3 inches) present, nopy cover and a lerstory. Wetlands e riparian areas.	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory.	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation).	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover.	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh >3 inches) present, with <30% tree canopy cover with maintained understory.	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable condition.	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions.			
Riparian Buffers Condition Scores Delineate ripa escriptors.	Opti Tree stratum (dbh > with > 60% tree ca non-maintained und located within the	mal 3 inches) present, nopy cover and a lerstory. Wetlands riparian areas.	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh >3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable condition. High 0.6	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions.			
Riparian Buffers Condition Scores Delineate ripaescriptors. Determine squelow.	Tree stratum (dbh > with > 60% tree ca non-maintained und located within the	mal 3 inches) present, nopy cover and a lerstory. Wetlands e riparian areas.	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 k into Condition C	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Coungth and width. Coungth	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh >3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5			
Riparian Buffers Condition Scores Delineate ripaescriptors. Determine squelow. Enter the % R	Tree stratum (dbh > with > 60% tree ca non-maintained und located within the	mal 3 inches) present, nopy cover and a lerstory. Wetlands e riparian areas. 5 ach stream bank ach by measuring Score for each ri	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 k into Condition C	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Coungth and width. Coungth	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh >3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5			
Riparian Buffers Condition Scores Delineate ripa escriptors. Determine squelow. Enter the % R	Tree stratum (dbh > with > 60% tree ca non-maintained und located within the	mal 3 inches) present, nopy cover and a lerstory. Wetlands e riparian areas. 5 each stream bank ach by measuring.	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 k into Condition C	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Coungth and width. Coungth	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh >3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5		Scores*0.01)/2	
Riparian Buffers Condition Scores Delineate ripa escriptors. Determine sq elow. Enter the % R Right Bank	Tree stratum (dbh > with > 60% tree ca non-maintained und located within the	mal 3 inches) present, nopy cover and a lerstory. Wetlands e riparian areas. 5 ach stream bank ach by measuring Score for each ri	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 k into Condition C	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Coungth and width. Coungth	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh >3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5	NOTES>>	Scores*0.01)/2 0.85	CI
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Condition Scores Delineate ripa escriptors. Determine sq elow. Enter the % R Right Bank Left Bank	Tree stratum (dbh > with > 60% tree canon-maintained und located within the located withi	mal 3 inches) present, nopy cover and a lerstory. Wetlands e riparian areas. 5 ach stream bank ach by measuring 100% 0.85 100% 0.85 aried substrate si	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 Into Condition C g or estimating ler parian category in	Inditional Cate ptimal Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Coungth and width. Coungth and width. Coungth and width. Coungth and depths; wodes.	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85 Indition Scores us calculators are production of the produc	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh >3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75 ing the povided for you	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F Blocks 6	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5 the sums Riparian equal 100 100%	NOTES>> CI= (Sum % RA**; Rt Bank CI >	0.85	
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Condition Scores 1. Delineate ripadescriptors. 2. Determine squelow. 3. Enter the % R Right Bank Left Bank 3. INSTREAN	Tree stratum (dbh > with > 60% tree ca non-maintained und located within the located with	mal 3 inches) present, nopy cover and a lerstory. Wetlands e riparian areas. 5 each stream bank ach by measuring 100% 0.85 100% 0.85 aried substrate si ffle poole comple mal	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 Into Condition C g or estimating let parian category in zes, water velocity exes, stable featur Subo Stable habitat ele present in 30-50% are adequate fo	Inditional Cate ptimal Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Coungth and width. Coungth and width. Coungth and width. Coungth and depths; wodes.	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85 Indition Scores us calculators are production of the present in 10-30 are adequate for a seadequate for the present in 10-30 are adequate for the present in 10-30 are adeq	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh > 3 inches) present, with <a>30 % tree canopy cover with maintained understory: Low 0.75 ing the povided for you	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F Blocks 6	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5 the sums Riparian equal 100 100%	NOTES>> CI= (Sum % RA * S Rt Bank CI > Lt Bank CI >	0.85	

	St	ream In	npact A	ssessm	ent Fo	rm Pag	e 2		
Project #	Applicant		Locality	Cowardin Class.	HUC	Date	Data Point	SAR length	Impact Factor
								500	1
	L ALTERATION: Stream cross spoil piles, constrictions, livestock	sings, riprap, conc	rete, gabions, or c	concrete blocks, s	traightening of ch	annel, channeliz	ation,	NOTES>>	
				al Category					
	Negligible	Mi	nor		erate	Se	vere		
Channel Alteration	Channelization, dredging, alteration, or hardening absent. Stream has an unaltered pattern or has naturalized.	Less than 20% of the stream reach is disrupted by any of the channel alterations listed in the parameter guidelines.	20-40% of the stream reach is disrupted by amy of the channel alterations listed in the parameter guidelines.	is disrupted by any of the channel	of the channel	Greater than 80% by any of the char in the parameter 80% of banks s	of reach is disrupted innel alterations listed guidelines AND/OR hored with gabion, or cement.		
SCORE	1.5	1.3	1.1	0.9	0.7	(0.5		
	REACH C	ONDITION	NDEX and S	TREAM CO	NDITION UN	ITS FOR TH	IIS REACH		
NOTE: The CIs and F	RCI should be rounded to 2 decimal places.	The CR should be rou	nded to a whole numb	er.	•		THE REACH (CONDITION IN	DEX (RCI) >>
							RCI	= (Sum of all C	l's)/5

COMPENSATION REQUIREMENT (CR) >> 0

CR = RCI X LF X IF

INSERT PHOTOS:



		Stre	Uni	fied Stream N	lethodology 1	for use in Virg	-				
Project #	1	Project Name		Locality	Cowardin Class.	HUC	Date Date	SAR#	Impact/SAR length	Impact Factor	
5337	I-64	Peninsula S	tudy	York	Jidoo.	02080107	7-1-11		158	1 45151	
Nam	e(s) of Evaluat	tor(s)	Stream Nam	e and Informa	ation						
	Doucette		WUS 28N								
I. Channel (Condition: Asse	ess the cross-sec	tion of the stream								
	Opti	imal	Subo	ptimal	Conditional Catego Mar	ginal	Po	oor	Sev	rere	
	-	WA .		ew areas of active cted banks. Majority		less than Severe or		led/incised. unstable. Likely to	vertical/lateral in incision, flow cor		
Channel Condition	Very little incision or 100% stable bar surface protection prominent (80-11 Stable point bars/ba present. Access floodplain or fully bankfull benches. and transverse ba sediment deposition 10% of t	nks. Vegetative n or natural rock, 00%). AND/OR ankfull benches are to their original developed wide Mid-channel bars, ars few. Transient n covers less than	of banks are s Vegetative protect prominent (60 Depositional feat stability. The ban channels are we likely has access to or newly develope portions of the sediment covers 10	table (60-80%), 'tidon or natural rock- 80%) AND/OR tures contribute to notfull and low flow II defined. Stream o bankfull benches, at floodplains along reach. Transient 0-40% of the stream tom.	Erosion may be pr both banks. Vege 40-60% of banks. bevertical or unde 60% of strear sediment. Se temporary/tran instability. Depositi stability, may be AND/OR V-shap vegetative protect	ower bank slopes. "esent on 40-60% of tative protection on Streambanks may rerut. AND/OR 40- n is covered by diment may be issient, contribute too forming/present, ted channels have ion on > 40% of the ional features which	are near vertical. 60-80% of bar protection prese banks, and is insu erosion. AND/O stream is cover Sediment is tem nature, and contri AND/OR V-shap vegetative protect 40% of the banks a	iority of both banks Erosion present on ks. Vegetative int on 20-40% of ifficient to prevent R 60-80% of the ed by sediment. porary/transient in buting to instability. ed channels have ion is present on > and stable sediment is absent.	banks. Streamberooting depth, myertical/underceprotection present of banks, is not pre Obvious bank sle Erosion/raw ban AND/OR Aggradin than 80% of stream deposition, contrib Multiple thread.	ed below average lajority of banks ut. Vegetative on less than 20% of venting erosion. oughing present. iks on 80-100%, g channel. Greater i bed is covered by uting to instability. channels and/or	CI
Score	3	3	2	2.4		2	-	.6		1	2.0
NOTES>>											
_	N BUFFERS: A		Con	nditional Cate	gory				NOTES>>		
_	Opti Tree stratum (dbh > with > 60% tree ca non-maintained und located within the	mal 3 inches) present, unopy cover and a derstory. Wetlands	Corr Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy	gory	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh >3 inches) present, with <30% tree canopy cover with maintained understory.		Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions.	NOTES>>		
2. RIPARIAI Riparian Buffers	Opti Tree stratum (dbh > with > 60% tree ca non-maintained und	mal 3 inches) present, unopy cover and a derstory. Wetlands	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained	Low Suboptimal Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh >3 inches) present, with <30% tree canopy cover with maintained	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable	NOTES>>		
2. RIPARIAI	Opti Tree stratum (dbh > with > 60% tree ca non-maintained und	3 inches) present, incpy cover and a derstory. Wetlands e riparian areas.	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory.	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation).	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover.	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh >3 inches) present, with <30% tree canopy cover with maintained understory.	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable condition.	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions.	NOTES>>		
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Riparian Buffers Condition Scores Delineate ripidescriptors. Delineate ripidescriptors. Enter the % final	Tree stratum (dbh > with > 60% tree ca non-maintained und located within the strategy of the s	5 sach stream bank ach by measurin 100% 1.5 75% 0.5 aried substrate si	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 into Condition C g or estimating let parian category in 25% 1.5 zes, water velociti	Inditional Cate ptimal Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Congth and width. Congth and width. Congth and width. Congth and depths; workers.	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85 adiculators are pro	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh > 3 inches) present, with < 30% tree canopy cover with maintained understory: Low 0.75 ing the povided for you	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F Blocks 6	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5 the sums Riparian equal 100 100%	NOTES>>	_	CI 1.1
Riparian Buffers Condition Scores Delineate ripidescriptors. Delineate ripidescriptors. Enter the % final	Tree stratum (dbh > with > 60% tree ca non-maintained und located within the located lo	imal 3 inches) present, nopy cover and a lerstory. Wetlands e riparian areas. 5 each stream bank ach by measuring 100% 1.5 75% 0.5 aried substrate siffle poole complete.	Riph Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 Into Condition C g or estimating length of the parian category in 25% 1.5 Zes, water velocit xes, stable features.	Inditional Cate ptimal Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Congth and width. Congth and width. Congth and width. Congth and depths; workers.	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85 adiculators are pro	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh > 3 inches) present, with < 30% tree canopy cover with maintained understory: Low 0.75 ing the povided for you	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F Blocks 6	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5 the sums Riparian equal 100 100%	NOTES>> Cl= (Sum % RA * S Rt Bank Cl > Lt Bank Cl >	1.50	
Riparian Buffers Condition Scores Delineate rip descriptors. Determine scores Right Bank Left Bank INSTREAL Landercut banks;	Tree stratum (dbh > with > 60% tree ca non-maintained und located within the located with	5 Score for each ri 100% 1.5 75% 0.5 aried substrate siffle poole comple	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 into Condition C g or estimating let parian category in 25% 1.5 zes, water velocit xxes, stable featur Subo Stable habitat ele present in 30-509 are adequate fo	Inditional Cate ptimal Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Congth and width. Congth and width. Congth and depths; works. Conditions	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present with <30% tree canopy cover. High 0.85 addition Scores us calculators are pro	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh >3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75 ing the povided for you	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F Blocks 6	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5 the sums Riparian equal 100 100%	NOTES>> Cl= (Sum % RA * S Rt Bank Cl > Lt Bank Cl >	1.50	

	St	ream In	npact A	ssessm	ent Fo	rm Page	e 2		
Project #	Applicant		Locality	Cowardin Class.	HUC	Date	Data Point	SAR length	Impact Factor
								500	1
	L ALTERATION: Stream cross spoil piles, constrictions, livestock		Conditiona	al Category				NOTES>>	
	Negligible	Mi	nor		erate 60 - 80% of reach	Sev	vere		
Channel Alteration	Channelization, dredging, alteration, or hardening absent. Stream has an unaltered pattern or has naturalized.	Less than 20% of the stream reach is disrupted by any of the channel alterations listed in the parameter guidelines.	20-40% of the stream reach is disrupted by any of the channel alterations listed in the parameter guidelines.	is disrupted by any of the channel	of the channel alterations listed in the parameter guidelines. If stream has been channelized, normal stable stream meander pattern has not	Greater than 80% of by any of the channin the parameter g 80% of banks sh riprap, o	of reach is disrupted nel alterations listed guidelines AND/OR lored with gabion, r cement.		
SCORE	1.5	1.3	1.1	0.9	0.7	0	.5		
	REACH C	ONDITION I	NDEX and S	TREAM CO	NDITION UN	ITS FOR TH	IS REACH		
NOTE: The Cls and I	RCI should be rounded to 2 decimal places.	The CR should be rou	nded to a whole numb	er.			THE REACH (CONDITION IN	DEX (RCI) >>

CR = RCI X LF X IF



DESCRIBE PROPOSED IMPACT:		

		Stre		fied Stream N	lethodology f	•	ginia				Ì
Project #	I	Project Name		Locality	Cowardin Class.	HUC	Date	SAR#	Impact/SAR length	Impact Factor	ı
5337	I-64	Peninsula S	tudy	Hampton	R2UB3	02080108	6-27-11		3181		1
Nam	e(s) of Evalua	tor(s)		e and Informa	ation						1
	Doucette		WUS 2N								ı
. Channel (Condition: Asse	ess the cross-sec	tion of the stream		ondition (erosion, Conditional Catego						1
	Opti	imal	Subo	ptimal	Mar	ginal	Po	oor	Sev	vere	1
Channel	Very little incision o		erosion or unproted	ew areas of active cted banks. Majority table (60-80%).	Poor. Banks more	less than Severe or stable than Severe wer bank slopes.	Vertically/laterally	ied/incised. unstable. Likely to jority of both banks	incision, flow cor	istability. Severe ntained within the ed below average	
Condition	surface protection prominent (80-1)	00%). AND/OR ankfull benches are s to their original y developed wide Mid-channel bars, ars few. Transient on covers less than	prominent (60- Depositional feat stability. The bar channels are wel likely has access to or newly develope portions of the r sediment covers 10	tion or natural rock -80%) AND/OR tures contribute to kfull and low flow Il defined. Stream o bankfull benches, di floodplains along reach. Transient 0-40% of the stream tom.	both banks. Veget 40-60% of banks. bevertical or unde 60% of stream sediment. Sec temporary/tran: instability. Depositii stability, may be AND/OR V-shap	esent on 40-60% of ative protection on Streambanks may rcut. AND/OR 40- n is covered by diment may be sient, contribute on that contribute to forming/present. ed channels have on on > 40% of the	60-80% of bar protection press banks, and is insu- erosion. AND/O stream is cover Sediment is temp nature, and contri AND/OR V-shap vegetative protect	Erosion present on ks. Vegetative mt on 20-40% of ufficient to prevent R 60-80% of the ed by sediment. progray/transient in buting to instability. ed channels have ion is present on > and stable sediment	rooting depth, n vertical/underc protection present banks, is not pre Obvious bank sl Erosion/raw bar AND/OR Aggradin than 80% of strean deposition, contrib Multiple thread	najority of banks cut. Vegetative on less than 20% of eventing erosion. loughing present. nks on 80-100%. Ig channel. Greater n bed is covered by outing to instability. channels and/or	CI
Sooro		3	2	.4	banks and depositi	onal features which	·	is absent.		nean flow.	2.0
Score	1	<u> </u>		.4	1	2	<u>'</u>	.0		1	2.0
NOTES>>	N BUFFERS: #	Assess both bank	Con Subo	ditional Cate	gory Mar	ginal Low Marginal: Non-maintained,	Po High Poor:	n may be accepta	NOTES>>		
_	Opti Tree stratum (dbh > with > 60% tree care	imal > 3 inches) present, anopy cover and a derstory. Wetlands	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree	ditional Cate	gory	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh >3 inches) present, with 230% trees canopy cover with	Po		NOTES>>		
. RIPARIAI	Option Tree stratum (dbh with > 60% tree canon-maintained und	imal > 3 inches) present, anopy cover and a derstory. Wetlands	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory.	ditional Cate ptimal Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation).	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover.	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh >3 inches) present, with <30% tree canopy cover with maintained understory.	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, recently seeded and stabilized, or other comparable condition.	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions.	NOTES>>		
Riparian Buffers	Option Tree stratum (dbh with > 60% tree canon-maintained und	imal > 3 inches) present, anopy cover and a derstory. Wetlands e riparian areas.	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, had production, ponds, open water. If present, tree stratum (dbh > 3 inches) present, with <30% tree canopy cover with maintained	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable	NOTES>>		
Riparian Buffers Condition Scores 1. Delineate riplescriptors. 2. Determine scoelow.	Tree stratum (dbh > with > 60% tree cc onon-maintained und located within the	imal > 3 inches) present, anopy cover and a derstory. Wetlands e riparian areas. 5.5 each stream bank each by measuring	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 k into Condition C	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Congth and width. Congth and	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <a>30 % tree canopy cover. High 0.85	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh > 3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions.	NOTES>>	Scores*0.011/2	
Riparian Buffers Condition Scores Delineate ripescriptors. Determine scelow. Enter the % I	Tree stratum (dbh > with > 60% tree conon-maintained und located within the located withi	imal 3 inches) present, anopy cover and a derstory. Wetlands e riparian areas. 5 each stream bank each by measuring score for each right 20%	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 Into Condition C g or estimating ler parian category in	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 attegories and Co oright and width. Co the blocks below 60%	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <a>30 % tree canopy cover. High 0.85	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh > 3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5	NOTES>>	Scores*0.01)/2 0.72	CI
Riparian Buffers Condition Scores Delineate ripescriptors. Determine scelow.	Tree stratum (dbh > with > 60% tree ca non-maintained unc located within the located with	imal 3 inches) present, anopy cover and a derstory. Wetlands e riparian areas. 5 each stream bank each by measuring score for each right 20%	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 Into Condition C g or estimating ler parian category in	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 attegories and Co oright and width. Co the blocks below 60%	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <a>30 % tree canopy cover. High 0.85	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh > 3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5 the sums Riparian equal 100	NOTES>>		CI 0.36
Riparian Buffers Condition Scores Delineate rip secriptors. Determine scelow. Enter the % I	Tree stratum (dbh > with > 60% tree canon-maintained unc located within the located withi	imal 3 inches) present, anopy cover and a derstory. Wetlands e riparian areas. 5 each stream bank each by measuring 20% 1.5	Com Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 into Condition C g or estimating ler parian category in 20% 0.6	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Co oright and width. Co the blocks below 60% 0.5	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85	Jinal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh > 3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75 Ing the vided for you	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F Blocks 6	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5 the sums Riparian equal 100 100%	NOTES>> CI= (Sum % RA * S Rt Bank CI >	0.72	
Condition Scores Delineate riplescriptors Delternine scoelow Enter the % I Right Bank Left Bank INSTREAI Instream Habitat/ Available	Tree stratum (dbh > with > 60% tree cc conon-maintained und located within the located wi	imal 3 inches) present, anopy cover and a derstory. Wetlands e riparian areas. 5 each stream bankeach by measuring 20% 1.5 aried substrate si iffle poole completimal	Com Subo High Suboptimal: Riparian areas with tree stratum (dbh - 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 Cinto Condition C g or estimating ler parian category in 20% 0.6	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Co orgth and width. Co orgth and w	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85 Indition Scores usical culators are production of the control	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh > 3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75 Ing the vided for you ginal ments are typically 6 of the reach and	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F Blocks 6	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5 the sums Riparian equal 100 100% 0% is listed above are estable. Habitat	CI= (Sum % RA * S Rt Bank CI > Lt Bank CI >	0.72	
Riparian Buffers Condition Scores Delineate rip descriptors. Determine scoelow. Benefit Bank Left Bank Left Bank Instream Habitat/	Tree stratum (dbh > with > 60% tree cc non-maintained und located within the located with	imal 3 inches) present, anopy cover and a derstory. Wetlands e riparian areas. 5 each stream bankeach by measuring 20% 1.5 aried substrate si iffle poole completimal re typically present 0% of the reach.	Com Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 Cinto Condition C g or estimating ler parian category in 20% 0.6 Stable habitat ele present in 30-50% are adequate fo popul	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Congth and width. Congth and width. Congth and depths; work of the blocks below 1.5 y and depths; work of the congth and width. Congth and depths; work of the con	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85 Indition Scores usical culture and the second of the seco	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh >3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75 ng the vided for you	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F Blocks 6 Habitat elements are typic than 10% of the comparable condition.	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5 the sums Riparian riqual 100 100% ow/ eess; shade;	CI= (Sum % RA * S Rt Bank CI > Lt Bank CI >	0.72	

	St	ream In	npact A	ssessm	ent Fo	rm Pag	e 2		
Project #	Applicant		Locality	Cowardin Class.	HUC	Date	Data Point	SAR length	Impact Factor
								500	1
	ALTERATION: Stream cross poil piles, constrictions, livestock	sings, riprap, conc		concrete blocks, s	traightening of ch	annel, channeliza	ation,	NOTES>>	
	Negligible	Mi	nor		erate		vere		
Channel Alteration	Channelization, dredging, alteration, or hardening absent. Stream has an unaltered pattern or has naturalized.	Less than 20% of the stream reach is disrupted by any of the channel alterations listed in the parameter guidelines.	20-40% of the stream reach is disrupted by any of the channel alterations listed in the parameter guidelines.	is disrupted by any of the channel	of the channel	Greater than 80% by any of the char in the parameter 80% of banks sl	of reach is disrupted nnel alterations listed guidelines AND/OR hored with gabion, or cement.		
SCORE	1.5	1.3	1.1	0.9	0.7	(0.5		
	REACH C	ONDITION	NDEX and S	TREAM CO	NDITION UN	ITS FOR TH	IIS REACH		
NOTE: The CIs and R	RCI should be rounded to 2 decimal places.	The CR should be rou	nded to a whole numb	er.	•		THE REACH (CONDITION IN	DEX (RCI) >>

>> 0

CR = RCI X LF X IF

INSERT PHOTOS:





		Sire		fied Stream N		•	•				
Project #	ı	Project Name		Locality	Cowardin Class.	HUC	Date	SAR#	Impact/SAR length	Impact Factor	
5337	I-64	Peninsula S	tudy	Hampton		02080108	6-27-11		791		
Nam	ne(s) of Evaluat	tor(s)		e and Informa	ation						
	Bode / Doucette		WUS 3N								
. Channel	Condition: Asse	ess the cross-sec	ction of the stream								
	Opti	mal	Subo	ptimal	Conditional Catego Mar	ginal	Po	oor	Sev	vere .	
Channel Condition		iks. Vegetative or natural rock,	erosion or unproted of banks are s Vegetative protec	ew areas of active cted banks. Majority table (60-80%), tion or natural rock -80%) AND/OR	Poor. Banks more or Poor due to lo Erosion may be pr	less than Severe or stable than Severe ower bank slopes. esent on 40-60% of tative protection on	Vertically/laterally widen further. Ma are near vertical.	red/incised. unstable. Likely to jority of both banks Erosion present on	incision, flow cor banks. Streamb rooting depth, n	Istability. Severe nationed within the ed below average najority of banks	
	prominent (80-11 Stable point bars/ba present. Access floodplain or fully bankfull benches. and transverse ba sediment deposition 10% of t	inkfull benches are to their original developed wide Mid-channel bars, rs few. Transient n covers less than	Depositional feat stability. The bai channels are we likely has access t or newly develope portions of the sediment covers 10 bot	tures contribute to nkfull and low flow Il defined. Stream to bankfull benches, and floodplains along reach. Transient 0-40% of the stream tom.	40-60% of banks. bevertical or unde 60% of strean sediment. See temporary/tran instability. Depositi stability, may be AND/OR V-shap vegetative protect banks and depositi	Streambanks may prout. AND/OR 40- n is covered by diment may be sient, contribute on that contribute to e forming/present. ed channels have ion on > 40% of the ional features which	protection prese banks, and is inst erosion. AND/O stream is cover Sediment is temp nature, and contri AND/OR V-shap vegetative protect 40% of the banks a	ent on 20-40% of ufficient to prevent R 60-80% of the ed by sediment. porary/transient in	protection present banks, is not pre Obvious bank sl Erosion/raw ban AND/OR Aggradir than 80% of strear deposition, contrik Multiple thread	zut. Vegetative on less than 20% of eventing erosion. oughing present. hks on 80-100%. go channel. Greater n bed is covered by buting to instability. channels and/or nean flow.	CI
Score	3		2	2.4		2	1	.6		1	2.4
. RIPARIA	N BUFFERS: A		Con	an areas along the	gory	ginal		n may be accepta	NOTES>>		
Riparian Buffers		mal 3 inches) present, nopy cover and a erstory. Wetlands	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy	gory	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh > 3 inches) present, with <30% tree canopy cover with maintained			NOTES>>		
Riparian Buffers	Opti Tree stratum (dbh > with > 60% tree ca	mal 3 inches) present, nopy cover and a erstory. Wetlands	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh >3 inches) present, with 30% inches) present, canopy cover with	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable	NOTES>>		
Riparian	Opti Tree stratum (dbh > with > 60% tree ca	mal 3 inches) present, nopy cover and a erestory. Wetlands riparian areas.	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory.	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation).	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover.	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh >3 inches) present, with <30% tree canopy cover with maintained understory.	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, recently seeded and stabilized, or other comparable condition.	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions.	NOTES>>		
Riparian Buffers Condition Scores Delineate rip escriptors. 2. Determine scores	Tree stratum (dbh > with > 60% tree ca non-maintained und located within the	mal 3 inches) present, nopy cover and a erestory. Wetlands riparian areas.	Com Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 k into Condition C	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Coungth and width. Coungth	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh >3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5	NOTES>>		
Riparian Buffers Condition Scores Delineate rip lescriptors. Determine scelow.	Tree stratum (dbh > with > 60% tree ca non-maintained und located within the located within the located areas along equare footage for each result in the located within the located win	mal 3 inches) present, nopy cover and a lerstory. Wetlands riparian areas.	Com Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 Into Condition C g or estimating ler parian category in	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 attegories and Congth and width. Congth and width	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh >3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5	NOTES>>		
Riparian Buffers Condition Scores Delineate ripescriptors. Determine so	Tree stratum (dbh > with > 60% tree ca non-maintained und located within the located within the located areas along equare footage for each result in the located within the located win	mal 3 inches) present, nopy cover and a erestory. Wetlands riparian areas.	Com Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 k into Condition C	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Coungth and width. Coungth	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh >3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5	NOTES>>		
Riparian Buffers Condition Scores Delineate rip escriptors. Determine so	Tree stratum (dbh > with > 60% tree ca non-maintained und located within the stratum areas along equare footage for each area and stratum area and stratum area area along experience and stratum area and stratum	mal 3 inches) present, nopy cover and a lerstory. Wetlands riparian areas.	Com Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 Into Condition C g or estimating ler parian category in	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Co oright and width. Co or	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh >3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5 the sums Riparian equal 100	NOTES>>	,	
Riparian Buffers Condition Scores Delineate rip escriptors. Determine so	Tree stratum (dbh > with > 60% tree ca non-maintained und located within the located with	mal 3 inches) present, nopy cover and a lerstory. Wetlands riparian areas.	Com Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 Into Condition C g or estimating ler parian category in	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Co oright and width. Co or	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh >3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5	NOTES>> Cl= (Sum % RA*S Rt Bank Cl>	0.72	CI
Riparian Buffers Condition Scores Delineate rip escriptors. Determine selow. Enter the % Right Bank	Tree stratum (dbh > with > 60% tree an non-maintained und located within the located with	mal 3 inches) present, nopy cover and a lerstory. Wetlands riparian areas.	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 Into Condition C g or estimating ler parian category in 20% 0.6	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 attegories and Congth and width.	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh > 3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75 ing the povided for you	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F Blocks 6	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5 the sums Riparian equal 100 100%	CI= (Sum % RA * S Rt Bank CI > Lt Bank CI >	,	CI 0.36
Condition Scores Delineate rip escriptors. Determine scelow. Enter the % Right Bank Left Bank	Tree stratum (dbh > with > 60% tree ca non-maintained und located within the located with	mal 3 inches) present, nopy cover and a terstory. Wetlands riparian areas. 5 ach stream bank ach by measuring 20% 1.5	Com Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 Into Condition C g or estimating let parian category in 20% 0.6	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Congth and width. Congth and width. Congth and width. Congth are below 0.5	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh > 3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75 ing the povided for you	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F Blocks 6	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5 the sums Riparian equal 100 100%	NOTES>> Cl= (Sum % RA*S Rt Bank Cl>	0.72	
Condition Scores Delineate rip escriptors. Determine scelow. Enter the % Right Bank Left Bank INSTREA	Tree stratum (dbh > with > 60% tree ca non-maintained und located within the located with	mal 3 inches) present, nopy cover and a erestory. Wetlands riparian areas. 5 seach stream bank ach by measuring 20% 1.5 tried substrate signed substrate sign	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 s into Condition C g or estimating let parian category in 20% 0.6	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Congth and width. Congth and depths; wores. Conditions	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85 Indition Scores usional calculators are production of the control of the contr	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh >3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75 ing the provided for you	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F Blocks 6	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5 the sums Riparian riqual 100 100%	CI= (Sum % RA * S Rt Bank CI > Lt Bank CI >	0.72	
Condition Scores Delineate rip descriptors. Delineate rip descriptors. Enter the % Right Bank Left Bank Left Bank	Tree stratum (dbh > with > 60% tree ca non-maintained und located within the located with	mal 3 inches) present, nopy cover and a lerstory. Wetlands riparian areas. 5 back stream bank ach by measuring 20% 1.5 1.5 aried substrate si file poole comple mal e typically present	Com Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 Into Condition C g or estimating let parian category in 20% 0.6 Stable habitat ele present in 30-50% are adequate fo	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Congth and width.	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85 Indition Scores usion all Category Mar Stable habitat ele present in 10-30% are adequate fo	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh -3 inches) present, with +30% tree canopy cover with maintained understory. Low 0.75 ing the provided for you ginal ments are typically with fire reach and remaintained or maintained	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F Blocks 6	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5 the sums Riparian equal 100 100% 0% less; shade;	CI= (Sum % RA * S Rt Bank CI > Lt Bank CI >	0.72	
Condition Scores Delineate riplescriptors. Determine solelow. Right Bank Left Bank Left Bank Instream Habitat/ Available	Tree stratum (dbh > with > 60% tree can non-maintained und located within the located wit	mal 3 inches) present, nopy cover and a lerstory. Wetlands riparian areas. 5 ach stream bank ach by measuring 20% 1.5 uried substrate si file poole comple mal e typically present 1% of the reach.	Com Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 Into Condition C g or estimating ler parian category in 20% 0.6 Stable habitat ele present in 30-50° are adequate fo popul	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Congth and width. Congth and width. Congth and width. Congth and congth	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85 Indition Scores usicalculators are produced to the second of the second	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh > 3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75 ing the production of the product	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F Blocks 6 Habitat elements are typic than 10% of the comparable condition.	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5 the sums Riparian equal 100 100% 0% is listed above are estable. Habitat	CI= (Sum % RA * S Rt Bank CI > Lt Bank CI >	0.72	

Stream Impact Assessment Form Page 2 Project # Applicant Cowardin Class Data Point SAR length Impact Factor 4. CHANNEL ALTERATION: Stream crossings, riprap, concrete, gabions, or concrete blocks, straightening of channel, channelization, NOTES>> embankments, spoil piles, constrictions, livestock Conditional Category Moderate Minor Negligible Severe 40 - 60% of reach is disrupted by any of the channel 20-40% of the stream reach is Less than 20% of Channel Iterations listed in Iterations listed in Greater than 80% of reach is disrupted the stream reach the parameter guidelines. If the parameter Channelization, dredging, alteration, or hardening absent. Stream has an unaltered pattern or has naturalized. by any of the channel alterations listed in the parameter guidelines AND/OR 80% of banks shored with gabion, s disrupted by any disrupted by any Alteration of the channel Iterations listed i of the channel Iterations listed i guidelines. If tream has been channelized, tream has been channelized, the parameter the parameter riprap, or cement. guidelines. guidelines. normal stable normal stable stream meander stream meander pattern has not pattern has not SCORE 1.5 1.3 1.1 0.9 0.7 0.5 0.50 REACH CONDITION INDEX and STREAM CONDITION UNITS FOR THIS REACH THE REACH CONDITION INDEX (RCI) >> NOTE: The CIs and RCI should be rounded to 2 decimal places. The CR should be rounded to a whole number. 0.83

RCI= (Sum of all Cl's)/5

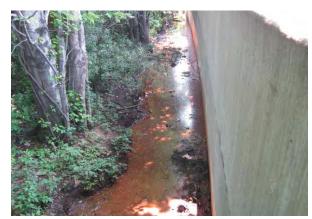
COMPENSATION REQUIREMENT (CR) >> 0

CR = RCI X LF X IF

INSERT PHOTOS:

Pic 1585, 1586

Stand of typha at WUS 3N4 (Photo 1587)





Stand of Typha (pic 1587)



	Stre		fied Stream N	lethodology f	for use in Vir	ginia	,			
Project #	Project Nam		Locality	Cowardin Class.	HUC	Date	SAR#	Impact/SAR length	Impact Factor	
5337	I-64 Peninsula S	tudy	Hampton		02080108	6-28-11		1068		
Name	e(s) of Evaluator(s)		e and Informa	ation						
	Bode / Doucette	WUS 4N								
. Channel C	Condition: Assess the cross-se	ction of the stream		ondition (erosion, Conditional Catego						
	Optimal	Subo	ptimal	Mar	ginal	Po	oor	Sev	/ere	
Channel Condition	Very little incision or active erosion; 8t 100% stable banks. Vegetative surface protection or natural rock,	of banks are si Vegetative protect	ew areas of active cted banks. Majority table (60-80%).	Poor. Banks more or Poor due to lo Erosion may be pr	less than Severe or stable than Severe ower bank slopes. resent on 40-60% of tative protection on	Vertically/laterally widen further. Ma are near vertical.	led/incised. unstable. Likely to jority of both banks Erosion present on ks. Vegetative	incision, flow cor banks. Streamber rooting depth, n	stability. Severe nationed within the ed below average najority of banks	
	prominent (80-100%). AND/OR Stable point bars/bankfull benches ard present. Access to their original floodplain or fully developed wide bankfull benches. Mid-channel bars, and transverse bars few. Transient sediment deposition covers less than 10% of bottom.	Depositional feat stability. The bar channels are wel likely has access to or newly develope portions of the r sediment covers 10	-80%) AND/OR tures contribute to nkfull and low flow III defined. Stream o bankfull benches, ad floodplains along reach. Transient 0-40% of the stream tom.	40-60% of banks. bevertical or unde 60% of strean sediment. See temporary/tran instability. Depositi stability, may be AND/OR V-shap vegetative protect	tative protection on Streambanks may prcut. AND/OR 40- n is covered by diment may be sient, contribute on that contribute to e forming/present. led channels have ion on > 40% of the ional features which	protection prese banks, and is insi erosion. AND/C stream is cover Sediment is tem nature, and contri AND/OR V-shap vegetative protect 40% of the banks a	ks. Vegetative int on 20-40% of ifficient to prevent R 60-80% of the ed by sediment. ocorary/transient in buting to instability. ed channels have ion is present on > and stable sediment is absent.	protection present of banks, is not pre Obvious bank sl Erosion/raw bar AND/OR Aggradin than 80% of strean deposition, contrib Multiple thread	cut. Vegetative on less than 20% of eventing erosion. oughing present. aks on 80-100%. It is considered by considered by contracting to instability. It is channels and/or nean flow.	CI
Score	3	2	2.4		2	1	.6		1	1.6
NOTES>>										
2. RIPARIAN	N BUFFERS: Assess both ban	Con	n areas along the nditional Cate	gory	ugh measurement		n may be accepta	NOTES>>		
Riparian Buffers		Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy	gory	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh > 3 inches) present, with <30% tree canopy cover with maintained			NOTES>>		
Riparian Buffers	Optimal Tree stratum (dbh > 3 inches) present with > 60% tree canopy cover and a non-maintained understory. Wetlands	High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh >3 inches) present, with					

Stream Impact Assessment Form Page 2 Project # Applicant Cowardin Class Data Point SAR length Impact Factor 4. CHANNEL ALTERATION: Stream crossings, riprap, concrete, gabions, or concrete blocks, straightening of channel, channelization, NOTES>> embankments, spoil piles, constrictions, livestock Conditional Category Moderate Minor Negligible Severe 40 - 60% of reach is disrupted by any of the channel 20-40% of the stream reach is Less than 20% of Channel Iterations listed in alterations listed in Greater than 80% of reach is disrupted the stream reach the parameter guidelines. If the parameter by any of the channel alterations listed in the parameter guidelines AND/OR 80% of banks shored with gabion, Channelization, dredging, alteration, s disrupted by any disrupted by any Alteration or hardening absent. Stream has an unaltered pattern or has naturalized. of the channel Iterations listed i of the channel lterations listed i guidelines. If tream has been channelized, stream has been channelized, the parameter the parameter riprap, or cement. guidelines. guidelines. normal stable normal stable stream meander stream meander pattern has not pattern has not SCORE 1.5 1.3 1.1 0.9 0.7 0.5 0.50 REACH CONDITION INDEX and STREAM CONDITION UNITS FOR THIS REACH

NOTE: The CIs and RCI should be rounded to 2 decimal places. The CR should be rounded to a whole number.

THE REACH CONDITION INDEX (RCI) >>

0.84

RCI= (Sum of all CI's)/5

CR = RCI X LF X IF

COMPENSATION REQUIREMENT (CR) >> 0

INSERT PHOTOS:





		Stre		fied Stream N	lethodology f	for use in Virg	ginia	· · · · · · · · · · · · · · · · · · ·			
Project #	F	Project Name		Locality	Cowardin Class.	HUC HUC	Date	SAR#	Impact/SAR length	Impact Factor	
5337	I-64	Peninsula S	tudy	Hampton		02080108	6-28-11		290		
Name	e(s) of Evaluat	tor(s)		e and Informa	ation						
	Bode / Doucette		WUS 5N								
l. Channel C	Condition: Asse	ess the cross-sec	ction of the stream								
	Opti	mal	Subo	ptimal	Conditional Catego Mar	ginal	Po	oor	Sev	vere .	
Channel Condition	Very little incision or 100% stable ban surface protection	ks. Vegetative	erosion or unproted of banks are s Vegetative protec	ew areas of active cted banks. Majority table (60-80%). tition or natural rock	Poor. Banks more or Poor due to lo Erosion may be pr	less than Severe or stable than Severe wer bank slopes. esent on 40-60% of	Vertically/laterally widen further. Ma are near vertical.	ned/incised. unstable. Likely to jority of both banks Erosion present on	incision, flow con banks. Streamb	Istability. Severe ntained within the ed below average najority of banks	
Condition	surface protection prominent (80-10 Stable point bars/ba present. Access floodplain or fully bankfull benches. I and transverse ba sediment deposition 10% of the stable protection of the stable protection of the stable protection.	00%). AND/OR inkfull benches are to their original developed wide Mid-channel bars, rs few. Transient n covers less than	Depositional feat stability. The bar channels are we likely has access t or newly develope portions of the sediment covers 10	-80%) AND/OR tures contribute to nkfull and low flow Il defined. Stream o bankfull benches, de floodplains along reach. Transient 0-40% of the stream tom.	40-60% of banks. bevertical or unde 60% of strean sediment. See temporary/tran instability. Depositi stability, may be AND/OR V-shap vegetative protecti	tative protection on Streambanks may recut. AND/OR 40- n is covered by diment may be sient, contribute on that contribute to to forming/present. ed channels have ion on > 40% of the ional features which	protection prese banks, and is inst erosion. AND/O stream is cover Sediment is temp nature, and contri AND/OR V-shap vegetative protect 40% of the banks a	kiks. Vegetative ent on 20-40% of under on 20-40% of under on 20-40% of under on 20-40% of the ed by sediment, oorary/transient in butting to instability, ed channels have ion is present on > and stable sediment is absent.	vertical/underd protection present banks, is not pre Obvious bank si Erosion/raw bar AND/OR Aggradir than 80% of strear deposition, contrit Multiple thread	usual visual vegetative on less than 20% of eventing erosion. oughing present. nks on 80-100%. Ig channel. Greater n bed is covered by buting to instability. channels and/or nean flow.	CI
Score	3		2	2.4		2	1	.6		1	2.0
. RIPARIAN	N BUFFERS: A		Con	nditional Cate	gory				NOTES>>		
Riparian Buffers	Opti Tree stratum (dbh > with > 60% tree ca non-maintained und located within the	mal 3 inches) present, nopy cover and a erstory. Wetlands	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy	gory	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh > 3 inches) present, maintained understory.		Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions.	NOTES>>		
Riparian Buffers	Opti Tree stratum (dbh > with > 60% tree ca non-maintained und	mal 3 inches) present, nopy cover and a erstory. Wetlands	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh >3 inches) present, with <30% tree canopy cover with maintained	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable	NOTES>>		
Riparian	Opti Tree stratum (dbh > with > 60% tree ca non-maintained und	mal 3 inches) present, nopy cover and a elerstory. Wetlands riparian areas.	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory.	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation).	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover.	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, right production, production, ponds, open water. If present, tree stratum (dbh >3 inches) present, with <30% tree canopy cover with maintained understory.	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, recently seeded and stabilized, or other comparable condition.	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions.	NOTES>>		
Riparian Buffers Condition Scores Delineate ripalescriptors. 2. Determine squelow.	Tree stratum (dbh > with > 60% tree ca non-maintained und located within the	mal 3 inches) present, nopy cover and a erestory. Wetlands riparian areas.	Com Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 k into Condition C	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Coungth and width. Coungth	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh >3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5	NOTES>>		
Riparian Buffers Condition Scores Delineate ripaescriptors. Determine sq	Tree stratum (dbh > with > 60% tree ca a non-maintained und located within the	mal 3 inches) present, nopy cover and a lerstory. Wetlands riparian areas.	Com Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 Into Condition C g or estimating ler parian category in	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 attegories and Congth and width. Congth and width	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh >3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5	NOTES>>		
Riparian Buffers Condition Scores Delineate ripaescriptors. Determine sq	Tree stratum (dbh > with > 60% tree ca non-maintained und located within the	mal 3 inches) present, nopy cover and a erestory. Wetlands riparian areas.	Com Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 k into Condition C	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Coungth and width. Coungth	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh >3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5	NOTES>>		
Riparian Buffers Condition Scores Delineate ripa escriptors. Determine squelow.	Tree stratum (dbh > with > 60% tree ca non-maintained und located within the	mal 3 inches) present, nopy cover and a lerstory. Wetlands riparian areas. 5 ach stream bank ach by measurin 20% 1.2	Com Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 k into Condition C g or estimating ler parian category in 20% 0.6	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Congth and width. Conthe blocks below 60% 0.5	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh >3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5 the sums Riparian equal 100	NOTES>>	,	
Riparian Buffers Condition Scores Delineate ripa escriptors. Determine squelow.	Tree stratum (dbh > with > 60% tree ca non-maintained und located within the located with	mal 3 inches) present, nopy cover and a erestory. Wetlands riparian areas. 5 ach stream bank ach by measurin 20% 1.2	Com Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 Into Condition C g or estimating ler parian category in 20% 0.6	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Congth and width. Conthe blocks below 60% 0.5	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh >3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5	NOTES>> Cl= (Sum % RA*S Rt Bank Cl>	0.66	CI
Riparian Buffers Condition Scores Delineate ripe escriptors Determine squelow Enter the % F Right Bank Left Bank	Tree stratum (dbh > with > 60% tree ca a non-maintained und located within the located wi	mal 3 inches) present, nopy cover and a lerstory. Wetlands riparian areas. 5 ach stream banl ach by measurin 20% 1.2 20% 1.2	Com Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 Into Condition C g or estimating ler parian category in 20% 0.6	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 attegories and Congth and width.	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh > 3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75 ing the production of the product	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F Blocks 6	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5 the sums Riparian equal 100 100%	CI= (Sum % RA * S Rt Bank CI > Lt Bank CI >	,	CI 0.66
Condition Scores Delineate ripe escriptors. Determine squelow. Enter the % R Right Bank Left Bank	Tree stratum (dbh > with > 60% tree ca non-maintained und located within the located with	mal 3 inches) present, nopy cover and a erestory. Wetlands riparian areas. 5 ach stream band ach by measurin 20% 1.2 20% 1.2 arried substrate si	Com Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 into Condition C g or estimating let parian category in 20% 0.6	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Congth and width.	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh > 3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75 ing the production of the product	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F Blocks 6	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5 the sums Riparian equal 100 100%	NOTES>> Cl= (Sum % RA*S Rt Bank Cl>	0.66	
Condition Scores Delineate ripa descriptors. Determine squelow. Right Bank Left Bank INSTREAM	Tree stratum (dbh > with > 60% tree ca non-maintained und located within the located with	mal 3 inches) present, nopy cover and a erestory. Wetlands riparian areas. 5 seach stream bant ach by measurin 20% 1.2 20% 1.2 tried substrate siffle poole complete.	High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 sinto Condition C g or estimating let parian category in 20% 0.6 20% 0.6 zes, water velocit ixxes, stable featur	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Congth and width. Congth and con	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85 Indition Scores usional calculators are production of the control of the contr	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh >3 inches) present, with <a>30 % tree canopy cover with maintained understory. Low 0.75 Ing the production of the present of the product of the present	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F Blocks 6	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5 the sums Riparian equal 100 100%	CI= (Sum % RA * S Rt Bank CI > Lt Bank CI >	0.66	
Riparian Buffers Condition Scores 1. Delineate ripa descriptors. 2. Determine squelow. 3. Enter the % R Right Bank Left Bank Left Bank Instream	Tree stratum (dbh > with > 60% tree ca non-maintained und located within the located with	mal 3 inches) present, nopy cover and a erestory. Wetlands riparian areas. 5 seach stream bant ach by measurin 20% 1.2 20% 1.2 tried substrate siffle poole complete.	High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 sinto Condition C g or estimating let parian category in 20% 0.6 20% 0.6 zes, water velocit ixxes, stable featur	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Coungth and width. Coungth and	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85 Indition Scores usional calculators are production of the control of the contr	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh > 3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75 ing the production of the product	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F Blocks 6	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5 the sums Riparian equal 100 100%	CI= (Sum % RA * S Rt Bank CI > Lt Bank CI >	0.66	
Condition Scores 1. Delineate ripa descriptors. 2. Determine squescriptors. Right Bank Left Bank 3. INSTREAN undercut banks;	Tree stratum (dbh > with > 60% tree ca non-maintained und located within the located with	mal 3 inches) present, nopy cover and a lerstory. Wetlands in parian areas. 5 ach stream banl ach by measurin 20% 1.2 20% 1.2 aried substrate si ffle poole comple mal e typically present	Com Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 Into Condition C g or estimating let parian category in 20% 0.6 20% 0.6 Stable habitat ele present in 30-50% are adequate fo	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Congth and width. Congth and con	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85 Indition Scores usion all Category Mar Stable habitat ele present in 10-30% are adequate fo	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh >3 inches) present, with <a>30 % tree canopy cover with maintained understory. Low 0.75 Ing the production of the present of the product of the present	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F Blocks 6	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5 the sums Riparian equal 100 100%	CI= (Sum % RA * S Rt Bank CI > Lt Bank CI >	0.66	

	St	ream In	npact A	ssessm	ent Fo	rm Pag	e 2		
Project #	Applicant		Locality	Cowardin Class.	HUC	Date	Data Point	SAR length	Impact Factor
								500	1
	L ALTERATION: Stream cross spoil piles, constrictions, livestock	ings, riprap, conci	rete, gabions, or o	concrete blocks, s	traightening of ch	annel, channeliz	ation,	NOTES>>	
			Condition	al Category					
	Negligible	Mir	nor		erate		evere		
Channel Alteration	or hardening absent. Stream has an	Less than 20% of the stream reach is disrupted by any of the channel alterations listed in the parameter guidelines.	20-40% of the stream reach is disrupted by any of the channel alterations listed in the parameter guidelines.	is disrupted by any of the channel	of the channel	Greater than 80% by any of the chai in the parameter 80% of banks s	of reach is disrupted nnel alterations listed guidelines AND/OR hored with gabion, or cement.		
SCORE	1.5	1.3	1.1	0.9	0.7	[(0.5		
	REACH C	ONDITION II	NDEX and S	TREAM CO	NDITION UN	ITS FOR TH	IIS REACH		
NOTE: The CIs and R	RCI should be rounded to 2 decimal places.	The CR should be rour	nded to a whole numb	er.			THE REACH (CONDITION IN	DEX (RCI) >>
							RC	= (Sum of all C	l's)/5

COMPENSATION REQUIREMENT (CR) >> 0

CR = RCI X LF X IF

INSERT PHOTOS:





		Stre		fied Stream N	lethodology f	for use in Virg	ginia	m 1)			
Project #		Project Name		Locality	nels classified a Cowardin Class.	HUC	perennial Date	SAR#	Impact/SAR	Impact Factor	
5337	I-64	Peninsula S	tudy	Hampton	0.000	02080108	6-28-11		114	1 0000	
Name	e(s) of Evalua	tor(s)	Stream Nam	e and Informa	ation						1
	Bode / Doucette		WUS 6N								
. Channel C	Condition: Asse	ess the cross-sec	tion of the stream		ondition (erosion, Conditional Catego						
	Opti	imal	Subo	ptimal	Mar	ginal	Po	or	Se	vere	
Channel	Very little incision o	or active erosion; 80	erosion or unproted	ew areas of active cted banks. Majority table (60-80%).	Poor. Banks more	less than Severe or e stable than Severe ower bank slopes.		ed/incised. unstable. Likely to ority of both banks	incision, flow co	nstability. Severe	
Condition	100% stable bar surface protection prominent (80-1) Stable point bars/bar present. Access floodplain or fully bankfull benches. and transverse basediment deposition 10% of 10% of 100%.	00%). AND/OR ankfull benches are s to their original or developed wide Mid-channel bars, ars few. Transient on covers less than	Vegetative protect prominent (60- Depositional feat stability. The bar channels are well likely has access to or newly develope portions of the resediment covers 10	tion or natural rock -80%) AND/OR tures contribute to nkfull and low flow Il defined. Stream o bankfull benches, of loodplains along reach. Transient 0-40% of the stream tom.	both banks. Veget 40-60% of banks. bevertical or unde 60% of strean sediment. Set temporary/tran instability. Depositi stability, may be AND/OR V-shap	resent on 40-60% of tative protection on Streambanks may ercut. AND/OR 40- n is covered by diment may be sisent, contribute tion that contribute to forming/present. ed channels have ion on > 40% of the	60-80% of bar protection press banks, and is insu- erosion. AND/O stream is cover Sediment is temp nature, and contri AND/OR V-shap vegetative protect	ed channels have	rooting depth, vertical/under protection present banks, is not pr Obvious banks Erosion/raw ba AND/OR Aggradi than 80% of strea deposition, contri Multiple threac	ned below average majority of banks rout. Vegetative ton less than 20% or reventing erosion. Sloughing present. anks on 80-100%. ng channel. Greate m bed is covered by ibuting to instability. It channels and/or inean flow.	r
Saara	3	2	2	.4	banks and depositi	ional features which	deposition	is absent.		1	1.6
Score	3)		4		2	'	.0		1	1.6
. RIPARIAN	N BUFFERS: A		Con Subo	n areas along the aditional Cate ptimal	gory	ginal Low Marginal: Non-maintained,	Po High Poor:	n may be accepta	NOTES>>		
Riparian Buffers	Opti	imal > 3 inches) present, anopy cover and a derstory. Wetlands	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy	gory	Low Marginal: Non-maintained, dense herbaceous vegetation,	Po				
Riparian	Option Tree stratum (dbh > with > 60% tree canon-maintained und	imal > 3 inches) present, anopy cover and a derstory. Wetlands	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained	ditional Cate ptimal Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh > 3 inches) present, with <30% tree canopy cover with	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable			
Riparian	Option Tree stratum (dbh > with > 60% tree canon-maintained und	imal 3 inches) present, anopy cover and a derstory. Wetlands e riparian areas.	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory.	ditional Cate ptimal Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation).	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover.	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh >3 inches) present, with <30% tree canopy cover with maintained understory.	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, recently seeded and stabilized, or other comparable condition.	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions.			
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Condition Scores Delineate ripalescriptors. Determine squelow. Enter the % Right Bank Left Bank INSTREAL	Tree stratum (dbh > with > 60% tree ca non-maintained unc located within the located with	imal 3 inches) present, anopy cover and a derstory. Wetlands e riparian areas. 5 each stream bank ach by measuring the stream bank ach by measuring the stream bank ach by ach	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 sinto Condition C g or estimating ler parian category in parian category in	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Coungth and width. Country the blocks below y and depths; wodes.	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85 Indition Scores us calculators are production of the product	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh > 3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75 ing the povided for you	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F Blocks e	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5 the sums tiparian qual 100 100%	NOTES>> CI= (Sum % RA * Rt Bank CI > Lt Bank CI >	1.20	
Condition Scores Delineate ripa descriptors. Determine squelow. Right Bank Left Bank INSTREAL	Tree stratum (dbh > with > 60% tree co conon-maintained und located within the located wi	imal 3 inches) present, anopy cover and a derstory. Wetlands e riparian areas. 5 beach stream bani ach by measurin 100% 1.2 100% 1.2 aried substrate si iffle poole completimal re typically present	Com Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 Into Condition C g or estimating ler parian category in Zes, water velocity ixes, stable featur Subo Stable habitat ele present in 30-50% are adequate fo	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Coungth and width. Coungth and width. Coungth and width. Coungth and depths; wores. Conditiona	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85 Indition Scores us calculators are processed of the control of	Ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh >3 inches) present, with <a>30 % tree canopy cover with maintained understory. Low 0.75 ing the price of the product of the present of t	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F Blocks 6	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5 the sums Riparian qual 100 100% 100% ess; shade;	NOTES>> CI= (Sum % RA * Rt Bank CI > Lt Bank CI >	1.20	

Stream Impact Assessment Form Page 2 Project # Applicant Cowardin Class Data Point SAR length Impact Factor 4. CHANNEL ALTERATION: Stream crossings, riprap, concrete, gabions, or concrete blocks, straightening of channel, channelization, NOTES>> embankments, spoil piles, constrictions, livestock Conditional Category Moderate Minor Negligible Severe 40 - 60% of reach is disrupted by any of the channel of the channel 20-40% of the stream reach is Less than 20% of Channel Iterations listed in alterations listed in Greater than 80% of reach is disrupted the stream reach the parameter guidelines. If the parameter Channelization, dredging, alteration, or hardening absent. Stream has an unaltered pattern or has naturalized. by any of the channel alterations listed in the parameter guidelines AND/OR 80% of banks shored with gabion, s disrupted by any disrupted by any Alteration of the channel Iterations listed i of the channel lterations listed i guidelines. If tream has been channelized, stream has been channelized, the parameter the parameter riprap, or cement. guidelines. guidelines. normal stable normal stable stream meander stream meander pattern has not pattern has not SCORE 1.5 1.3 1.1 0.9 0.7 0.5 0.50 REACH CONDITION INDEX and STREAM CONDITION UNITS FOR THIS REACH THE REACH CONDITION INDEX (RCI) >> NOTE: The CIs and RCI should be rounded to 2 decimal places. The CR should be rounded to a whole number.

0.84

RCI= (Sum of all CI's)/5

COMPENSATION REQUIREMENT (CR) >> 0

CR = RCI X LF X IF





FSCRIRE	PROPOSED	IMPACT.

		Stre		fied Stream N	lethodology f	or use in Virg	ginia				
Project #	I	Project Name		Locality	nels classified a Cowardin Class.	s intermittent or HUC	Date Date	SAR#	Impact/SAR length	Impact Factor	
5337	I-64	Peninsula S	tudy	Hampton		02080108	6-28-11		9869		
Name	e(s) of Evaluat	tor(s)		e and Inform	ation						
	Doucette		WUS 7N								
I. Channel C	Condition: Asse	ess the cross-sec	ction of the stream		ondition (erosion,						
	Opti	mal	Subo	ptimal		ginal	Po	oor	Sev	/ere	
	1	All Maries		ew areas of active		less than Severe or stable than Severe		ed/incised. unstable. Likely to		stability. Severe	
Channel Condition	Very little incision or 100% stable bar surface protectior prominent (80-11 Stable point bars/ba present. Access floodplain or fully bankfull benches. and transverse ba sediment deposition 10% of t	nks. Vegetative n or natural rock, 00%). AND/OR ankfull benches are to their original developed wide Mid-channel bars, ars few. Transient n covers less than	of banks are s Vegetative protect prominent (60 Depositional feat stability. The ban channels are we likely has access t or newly develope portions of the sediment covers 10	cted banks. Majority table (60-80%). Itable (60-80%). Itable (60-80%). AND/OR turnes contribute to nkfull and low flow II defined. Stream o bankfull benches, ad floodplains along reach. Transient 0-40% of the stream tom.	or Poor due to Ic Erosion may be pr both banks. Vegel 40-60% of banks. bevertical or unde 60% of strean sediment. See temporary/tran instability. Depositi stability, may be AND/OR V-shap	swer bank slopes. esent on 40-60% of attive protection on Streambanks may rout. AND/OR 40-in is covered by diment may be sient, contribute on that contribute to forming/present. ed channels have on on > 40% of the	widen further. Ma are near vertical. 60-80% of bar protection press banks, and is instension. AND/O stream is cover Sediment is temp nature, and contri AND/OR V-shap vegetative protect	iority of both banks Erosion present on ks. Vegetative int on 20-40% of ifficient to prevent R 60-80% of the ed by sediment. oorary/transient in buting to instability. ed channels have	banks. Streamb rooting depth, n vertical/undere protection present banks, is not pre Obvious bank sl Erosion/raw ban AND/OR Aggradir than 80% of strear deposition, contril Multiple thread	ntained within the ed below average hajority of banks but. Vegetative on less than 20% of eventing erosion, oughing present, lks on 80-100%. If channel, Greater in bed is covered by buting to instability, channels and/or lean flow.	CI
Coore	3	,	2	2.4		onal features which	·	is absent.		1	1.6
Score	3	•		4			'	.0	J.	'	1.0
2. RIPARIAN	N BUFFERS: A		Con	nditional Cate ptimal	gory	gh measurement ginal Low Marginal:	Po	n may be accepta	NOTES>>		
Riparian Buffers		imal 3 inches) present, unopy cover and a lerstory. Wetlands	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy	gory	ginal					
Riparian Buffers	Opti Tree stratum (dbh > with > 60% tree ca	imal 3 inches) present, unopy cover and a lerstory. Wetlands	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh >3 inches) present, with <30% tree canopy cover with maintained	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable			
Riparian	Opti Tree stratum (dbh > with > 60% tree ca	3 inches) present, anopy cover and a derstory. Wetlands e riparian areas.	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory.	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation).	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover.	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh > 3 inches) present, with <a>30 % tree canopy cover with maintained understory.	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, recently seeded and stabilized, or other comparable condition.	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions.			
Riparian Buffers Condition Scores Delineate ripa descriptors. 2. Determine squelow.	Tree stratum (dbh > with > 60% tree ca non-maintained und located within the	imal 3 inches) present, unopy cover and a lerstory. Wetlands e riparian areas.	Com Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 k into Condition C	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Co	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh >3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5			
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Riparian Buffers Condition Scores Delineate ripa descriptors. 2. Determine squelow.	Tree stratum (dbh > with > 60% tree ca non-maintained und located within the	imal 3 inches) present, unopy cover and a lerstory. Wetlands e riparian areas.	Com Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 k into Condition C	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Co	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh >3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5			
Riparian Buffers Condition Scores Delineate ripalescriptors. Determine squelow. Enter the % F	Tree stratum (dbh > with > 60% tree canon-maintained und located within the	3 inches) present, unopy cover and a derstory. Wetlands e riparian areas. 5 ach stream bank ach by measurin. Score for each ri	Com Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 k into Condition C g or estimating ler parian category in	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Co	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh >3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5		Scores*0.01)/2	
Riparian Buffers Condition Scores Delineate ripalescriptors. Determine squelow. Enter the % F	Tree stratum (dbh > with > 60% tree canon-maintained und located within the located withi	imal 3 inches) present, unopy cover and a derstory. Wetlands e riparian areas. 5 bach stream bank ach by measurin Score for each ri 10% 1.5	Com Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 into Condition C g or estimating let parian category in 90% 0.5	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Co	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh >3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5	NOTES>> CI= (Sum % RA*S Rt Bank CI >	0.60	CI
Riparian Buffers Condition Scores Delineate ripe descriptors. Determine squelow. Enter the % F Right Bank	Tree stratum (dbh > with > 60% tree ca a non-maintained und located within the located wi	5 Score for each ri 10% 1.5	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 Into Condition C g or estimating ler parian category in 90% 0.5	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory, Recent cutover (dense vegetation). Low 1.1 attegories and Co ongth and width. Co	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh > 3 inches) present, with <a>only wow of with maintained understory. Low 0.75	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F Blocks 6	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5 the sums Riparian equal 100 100%	NOTES>> Cl= (Sum % RA * S Rt Bank Cl > Lt Bank Cl >		CI 0.80
Condition Scores Delineate ripalescriptors. Determine squelow. Right Bank Left Bank I. INSTREAR	Tree stratum (dbh > with > 60% tree canon-maintained und located within the located withi	imal 3 inches) present, intopy cover and a derstory. Wetlands a riparian areas. 5 5 6 6 70% 1.2 6 7194 7194 72 73 74 75 76 76 77 76 77 76 77 76 77 78 78	Com Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 Into Condition C g or estimating ler parian category in 90% 0.5 30% 0.5 Zes, water velocit	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Co ongth and width. Co the blocks below y and depths; woo	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh > 3 inches) present, with <a>only wow of with maintained understory. Low 0.75	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F Blocks 6	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5 the sums Riparian equal 100 100%	NOTES>> CI= (Sum % RA*S Rt Bank CI >	0.60	
Condition Scores 1. Delineate ripe descriptors. 2. Determine squelow. 3. Enter the % F Right Bank Left Bank 3. INSTREAR undercut banks;	Tree stratum (dbh > with > 60% tree ca non-maintained und located within the located with	imal 3 inches) present, inopy cover and a lerstory. Wetlands e riparian areas. 5 each stream bank ach by measuring 10% 1.5 70% 1.2 aried substrate siffle poole complete.	High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 sinto Condition C g or estimating let parian category in 90% 0.5 30% 0.5 zes, water velocit ixes, stable featur	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Co ngth and width. Co n the blocks below y and depths; wodes. Conditions	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85 Indition Scores usional calculators are production of the control of the contr	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh -3 inches) present, with +30% tree canopy cover with maintained understory. Low 0.75	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F Blocks e	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5 the sums Riparian equal 100 100% 100%	NOTES>> Cl= (Sum % RA * S Rt Bank Cl > Lt Bank Cl >	0.60	
Condition Scores 1. Delineate ripadescriptors. 2. Determine squelow. 3. Enter the % F Right Bank Left Bank 3. INSTREAR	Tree stratum (dbh > with > 60% tree canon-maintained und located within the located withi	5 Score for each ri 10% 1.5 70% 1.2 aried substrate siffle poole comple	Com Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 into Condition C g or estimating ler parian category in 90% 0.5 30% 0.5 zes, water velocit exes, stable featur Subo Stable habitat ele present in 30-50- are adequate fo	ditional Cate ptimal Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Co ongth and width. Co on the blocks below y and depths; wodes.	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85 Indition Scores usion all Category Mar Stable habitat ele present in 10-30% are adequate fo	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh > 3 inches) present, with <a>only wow of with maintained understory. Low 0.75	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F Blocks 6	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5 the sums Riparian equal 100 100%	NOTES>> Cl= (Sum % RA * S Rt Bank Cl > Lt Bank Cl >	0.60	

	St	ream In	npact A	ssessm	nent Fo	rm Pag	e 2		
Project #	Applicant		Locality	Cowardin Class.	HUC	Date	Data Point	SAR length	Impact Factor
								500	1
	L ALTERATION: Stream cross spoil piles, constrictions, livestock	sings, riprap, conc		concrete blocks, s	traightening of ch	annel, channeliz	ration,	NOTES>>	
	Negligible	Mi	nor		erate	Se	evere		
Channel Alteration	Channelization, dredging, alteration, or hardening absent. Stream has an unaltered pattern or has naturalized.	Less than 20% of the stream reach is disrupted by any of the channel alterations listed in the parameter guidelines.	20-40% of the stream reach is disrupted by any of the channel	is disrupted by any of the channel	of the channel	Greater than 80% by any of the char in the parameter 80% of banks s	of reach is disrupted nnel alterations listed guidelines AND/OR shored with gabion, or cement.	1	
SCORE	1.5	1.3	1.1	0.9	0.7		0.5		
	REACH C	ONDITION	NDEX and S	TREAM CO	NDITION UN	ITS FOR TH	IIS REACH		
NOTE: The CIs and F	RCI should be rounded to 2 decimal places.	The CR should be rou	nded to a whole numb	er.			THE REACH	CONDITION IN	DEX (RCI) >>

RCI= (Sum of all Cl's)/5

COMPENSATION REQUIREMENT (CR) >>

CR = RCI X LF X IF



DESCRIBE PROPOSED IMPACT:		

		Stre	Unit	fied Stream N	lethodology 1	for use in Vir	-	m 1)			
Project #		Project Name		Locality	nels classified a Cowardin Class.	HUC	perennial Date	SAR#	Impact/SAR length	Impact Factor	
5337	I-64	Peninsula S	tudy	Newport News	0.0000	02080108	6-28-11		4524		
Name	e(s) of Evalua	tor(s)	Stream Nam	e and Informa	ation					1	
	Bode / Doucette		WUS 8N								
I. Channel C	Condition: Asse	ess the cross-sec	ction of the stream		ondition (erosion, Conditional Catego						
	Opti	imal	Subo	ptimal	Mar	ginal	Po	oor	Se	vere	
	Very little incision o	r active erosion: 80	erosion or unproted	ew areas of active cted banks. Majority	Poor. Banks more	less than Severe or e stable than Severe ower bank slopes.		ed/incised. unstable. Likely to ority of both banks	incision, flow co	nstability. Severe	
Channel Condition	100% stable bar surface protection prominent (80-1) Stable point bars/bc present. Access floodplain or fully bankfull benches. and transverse be sediment depositio	nks. Vegetative n or natural rock, 00%). AND/OR ankfull benches are to their original or developed wide Mid-channel bars, ars few. Transient or covers less than	Vegetative protect prominent (60- Depositional feat stability. The bar channels are well likely has access to or newly develope portions of the resediment covers 10 to definite the covers of the resediment covers 10 to definite the covers of the resediment covers 10 to definite the covers of the resediment covers 10 to definite the covers 10 to definite	table (60-80%), tion or natural rock-80%) AND/OR tures contribute to nkfull and low flow II defined. Stream o bankfull benches, and floodplains along reach. Transient 0-40% of the stream tom.	Erosion may be pr both banks. Veget 40-60% of banks. bevertical or unde 60% of strean sediment. Set temporary/tran instability. Depositi stability, may be AND/OR V-shap	resent on 40-60% of tative protection on Streambanks may ercut. AND/OR 40- m is covered by diment may be usient, contribute ion that contribute to be forming/present.	are near vertical. 60-80% of bar protection prese banks, and is inst erosion. AND/O stream is cover Sediment is temp nature, and contri AND/OR V-shap vegetative protect	Erosion present on ks. Vegetative int on 20-40% of fifficient to prevent R 60-80% of the ed by sediment. orary/transient in outing to instability, ed channels have ion is present on >	rooting depth, i vertical/under protection present banks, is not pr Obvious bank s Erosion/raw ba AND/OR Aggradii than 80% of stread deposition, contri	ned below average majority of banks cut. Vegetative on less than 20% of eventing erosion. cloughing present. Inks on 80-100%. ng channel. Greater m bed is covered by buting to instability. I channels and/or	
					banks and depositi	ion on > 40% of the ional features which	deposition	ind stable sediment is absent.	subterra	nean flow.	
Score	3	3	2	2.4		2	1	.6		1	2.0
2. RIPARIAN	N BUFFERS: A		Con Subo	nditional Cate ptimal	gory	ginal Low Marginal:	Po High Poor:	n may be accepta	NOTES>>		
Riparian Buffers	Opti Tree stratum (dbh > with > 60% tree ca	imal - 3 inches) present, anopy cover and a derstory. Wetlands	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy	gory	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh > 3 inches) present, with <30% tree canopy cover with maintained	Po		,		
Riparian	Option Tree stratum (dbh > with > 60% tree canon-maintained unc	imal - 3 inches) present, anopy cover and a derstory. Wetlands	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh > 3 inches) present, with <30% tree canopy cover with	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable	,		
Riparian	Option Tree stratum (dbh > with > 60% tree canon-maintained unc	• 3 inches) present, anopy cover and a derstory. Wetlands e riparian areas.	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory.	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation).	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover.	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh >3 inches) present, with <30% tree canopy cover with maintained understory.	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, recently seeded and stabilized, or other comparable condition.	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions.	,		
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Riparian Buffers Condition Scores Delineate ripalescriptors. Determine squelow. Enter the % F	Tree stratum (dbh > with > 60% tree cc non-maintained und located within the	imal 3 inches) present, anopy cover and a derstory. Wetlands e riparian areas. 5 ach by measuring score for each right and score for each right	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 into Condition C	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Coungth and width. Co	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh > 3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions.	,		
Riparian Buffers Condition Scores Delineate ripa descriptors. Locate representation of the second	Tree stratum (dbh > with > 60% tree conon-maintained und located within the located withi	imal 3 inches) present, anopy cover and a derstory. Wetlands e riparian areas.	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 80% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 k into Condition C g or estimating ler	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Coungth and width. Co	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh > 3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5	NOTES>>		
Riparian Buffers Condition Scores Delineate ripalescriptors. Determine squelow. Enter the % F. Right Bank	Tree stratum (dbh > with > 60% tree conon-maintained und located within the located withi	imal 3 inches) present, anopy cover and a derstory. Wetlands e riparian areas. 5 ach stream bank ach by measuring 50% 0.6	Com Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 k into Condition C g or estimating ler parian category in 50% 0.5	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Coungth and width. Co	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh > 3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5 the sums Riparian qual 100	,		נו
Riparian Buffers Condition Scores Delineate ripe escriptors. Determine sq elow. Enter the % F	Tree stratum (dbh > with > 60% tree ca non-maintained unc located within the located with	imal 3 inches) present, anopy cover and a derstory. Wetlands e riparian areas. 5 ach stream bank ach by measuring Score for each ripage.	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 80% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 k into Condition C g or estimating ler parian category in	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Coungth and width. Co	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh > 3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5	NOTES>> CI= (Sum % RA *	Scores*0.01)/2 0.55 0.55	CI 0.55
Condition Scores Delineate ripadescriptors. Deltermine squelow. Enter the % Finance of the second s	Tree stratum (dbh > with > 60% tree canon-maintained unc located within the located withi	imal 3 inches) present, anopy cover and a derstory. Wetlands e riparian areas. 5 ach stream bank ach by measuring 50% 0.6 50% 0.6 aried substrate si	Com Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 into Condition C g or estimating ler parian category in 50% 0.5	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Coungth and width. Coungth and width. Coungth and width. Coungth and depths; wodes.	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85 Indition Scores us alculators are production of the product	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh > 3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75 ing the povided for you	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F Blocks 6	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5 the sums stiparian qual 100 100%	NOTES>> CI= (Sum % RA * Rt Bank CI >	0.55	_
Condition Scores Delineate ripadescriptors. Deltermine squelow. Enter the % Finance of the second s	Tree stratum (dbh > with > 60% tree ca non-maintained unc located within the located with	imal 3 inches) present, anopy cover and a derstory. Wetlands e riparian areas. 5 ach stream bank ach by measuring 50% 0.6 50% 0.6 aried substrate si	Com Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 sinto Condition C g or estimating let parian category in 50% 0.5 50% 0.5	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Coungth and width. Coungth and width. Coungth and width. Coungth and depths; wodes.	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85 Indition Scores us alculators are production of the producti	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh > 3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75 ing the povided for you	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F Blocks e	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5 the sums stiparian qual 100 100%	NOTES>> CI= (Sum % RA * Rt Bank CI > Lt Bank CI >	0.55	_
Condition Scores Delineate ripa descriptors. Deltheate ripa descriptors. Right Bank Left Bank Left Bank January Condition	Tree stratum (dbh > with > 60% tree cc non-maintained und located within the located with	imal 3 inches) present, anopy cover and a derstory. Wetlands e riparian areas. 5 each stream bank ach by measuring 50% 0.6 50% 0.6 aried substrate si ffle poole comple imal	Com Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 into Condition C g or estimating ler parian category in 50% 0.5 50% 0.5 zes, water velocity exes, stable featur Subo Stable habitat ele present in 30-50% are adequate fo	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Coungth and width. Coungth and width. Coungth and width. Coungth and depths; wores. Conditiona	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85 addulators are production of the control of the	Ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh >3 inches) present, with <a>30 % tree canopy cover with maintained understory. Low 0.75 ing the price of the product of the present of t	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F Blocks 6	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5 the sums Riparian qual 100 100% 100% ess; shade;	NOTES>> CI= (Sum % RA * Rt Bank CI > Lt Bank CI >	0.55	_

	St	ream In	npact A	ssessn	nent Fo	rm Pag	e 2		
Project #	Applicant		Locality	Cowardin Class.	HUC	Date	Data Point	SAR length	Impact Factor
								500	1
	TERATION: Stream crossibiles, constrictions, livestock	ings, riprap, conc			traightening of ch	annel, channeliz	ation,	NOTES>>	
	Negligible	M	Conditiona nor	al Category	erate	9.0	vere		
	Negligible	IVII	nor	40 - 60% of reach	60 - 80% of reach	36	vere		
or ha	annelization, dredging, alteration, nardening absent. Stream has an ltered pattern or has naturalized.	Less than 20% of the stream reach is disrupted by any of the channel alterations listed in the parameter guidelines.	of the channel	is disrupted by any of the channel	is disrupted by any of the channel alterations listed in the parameter guidelines. If stream has been channelized, normal stable stream meander pattern has not	by any of the char in the parameter 80% of banks s	of reach is disrupted annel alterations listed guidelines AND/OR hored with gabion, or cement.		
SCORE	1.5	1.3	1.1	0.9	0.7	(0.5		
	REACH C	ONDITION	NDEX and S	TREAM CO	NDITION UN	ITS FOR TH	IIS REACH		
NOTE: The Cls and RCI shou	ould be rounded to 2 decimal places.							CONDITION IN	DEX (RCI) >>
TO TE. THE GIV AND THE ROTE OF SHOE	sala so roundou to 2 documar places.	The off Great Bo rea	naoa to a miloto name					l= (Sum of all C	
							COMPENSATI		
								I X LF X IF	
DESCRIBE PROP	POSED IMPACT:								
DESCRIBE PROP	POSED IMPACT:								
DESCRIBE PROP	POSED IMPACT:								

		Stre	Unit	SSESS fied Stream M	lethodology 1	or use in Virg	ginia	m 1)			
Project #	Pro	oject Name		Locality	Cowardin Class.	HUC	Date	SAR #	Impact/SAR length	Impact Factor	
5337	I-64 Pe	eninsula St	tudy	Newport News		02080108	6-28-11		75		
Name	e(s) of Evaluator	r(s)	Stream Nam	e and Informa	ation	•		<u> </u>	<u>'</u>		
	Bode / Doucette		WUS 9N								
. Channel C	Condition: Assess	the cross-sec	tion of the stream								
	Optima	al	Subo	ptimal	Conditional Catego Mar	_{ry} ginal	Po	oor	Sev	vere	
Channel Condition	Very little incision or ac 100% stable banks. surface protection or	. Vegetative	erosion or unproted of banks are s	ew areas of active cted banks. Majority table (60-80%). tion or natural rock	Poor. Banks more or Poor due to lo Erosion may be pr	less than Severe or stable than Severe wer bank slopes. esent on 40-60% of	Vertically/laterally widen further. Ma are near vertical.	ned/incised. unstable. Likely to jority of both banks Erosion present on	incision, flow con banks. Streamb	Istability. Severe ntained within the ed below average najority of banks	
Condition	surface protection or prominent (80-100%) Stable point bars/bankf present. Access to I floodplain or fully de bankfull benches. Mid and transverse bars f sediment deposition oc 10% of botte	%). AND/OR full benches are their original eveloped wide d-channel bars, few. Transient overs less than	Depositional feat stability. The bar channels are wel likely has access to or newly develope portions of the resediment covers 10 bott	-80%) AND/OR tures contribute to ndfull and low flow II defined. Stream o bankfull benches, di floodplains along reach. Transient 0-40% of the stream lom.	40-60% of banks. bevertical or unde 60% of strean sediment. See temporary/tran instability. Depositi stability, may be AND/OR V-shap vegetative protect banks and deposit	attive protection on Streambanks may rorut. AND/OR 40- n is covered by diment may be sient, contribute on that contribute to forming/present. ed channels have on on > 40% of the onal features which	protection prese banks, and is insi erosion. AND/C stream is cover Sediment is tem nature, and contri AND/OR V-shap vegetative protect 40% of the banks a	uks. Vegetative entron 20-40% of fifticient to prevent R 60-80% of the ed by sediment. corary/transient in buting to instability. ed channels have ion is present on > and stable sediment is absent.	vertical/underd protection present banks, is not pre Obvious bank sil Erosion/raw bar AND/OR Aggradir than 80% of strear deposition, contril Multiple thread	unitary or balans, court vegetative on less than 20% of eventing erosion. loughing present. nks on 80-100%. Ig channel. Greater in bed is covered by buting to instability. channels and/or nean flow.	CI
Score	3		2	.4		2	1	.6		1	2.4
	Optima			ptimal		ginal		oor			
Riparian Buffers	Tree stratum (dbh > 3 in with > 60% tree canop non-maintained unders' located within the rip	py cover and a story. Wetlands	High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory.	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation).	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover.	Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh >3 inches) present, with <30% tree canopy cover with maintained understory.	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable condition.	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions.			
Buffers	with > 60% tree canop non-maintained unders	py cover and a story. Wetlands	Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained	Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense	Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree	Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh >3 inches) present, with <30% tree canopy cover with	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable			
•	with > 60% tree canop non-maintained unders	py cover and a story. Wetlands	Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory.	Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation).	Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover.	Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh >3 inches) present, with <a>30 % tree canopy cover with maintained understory.	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable condition.	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions.			
Condition Scores Delineate ripal electriptors. Determine squelow.	with > 60% free canop non-maintained unders located within the rip 1.5 arian areas along each quare footage for each	py cover and a story. Wetlands parian areas.	Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 Into Condition C	Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Congth and width. Congth and widt	Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85	Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh > 3 inches) present, with sold-red canopy cover with maintained understory. Low 0.75	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5			
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Condition Scores Delineate ripa escriptors. Determine sq elow. Enter the % R Right Bank Left Bank	with > 60% free canop non-maintained unders located within the rip 1.5 arian areas along each quare footage for each Riparian Area and Scot % Riparian Area> % Riparian Area>	ch stream bank h by measuring ore for each rig 90% 0.6 100% 0.6 d substrate siz	Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 s into Condition C or estimating let	Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Cought and width. Cought and width. Cought and width. Cought and width are the blocks below and depths; woo	Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85 adculators are pro	Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh >3 inches) present, with <a>30 % tree canopy cover with maintained understory. Low 0.75 Ing the vided for you	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F Blocks 6	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5 the sums Riparian equal 100 100%	CI= (Sum % RA * 8 Rt Bank CI >	0.65	
Condition Scores Delineate ripa descriptors. Delemente squescriptors. Enter the % R Right Bank Left Bank Left Bank June 10	with > 60% free canop non-maintained unders located within the rip 1.5 arian areas along each quare footage for each Riparian Area and Scote > % Riparian Area> Score > % Riparian Area> Score > W HABITAT: Varier root mats; SAV; riffle	ch stream bank h by measuring ore for each rig 90% 0.6 100% 0.6 d substrate siz poole comple	Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 Into Condition C or estimating ler parian category in 10% 1.1	Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Congth and width. Congth and width. Congth and depths; works.	Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85 Indition Scores us calculators are production of the control o	Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh > 3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75 Ing the wided for you	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F Blocks 6	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5 the sums Riparian equal 100 100% 100%	CI= (Sum % RA * S Rt Bank CI > Lt Bank CI >	0.65	
Condition Scores 1. Delineate ripadescriptors. 2. Determine squelow. 3. Enter the % R Right Bank Left Bank 3. INSTREAN	with > 60% free canop non-maintained unders located within the rip 1.5 arian areas along each quare footage for each guare footage for each % Riparian Area and Score > % Riparian Area> Score > W HABITAT: Varies	ch stream bank h by measuring ore for each rig 90% 0.6 100% 0.6 d substrate sia poole comple al	Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 sinto Condition C or estimating lendary and category in 10% 1.1 zes, water velocity xes, stable featur Subo Stable habitat ele present in 30-50% are adequate for sinches in the state of	Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Coungth and width. Coungth and width. Coungth and depths; worders.	Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85 Indition Scores us calculators are processed of the control of	Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh >3 inches) present, with <a>30 % tree canopy cover with maintained understory. Low 0.75 Ing the vided for you	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F Blocks 6 Habitat element: lacking or are u elements are typic	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5 the sums Riparian equal 100 100%	Cl= (Sum % RA * 8 Rt Bank Cl > Lt Bank Cl >	0.65	

	St	ream In	npact A	ssessm	ent Fo	rm Pag	e 2		
Project #	Applicant		Locality	Cowardin Class.	HUC	Date	Data Point	SAR length	Impact Factor
								500	1
	ALTERATION: Stream cross poil piles, constrictions, livestock	ings, riprap, conci		concrete blocks, s	traightening of ch	annel, channeliz	zation,	NOTES>>	
	Negligible	Mir	nor		erate		evere		
Channel Alteration	Channelization, dredging, alteration, or hardening absent. Stream has an unaltered pattern or has naturalized.	Less than 20% of the stream reach is disrupted by any of the channel alterations listed in the parameter guidelines.	20-40% of the stream reach is disrupted by any of the channel	is disrupted by any of the channel	50 - 80% of reach is disrupted by any of the channel alterations listed in the parameter guidelines. If stream has been channelized, normal stable stream meander pattern has not	Greater than 80% by any of the chai in the parameter 80% of banks s	o of reach is disrupted nnel alterations lister guidelines AND/OR shored with gabion, or cement.	1	
SCORE	1.5	1.3	1.1	0.9	0.7	(0.5		
	REACH C	ONDITION II	NDEX and S	TREAM CO	NDITION UN	ITS FOR TH	HIS REACH		
NOTE: The Cls and F	RCI should be rounded to 2 decimal places.	The CR should be rour	nded to a whole numb	er.			THE REACH	CONDITION IN	DEX (RCI) >>

RCI= (Sum of all CI's)/5

COMPENSATION REQUIREMENT (CR) >> 0

CR = RCI X LF X IF



DESCRIBE PROPOSED IMPACT:		

Score 3 2.4 2 1.6 1 NOTES>> RIPARIAN BUFFERS: Assess both bank's 100 foot riparian areas along the entire SAR. (rough measurements of length & width may be acceptable) Conditional Category University of the armonic (dah > 3 inches) properties and substrates and substrates are specially leave the properties and an area along the entire SAR. (rough measurements of length & width may be acceptable) NOTES>> Riparian Riparian Riparian Buffers Optimal			Stre	Uni	fied Stream N	lethodology [*]	Form	ginia	m 1)			
Name Condition	Project #	ı	Project Name			Cowardin		i	SAR#	I -	•	
Channel Condition: Assess the cases section of the stream and permailing condition (exector, aggredation)	5337	I-64	Peninsula S	tudy	York		02080107	7-1-11		343		
Channel Channe	Name	e(s) of Evaluat	tor(s)		e and Inform	ation						
Channel Cha		Doucette		WUS 35N								
Channel Condition Channel Condition Channel Condition Channel Condition Channel Condition Channel Condition Conditi	I. Channel C	Condition: Asse	ess the cross-sec	ction of the stream								
Channel Condition Wey little incidence or active certainty. Condition Wey little incidence or active certainty. Condition Wey little incidence or active certainty. See a condition or active certainty. Wey little incidence or active certainty. We will be a condition or active. We will be a condition. We will be a condition. We will be a condition or active. We will be a condition. We will be a co		Opti	mal	Subo				Po	oor	Sev	ere	
Condition Significant particles of the control of		100% stable ban	ks. Vegetative	erosion or unproted of banks are s	cted banks. Majority table (60-80%).	Poor. Banks more or Poor due to le	stable than Severe ower bank slopes.	Vertically/laterally widen further. Ma	unstable. Likely to ijority of both banks	incision, flow cor banks. Streambe	tained within the ed below average	
Conditional Category	Condition	prominent (80-10 Stable point bars/ba present. Access floodplain or fully bankfull benches. and transverse ba sediment deposition	00%). AND/OR inkfull benches are to their original developed wide Mid-channel bars, rs few. Transient in covers less than	prominent (60 Depositional feat stability. The bar channels are we likely has access t or newly develope portions of the sediment covers 10	-80%) AND/OR tures contribute to nkfull and low flow Il defined. Stream o bankfull benches, and floodplains along reach. Transient 0-40% of the stream	both banks. Vege 40-60% of banks. bevertical or unde 60% of strear sediment. Se temporary/trar instability. Deposit stability, may be AND/OR V-shap vegetative protect	tative protection on Streambanks may ercut. AND/OR 40- n is covered by diment may be usient, contribute ion that contribute to e forming/present. bed channels have ion on > 40% of the	60-80% of bar protection press banks, and is ins erosion. AND/C stream is cove Sediment is tem nature, and contri AND/OR V-shap vegetative protec 40% of the banks	nks. Vegetative ent on 20-40% of ufficient to prevent DR 60-80% of the red by sediment. porary/transient in buting to instability. bed channels have tion is present on > and stable sediment	vertical/underc protection present of banks, is not pre Obvious banks Is Erosion/raw bar AND/OR Aggradin than 80% of strean deposition, contrib Multiple thread	ut. Vegetative on less than 20% of venting erosion. Dughing present. ks on 80-100%. g channel. Greater bed is covered by uting to instability. Channels and/or	CI
Condition Category	Score	3		2	2.4		2	1	.6			2.4
High Low High High Low High Low High High Low High High Low High	•	Tree stratum (dbh > with > 60% tree ca	3 inches) present, nopy cover and a lerstory. Wetlands	High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory, Recent cutover (dense	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree	Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hos production, ponds, open water. If present, tree stratum (dbh > 3 inches) present, with <30% tree canopy cover with maintained	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable			
Scores 1.3 1.2 1.1 0.85 0.75 0.6 0.5 1. Delineate riparian areas along each stream bank into Condition Categories and Condition Scores using the descriptors. 2. Determine square footage for each by measuring or estimating length and width. Calculators are provided for you below. 3. Enter the % Riparian Area and Score for each riparian category in the blocks below. Right Bank % Riparian Area 50% 50% 100%				High	Low	High		High	Low			
Delineate riparian areas along each stream bank into Condition Categories and Condition Scores using the descriptors. Delineate riparian areas along each stream bank into Condition Categories and Condition Scores using the descriptors. Delineate riparian areas along each stream bank into Condition Categories and Condition Scores using the descriptors. Delineate riparian areas along each stream bank into Condition Categories and Condition Scores using the descriptors. Delineate riparian areas along each stream bank into Condition Categories and Condition Scores using the descriptors. Of % Riparian Blocks equal 100 Cl= (Sum % RA * Scores*0.01)/2 Cl= (Sum % RA * Scores*0.01)/2 Left Bank NOTES>> Instream Habitat/ Available Cover Optimal Suboptimal Marginal Poor Habitat elements are typically present in 95-05% of the reach. Stable habitat elements are typically present in 10-50% of the reach and are adequate for maintenance of populations. Stable habitat elements are typically present in 10-50% of the reach and are adequate for maintenance of populations.		1.	5	1.2	1.1	0.85	0.75	0.6	0.5			
Right Bank % Riparian Area> 50% 50%	descriptors. 2. Determine sq pelow.	uare footage for ea	ach by measurin	g or estimating le	ngth and width. C	Calculators are pro	•	of % I	Riparian			
Score > 1.5 0.85 Cl= (Sum % RA * Scores*0.01)/2	J. Lines the % F				THE DIOCKS DEIOW			DIOURS		-		
Left Bank % Riparian Area> 50% 50% 1.15 Score > 1.5 1.5 Lt Bank Cl > 1.18 Lt Bank Cl > 1.50 1 Lt Bank Cl > 1.50 1 Score > 1.5 1.5 1.5 1.5 1.5 1.5 1.5 1.5 1.5 1.5	Right Bank	<u> </u>							10070	1		
Score > 1.5 1.5 1.5 Lt Bank Cl > 1.50 1 3. INSTREAM HABITAT: Varied substrate sizes, water velocity and depths; woody and leafy debris; stable substrate; low embededness; shade; undercut banks; root mats; SAV; riffle poole complexes, stable features. Conditional Category		. "								,	,	
3. INSTREAM HABITAT: Varied substrate sizes, water velocity and depths; woody and leafy debris; stable substrate; low embededness; shade; Instream Habitat/ Available Cover Optimal Suboptimal Suboptimal Marginal Marginal Poor Habitat elements are typically present in 10-30% of the reach and are adequate for maintenance of populations. Stable habitat elements are typically present in 10-30% of the reach and are adequate for maintenance of populations. Habitat elements are typically present in 10-30% of the reach and are adequate for maintenance of populations.	Left Bank								100%			CI
Instream Habitat/ Available Cover Cover Conditional Category Stable habitat elements are typically present in greater than 50% of the reach. Stable habitat elements are typically propulations. Stable habitat elements are typically present in 10-30% of the reach and are adequate for maintenance of populations. Stable habitat elements are typically present in 10-30% of the reach and are adequate for maintenance of populations. Stable habitat elements are typically present in 10-30% of the reach and are adequate for maintenance of populations. Stable habitat elements are typically present in 10-30% of the reach and are adequate for maintenance of populations.	A INIOPPE										1.50	1.34
Instream Habitat/ Available Cover Cover Cover Conditional Category Marginal Marginal Marginal Marginal Poor Habitat elements are typically present in 30-50% of the reach and are adequate for maintenance of populations. Description of the reach and are adequate for maintenance of populations. Description of the reach and are adequate for maintenance of populations. Description of the reach and are adequate for maintenance of populations. Description of the reach and are adequate for maintenance of populations. Description of the reach and are adequate for maintenance of populations. Description of the reach and are adequate for maintenance of populations. Description of the reach and are adequate for maintenance of populations. Description of the reach and are adequate for maintenance of populations.	J. INSTREAM undercut banks:	vi HABITAT: Va root mats; SAV; rit	ried substrate si fle poole comple	zes, water velocit exes, stable featur	y and depths; woo es.	ody and leafy deb	ris; stable substra	ite; low embededr	ness; shade;	NOTES>>		
Habitat/ Available Cover Habitat elements are typically present in 30-50% of the reach and in greater than 50% of the reach. Stable habitat elements are typically present in 10-30% of the reach and are adequate for maintenance of populations. Stable habitat elements are typically present in 10-30% of the reach and are adequate for maintenance of populations. Habitat elements are typically present in lasted above are lacking or are unstable. Habitat elements is ted above are lacking or are unstable. Habitat elements are typically present in 10-30% of the reach and are adequate for maintenance of populations. Habitat elements are typically present in lasted above are lacking or are unstable. Habitat elements is ted above are lacking or are unstable. Habitat elements is ted above are lacking or are unstable. Habitat elements are typically present in 10-30% of the reach and are adequate for maintenance of populations.				1	Condition		rainal		oor			
	Habitat/ Available	Habitat elements ar	e typically present	Stable habitat ele present in 30-509 are adequate fo	ments are typically % of the reach and or maintenance of	Stable habitat ele present in 10-30 ^s are adequate fo	ements are typically % of the reach and or maintenance of	Habitat element lacking or are u elements are typic	s listed above are instable. Habitat cally present in less	-		-
	Score	1	5	1	.2	().9	0),5	+		0.90

	St	ream In	npact A	ssessm	nent Fo	rm Pag	e 2		
Project #	Applicant		Locality	Cowardin Class.	HUC	Date	Data Point	SAR length	Impact Factor
								500	1
	ALTERATION: Stream cross poil piles, constrictions, livestock	sings, riprap, conc		concrete blocks, s	traightening of ch	annel, channeliza	ation,	NOTES>>	
	Negligible	Mi	nor		erate	Se	vere		
Channel Alteration	Channelization, dredging, alteration, or hardening absent. Stream has an unaltered pattern or has naturalized.	Less than 20% of the stream reach is disrupted by any of the channel alterations listed in the parameter guidelines.	20-40% of the stream reach is disrupted by any of the channel	is disrupted by any	of the channel	Greater than 80% by any of the chan in the parameter 80% of banks sh	of reach is disrupted nel alterations listed guidelines AND/OR nored with gabion, or cement.		
SCORE	1.5	1.3	1.1	0.9	0.7	C).5		
	REACH C	ONDITION I	NDEX and S	TREAM CO	NDITION UN	ITS FOR TH	IIS REACH		
NOTE: The Cls and F	CI should be rounded to 2 decimal places.	The CR should be rou	nded to a whole numb	er.			THE REACH (CONDITION IN	DEX (RCI) >>
							RC	= (Sum of all C	l's)/5

COMPENSATION REQUIREMENT (CR) >> 0

CR = RCI X LF X IF



DESCRIBE PROPOSED IMPACT:		

		Stre	Unit	fied Stream N		for use in Vir	ginia	m 1)			
Project #		Project Name		Locality	nels classified a Cowardin Class.	HUC	perennial Date	SAR#	Impact/SAR	Impact Factor	
5337	I-64	Peninsula S	tudy	James City	0.0000	02080107	7-5-11			1	
Nam	e(s) of Evalua	tor(s)	Stream Nam	e and Informa	ation						
	Sekula		WUS 38N								
. Channel (Condition: Asse	ess the cross-sec	ction of the stream		ondition (erosion, Conditional Catego						
	Opti	imal	Subo	ptimal		ginal	Po	or	Se	vere	
Channel	Very little incision o	or active erosion; 80	erosion or unproted	ew areas of active cted banks. Majority table (60-80%).	Poor. Banks more	less than Severe or a stable than Severe ower bank slopes.	Vertically/laterally	ed/incised. unstable. Likely to ority of both banks	incision, flow co	nstability. Severe intained within the led below average	
Condition	100% state is bar surface protection prominent (80-1 Stable point bar/shc present. Access floodplain or fully bankfull benches. and transverse be sediment depositio 10% of l	00%). AND/OR ankfull benches are s to their original or developed wide Mid-channel bars, ars few. Transient on covers less than	Vegetative protect prominent (60- prominent (60- Depositional feat stability. The bar channels are well likely has access to or newly develope portions of the resediment covers 10-	tion or natural rock -80%) AND/OR tures contribute to nkfull and low flow Il defined. Stream to bankfull benches, d floodplains along reach. Transient 0-40% of the stream tom.	both banks. Veget 40-60% of banks. bevertical or unde 60% of strean sediment. Se- temporary/tran instability. Depositi stability, may be AND/OR V-shap vegetative protect	resent on 40-60% of tative protection on Streambanks may ercut. AND/OR 40- n is covered by diment may be sisent, contribute to forming/present. eed channels have ion on > 40% of the ional features which	60-80% of bar protection press banks, and is insu erosion. AND/O stream is cover Sediment is temp nature, and contri AND/OR V-shap vegetative protect 40% of the banks a	ed channels have	rooting depth, i vertical/under protection present banks, is not pr Obvious bank s Erosion/raw ba AND/OR Aggradii than 80% of streat deposition, contri Multiple thread	majority of banks cut. Vegetative on less than 20% of eventing erosion. loughing present. hks on 80-100%. ng channel. Greater m bed is covered by buting to instability. channels and/or nean flow.	CI
Score	3	3	2	.4		2	-	.6		1	3.0
NOTES>>			•		•		•				
. RIPARIAI	N BUFFERS: A		Con	n areas along the	gory	ugh measurement		n may be accepta	NOTES>> H		
RIPARIAN Riparian Buffers	Opti Tree stratum (dbh > with > 60% tree ca	imal > 3 inches) present, and of a derstory. Wetlands	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy	gory	Low Marginal: Non-maintained, dense herbaceous vegetation,			NOTES>> H		
Riparian Buffers	Tree stratum (dbh > with > 60% tree cc non-maintained unc located within the	imal 3 inches) present, anopy cover and a derstory. Wetlands e riparian areas.	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation).	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh > 3 inches) present, with <30% tree canopy cover with maintained	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable	NOTES>> H located ups		
Riparian	Option Tree stratum (dbh > with > 60% tree canon-maintained unc	imal 3 inches) present, anopy cover and a derstory. Wetlands e riparian areas.	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory.	ditional Cate ptimal Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation).	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover.	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh >3 inches) present, with <30% tree canopy cover with maintained understory.	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, recently seeded and stabilized, or other comparable condition.	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions.	NOTES>> H located ups		
Riparian Buffers Condition Scores Delineate ripe escriptors. Determine so	Tree stratum (dbh > with > 60% tree ca non-maintained unc located within the	imal 3 inches) present, anopy cover and a derstory. Wetlands e riparian areas. 5 each stream bank ach by measuring	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 k into Condition C	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Coungth and width. Co	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh > 3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5	NOTES>> H located ups		
Riparian Buffers Condition Scores Delineate ripa secriptors. Determine second	Tree stratum (dbh > with > 60% tree conon-maintained und located within the located withi	imal 3 inches) present, anopy cover and a derstory. Wetlands e riparian areas. 5 each stream bank ach by measuring.	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 k into Condition C	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Coungth and width. Co	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh > 3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5	NOTES>> H located ups		
Riparian Buffers Condition Scores Delineate ripaescriptors. Determine scores Determine scores Enter the % F	Tree stratum (dbh > with > 60% tree ca non-maintained unc located within the	imal 3 inches) present, anopy cover and a derstory. Wetlands e riparian areas. 5 each stream bank ach by measuring	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 k into Condition C	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Coungth and width. Co	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh > 3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5	NOTES>> H located ups		
Riparian Buffers Condition Scores Delineate ripaescriptors. Determine scores Determine scores Enter the % F	Tree stratum (dbh > with > 60% tree ca non-maintained und located within the located with	imal 3 inches) present, anopy cover and a derstory. Wetlands e riparian areas. 5 each stream bank ach by measuring 100% 1.2	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 k into Condition C g or estimating ler parian category in	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Coungth and width. Co	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh > 3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5 the sums Riparian qual 100	NOTES>> H located ups bank side	Scores*0.01)/2	
Riparian Buffers Condition Scores Delineate ripasecriptors. Determine sealow. Enter the % F	Tree stratum (dbh > with > 60% tree ca non-maintained unc located within the located with	imal 3 inches) present, anopy cover and a derstory. Wetlands e riparian areas. 5 each stream bank ach by measuring 100% 1.2 70%	Com Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 into Condition C g or estimating ler parian category in	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Coungth and width. Co	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh > 3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5	NOTES>> H located ups bank side	Scores*0.01)/2	CI
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Riparian Buffers Condition Scores Delineate ripa escriptors. Determine so elow. Enter the % F Right Bank Left Bank	Tree stratum (dbh > with > 60% tree ca non-maintained unc located within the located with	imal 3 inches) present, anopy cover and a derstory. Wetlands e riparian areas. 5 ach stream bank ach by measuring 100% 1.2 70% 1.5 aried substrate si	Com Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 sinto Condition C g or estimating let parian category in 30% 0.5 zes, water velocity ixes, stable featur	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Coungth and width. Country the blocks below y and depths; wodes.	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85 Indition Scores us alculators are production of the producti	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh > 3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75 ing the povided for you	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F Blocks e	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5 the sums stiparian qual 100 100%	NOTES>> H located ups bank side CI= (Sum % RA * Rt Bank CI > Lt Bank CI > NOTES>> 86	Scores*0.01)/2 1.20 1.20 1.20 0% of stream sand eposit /	
Condition Scores Delineate ripe escriptors. Determine so elow. Enter the % F Right Bank Left Bank INSTREAR	Tree stratum (dbh > with > 60% tree cc non-maintained und located within the located with	imal 3 inches) present, anopy cover and a derstory. Wetlands e riparian areas. 5 sach stream bank ach by measuring 100% 1.2 70% 1.5 aried substrate si iffle poole comple imal	Com Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 Into Condition C g or estimating ler parian category in 30% 0.5 zes, water velocity exes, stable featur Subo Stable habitat ele present in 30-50% are adequate fo popul	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Coungth and width. Coungth and width. Coungth and width. Coungth and depths; wores. Conditiona	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85 Indition Scores us alculators are produced at Category Stable habitat ele present in 10-30% are adequate fo popul	Ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh >3 inches) present, with <a>30 % tree canopy cover with maintained understory. Low 0.75 ing the price of the product of the present of t	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F Blocks 6 Habitat elements are typic than 10% of the comparable condition.	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5 the sums Riparian qual 100 100% 100% ess; shade;	NOTES>> H located ups bank side Cl= (Sum % RA* Rt Bank Cl> Lt Bank Cl> NOTES>> 86 substrate is sediment de	Scores*0.01)/2 1.20 1.20 1.20 0% of stream sand eposit /	

	St	ream In	npact A	ssessm	ent Fo	rm Pag	e 2		
Project #	Applicant		Locality	Cowardin Class.	HUC	Date	Data Point	SAR length	Impact Factor
								500	1
	L ALTERATION: Stream cross		Conditiona	al Category			•	NOTES>>	
	Negligible	Mii	nor		erate 60 - 80% of reach		vere		
Channel Alteration	Channelization, dredging, alteration, or hardening absent. Stream has an unaltered pattern or has naturalized.	Less than 20% of the stream reach is disrupted by any of the channel alterations listed in the parameter guidelines.	20-40% of the stream reach is disrupted by any of the channel alterations listed in the parameter guidelines.	is disrupted by any of the channel	is disrupted by any of the channel alterations listed in	Greater than 80% by any of the char in the parameter 80% of banks sl riprap, c	of reach is disrupted inel alterations listed guidelines AND/OR nored with gabion, or cement.		
SCORE	1.5	1.3	1.1	0.9	0.7	().5		
	REACH C	ONDITION II	NDEX and S	TREAM CO	NDITION UN	ITS FOR TH	IIS REACH		
OTE: The CIs and I	RCI should be rounded to 2 decimal places.	The CR should be rour	nded to a whole numb	er.			THE REACH O	CONDITION IN	DEX (RCI) >>

CR = RCI X LF X IF



DESCRIBE PROPOSE	ED IMPACT:			

		Stre		fied Stream N	lethodology 1	for use in Virg	ginia	m 1)			
Project #		Project Name		Locality	nels classified a Cowardin Class.	HUC	perennial Date	SAR#	Impact/SAR length	Impact Factor	
5337	I-64	Peninsula S	tudy	James City	5.0.22	02080107	7-5-11		155		
Name	e(s) of Evalua	tor(s)	Stream Nam	e and Informa	ation						
	Doucette		WUS 39N								
. Channel C	Condition: Ass	ess the cross-sec	tion of the stream		ondition (erosion, Conditional Catego						
	Opt	imal	Subo	ptimal		ginal	Po	oor	Se	vere	
	Very little incision o	ur active erosion: 80	erosion or unproted	ew areas of active cted banks. Majority	Poor. Banks more	less than Severe or stable than Severe	Vertically/laterally	ed/incised. unstable. Likely to	incision flow co	nstability. Severe	
Channel Condition	100% stable bar surface protection prominent (80-1 Stable point bars/bz present. Access floodplain or fully bankfull benches. and transverse bz sediment depositio 10% of	nks. Vegetative n or natural rock, 00%). AND/OR ankfull benches are to their original v developed wide Mid-channel bars, ars few. Transient on covers less than	Vegetative protect prominent (60- Depositional feat stability. The bar channels are well likely has access to rnewly develope portions of the rediment covers 10	table (60-80%). tion or natural rock -80%) AND/OR tures contribute to nkfull and low flow II defined. Stream o bankfull benches, d floodplains along reach. Transient -0-40% of the stream tom.	Erosion may be pr both banks. Veget 40-60% of banks. bevertical or unde 60% of strean sediment. Set temporary/tran instability. Depositi stability, may be AND/OR V-shap	ower bank slopes. resent on 40-60% of tative protection on Streambanks may errut. AND/OR 40- n is covered by diment may be sident, contribute to end to the contribute to e forming/present. eed channels have ion on > 40% of the	are near vertical. 60-80% of bar protection prese banks, and is inst erosion. AND/O stream is cover Sediment is temp nature, and contri AND/OR V-shap vegetative protect	iority of both banks Erosion present on ks. Vegetative int on 20-40% of difficient to prevent R 60-80% of the ed by sediment, oorary/transient in buting to instability, ed channels have ion is present on and stable sediment	banks. Streamlor rooting depth, in vertical/under protection present banks, is not pr Obvious bank s Erosion/raw ba AND/OR Aggradii than 80% of strear deposition, contril Multiple thread	ed below average majority of banks cut. Vegetative on less than 20% of eventing erosion. loughing present. nks on 80-100%. ng channel. Greater n bed is covered by buting to instability. channels and/or	CI
					banks and depositi	ional features which	deposition	is absent.	Subterra	nean flow.	
Score	3	3	2	.4		2	1	.6		1	3.0
2. RIPARIAN	N BUFFERS: /		Con	ditional Cate	gory Mar	ginal Low Marginal: Non-maintained,	Po High Poor:	n may be accepta	NOTES>>		
2. RIPARIAN Riparian Buffers	Opti	imal > 3 inches) present, anopy cover and a derstory. Wetlands	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree	nditional Cate	gory	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh >3 inches) present, with 30% lockes) canopy cover with	Po		NOTES>>		
Riparian	Option Tree stratum (dbh swith > 60% tree canon-maintained und	imal > 3 inches) present, anopy cover and a derstory. Wetlands	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory.	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation).	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover.	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh >3 inches) present, with <30% tree canopy cover with maintained understory.	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable condition.	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions.	NOTES>>		
Riparian Buffers	Option Tree stratum (dbh swith > 60% tree canon-maintained und	imal 3 inches) present, anopy cover and a derstory. Wetlands e riparian areas.	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained	Low Suboptimal Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh >3 inches) present, with <30% tree canopy cover with maintained	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable	NOTES>>		
Riparian Buffers Condition Scores Delineate ripa descriptors. Determine squelow.	Tree stratum (dbh > with > 60% tree conon-maintained und located within the	imal 3 inches) present, anopy cover and a derstory. Wetlands e riparian areas.	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 into Condition C	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Coungth and width. Coungth	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh > 3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions.	NOTES>>		
Riparian Buffers Condition Scores Delineate ripz escriptors. Determine squelow.	Tree stratum (dbh > with > 60% tree ca non-maintained und located within the	imal 3 inches) present, anopy cover and a derstory. Wetlands e riparian areas.	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 into Condition C	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Coungth and width. Coungth	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh > 3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5	NOTES>>		
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Riparian Buffers Condition Scores Delineate ripz escriptors. Determine squelow.	Tree stratum (dbh a with > 60% tree ca non-maintained und located within the located with	imal 3 inches) present, anopy cover and a derstory. Wetlands e riparian areas. 5 each stream bank ach by measurin Score for each ri	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 into Condition C g or estimating ler parian category in	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Coungth and width. Coungth	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh > 3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5	NOTES>>		-
Riparian Buffers Condition Scores Delineate ripz escriptors. Determine squelow. Enter the % F	Tree stratum (dbh > with > 60% tree ca non-maintained und located within the located with	imal 3 inches) present, anopy cover and a derstory. Wetlands e riparian areas. 5 each stream bank ach by measurin. Score for each ri	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 into Condition C	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Coungth and width. Coungth	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh > 3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5	NOTES>>	Scores*0.01)/2 1.50 1.20	CI 1.35
Condition Scores Delineate ripa descriptors. Determine squelow. Benefit Bank Left Bank INSTREAR	Tree stratum (dbh a with > 60% tree ca non-maintained und located within the located with	imal 3 inches) present, anopy cover and a derstory. Wetlands e riparian areas. 5 each stream bank ach by measurin 100% 1.5 70% 1.5 aried substrate si	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 into Condition C g or estimating ler parian category in 30% 0.5 zes, water velocity	ditional Cate ptimal Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Coungth and width. Coungth and width. Coungth and width. Coungth and depths; wodes.	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85 Indition Scores us calculators are production of the produc	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh > 3 inches) present, with < 30% tree canopy cover with maintained understory: Low 0.75 ing the povided for you	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F Blocks 6	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5 the sums Riparian equal 100 100%	NOTES>> Cl= (Sum % RA*: Rt Bank Cl >	1.50	CI 1.35
Condition Scores Delineate ripalescriptors. Delta Bank Right Bank Left Bank Left Bank Lindercut banks;	Tree stratum (dbh > with > 60% tree ca non-maintained und located within the located with	imal 3 inches) present, anopy cover and a derstory. Wetlands e riparian areas. 5 each stream bank ach by measurin 100% 1.5 70% 1.5 aried substrate si	Riph Suboptimal: Riparian areas with tree stratum (dbh s 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 Into Condition C g or estimating ler parian category in 30% 0.5 Zes, water velocity xes, stable featur	ditional Cate ptimal Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Coungth and width. Coungth and width. Coungth and width. Coungth and depths; wodes.	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <a>3 inches) present, with <a>3 inches) present, or a tree canopy cover. High 0.85 Indition Scores us calculators are production of the control of th	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh > 3 inches) present, with < 30% tree canopy cover with maintained understory: Low 0.75 ing the povided for you	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F Blocks 6	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5 the sums Riparian equal 100 100%	NOTES>> Ci= (Sum % RA *: Rt Bank Ci > Lt Bank Ci >	1.50	
Condition Scores Delineate ripa descriptors. Determine squelow. Benefit Bank Left Bank INSTREAR	Tree stratum (dbh > with > 60% tree ca non-maintained und located within the located with	imal 3 inches) present, anopy cover and a derstory. Wetlands e riparian areas. 5 5 cach stream bank ach by measuring the stream	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 into Condition C g or estimating ler parian category in 30% 0.5 Zes, water velocity xes, stable featur Subo Stable habitat ele present in 30-509 are adequate fo	ditional Cate ptimal Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Co ongth and width. Co the blocks below y and depths; wodes. Conditional	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85 Indition Scores us calculators are production of the present in 10-30 are adequate for a seadequate for the present in 10-30 are adequate for the present in 10-30 are adeq	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh >3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75 ing the povided for you	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F Blocks 6	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5 the sums Riparian equal 100 100% 100%	CI= (Sum % RA *: Rt Bank CI > Lt Bank CI > NOTES>>	1.50	

Stream Impact Assessment Form Page 2									
Project #	Applicant		Locality	Cowardin Class.	HUC	Date	Data Point	SAR length	Impact Factor
								500	1
	ALTERATION: Stream cross poil piles, constrictions, livestock	ings, riprap, conci		concrete blocks, s	traightening of ch	annel, channeliz	zation,	NOTES>>	
	Negligible	Mir	nor		erate		evere		
Channel Alteration	Channelization, dredging, alteration, or hardening absent. Stream has an unaltered pattern or has naturalized.	Less than 20% of the stream reach is disrupted by any of the channel alterations listed in the parameter guidelines.	20-40% of the stream reach is disrupted by any of the channel	is disrupted by any of the channel	50 - 80% of reach is disrupted by any of the channel alterations listed in the parameter guidelines. If stream has been channelized, normal stable stream meander pattern has not	Greater than 80% by any of the chai in the parameter 80% of banks s	o of reach is disrupted nnel alterations lister guidelines AND/OR shored with gabion, or cement.	1	
SCORE	1.5	1.3	1.1	0.9	0.7	(0.5		
	REACH C	ONDITION II	NDEX and S	TREAM CO	NDITION UN	ITS FOR TH	HIS REACH		
NOTE: The Cls and R	CI should be rounded to 2 decimal places.	The CR should be rour	nded to a whole numb	er.			THE REACH	CONDITION IN	DEX (RCI) >>

RCI= (Sum of all CI's)/5

COMPENSATION REQUIREMENT (CR) >> 0

CR = RCI X LF X IF



DESCRIBE PROPOSED IMPACT:		

		Stre		fied Stream N	lethodology f	for use in Virg	ginia				
Project #	ı	Project Name		Locality	Cowardin Class.	HUC	Date	SAR#	Impact/SAR length	Impact Factor	
5337	I-64	Peninsula S	tudy	James City		02080107	7/5/11			1	
Nam	e(s) of Evalua	tor(s)	Stream Nam	e and Inform	ation	<u>'</u>					
	Sekula		WUS 41N								
I. Channel C	Condition: Asse	ess the cross-sec	ction of the stream								
	Opti	mal	Subo	ptimal	Conditional Catego Mar	ginal	Po	oor	Sev	vere	
	-	A STATE OF THE STA		ew areas of active	1	less than Severe or	Overwider	ed/incised.	Dopy mores	istability. Severe	
Channel Condition	Very little incision or 100% stable bar surface protection prominent (80-10 Stable point bars/be present. Access floodplain or fully bankfull benches. and transverse be sediment depositio 10% of I	nks. Vegetative n or natural rock, 00%). AND/OR ankfull benches are to their original developed wide Mid-channel bars, ars few. Transient n covers less than	of banks are s Vegetative protect prominent (60 Depositional feat stability. The ban channels are we likely has access t or newly develope portions of the sediment covers 10	cted banks. Majority table (60-80%). Itable (60-80%). Itable (60-80%). AND/OR turnes contribute to nkfull and low flow II defined. Stream o bankfull benches, ad floodplains along reach. Transient 0-40% of the stream tom.	or Poor due to k Erosion may be pr both banks. Vege! 40-60% of banks. bevertical or unde 60% of strean sediment. Se temporary/tran instability. Depositi stability, may be AND/OR V-shap	stable than Severe were bank slopes. esent on 40-60% of tative protection on Streambanks may ercut. AND/OR 40-n is covered by diment may be sisent, contribute on that contribute to e forming/present. ed channels have ion on > 40% of the	widen further. Ma are near vertical. 60-80% of bar protection press banks, and is instension. AND/O stream is cover Sediment is temp nature, and contri AND/OR V-shap vegetative protect	unstable. Likely to ority of both banks Erosion present on ks. Vegetative int on 20-40% of difficient to prevent R 60-80% of the ed by sediment. ovaray/transient in buting to instability. ed channels have ion is present on > and stable sediment	incision, flow cor banks. Streambi rooting depth, n vertical/under protection present banks, is not pre Obvious bank sl Erosion/raw bar AND/OR Aggradin than 80% of strean deposition, contrib Multiple thread	ntained within the ed below average anjority of banks tut. Vegetattive on less than 20% of eventing erosion. oughing present. ks on 80-100%. g channel. Greater n bed is covered by buting to instability. channels and/or rean flow.	CI
Coore	3	,	2	2.4	- 1	ional features which	·	is absent.		1	2.4
Score	3	•		4			<u>'</u>	.0		'	2.4
2. RIPARIAN	N BUFFERS: A		Con	n areas along the nditional Cate ptimal	gory	ginal	Po	n may be accepta	NOTES>> Robank. Wetlar		
Riparian Buffers		imal 3 inches) present, unopy cover and a lerstory. Wetlands	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory.	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover.	Ginal Low Marginal: Non-maintained, dense herbaceous vegetation,	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, recently seeded and stabilized, or other comparable condition.		NOTES>> Ro		
Riparian Buffers	Tree stratum (dbh > with > 60% tree ca non-maintained unclocated within the	3 inches) present, anopy cover and a derstory. Wetlands e riparian areas.	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh > 3 inches) present, with <30% tree canopy cover with maintained	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable	NOTES>> Robank. Wetlar		
Riparian	Opti Tree stratum (dbh > with > 60% tree ca	3 inches) present, anopy cover and a derstory. Wetlands e riparian areas.	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory.	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation).	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover.	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh >3 inches) present, with <30% tree canopy cover with maintained understory.	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, recently seeded and stabilized, or other comparable condition.	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions.	NOTES>> Robank. Wetlar		
Riparian Buffers Condition Scores 1. Delineate ripadescriptors. 2. Determine squeedow.	Tree stratum (dbh > with > 60% tree ca non-maintained unc located within the	imal 3 inches) present, unopy cover and a lerstory. Wetlands e riparian areas.	Com Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 k into Condition C	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Co	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh >3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5	NOTES>> Robank. Wetlar		
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Riparian Buffers Condition Scores 1. Delineate ripalescriptors. 2. Determine squelow. 3. Enter the % F	Tree stratum (dbh > with > 60% tree canon-maintained unclocated within the located within	imal 3 inches) present, unopy cover and a derstory. Wetlands e riparian areas. 5 bach stream bank ach by measuring score for each ries. 80% 1.2	Com Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 into Condition C g or estimating ler parian category in 20% 0.5	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Co	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh >3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5	NOTES>> Robank. Wetlard bank.	Scores*0.01)/2 1.06	CI
Riparian Buffers Condition Scores Delineate riplescriptors. Determine squelow. Enter the % F Right Bank	Tree stratum (dbh > with > 60% tree canon-maintained unclocated within the located within	5 sach stream banl ach by measurin. Score for each ri 80% 1.2 80% 1.5	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 Into Condition C g or estimating ler parian category in 20% 0.5	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory, Recent cutover (dense vegetation). Low 1.1 attegories and Co ongth and width. Co	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh > 3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75 ing the povided for you	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F Blocks 6	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5 the sums Riparian equal 100 100%	NOTES>> Robank. Wetlar bank.	Scores*0.01)/2	CI 1.18
Condition Scores 1. Delineate ripadescriptors. 2. Determine solution. 3. Enter the % F. Right Bank Left Bank 3. INSTREAL	Tree stratum (dbh > with > 60% tree canon-maintained unclocated within the located within	imal 3 inches) present, intopy cover and a derstory. Wetlands a riparian areas. 5 ach stream bank ach by measuring score for each rimple score for each	Com Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 Into Condition C g or estimating ler parian category in 20% 0.5 20% 0.5 Zes, water velocit	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Co ongth and width. Co the blocks below y and depths; woo	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh > 3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75 ing the povided for you	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F Blocks 6	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5 the sums Riparian equal 100 100%	NOTES>> Rebank. Wetlar bank. Cl= (Sum % RA* SRt Bank Cl> Lt Bank Cl> NOTES>> Sai	Scores*0.01)/2 1.06 1.30	
Condition Scores 1. Delineate ripadescriptors. 2. Determine sopelow. 3. Enter the % F Right Bank Left Bank 3. INSTREAR	Tree stratum (dbh > with > 60% tree canon-maintained unclocated within the located within	imal 3 inches) present, inopy cover and a lerstory. Wetlands e riparian areas. 5 each stream bank ach by measuring 80% 1.2 80% 1.5 aried substrate siffle poole complete.	High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 sinto Condition C g or estimating let parian category in 20% 0.5 20% 0.5 zes, water velocit ixxes, stable featur	ditional Cate ptimal Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Co ongth and width. Co on the blocks below y and depths; wodes.	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85 Indition Scores us calculators are production of the product	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh > 3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75 ing the povided for you	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F Blocks e	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5 the sums Riparian equal 100 100%	NOTES>> Robank. Wetlar bank. Cl= (Sum % RA* SRt Bank CI> Lt Bank CI>	Scores*0.01)/2 1.06 1.30	
Condition Scores 1. Delineate ripe descriptors. 2. Determine so pelow. 3. Enter the % F Right Bank Left Bank 3. INSTREAT	Tree stratum (dbh > with > 60% tree ca non-maintained unc located within the located with	5 sach stream banl ach by measurin 80% 1.2 80% 1.5 aried substrate si ffle poole comple	Com Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 Into Condition C g or estimating let parian category in 20% 0.5 20% 0.5 Zes, water velocit exes, stable featur Subo Stable habitat ele present in 30-509 are adequate fo	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Co ngth and width. Co n the blocks below y and depths; wodes. Conditions	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85 Indition Scores us calculators are processed of the control of	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh >3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75 ing the provided for you	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F Blocks 6	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5 the sums Riparian equal 100 100% 100%	NOTES>> Rebank. Wetlar bank. Cl= (Sum % RA* SRt Bank Cl> Lt Bank Cl> NOTES>> Sai	Scores*0.01)/2 1.06 1.30	

Stream Impact Assessment Form Page 2										
Project #	Applicant		Locality	Cowardin Class.	HUC	Date	Data Point	SAR length	Impact Factor	
								500	1	
	ALTERATION: Stream cross poil piles, constrictions, livestock	ings, riprap, conci		concrete blocks, s	traightening of ch	annel, channeliza	ition,	NOTES>> Composite NOTES	ulvert under	
	Negligible	Mir	nor		erate	Sev	vere			
Channel Alteration	Channelization, dredging, alteration, or hardening absent. Stream has an unaltered pattern or has naturalized.	Less than 20% of the stream reach is disrupted by any of the channel alterations listed in the parameter guidelines.	20-40% of the stream reach is disrupted by any of the channel	is disrupted by any of the channel	of the channel	Greater than 80% of by any of the change in the parameter greater section 80% of banks sh	of reach is disrupted nel alterations listed juidelines AND/OR ored with gabion, r cement.			
SCORE	1.5	1.3	1.1	0.9	0.7	0	.5			
	REACH C	ONDITION II	NDEX and S	TREAM CO	NDITION UN	ITS FOR TH	IS REACH			
NOTE: The Cls and R	CI should be rounded to 2 decimal places.	The CR should be rour	nded to a whole numb	er.			THE REACH (CONDITION INI	DEX (RCI) >>	

RCI= (Sum of all Cl's)/5

COMPENSATION REQUIREMENT (CR) >> 0

CR = RCI X LF X IF



DESCRIBE PROPOSED IMPACT:	

		Stre		fied Stream N	lethodology 1	for use in Vir	ginia	,			
Project #	I	Project Name		Locality	Cowardin Class.	HUC	Date	SAR#	Impact/SAR length	Impact Factor	
5337	I-64	Peninsula S	tudy	James City		02080107	7/5/11		12		
Name	e(s) of Evalua	tor(s)		e and Informa	ation						
	Sekula		WUS 42N								
. Channel C	Condition: Asse	ess the cross-sec	ction of the stream								
	Opti	imal	Subo	ptimal	Conditional Catego Mar	ginal	Po	oor	Se	vere	
Channel Condition	Very little incision or 100% stable bar surface protection	nks. Vegetative	erosion or unproted of banks are s Vegetative protec	ew areas of active cted banks. Majority table (60-80%), tion or natural rock	Poor. Banks more or Poor due to lo Erosion may be pr	less than Severe or stable than Severe ower bank slopes. esent on 40-60% of	Vertically/laterally widen further. Ma are near vertical.	ned/incised. unstable. Likely to jority of both banks Erosion present on	incision, flow co banks. Streamb	nstability. Severe intained within the bed below average majority of banks	
	prominent (80-11 Stable point bars/bc present. Access floodplain or fully bankfull benches. and transverse ba sediment depositio 10% of I	00%). AND/OR ankfull benches are to their original of developed wide Mid-channel bars, ars few. Transient on covers less than	Depositional feat stability. The bar channels are we likely has access t or newly develope portions of the sediment covers 10	-80%) AND/OR tures contribute to nkfull and low flow II defined. Stream o bankfull benches, at floodplains along reach. Transient 0-40% of the stream tom.	40-60% of banks. bevertical or unde 60% of strean sediment. See temporary/tran instability. Depositi stability, may be AND/OR V-shap vegetative protect	tative protection on Streambanks may ercut. AND/OR 40- n is covered by diment may be sient, contribute on that contribute to forming/present. ed channels have ion on > 40% of the ional features which	protection prese banks, and is inst erosion. AND/O stream is cover Sediment is temp nature, and contri AND/OR V-shap vegetative protect 40% of the banks a	kis. Vegetative ent on 20-40% of under on 20-40% of under on 20-40% of under on 20-40% of the ed by sediment, oborary/transient in buting to instability, ed channels have ion is present on > and stable sediment is absent.	protection present banks, is not pr Obvious bank s Erosion/raw ba AND/OR Aggradii than 80% of streat deposition, contri Multiple thread	cut. Vegetative on less than 20% of eventing erosion. eloughing present. inks on 80-100%, ng channel. Greater m bed is covered by buting to instability. I channels and/or nean flow.	CI
Score	3	3	2	2.4		2	1	.6		1	2.4
. RIPARIAI	N BUFFERS: A		Con	n areas along the	gory	ginal	Po	n may be accepta	NOTES>>		
Riparian Buffers		imal 3 inches) present, anopy cover and a derstory. Wetlands	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy	gory	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh > 3 inches) present, with <30% tree canopy cover with maintained			NOTES>>		
Riparian Buffers	Option Tree stratum (dbh > with > 60% tree canon-maintained unc	imal 3 inches) present, anopy cover and a derstory. Wetlands	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh >3 inches) present, with 30% inches) present, canopy cover with	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable	NOTES>>		
Riparian	Option Tree stratum (dbh > with > 60% tree canon-maintained unc	• 3 inches) present, anopy cover and a derstory. Wetlands e riparian areas.	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory.	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation).	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover.	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh >3 inches) present, with <a>30 % tree canopy cover with maintained understory.	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, recently seeded and stabilized, or other comparable condition.	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions.	NOTES>>		
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Condition Scores Delineate ripa descriptors. Determine squelow. Right Bank Left Bank INSTREAL	Tree stratum (dbh > with > 60% tree ca non-maintained unc located within the located with	imal 3 inches) present, anopy cover and a derstory. Wetlands e riparian areas. 5 each stream bank ach by measuring 100% 1.2 100% 1.2 arried substrate siffle poole complete.	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 s into Condition C g or estimating let parian category in zes, water velocit ixes, stable featur	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Co ngth and width. Co n the blocks below y and depths; wodes. Conditiona	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85 Indition Scores us calculators are production of the product	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh >3 inches) present, with +30% tree canopy cover with maintained understory. Low 0.75 Ing the product of the present of the pr	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F Blocks 6	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5 the sums Riparian equal 100 100%	CI= (Sum % RA * Rt Bank CI > Lt Bank CI >	1.20	
Riparian Buffers Condition Scores 1. Delineate ripa descriptors. 2. Determine squelow. 3. Enter the % F Right Bank Left Bank Left Bank Instream	Tree stratum (dbh > with > 60% tree ca non-maintained unc located within the located with	imal 3 inches) present, anopy cover and a derstory. Wetlands e riparian areas. 5 each stream bank ach by measuring 100% 1.2 100% 1.2 arried substrate siffle poole complete.	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 s into Condition C g or estimating let parian category in zes, water velocit ixes, stable featur	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Coungth and width. Coungth and width. Coungth and width. Coungth and depths; woo es.	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85 Indition Scores us calculators are production of the product	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh > 3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75 ing the production of the product	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F Blocks 6	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5 the sums Riparian equal 100 100%	CI= (Sum % RA * Rt Bank CI > Lt Bank CI > NOTES>>Sa	1.20	
Condition Scores Delineate ripa elescriptors. Deltre the % F Right Bank Left Bank Left Bank Lindercut banks;	Tree stratum (dbh > with > 60% tree ca non-maintained unc located within the located with	imal 3 inches) present, anopy cover and a derstory. Wetlands e riparian areas. 5 each stream bani ach by measurin 100% 1.2 100% 1.2 aried substrate si ffle poole completimal	Com Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 Into Condition C g or estimating let parian category in zes, water velocit exes, stable featur Subo Stable habitat ele present in 30-509 are adequate fo	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Co ngth and width. Co n the blocks below y and depths; wodes. Conditiona	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85 Indition Scores us calculators are processed of the control of	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh >3 inches) present, with +30% tree canopy cover with maintained understory. Low 0.75 Ing the product of the present of the pr	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F Blocks 6	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5 the sums Riparian equal 100 100%	CI= (Sum % RA * Rt Bank CI > Lt Bank CI > NOTES>>Sa deposition	1.20	

	St	ream In	npact A	ssessm	nent Fo	rm Pag	e 2			
Project #	Applicant		Locality	Cowardin Class.	HUC	Date	Data Point	SAR length	Impact Factor	
								500	1	
	L ALTERATION: Stream cross spoil piles, constrictions, livestock	ings, riprap, conc	rete, gabions, or o	concrete blocks, s	traightening of ch	annel, channeliz	ation,	NOTES>>Cu	ulvert at both	
			Condition	al Category				approximate	•	
	Negligible	Mi	nor		erate	Se	evere		-	
Channel Alteration	or hardening absent. Stream has an	Less than 20% of the stream reach is disrupted by any of the channel alterations listed in the parameter guidelines.	20-40% of the stream reach is disrupted by any of the channel	is disrupted by any of the channel	is disrupted by any of the channel	Greater than 80% by any of the char in the parameter 80% of banks s	of reach is disrupted nnel alterations listed guidelines AND/OR hored with gabion, or cement.			
SCORE	1.5	1.3	1.1	0.9	0.7		0.5			
	REACH C	ONDITION I	NDEX and S	TREAM CO	NDITION UN	ITS FOR TH	IIS REACH			
NOTE: The Cls and RCI should be rounded to 2 decimal places. The CR should be rounded to a whole number. THE REACH CONDITION INDEX (RCI) >>										
							RCI	= (Sum of all C	l's)/5	

COMPENSATION REQUIREMENT (CR) >> 0

CR = RCI X LF X IF

INSERT PHOTOS:



		Stre	Unit	fied Stream N	lethodology 1	Form	ginia	m 1)			
Project #		Project Name		Locality	nels classified a Cowardin Class.	HUC	perennial Date	SAR#	Impact/SAR	Impact Factor	
5337	I-64	Peninsula S	tudy	James City	0.000	02080206	7/5/11		g	1	
Name	e(s) of Evalua	tor(s)	Stream Nam	e and Informa	ation						
	Sekula		WUS 46N								
I. Channel C	Condition: Ass			, ,	Conditional Catego	ory					
	Opt	imal	Subo	ptimal	Mar	ginal	Po	oor	Se	vere	
QL annual	Very little incision o	or active erosion; 80	erosion or unproted	ew areas of active cted banks. Majority	Poor. Banks more	less than Severe or e stable than Severe ower bank slopes.	Vertically/laterally	ied/incised. unstable. Likely to jority of both banks	incision, flow co	instability. Severe	
Channel Condition	100% stable bar surface protection prominent (80-1)	nks. Vegetative n or natural rock, 00%). AND/OR ankfull benches are s to their original y developed wide Mid-channel bars, ars few. Transient on covers less than	Vegetative protect prominent (60- Depositional feat stability. The bar channels are well likely has access to or newly develope portions of the resediment covers 10 to be sediment covers 10 to be	table (60-80%). tion or natural rock -80%) AND/OR tures contribute to nkfull and low flow Il defined. Stream o bankfull benches, d floodplains along reach. Transient 0-40% of the stream tom.	Erosion may be pr both banks. Veget 40-60% of banks. bevertical or unde 60% of stream sediment. Se- temporary/tran instability. Depositi stability, may be	resent on 40-60% of trative protection on Streambanks may ercut. AND/OR 40- m is covered by diment may be sient, contribute ion that contribute to e forming/present. bed channels have	are near vertical. 60-80% of bar protection prese banks, and is inst erosion. AND/O stream is cover Sediment is temp nature, and contri AND/OR V-shap vegetative protect	Erosion present on ks. Vegetative ent on 20-40% of ufficient to prevent R 60-80% of the ed by sediment. porary/transient in buting to instability, ed channels have ion is present on >	rooting depth, vertical/under protection present banks, is not pp Obvious banks Erosion/raw ba AND/OR Aggradi than 80% of streat deposition, contr	bed below average majority of banks rout. Vegetative ton less than 20% o reventing erosion. sloughing present. anks on 80-100%. ing channel. Greate im bed is covered by libuting to instability. I channels and/or	r
					banks and depositi	tion on > 40% of the tional features which	deposition	and stable sediment is absent.		anean flow.	
Score	3	3	2	.4		2	1	.6	1	1	3.0
	Opti		Con Subo	ditional Cate	gory	rginal Low Marginal:	Po High Poor:	n may be accepta	NOTES>>		
Riparian Buffers	Opti	imal > 3 inches) present, anopy cover and a derstory. Wetlands	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy	gory	Low Marginal: Non-maintained, dense herbaceous vegetation,	Po				
Riparian	Option Tree stratum (dbh) with > 60% tree cr	imal > 3 inches) present, anopy cover and a derstory. Wetlands	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree	Tginal Low Marginal: Non-maintained, dense herbaceous vegetation, irparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh > 3 inches) present, with <30% tree canopy cover with	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable			
Riparian	Tree stratum (dbh s with > 60% tree cc non-maintained und located within th	imal > 3 inches) present, anopy cover and a derstory. Wetlands	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory.	ditional Cate ptimal Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation).	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover.	Ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh >3 inches) present, with <30% tree canopy cover with maintained understory.	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, recently seeded and stabilized, or other comparable condition.	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions.			
Riparian Buffers Condition Scores Delineate ripa descriptors. Delineate ripa descriptors.	Tree stratum (dbh with > 60% tree canon-maintained und located within the	imal > 3 inches) present, anopy cover and a derstory. Wetlands e riparian areas.	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 k into Condition C	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Congth and width. Congth and	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85	Ginal Low Marginal: Non-maintained, dense herbaceous vegetation, irparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh > 3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5			
Riparian Buffers Condition Scores Delineate ripz escriptors. Determine squelow.	Tree stratum (dbh > with > 60% tree conon-maintained und located within the located withi	imal 3 inches) present, anopy cover and a derstory. Wetlands e riparian areas. 5 each stream bank each by measurin.	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 k into Condition C	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Congth and width. Congth and	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85	Ginal Low Marginal: Non-maintained, dense herbaceous vegetation, irparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh > 3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5			
Riparian Buffers Condition Scores Delineate ripa electriptors.	Tree stratum (dbh with > 60% tree canon-maintained und located within the	imal > 3 inches) present, anopy cover and a derstory. Wetlands e riparian areas.	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 k into Condition C	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Congth and width. Congth and	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85	Ginal Low Marginal: Non-maintained, dense herbaceous vegetation, irparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh > 3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5	NOTES>>		
Riparian Buffers Condition Scores Delineate ripalescriptors. Determine squelow. Enter the % F. Right Bank	Tree stratum (dbh swith > 60% tree conon-maintained und located within the located within	imal 3 inches) present, anopy cover and a derstory. Wetlands e riparian areas. 5 each stream bank each by measurin Score for each ri 100% 1.2	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 k into Condition C	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Congth and width. Congth and	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85	Ginal Low Marginal: Non-maintained, dense herbaceous vegetation, irparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh > 3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5 the sums Riparian equal 100	NOTES>>		
Riparian Buffers Condition Scores Delineate ripz escriptors. Determine squelow. Enter the % F	Tree stratum (dbh > with > 60% tree conon-maintained und located within the located withi	imal 3 inches) present, anopy cover and a derstory. Wetlands e riparian areas. 5 each stream bank each by measurin. Score for each ri	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 k into Condition C	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Congth and width. Congth and	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85	Ginal Low Marginal: Non-maintained, dense herbaceous vegetation, irparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh > 3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5	NOTES>>	Scores*0.01)/2 1.20 1.20	CI 1.2
Condition Scores Delineate ripa descriptors. Determine squelow. Right Bank Left Bank INSTREAL	Tree stratum (dbh swith > 60% tree canon-maintained und located within the located within	imal 3 inches) present, anopy cover and a derstory. Wetlands e riparian areas. 5 each stream bank each by measurin 100% 1.2 100% 1.2 aried substrate si	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 k into Condition C g or estimating ler parian category in	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Coungth and width. Coungth and width. Coungth and depths; wodes.	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85 Indition Scores us calculators are production of the produc	Low Marginal: Non-maintained, dense herbaceous vegetation, in paraina areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh > 3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75 Low 0.7	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F Blocks 6	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5 the sums Riparian equal 100 100%	NOTES>> Cl= (Sum % RA* Rt Bank Cl >	1.20 1.20	
Condition Scores Delineate ripadescriptors. Deltermine squelow. Enter the % Finance of the second s	Tree stratum (dbh with > 60% tree canon-maintained und located within the located within	imal 3 inches) present, anopy cover and a derstory. Wetlands e riparian areas. 5 each stream bank each by measurin 100% 1.2 100% 1.2 aried substrate si	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 k into Condition C g or estimating ler parian category in zes, water velocity exes, stable featur	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Coungth and width. Coungth and width. Coungth and depths; wodes.	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85 Indition Scores us calculators are production of the product	Low Marginal: Non-maintained, dense herbaceous vegetation, in paraina areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh > 3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75 Low 0.7	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F Blocks 6	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5 the sums Riparian equal 100 100%	NOTES>> CI= (Sum % RA * Rt Bank CI > Lt Bank CI > NOTES>> S	1.20 1.20	
Condition Scores 1. Delineate ripe descriptors. 2. Determine squelow. 3. Enter the % F Right Bank Left Bank 3. INSTREAR undercut banks;	Tree stratum (dbh > with > 60% tree cc conon-maintained und located within the located wi	imal 3 inches) present, anopy cover and a derstory. Wetlands e riparian areas. 5.5 each stream bank each by measuring the stream bank and the stream bank are the st	Com Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 k into Condition C g or estimating ler parian category in zes, water velocity exes, stable featur Subo Stable habitat ele present in 30-50% are adequate fo	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Co ongth and width. Co the blocks below y and depths; wodes. Conditiona	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85 Indition Scores us calculators are processed of the control of	I Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (bdh > 3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75 sing the povided for you	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F Blocks 6	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5 the sums Riparian equal 100 100% 100%	NOTES>> CI= (Sum % RA * Rt Bank CI > Lt Bank CI > NOTES>> S	1.20 1.20	

Stream Impact Assessment Form Page 2										
Project #	Applicant		Locality	Cowardin Class.	HUC	Date	Data Point	SAR length	Impact Factor	
								500	1	
	L ALTERATION: Stream cross poil piles, constrictions, livestock	ings, riprap, conc		concrete blocks, s	traightening of ch	annel, channeliza	ation,	NOTES>> So		
	Negligible	Mi	nor		erate		vere			
Channel Alteration	Channelization, dredging, alteration, or hardening absent. Stream has an unaltered pattern or has naturalized.	Less than 20% of the stream reach is disrupted by any of the channel alterations listed in the parameter guidelines.	20-40% of the stream reach is disrupted by any of the channel	is disrupted by any of the channel	60 - 80% of reach is disrupted by any of the channel alterations listed in the parameter guidelines. If stream has been channelized, normal stable stream meander pattern has not	Greater than 80% by any of the chan in the parameter 80% of banks st	of reach is disrupted integrations listed guidelines AND/OR nored with gabion, or cement.			
SCORE	1.5	1.3	1.1	0.9	0.7	().5			
	REACH C	ONDITION	NDEX and S	TREAM CO	NDITION UN	ITS FOR TH	IIS REACH			
NOTE: The Cls and R	RCI should be rounded to 2 decimal places.	The CR should be rou	nded to a whole numb	er.			THE REACH	CONDITION IN	DEX (RCI) >>	

CR = RCI X LF X IF



DESCRIBE PROPOSED IMPACT:		

	Stre		fied Stream N	lethodology 1	for use in Vir	ginia				
Project #	Project Nan		Locality	Cowardin Class.	HUC	Date	SAR#	Impact/SAR length	Impact Factor	
5337	I-64 Peninsula	Study	James City		02080206	7/6/11		61		
Nam	ne(s) of Evaluator(s)		e and Informa	ation						
	Doucette	WUS 47N								
. Channel (Condition: Assess the cross-se	ection of the stream		ondition (erosion, Conditional Catego						
	Optimal	Subo	ptimal		ginal	Po	oor	Sev	vere	
Channel Condition	prominent (80-100%). AND/OR	o erosion or unproter of banks are s Vegetative protec prominent (60	few areas of active cted banks. Majority table (60-80%). tion or natural rock -80%) AND/OR tures contribute to	Poor. Banks more or Poor due to k Erosion may be pr both banks. Veget	less than Severe or stable than Severe wer bank slopes. esent on 40-60% of tative protection on Streambanks may	Vertically/laterally widen further. Ma are near vertical. 60-80% of bar	ned/incised. unstable. Likely to jority of both banks Erosion present on iks. Vegetative ent on 20-40% of	incision, flow con banks. Streamb rooting depth, n vertical/underd	istability. Severe ntained within the ed below average najority of banks but. Vegetative	
	surface protection or natural rock, prominent (80-100%). AND/OR Stable point bars/bankfull benches are present. Access to their original floodplain or fully developed wide bankfull benches. Mid-channel bars, and transverse bars few. Transient extinguest depetition coverse less to profitors.		tures contribute to inkfull and low flow ill defined. Stream to bankfull benches, ad floodplains along reach. Transient 0-40% of the stream tom.	bevertical or under 60% of stream sediment. Set temporary/tran instability. Depositi stability, may be AND/OR V-shap vegetative protect	orrect. AND/OR 40- n is covered by diment may be sient, contribute on that contribute to forming/present. ed channels have ion on > 40% of the ional features which	banks, and is insi erosion. AND/C stream is cover Sediment is tem nature, and contri AND/OR V-shap vegetative protect 40% of the banks a	ifficient to prevent R 60-80% of the red by sediment. ocrary/transient in buting to instability. red channels have ion is present on > and stable sediment is absent.	banks, is not pre Obvious bank sl Erosion/raw ban AND/OR Aggradir than 80% of strear deposition, contrib Multiple thread	on less than 20% of eventing erosion. loughing present. loughing present. loughing present. loughing present. loughing present. loughing present. loughing to instability. loughing to instabili	CI
Score	3	2	2.4		2	1	.6		1	2.4
. RIPARIA	N BUFFERS: Assess both bar				ıgh measurement	s of length & widt	n may be accepta			
2. RIPARIA	N BUFFERS: Assess both bar	Subo High Suboptimal: Riparian areas	ptimal Cate	gory	ginal Low Marginal: Non-maintained, dense herbaceous vegetation,	High Poor: Lawns, mowed, and maintained	Low Poor:	NOTES>>		
Riparian Buffers		Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches). I, present, with 30% to 60% tree s canopy cover and containing both herbaceous and shrub layers or a non-maintained understory.	nditional Cate ptimal Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory; Recent cutover (dense vegetation).	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover.	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh >3 inches) present, with <30% tree canopy cover with maintained understory.	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable condition.	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions.	NOTES>>		
Riparian Buffers	Optimal Tree stratum (dbh > 3 inches) presen with > 60% tree canopy cover and a non-maintained understory. Wetland	High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree s canopy cover and containing both herbaceous and shrub layers or a non-maintained	Low Suboptimal Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh > 3 inches) present, with <30% tree canopy cover with maintained	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable	NOTES>>		
Riparian Buffers Condition Scores Delineate rip descriptors. Determine scorelow.	Optimal Tree stratum (dbh > 3 inches) preser with > 60% tree canopy cover and a non-maintained understory. Wetland located within the riparian areas. 1.5 Table 1.5 Arian areas along each stream barquare footage for each by measuring Riparian Area and Score for each	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree s canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 The into Condition Con and or estimating len the condition Con and con and condition Con and	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 Lategories and Coungth and width. Coungth	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh > 3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions.	NOTES>>	Scores*0.01)/2	
Riparian Buffers Condition Scores Delineate rip lescriptors. Determine scores Enter the %	Optimal Tree stratum (dbh > 3 inches) presen with > 60% tree canopy cover and a non-maintained understory. Wetland located within the riparian areas. 1.5 Darian areas along each stream barquare footage for each by measuring the stream of	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree s canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 The into Condition Con and or estimating len the condition Con and con and condition Con and	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 Lategories and Coungth and width. Coungth	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh > 3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5	NOTES>> CI= (Sum % RA*S Rt Bank CI >	1.50	CI
Riparian Buffers Condition Scores Delineate rip escriptors. Determine scelow. Enter the % Right Bank	Optimal Tree stratum (dbh > 3 inches) preser with > 60% tree canopy cover and a non-maintained understory. Wetland located within the riparian areas. 1.5 Darian areas along each stream ba equare footage for each by measuring Riparian Area and Score for each % Riparian Area and Score for each % Riparian Area 100% Score > 1.5	High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 Ask into Condition Cong or estimating ler	nditional Cate ptimal Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory, Recent cutover (dense vegetation). Low 1.1 sategories and Co	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh > 3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75 ing the price of the production o	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % B Blocks 6	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5 the sums Riparian equal 100 100%	NOTES>> Cl= (Sum % RA * S Rt Bank Cl > Lt Bank Cl >		CI 1.50
Condition Scores Delineate rip escriptors. Determine scelow. Enter the % Right Bank Left Bank	Optimal Tree stratum (dbh > 3 inches) presen with > 60% tree canopy cover and a non-maintained understory. Wetland located within the riparian areas. 1.5 Darian areas along each stream barquare footage for each by measuring the stream of	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree s canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 The into Condition Cong or estimating let riparian category in	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 Sategories and Coungth and width. Coungth and width. Coungth and depths; woores.	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85 Indition Scores us calculators are production of the produc	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh > 3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75 ing the price of the production o	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % B Blocks 6	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5 the sums Riparian equal 100 100%	NOTES>> CI= (Sum % RA*S Rt Bank CI >	1.50	
Condition Scores Delineate rip descriptors. Deltermine scorelow. Enght Bank Left Bank Left Bank Left Bank	Optimal Tree stratum (dbh > 3 inches) presen with > 60% tree canopy cover and a non-maintained understory. Wetland located within the riparian areas. 1.5 Darian areas along each stream barquare footage for each by measuring Riparian Area and Score for each % Riparian Area and Score > 1.5 % Riparian Area > 100% Score > 1.5 M HABITAT: Varied substrate	Com Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree s canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 Ak into Condition C ang or estimating let riparian category in Sizes, water velocit exes, stable featur Subo Stable habitat ele typresent in a)-Su- are adequate fo are adequate fo are adequate fo	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 Lategories and Coungth and width. Coungth and width. Coungth and width. Coungth and coungth	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85 Indition Scores us calculators are processed of the control of	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh >3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75 ing the vided for you ginal ments are typically % of the reach and remaintained or maintained or maintenance of or maintenance or	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F Blocks 6 Habitat element: lacking or are u elements are typic	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5 the sums Riparian equal 100 100% 100%	CI= (Sum % RA * S Rt Bank CI > Lt Bank CI >	1.50	
Condition Scores Delineate rip descriptors. Descriptors. Descriptors. Condition Scores Right Bank Right Bank Left Bank Left Bank Instream Habitat/ Available	Optimal Tree stratum (dbh > 3 inches) preser with > 60% tree canopy cover and a non-maintained understory. Wetland located within the riparian areas. 1.5 Darian areas along each stream ba quare footage for each by measuring Riparian Area and Score for each % Riparian Area and Score for each % Riparian Area 100% Score > 1.5 % Riparian Area 100% Score > 1.5 M HABITAT: Varied substrate stroot mats; SAV; riffle poole comp Optimal Habitat elements are typically preser	High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree so canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 Ak into Condition Cong or estimating ler in parian category in sizes, water velocitiexes, stable feature. Subo Stable habitat ele present in 30-50% are adequate for popul	nditional Cate ptimal Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory, Recent cutover (dense vegetation). Low 1.1 sategories and Co ngth and width. Co n the blocks below y and depths; woo res. Conditional ments are typically % of the reach and	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85 adculators are production of the control of the	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh > 3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75 ing the vided for you ginal ments are typically % of the reach and	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % If Blocks 6 Habitat element: lacking or are u elements are typic than 10% 6	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5 the sums Riparian equal 100 100% 100%	CI= (Sum % RA * S Rt Bank CI > Lt Bank CI >	1.50	

	St	ream In	npact A	ssessm	ent Fo	rm Pag	e 2		
Project #	Applicant		Locality	Cowardin Class.	HUC	Date	Data Point	SAR length	Impact Factor
								500	1
	L ALTERATION: Stream cross poil piles, constrictions, livestock	ings, riprap, conci		concrete blocks, s	traightening of ch	annel, channeliz	ation,	NOTES>>	
	Negligible	Mir	nor		erate		vere		
Channel Alteration	Channelization, dredging, alteration, or hardening absent. Stream has an unaltered pattern or has naturalized.	Less than 20% of the stream reach is disrupted by any of the channel alterations listed in the parameter guidelines.	20-40% of the stream reach is disrupted by any of the channel	is disrupted by any of the channel	60 - 80% of reach is disrupted by any of the channel alterations listed in the parameter guidelines. If stream has been channelized, normal stable stream meander pattern has not	Greater than 80% by any of the char in the parameter 80% of banks s	of reach is disrupted nnel alterations listed guidelines AND/OR hored with gabion, or cement.		
SCORE	1.5	1.3	1.1	0.9	0.7		0.5		
	REACH C	ONDITION I	NDEX and S	TREAM CO	NDITION UN	ITS FOR TH	IIS REACH		
VOTE: The Cls and R	RCI should be rounded to 2 decimal places.	The CR should be rour	nded to a whole numb	er.			THE REACH (CONDITION IN	DEX (RCI) >>

CR = RCI X LF X IF



DESCRIBE PROPOSED IMPACT:		

	Stre		SSESS fied Stream M	lethodology 1	for use in Vir	ginia	· · · · · · · · · · · · · · · · · · ·			
Project #	Project Nam		Locality	Cowardin Class.	HUC	Date	SAR#	Impact/SAR length	Impact Factor	
5337	I-64 Peninsula S	Study	New Kent		02080206	7/6/11		65		
Name	e(s) of Evaluator(s)		e and Informa	ation						
	Sekula	WUS 48N								
. Channel C	Condition: Assess the cross-se	ection of the stream		ondition (erosion, Conditional Catego						
	Optimal	Subo	ptimal	Mar	ginal	Po	oor	Sev	/ere	
Channel	Very little incision or active erosion; 8 100% stable banks. Vegetative	of banks are s	ew areas of active cted banks. Majority table (60-80%). tion or natural rock	Poor. Banks more or Poor due to lo	less than Severe or stable than Severe ower bank slopes. esent on 40-60% of	Vertically/laterally widen further. Ma	ned/incised. unstable. Likely to jority of both banks Erosion present on	incision, flow con banks. Streamb	ustability. Severe ntained within the ed below average	
Condition	surface protection or natural rock, prominent (80-100%). AND/OR Stable point bars/bankfull benches ar present. Access to their original floodplain or fully developed wide bankfull benches. Mid-channel bars and transverse bars few. Transient sediment deposition covers less that 10% of bottom.	prominent (60 Depositional feat stability. The bar channels are we likely has access t or newly develope portions of the sediment covers 10	-80%) AND/OR tures contribute to whifull and low flow II defined. Stream o bankfull benches, ad floodplains along reach. Transient 0-40% of the stream tom.	both banks. Veget 40-60% of banks. bevertical or unde 60% of strean sediment. Se- temporary/tran instability. Depositi stability, may be AND/OR V-shap vegetative protect	tative protection on Streambanks may rerut. AND/OR 40- n is covered by diment may be sisent, contribute on that contribute to e forming/present. ed channels have ion on > 40% of the ional features which	60-80% of bar protection press banks, and is insi erosion. AND/C stream is cover Sediment is temporature, and contri AND/OR V-shap vegetative protect 40% of the banks at the protect stream in the stream of the st	iks. Vegetative and on 20-40% of difficient to prevent R 60-80% of the red by sediment. ovarry/transient in buting to instability. ed channels have ion is present on > and stable sediment is absent.	vertical/underd protection present banks, is not pre Obvious bank sil Erosion/raw bar AND/OR Aggradir than 80% of strear deposition, contril Multiple thread	najority of banks cut. Vegetative on less than 20% of eventing erosion. oughing present. hks on 80-100%. Ig channel. Greater n bed is covered by outing to instability. channels and/or nean flow.	CI
Score	3	2	2.4	- 1	2	ļ	.6		1	3.0
NOTES>>										
. RIPARIAN	N BUFFERS: Assess both bar	Con	n areas along the	gory	ginal		n may be accepta	NOTES>>		
RIPARIAN Riparian Buffers		Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches), present, with 30% to 60% tree	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy	gory	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh > 3 inches) present, with <30% tree canopy cover with maintained			NOTES>>		
Riparian Buffers	Optimal Tree stratum (dbh > 3 inches) presen with > 60% tree canopy cover and a non-maintained understory. Wetland	High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree s canopy cover and containing both herbaceous and shrub layers or a non-maintained	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh >3 inches) present, with					

	St	ream In	npact A	ssessm	ent Fo	rm Page	e 2		
Project #	Applicant		Locality	Cowardin Class.	HUC	Date	Data Point	SAR length	Impact Factor
								500	1
	L ALTERATION: Stream cross spoil piles, constrictions, livestock	ings, riprap, conci		oncrete blocks, s	traightening of ch			NOTES>> Do culvert unde	
	Negligible	Mir	nor		erate		vere		
Channel Alteration	Channelization, dredging, alteration, or hardening absent. Stream has an unaltered pattern or has naturalized.	Less than 20% of the stream reach is disrupted by any of the channel alterations listed in the parameter guidelines.	20-40% of the stream reach is disrupted by any of the channel	is disrupted by any of the channel	of the channel	Greater than 80% of by any of the chan in the parameter g	of reach is disrupted nel alterations listed juidelines AND/OR lored with gabion, r cement.		
SCORE	1.5	1.3	1.1	0.9	0.7	0	.5		
	REACH C	ONDITION I	NDEX and S	TREAM CO	NDITION UN	ITS FOR TH	IS REACH		
NOTE: The CIs and R	RCI should be rounded to 2 decimal places.	The CR should be rour	nded to a whole numb	er.			THE REACH (CONDITION IN	DEX (RCI) >>

RCI= (Sum of all Cl's)/5

COMPENSATION REQUIREMENT (CR) >> CR = RCI X LF X IF



DESCRIBE PROPOSED IMPACT:		

		Stre	Unit	fied Stream N	lethodology f	for use in Virg	-	m 1)			
Project #		Project Name		Locality	Cowardin Class.	HUC	Date Date	SAR#	Impact/SAR length	Impact Factor	
5337	I-64	Peninsula S	tudy	New Kent		02080206	7/6/11		19		
Name	e(s) of Evalua	tor(s)	Stream Nam	e and Informa	ation						
	Sekula		WUS 49N								
. Channel C	Condition: Asse			C	Conditional Catego	ory			1		
	Opti	mal	Subo	ptimal	Mar	ginal	Po	oor	Se	vere	
	10	ALL		ew areas of active cted banks. Majority		less than Severe or		ned/incised. unstable. Likely to		nstability. Severe	
Channel Condition	Very little incision o 100% stable bar surface protection prominent (80-1) Stable point bars/bc present. Access floodplain or fully bankfull benches. and transverse bc sediment depositio 10% of 1	nks. Vegetative n or natural rock, 00%). AND/OR ankfull benches are to their original developed wide Mid-channel bars, ars few. Transient n covers less than	Vegetative protect prominent (60- Depositional feat stability. The bar channels are well likely has access to rnewly develope portions of the rediment covers 10	table (60-80%). tion or natural rock- e80%) AND/OR tures contribute to nkfull and low flow II defined. Stream o bankfull benches, ed floodplains along reach. Transient 0-40% of the stream tom.	Erosion may be pr both banks. Veget 40-60% of banks. bevertical or unde 60% of strean sediment. Sed temporary/tran instability. Depositi stability, may be	ower bank slopes. resent on 40-60% of tative protection on Streambanks may ercut. AND/OR 40- n is covered by diment may be isient, contribute to e forming/present. sed channels have	are near vertical. 60-80% of bar protection prese banks, and is insi erosion. AND/O stream is cover Sediment is temp nature, and contri AND/OR V-shap	jority of both banks Erosion present on iks. Vegetative ent on 20-40% of afficient to prevent R 60-80% of the red by sediment. corary/transient in buting to instability. ed channels have ion is present on >	banks. Streamb rooting depth, r vertical/under vertical/under protection present banks, is not pr Obvious bank s Erosion/raw bankD/OR Aggradir than 80% of strear deposition, contril	ed below average majority of banks cut. Vegetative on less than 20% of eventing erosion. loughing present. nks on 80-100%. ng channel. Greater bed is covered by buting to instability.	
			DOI	tom.	vegetative protecti	ion on > 40% of the ional features which	40% of the banks a	and stable sediment is absent.		channels and/or nean flow.	CI
Score	3	3	2	2.4		2	1	.6		1	2.4
. RIPARIAN	N BUFFERS: A		Con	nditional Cate ptimal	gory	ginal Low Marginal:	Po	n may be accepta		etland starts V fence.	
RIPARIAN Riparian Buffers	Opti	mal 3 inches) present, unopy cover and a lerstory. Wetlands	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy	gory	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh >3 inches) present, with 30% lockes) canopy cover with			NOTES>> W		
Riparian	Option Tree stratum (dbh > with > 60% tree canon-maintained unc	mal 3 inches) present, unopy cover and a lerstory. Wetlands	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory.	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation).	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover.	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh >3 inches) present, with <30% tree canopy cover with maintained understory.	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable condition.	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions.	NOTES>> W		
Riparian	Option Tree stratum (dbh > with > 60% tree canon-maintained unc	3 inches) present, inopy cover and a derstory. Wetlands e riparian areas.	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh >3 inches) present, with <30% tree canopy cover with maintained	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable	NOTES>> W		
Riparian Buffers Condition Scores Delineate ripalescriptors. Determine squelow.	Tree stratum (dbh > with > 60% tree conon-maintained unclocated within the	imal 3 inches) present, incopy cover and a lerstory. Wetlands e riparian areas.	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 into Condition C	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Coungth and width. Coungth	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh > 3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions.	NOTES>> W		
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Riparian Buffers Condition Scores Delineate ripaescriptors. Determine squelow. Enter the % F	Tree stratum (dbh > with > 60% tree ca non-maintained unc located within the located with	imal 3 inches) present, intopy cover and a ferstory. Wetlands e riparian areas. 5 each stream bank ach by measurin.	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 into Condition C	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Coungth and width. Coungth	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh > 3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5	NOTES>> W beyond ROV	V fence.	
Riparian Buffers Condition Scores Delineate ripa escriptors. Determine squelow. Enter the % F	Tree stratum (dbh > with > 60% tree canon-maintained unc located within the located withi	imal 3 inches) present, unopy cover and a lerstory. Wetlands e riparian areas. 5 each stream bank ach by measurin Score for each ri 100% 1.2	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 into Condition C	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Coungth and width. Coungth	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh > 3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5 the sums Riparian equal 100	NOTES>> W beyond ROV	V fence.	CI
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Condition Scores Delineate ripalescriptors. Determine squelow. Enter the % F. Right Bank Left Bank	Tree stratum (dbh > with > 60% tree canon-maintained unc located within the located withi	5 sach stream bank ach by measurin 100% 1.2 100% 1.2 aried substrate si	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 k into Condition C g or estimating ler parian category in	Inditional Cate ptimal Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Coungth and width. Coungth and width. Coungth and width. Coungth and depths; wodes.	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85 Indition Scores using the control of the contro	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh > 3 inches) present, with < 30% tree canopy cover with maintained understory: Low 0.75 ing the povided for you	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F Blocks 6	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5 the sums Riparian equal 100 100%	NOTES>> W beyond ROV CI= (Sum % RA** Rt Bank CI >	Scores*0.01)/2	CI 1.20
Condition Scores Delineate ripalescriptors. Determine squelow. Enter the % Right Bank Left Bank INSTREAM Indercut banks;	Tree stratum (dbh > with > 60% tree canon-maintained unc located within the located withi	imal 3 inches) present, nopy cover and a lerstory. Wetlands e riparian areas. 5 each stream bank ach by measuring 100% 1.2 100% 1.2 aried substrate siffle poole comple	Riph Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 Into Condition C g or estimating ler parian category in	Inditional Cate ptimal Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Coungth and width. Coungth and width. Coungth and width. Coungth and depths; wodes.	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <a>30 tree canopy cover. High 0.85 Indition Scores usional calculators are production of the calculators are productional calculators.	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh > 3 inches) present, with < 30% tree canopy cover with maintained understory: Low 0.75 ing the povided for you	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F Blocks 6	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5 the sums Riparian equal 100 100%	NOTES>> W beyond ROV CI= (Sum % RA * 3 Rt Bank CI > Lt Bank CI >	Scores*0.01)/2	
Condition Scores Delineate ripalescriptors. Determine squelow. Enter the % F. Right Bank Left Bank	Tree stratum (dbh > with > 60% tree ca non-maintained unc located within the located with	5 Score for each ri 100% 1.2 100% 1.2 ried substrate siffle poole comple	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 Into Condition C g or estimating let parian category in Zes, water velocity ixes, stable featur Subo Stable habitat ele present in 30-50% are adequate fo	Inditional Cate ptimal Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Coungth and width. Coungth and width. Coungth and width. Coungth and depths; wores. Conditional	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85 Indition Scores using the state of the state	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh >3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75 ing the povided for you	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F Blocks 6	Low Poor: Impervious surfaces, mine pool lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5 the sums Riparian equal 100 100% 100%	NOTES>> W beyond ROV CI= (Sum % RA * 3 Rt Bank CI > Lt Bank CI >	Scores*0.01)/2	

	St	ream In	npact A	ssessm	ent Fo	rm Pag	e 2		
Project #	Applicant		Locality	Cowardin Class.	HUC	Date	Data Point	SAR length	Impact Factor
								500	1
	L ALTERATION: Stream cross spoil piles, constrictions, livestock	ings, riprap, conc		concrete blocks, s	traightening of ch			NOTES>> C	ulvert
	Negligible	Mi	nor		erate	Se	vere		
Channel Alteration	Channelization, dredging, alteration, or hardening absent. Stream has an unaltered pattern or has naturalized.	Less than 20% of the stream reach is disrupted by any of the channel alterations listed in the parameter guidelines.	20-40% of the stream reach is disrupted by any of the channel alterations listed in the parameter guidelines.	is disrupted by any of the channel	60 - 80% of reach is disrupted by any of the channel alterations listed in the parameter guidelines. If stream has been channelized, normal stable stream meander pattern has not	Greater than 80% of by any of the chan in the parameter (80% of banks sh	of reach is disrupted nel alterations listed guidelines AND/OR nored with gabion, or cement.		
SCORE	1.5	1.3	1.1	0.9	0.7	0).5		
	REACH C	ONDITION I	NDEX and S	TREAM CO	NDITION UN	ITS FOR TH	IS REACH		
VOTE: The CIs and I	RCI should be rounded to 2 decimal places.	The CR should be rou	nded to a whole numb	er.			THE REACH (CONDITION IN	DEX (RCI) >>

CR = RCI X LF X IF



DESCRIBE PROPOSED IMPACT:	

		Stre	Uni	fied Stream N	lethodology 1	Form	ginia	m 1)			
Project #		Project Name		Locality	nels classified a Cowardin Class.	HUC	perennial Date	SAR#	Impact/SAR	Impact Factor	
5337	I-64	Peninsula S	tudy	New Kent		02080206	7/6/11		308	1.550	
Nam	ne(s) of Evalua	tor(s)		e and Informa	ation						
	Sekula		WUS 50N								
l. Channel (Condition: Ass	ess the cross-sec	ction of the stream		ondition (erosion, Conditional Catego						
	Opt	imal	Subo	ptimal	Mar	ginal	Po	oor	Se	vere	
Channel	100% Stable ballks. Vegetative		Slightly incised, few areas of active erosion; 80 erosion or unprotected banks. Majority of banks are stable (60-80%).		Poor. Banks more	less than Severe or a stable than Severe ower bank slopes.	Vertically/laterally widen further. Ma	ned/incised. unstable. Likely to jority of both banks	incision, flow co	nstability. Severe ontained within the bed below average	
Condition	surface protection prominent (80-1	n or natural rock, 00%). AND/OR ankfull benches are s to their original of developed wide, Mid-channel bars, ars few. Transient on covers less than	prominent (60 Depositional feat stability. The ban channels are we likely has access t or newly develope portions of the sediment covers 10	tion or natural rock -80%) AND/OR tures contribute to nkfull and low flow Il defined. Stream o bankfull benches, of floodplains along reach. Transient 0-40% of the stream tom.	both banks. Veget 40-60% of banks. bevertical or unde 60% of strean sediment. Se- temporary/tran instability. Depositi stability, may be AND/OR V-shap vegetative protect	resent on 40-60% of tative protection on Streambanks may ercut. AND/OR 40- in is covered by diment may be sisent, contribute to forming/present. ed channels have ion on > 40% of the ional features which	60-80% of bar protection press banks, and is insu erosion. AND/O stream is cover Sediment is temp nature, and contri AND/OR V-shap vegetative protect 40% of the banks a	ed channels have ion is present on > and stable sediment	rooting depth, vertical/under protection present banks, is not pr Obvious banks Erosion/raw ba AND/OR Aggradi than 80% of strea deposition, contri Multiple threac	majority of banks rout. Vegetative r on less than 20% of reventing erosion. sloughing present. anks on 80-100%. Ing channel. Greate m bed is covered by ibuting to instability. d channels and/or inean flow.	
Score	3	3	2	.4		2	-	is absent.		1	1.6
NOTES>>			_						l		- 110
2. RIPARIAI	N BUFFERS: /		Cor	n areas along the	gory	ginal		n may be accepta	NOTES>> H LT bank.	lighway on	
Riparian Buffers	Opti	imal > 3 inches) present, anopy cover and a derstory. Wetlands	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy	gory	Low Marginal: Non-maintained, dense herbaceous vegetation,			NOTES>> H	lighway on	
Riparian Buffers	Option Tree stratum (dbh swith > 60% tree cr	imal > 3 inches) present, anopy cover and a derstory. Wetlands	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained	ditional Cate ptimal Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh > 3 inches) present, with <30% tree canopy cover with maintained	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable	NOTES>> H	lighway on	
Riparian	Tree stratum (dbh a with a 60% tree cc non-maintained und located within the	imal > 3 inches) present, anopy cover and a derstory. Wetlands	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory.	ditional Cate ptimal Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation).	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover.	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh >3 inches) present, with <30% tree canopy cover with maintained understory.	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, recently seeded and stabilized, or other comparable condition.	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions.	NOTES>> H	lighway on	
Riparian Buffers Condition Scores Delineate ripidescriptors. Deletermine scorelow.	Tree stratum (dbh with > 60% tree canon-maintained und located within the	imal 3 inches) present, anopy cover and a derstory. Wetlands e riparian areas. 5 each stream banl ach by measurin	Com Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 k into Condition C	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Coungth and width. Co	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh > 3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5	NOTES>> H	lighway on	
Riparian Buffers Condition Scores Delineate ripe escriptors. Determine scelow.	Tree stratum (dbh > with > 60% tree conon-maintained und located within the located withi	imal 3 inches) present, anopy cover and a derstory. Wetlands e riparian areas. 5 each stream bank ach by measurin.	Com Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 k into Condition C	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Coungth and width. Co	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh > 3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5	NOTES>> H	lighway on	
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Stream Impact Assessment Form Page 2 Project # Applicant Cowardin Class Data Point SAR length Impact Factor 4. CHANNEL ALTERATION: Stream crossings, riprap, concrete, gabions, or concrete blocks, straightening of channel, channelization, NOTES>> embankments, spoil piles, constrictions, livestock Conditional Category Moderate Minor Negligible Severe 40 - 60% of reach is disrupted by any of the channel of the channel 20-40% of the stream reach is Less than 20% of Channel Iterations listed in alterations listed in Greater than 80% of reach is disrupted the stream reach the parameter guidelines. If the parameter Channelization, dredging, alteration, or hardening absent. Stream has an unaltered pattern or has naturalized. by any of the channel alterations listed in the parameter guidelines AND/OR 80% of banks shored with gabion, s disrupted by any disrupted by any Alteration of the channel Iterations listed i of the channel lterations listed i guidelines. If tream has been channelized, stream has been channelized, the parameter the parameter riprap, or cement. guidelines. guidelines. normal stable normal stable stream meander stream meander pattern has not pattern has not SCORE 1.5 1.3 1.1 0.9 0.7 0.5 1.30 REACH CONDITION INDEX and STREAM CONDITION UNITS FOR THIS REACH THE REACH CONDITION INDEX (RCI) >> 0.99 NOTE: The CIs and RCI should be rounded to 2 decimal places. The CR should be rounded to a whole number.

RCI= (Sum of all CI's)/5 COMPENSATION REQUIREMENT (CR) >>

0

CR = RCI X LF X IF

INSERT PHOTOS:





		Stre	Uni	fied Stream N	lethodology 1	Form	ginia	m 1)			
Project #		Project Name		Locality	nels classified a Cowardin Class.	HUC	perennial Date	SAR#	Impact/SAR	Impact Factor	
5337	I-64	Peninsula S	tudy	New Kent	0.000	02080206	7/6/11		54	1 0000	
Nam	e(s) of Evalua	tor(s)	Stream Nam	e and Informa	ation						
	Sekula		WUS 54N								
l. Channel (Condition: Ass	ess the cross-sec	ction of the stream		ondition (erosion, Conditional Catego						
	Opt	imal	Subo	ptimal	Mar	ginal	Po	or	Se	vere	
Channel	Very little incision o	or active erosion; 80	erosion or unproted	ew areas of active cted banks. Majority table (60-80%).	Poor. Banks more	less than Severe or e stable than Severe ower bank slopes.		ed/incised. unstable. Likely to ority of both banks	incision, flow co	nstability. Severe	
Condition	100% stable bar surface protection prominent (80-1) Stable point bars/bar present. Access floodplain or fully bankfull benches. and transverse bar sediment deposition 10% of	00%). AND/OR ankfull benches are s to their original or developed wide Mid-channel bars, ars few. Transient on covers less than	Vegetative protect prominent (60 prominent (60 Depositional feat stability. The ban channels are we likely has access to rolewly develope portions of the sediment covers 10 protects.	tion or natural rock- 80%) AND/OR tures contribute to hkfull and low flow Il defined. Stream o bankfull benches, di floodplains along reach. Transient 0-40% of the stream tom.	Erosion may be pr both banks. Veget 40-60% of banks. bevertical or unde 60% of strean sediment. Set temporary/tran instability. Depositi stability, may be AND/OR V-shap	resent on 40-60% of tative protection on Streambanks may ercut. AND/OR 40- n is covered by diment may be sisent, contribute tion that contribute to forming/present. ed channels have tion on > 40% of the	are near vertical. 60-80% of bar protection prese banks, and is inst erosion. AND/O stream is cover Sediment is temp nature, and contri AND/OR V-shap vegetative protect	Erosion present on ks. Vegetative on 20-40% of officient to prevent R 60-80% of the ed by sediment. orary/transient in buting to instability. ed channels have	rooting depth, vertical/under protection present banks, is not produced banks, is not provious banks. Erosion/raw ba AND/OR Aggradithan 80% of streat deposition, contributiple threactions.	ned below average majority of banks rout. Vegetative to n less than 20% of reventing erosion. Sloughing present. In the son 80-100%. In gichannel. Greater im bed is covered by bibuting to instability. It channels and/or	CI
Coore	3)	2	.4	banks and depositi	ional features which	deposition	is absent.	subterra	nean flow.	2.0
Score	•	3		.4			Į į	.0		1	3.0
2. RIPARIAN	N BUFFERS: /		Con Subo	ditional Cate	gory <u>Mar</u>	ginal Low Marginal: Non-maintained,	Po High Poor:	n may be accepta	NOTES>>		
2. RIPARIAN Riparian Buffers	Opti	imal > 3 inches) present, anopy cover and a derstory. Wetlands	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy	gory	Low Marginal: Non-maintained, dense herbaceous vegetation,	Po				
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Condition Scores Delineate ripe descriptors. Deltermine so below. Right Bank Left Bank INSTREAL	Tree stratum (dbh swith > 60% tree conon-maintained und located within the located within	imal 3 inches) present, anopy cover and a derstory. Wetlands e riparian areas. 5 each stream bank ach by measuring the stream bank ach by measuring the stream bank ach by ach	High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 k into Condition C g or estimating let parian category in	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Coungth and width. Coungth and width. Coungth and width. Coungth and depths; wodes.	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85 addition Scores us calculators are production of the produc	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh > 3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75 ing the povided for you	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F Blocks 6	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5 the sums stiparian qual 100 100%	CI= (Sum % RA* Rt Bank CI > Lt Bank CI > Sediment / I	1.20 1.20	
Condition Scores Delineate ripedescriptors. Deltermine scorelow. English Bank Left Bank Left Bank Line Riparian Ripa	Tree stratum (dbh with > 60% tree canon-maintained und located within the located within	imal 3 inches) present, anopy cover and a derstory. Wetlands e riparian areas. 5 each stream bank ach by measuring the stream bank ach by measuring the stream bank ach by ach	High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 k into Condition C g or estimating let parian category in	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Coungth and width. Coungth and width. Coungth and width. Coungth and depths; wodes.	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85 Indition Scores us calculators are production of the product	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh > 3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75 ing the povided for you	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F Blocks e	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5 the sums stiparian qual 100 100%	NOTES>> CI= (Sum % RA * Rt Bank CI > Lt Bank CI > NOTES>> S	1.20 1.20 ome sand	
Condition Scores Delineate ripe descriptors. Deltheate ripe descriptors. Right Bank Left Bank Left Bank INSTREAI undercut banks;	Tree stratum (dbh > with > 60% tree cc conon-maintained und located within the located wi	imal 3 inches) present, anopy cover and a derstory. Wetlands e riparian areas. 5.5 each stream bank ach by measuring the stream ba	High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and shrub layers or a non-maintained understory. High 1.2 k into Condition C g or estimating let parian category in sizes, water velocit exes, stable featur Subo Stable habitat ele present in 30-50- are adequate fo	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Co ongth and width. Co the blocks below y and depths; wodes. Conditiona	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85 Indition Scores us calculators are production of the present in 10-30 are adequate for a sealequate for the present in 10-30 are adequate for the present in 10-30 are adequ	Ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh >3 inches) present, with <a>30 % tree canopy cover with maintained understory. Low 0.75 ing the price of the product of the present of t	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F Blocks 6	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5 the sums Riparian qual 100 100% 100% ess; shade;	CI= (Sum % RA* Rt Bank CI > Lt Bank CI > Sediment / I	1.20 1.20 ome sand	

	St	ream In	npact A	ssessm	ent Fo	rm Pag	e 2		
Project #	Applicant		Locality	Cowardin Class.	HUC	Date	Data Point	SAR length	Impact Factor
								500	1
	ALTERATION: Stream cross poil piles, constrictions, livestock	ings, riprap, conc		concrete blocks, s	traightening of ch	annel, channeliza	ation,	NOTES>> C road.	ulvert under
	Negligible	Mi	nor		erate	Se	vere		
Channel Alteration	Channelization, dredging, alteration, or hardening absent. Stream has an unaltered pattern or has naturalized.	Less than 20% of the stream reach is disrupted by any of the channel alterations listed in the parameter guidelines.	20-40% of the stream reach is disrupted by any of the channel alterations listed in the parameter guidelines.	is disrupted by any of the channel	60 - 80% of reach is disrupted by any of the channel alterations listed in the parameter guidelines. If stream has been channelized, normal stable stream meander pattern has not	Greater than 80% by any of the chan in the parameter 80% of banks sh	of reach is disrupted integrations listed guidelines AND/OR nored with gabion, or cement.	1	
SCORE	1.5	1.3	1.1	0.9	0.7	C).5		
	REACH C	ONDITION I	NDEX and S	TREAM CO	NDITION UN	ITS FOR TH	IIS REACH		
VOTE: The Cls and R	CI should be rounded to 2 decimal places.	The CR should be rou	nded to a whole numb	er.			THE REACH	CONDITION IN	DEX (RCI) >>

RCI= (Sum of all Cl's)/5

COMPENSATION REQUIREMENT (CR) >> 0

CR = RCI X LF X IF



DESCRIBE PROPOSED IMPACT:		

		Stre	Unit	fied Stream N	lethodology 1	Form	ginia	m 1)			
Project #		Project Name		Locality	cowardin Class.	HUC	Date Date	SAR#	Impact/SAR length	Impact Factor	
5337	I-64	Peninsula S	tudy	New Kent		02080206	7/6/11			1	
Name	e(s) of Evalua	tor(s)	Stream Nam	e and Informa	ation						
	Sekula		WUS 56N								
. Channel C	Condition: Asse			C	Conditional Catego	ory			1		
	Opti	mal	Subo	ptimal	Mar	ginal	Po	oor	Se	vere	
	200	ALL		ew areas of active cted banks. Majority		less than Severe or		ned/incised. unstable. Likely to		nstability. Severe	
Channel Condition	Very little incision o 100% stable bar surface protection prominent (80-1) Stable point bars/bs present. Access floodplain or fully bankfull benches. and transverse bs sediment depositio 10% of 1	nks. Vegetative n or natural rock, 00%). AND/OR ankfull benches are to their original developed wide Mid-channel bars, ars few. Transient n covers less than	Vegetative protect prominent (60- Depositional feat stability. The bar channels are well likely has access to rnewly develope portions of the rediment covers 10	table (60-80%). tion or natural rock -80%) AND/OR tures contribute to nkfull and low flow ll defined. Stream o bankfull benches, d floodplains along reach. Transient 0-40% of the stream	Erosion may be pr both banks. Veget 40-60% of banks. bevertical or unde 60% of stream sediment. Se- temporary/tran instability. Depositi stability, may be	ower bank slopes. resent on 40-60% of tative protection on Streambanks may ercut. AND/OR 40- n is covered by diment may be isient, contribute to e forming/present. sed channels have	are near vertical. 60-80% of bar protection prese banks, and is insi erosion. AND/O stream is cover Sediment is temp nature, and contri AND/OR V-shap	jority of both banks Erosion present on iks. Vegetative ent on 20-40% of afficient to prevent R 60-80% of the red by sediment. corary/transient in buting to instability. ed channels have ion is present on >	banks. Streamb rooting depth, r vertical/under vertical/under protection present banks, is not pr Obvious bank s Erosion/raw ban AND/OR Aggradir than 80% of strear deposition, contril	ed below average majority of banks cut. Vegetative on less than 20% of eventing erosion. loughing present. nks on 80-100%. ng channel. Greater bed is covered by buting to instability.	
			DOU	tom.	vegetative protect	ion on > 40% of the	40% of the banks a	and stable sediment is absent.		channels and/or nean flow.	CI
Score	3	3	2	.4		2	1	.6		1	3.0
. RIPARIAN	N BUFFERS: A		Con	n areas along the ditional Cate ptimal	gory	ginal	Po	n may be accepta	NOTES>>		
. RIPARIAN Riparian Buffers	Opti Tree stratum (dbh > with > 60% tree ca	imal - 3 inches) present, nopy cover and a lerstory. Wetlands	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree	ditional Cate	gory	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh > 3 inches) present, with < 30% tree					
Riparian	Option Tree stratum (dbh > with > 60% tree canon-maintained uncompaintained u	imal - 3 inches) present, nopy cover and a lerstory. Wetlands	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, injarian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh > 3 inches) present,	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable			
Riparian	Option Tree stratum (dbh > with > 60% tree canon-maintained uncompaintained u	3 inches) present, inopy cover and a derstory. Wetlands e riparian areas.	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh >3 inches) present, with <30% tree canopy cover with maintained	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable			
Riparian Buffers Condition Scores Delineate ripaescriptors. Determine squelow.	Tree stratum (dbh > with > 60% tree ca non-maintained unc located within the	imal 3 inches) present, incopy cover and a lerstory. Wetlands e riparian areas.	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 into Condition C	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Coungth and width. Coungth	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh > 3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5			
Riparian Buffers Condition Scores Delineate ripasscriptors. Determine sq	Tree stratum (dbh > with > 60% tree ca non-maintained unc located within the located with	imal 3 inches) present, unopy cover and a ferstory. Wetlands e riparian areas.	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 into Condition C	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Coungth and width. Coungth	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh > 3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5			
Riparian Buffers Condition Scores Delineate ripascriptors. Determine squelow. Enter the % F	Tree stratum (dbh > with > 60% tree ca non-maintained unc located within the	imal 3 inches) present, incopy cover and a lerstory. Wetlands e riparian areas.	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 into Condition C	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Coungth and width. Coungth	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh > 3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5	NOTES>>		
Riparian Buffers Condition Scores Delineate ripasscriptors. Determine squelow. Enter the % F	Tree stratum (dbh > with > 60% tree ca non-maintained unc located within the located with	3 inches) present, unopy cover and a lerstory. Wetlands e riparian areas. 5 each stream bank ach by measuring 100% 1.2	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 into Condition C	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Coungth and width. Coungth	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh > 3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5 the sums Riparian equal 100	NOTES>>		
Riparian Buffers Condition Scores Delineate ripascriptors. Determine squelow. Enter the % F	Tree stratum (dbh > with > 60% tree ca non-maintained unc located within the located with	imal 3 inches) present, unopy cover and a lerstory. Wetlands e riparian areas. 5 each stream bank ach by measuring 100% 1.2 100%	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 into Condition C	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Coungth and width. Coungth	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh > 3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5	NOTES>> CI= (Sum % RA** Rt Bank CI >	1.20	CI 1 20
Riparian Buffers Condition Scores Delineate ripa escriptors. Determine squelow. Enter the % F. Right Bank Left Bank	Tree stratum (dbh > with > 60% tree canon-maintained unc located within the located withi	5 sach stream bank ach by measuring 100% 1.2 100% 1.2 aried substrate si	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 k into Condition C g or estimating ler parian category in	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Coungth and width. Coungth and width. Coungth and width. Coungth and depths; wodes.	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85 Indition Scores us calculators are production of the product	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh > 3 inches) present, with < 30% tree canopy cover with maintained understory: Low 0.75 ing the povided for you	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F Blocks 6	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5 the sums Riparian equal 100 100%	NOTES>>		CI 1.20
Riparian Buffers Condition Scores Delineate ripa escriptors. Determine sq elow. Enter the % R Right Bank Left Bank INSTREAN ndercut banks;	Tree stratum (dbh > with > 60% tree ca non-maintained unc located within the located with	imal 3 inches) present, nopy cover and a lerstory. Wetlands e riparian areas. 5 each stream bank ach by measuring 100% 1.2 100% 1.2 aried substrate significations in the proofe complete in the proofe complete in the proofe in the proofe in the proofe complete in the proofe in t	Riph Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 Into Condition C g or estimating length operation category in parian category in the containing length of the containing length operation.	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Coungth and width. Coungth and width. Coungth and width. Coungth and depths; wores. Conditiona	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <a>3 inches) present, with <a>3 inches) present, or a tree canopy cover. High 0.85 Indition Scores us calculators are production of the control of th	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh >3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75 ing the provided for you	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F Blocks 6	Low Poor: Impervious surfaces, mine pool lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5 the sums Riparian equal 100 100% 100%	NOTES>> CI= (Sum % RA * : Rt Bank CI > Lt Bank CI >	1.20	
Condition Scores Delineate ripa escriptors. Determine sq elow. Enter the % F Right Bank Left Bank	Tree stratum (dbh > with > 60% tree ca non-maintained unc located within the located with	5 Score for each ri 100% 1.2 100% 1.2 100% 1.2 100% 1.2 100% 1.2 100% 1.2 100% 1.2 100% 1.2 100% 1.2 100% 1.2	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 Into Condition C g or estimating let parian category in Zes, water velocity exes, stable featur Subo Stable habitat ele present in 30-50% are adequate fo	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Coungth and width. Coungth and width. Coungth and width. Coungth and depths; wodes.	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85 Indition Scores us calculators are production of the present in 10-30 are adequate for a seadequate for the present in 10-30 are adequate for the present in 10-30 are adeq	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh > 3 inches) present, with < 30% tree canopy cover with maintained understory: Low 0.75 ing the povided for you	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F Blocks 6	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5 the sums Riparian equal 100 100%	NOTES>> CI= (Sum % RA * : Rt Bank CI > Lt Bank CI >	1.20	

	St	ream In	npact A	ssessm	nent Fo	rm Pag	e 2		
Project #	Applicant		Locality	Cowardin Class.	HUC	Date	Data Point	SAR length	Impact Factor
								500	1
	L ALTERATION: Stream cross poil piles, constrictions, livestock		Conditiona	al Category				NOTES>> C	ulvert
	Negligible	Mir	nor		erate	Se	evere		
Channel Alteration	Channelization, dredging, alteration, or hardening absent. Stream has an unaltered pattern or has naturalized.	Less than 20% of the stream reach is disrupted by any of the channel alterations listed in the parameter guidelines.	20-40% of the stream reach is disrupted by any of the channel	is disrupted by any of the channel	60 - 80% of reach is disrupted by any of the channel alterations listed in the parameter guidelines. If stream has been channelized, normal stable stream meander pattern has not	Greater than 80% by any of the char in the parameter 80% of banks s	of reach is disrupted nnel alterations listed guidelines AND/OR hored with gabion, or cement.		
SCORE	1.5	1.3	1.1	0.9	0.7	(0.5		
	REACH C	ONDITION II	NDEX and S	TREAM CO	NDITION UN	ITS FOR TH	IIS REACH		
VOTE: The Cls and R	RCI should be rounded to 2 decimal places.	The CR should be rour	nded to a whole numb	er.			THE REACH	CONDITION IN	DEX (RCI) >>

CR = RCI X LF X IF



DESCRIBE PROPOSED IMPACT:		

		Stre	Uni	fied Stream N	lethodology 1	Form	ginia	m 1)			
Project #		Project Name		Locality	nels classified a Cowardin Class.	HUC	perennial Date	SAR#	Impact/SAR	Impact Factor	
5337	I-64	Peninsula S	tudy	New Kent	0.000	02080206	7/6/11		87	1 4444	
Nam	e(s) of Evalua	tor(s)	Stream Nam	e and Informa	ation						
	Sekula		WUS 57N								
I. Channel (Condition: Asse	ess the cross-sec	ction of the stream		ondition (erosion, Conditional Catego						
	Opti	imal	Subo	ptimal	Mar	ginal	Po	oor	Se	vere	
Channel	Very little incision o 100% stable bar	or active erosion; 80	erosion or unproted of banks are s	ew areas of active cted banks. Majority table (60-80%).	Poor. Banks more or Poor due to lo	less than Severe or stable than Severe ower bank slopes.	Vertically/laterally widen further. Ma	ed/incised. unstable. Likely to iority of both banks	incision, flow co	nstability. Severe ontained within the bed below average	
Condition	surface protection prominent (80-11 Stable point bars/bs present. Access floodplain or fully bankfull benches. and transverse bs sediment deposition 10% of l	n or natural rock, 00%). AND/OR ankfull benches are s to their original of developed wide, Mid-channel bars, ars few. Transient on covers less than	prominent (60 Depositional feat stability. The bar channels are we likely has access t or newly develope portions of the sediment covers 10	tion or natural rock -80%) AND/OR tures contribute to nkfull and low flow Il defined. Stream o bankfull benches, d floodplains along reach. Transient 0-40% of the stream tom.	both banks. Veget 40-60% of banks. bevertical or unde 60% of strean sediment. Se- temporary/tran instability. Depositi stability, may be AND/OR V-shap vegetative protect	resent on 40-60% of tative protection on Streambanks may ercut. AND/OR 40- in is covered by diment may be sisent, contribute to ion that contribute to forming/present. eed channels have ion on > 40% of the ional features which	60-80% of bar protection press banks, and is insu erosion. AND/O stream is cover Sediment is temp nature, and contri AND/OR V-shap vegetative protect 40% of the banks a	ed channels have	rooting depth, vertical/under protection present banks, is not produced banks, is not produ	majority of banks cut. Vegetative on less than 20% of reventing erosion. sloughing present. Inks on 80-100%. ng channel. Greater m bed is covered by buting to instability. I channels and/or inean flow.	
Score	3	3	2	.4	- 1	2	-	.6		1	3.0
NOTES>>											
2. RIPARIAI	N BUFFERS: A		Cor	ditional Cate	gory				NOTES>> H		
2. RIPARIAN Riparian Buffers	Opti Tree stratum (dbh > with > 60% tree ca	imal > 3 inches) present, anopy cover and a derstory. Wetlands	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory.	ditional Cate ptimal Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation).	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover.	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh >3 inches) present, with <30% tree canopy cover with maintained understory.	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, recently seeded and stabilized, or other comparable condition.	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions.			
Riparian	Tree stratum (dbh > with > 60% tree cc non-maintained unc located within the	imal 3 inches) present, anopy cover and a derstory. Wetlands e riparian areas.	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation).	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover.	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh > 3 inches) present, with <30% tree canopy cover with maintained understory. Low	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable condition.	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions.	NOTES>> H		
Riparian Buffers	Option Tree stratum (dbh > with > 60% tree canon-maintained uncon-maintained unco-maintained unco	imal 3 inches) present, anopy cover and a derstory. Wetlands e riparian areas.	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory.	ditional Cate ptimal Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation).	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover.	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh >3 inches) present, with <30% tree canopy cover with maintained understory.	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, recently seeded and stabilized, or other comparable condition.	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions.	NOTES>> H		
Riparian Buffers Condition Scores Delineate ripe descriptors. Deleneate ripe descriptors.	Tree stratum (dbh > with > 60% tree ca non-maintained unc located within the	imal 3 inches) present, anopy cover and a derstory. Wetlands e riparian areas. 5 each stream banl ach by measurin	Com Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 into Condition C	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Coungth and width. Co	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh > 3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5	NOTES>> H		
Riparian Buffers Condition Scores Delineate ripelescriptors. Determine so	Tree stratum (dbh > with > 60% tree conon-maintained und located within the located withi	imal 3 inches) present, anopy cover and a derstory. Wetlands e riparian areas. 5 each stream bank ach by measurin.	Com Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 into Condition C	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Coungth and width. Co	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh > 3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5	NOTES>> H		
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Riparian Buffers Condition Scores Delineate ripalescriptors. Determine squelow. Enter the % F	Tree stratum (dbh > with > 60% tree ca non-maintained und located within the located with	imal 3 inches) present, anopy cover and a derstory. Wetlands e riparian areas. 5 ach stream bank ach by measuring the stream bank ach by	Com Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 k into Condition C g or estimating ler parian category in	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Coungth and width. Co	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh > 3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5 the sums Riparian requal 100 100%	NOTES>> H along left ba	Scores*0.01)/2	
Riparian Buffers Condition Scores Delineate ripalescriptors. Determine squelow. Enter the % F	Tree stratum (dbh > with > 60% tree ca non-maintained unc located within the located with	imal 3 inches) present, anopy cover and a derstory. Wetlands e riparian areas. 5 each stream bank ach by measurin Score for each ri 100% 1.5	Com Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 into Condition C g or estimating let parian category in	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Coungth and width. Co	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh > 3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5	NOTES>> H along left ba	Scores*0.01)/2	CI
Condition Scores 1. Delineate ripadescriptors. 2. Determine sopelow. 3. Enter the % F	Tree stratum (dbh > with > 60% tree ca non-maintained und located within the located with	imal 3 inches) present, anopy cover and a derstory. Wetlands e riparian areas. 5 each stream bank ach by measurin 100% 1.5 50% 1.5 aried substrate si	Com Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 Into Condition C g or estimating let parian category in 50% 0.5 Zes, water velocit	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Coungth and width. Country the blocks below y and depths; wodes.	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85 addition Scores us calculators are production of the produc	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh > 3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75 ing the povided for you	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F Blocks 6	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5 the sums Riparian equal 100 100%	NOTES>> H along left ba	Scores*0.01)/2 1.50 1.00 and	CI 1.2
Condition Scores 1. Delineate ripadescriptors. 2. Determine sopelow. 3. Enter the % F Right Bank Left Bank 3. INSTREAR	Tree stratum (dbh > with > 60% tree ca non-maintained unc located within the located with	imal 3 inches) present, anopy cover and a derstory. Wetlands e riparian areas. 5 each stream bank ach by measurin 100% 1.5 50% 1.5 aried substrate si	Com Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 sinto Condition C g or estimating let parian category in 50% 0.5 zes, water velocit ixes, stable featur	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Coungth and width. Country the blocks below y and depths; wodes.	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85 Indition Scores us calculators are production of the product	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh > 3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75 ing the povided for you	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F Blocks e	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5 the sums Riparian equal 100 100%	NOTES>> H along left ba	Scores*0.01)/2 1.50 1.00 and	
Condition Scores 1. Delineate ripe descriptors. 2. Determine so pelow. 3. Enter the % F Right Bank Left Bank 3. INSTREAT	Tree stratum (dbh > with > 60% tree cc non-maintained und located within the located with	imal 3 inches) present, anopy cover and a derstory. Wetlands e riparian areas. 5 5 cach stream bani ach by measurin 100% 1.5 50% 1.5 aried substrate si iffle poole completimal re typically present	Com Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 Into Condition C g or estimating let parian category in 50% 0.5 Zes, water velocit exes, stable featur Subo Stable habitat ele present in 30-509 are adequate fo	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Coungth and width. Coungth and width. Coungth and width. Coungth and depths; wores. Conditiona	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85 Indition Scores us calculators are production of the present in 10-30 are adequate for a sealequate for the present in 10-30 are adequate for the present in 10-30 are adequ	Ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh >3 inches) present, with <a>30 % tree canopy cover with maintained understory. Low 0.75 ing the price of the product of the present of t	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F Blocks 6	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5 the sums Riparian equal 100 100% 100%	NOTES>> H along left ba	Scores*0.01)/2 1.50 1.00 and	

	St	ream In	npact A	ssessm	ent Fo	rm Pag	e 2		
Project #	Applicant		Locality	Cowardin Class.	HUC	Date	Data Point	SAR length	Impact Factor
								500	1
	ALTERATION: Stream cross poil piles, constrictions, livestock	sings, riprap, conc		concrete blocks, s	traightening of ch	annel, channeliza	ation,	NOTES>> Someone de	-
	Negligible	Mi	nor		erate	Se	vere		
Channel Alteration	Channelization, dredging, alteration, or hardening absent. Stream has an unaltered pattern or has naturalized.	Less than 20% of the stream reach is disrupted by any of the channel alterations listed in the parameter guidelines.	20-40% of the stream reach is disrupted by any of the channel alterations listed in the parameter guidelines.	is disrupted by any of the channel	60 - 80% of reach is disrupted by any of the channel alterations listed in the parameter guidelines. If stream has been channelized, normal stable stream meander pattern has not	Greater than 80% by any of the chan in the parameter 80% of banks sh	of reach is disrupted nel alterations listed guidelines AND/OR nored with gabion, or cement.		
SCORE	1.5	1.3	1.1	0.9	0.7	0).5		
	REACH C	ONDITION	NDEX and S	TREAM CO	NDITION UN	ITS FOR TH	IIS REACH		
VOTE: The Cls and R	CI should be rounded to 2 decimal places.	The CR should be rou	nded to a whole numb	er.			THE REACH	CONDITION IN	DEX (RCI) >>

1.00

RCI= (Sum of all Cl's)/5

COMPENSATION REQUIREMENT (CR) >>

?) >> 0

CR = RCI X LF X IF

INSERT PHOTOS:



		Stre	Unif	fied Stream N	lethodology 1	Form	ginia	m 1)			
Project #	Pro	oject Name		Locality	Cowardin Class.	HUC	Date	SAR #	Impact/SAR length	Impact Factor	
5337	I-64 Pc	eninsula St	tudy	New Kent	0.0.00	02080206	7/7/11		218		
Name	e(s) of Evaluato	r(s)	Stream Nam	e and Informa	ation						
	Doucette		WUS 59N								
. Channel C	Condition: Assess			C	Conditional Catego	ory					
	Optim	iai	Subo	ptimal	Mar	ginal	Po	oor	Se	vere	
	Very little incision or ac	MAN oracion: 90	erosion or unproted	ew areas of active cted banks. Majority	Poor. Banks more	less than Severe or stable than Severe	Vertically/laterally	ned/incised. unstable. Likely to		nstability. Severe	
Channel Condition	100% stable banks. surface protection or prominent (80-100°) Stable point bars/bank present. Access to floodplain or fully de bankfull benches. Mid and transverse bars i sediment deposition c 10% of bot	vegetative r natural rock, %). AND/OR full benches are their original eveloped wide d-channel bars, few. Transient covers less than	Vegetative protect prominent (60- Depositional feat stability. The bar channels are wel likely has access to or newly develope portions of the r	table (60-80%), tion or natural rock -80%) AND/OR tures contribute to nkfull and low flow II defined. Stream o bankfull benches, id floodplains along reach. Transient 0-40% of the stream	Erosion may be pr both banks. Veget 40-60% of banks. bevertical or unde 60% of stream sediment. Se- temporary/tran instability. Depositi stability, may be	ower bank slopes. resent on 40-60% of tative protection on Streambanks may ercut. AND/OR 40- n is covered by diment may be isient, contribute ion that contribute to e forming/present.	are near vertical. 60-80% of bar protection prese banks, and is insi erosion. AND/O stream is cover Sediment is temp nature, and contri AND/OR V-shap	jority of both banks Erosion present on iks. Vegetative ent on 20-40% of ufficient to prevent R 60-80% of the red by sediment. oorary/transient in buting to instability. ed channels have	banks. Streamb rooting depth, r vertical/under protection present banks, is not pr Obvious bank s Erosion/raw ba AND/OR Aggradir than 80% of strear	ed below average najority of banks cut. Vegetative on less than 20% of eventing erosion. loughing present. nks on 80-100%. ng channel. Greater n bed is covered by buting to instability.	
	1078 01 000	icom.	bott	tom.	vegetative protect	ed channels have ion on > 40% of the ional features which	40% of the banks a	tion is present on > and stable sediment is absent.	Multiple thread	channels and/or nean flow.	CI
Score	3		2	.4		2	1	.6		1	3.0
		Jeog Bour Burne		in areas along the iditional Cate	· ·	ugh measurement	s of length & widtl	n may be accepta	NOTES>>		
	Optima		Con	ditional Cate ptimal Low Suboptimal: Riparian areas with tree stratum	gory Mar High Marginal: Non-maintained,	Low Marginal: Non-maintained, dense herbaceous vegetation,		Low Poor:	,		
Riparian Buffers	Optima Tree stratum (dbh > 3 with > 60% tree canon non-maintained unders located within the rij	inches) present, py cover and a story. Wetlands	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree	ditional Cate ptimal Low Suboptimal: Riparian areas	gory Mar High Marginal:	ginal Low Marginal: Non-maintained, dense herbaceous	High Poor: Lawns, mowed, and maintained	Low Poor:	,		
Buffers	Tree stratum (dbh > 3 with > 60% tree canonon-maintained unders located within the rij	inches) present, py cover and a story. Wetlands	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh s 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh > 3 inches) present, with <30% tree canopy cover with maintained	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable	,		
•	Tree stratum (dbh > 3 with > 60% tree canor	inches) present, py cover and a story. Wetlands	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory.	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation).	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover.	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh >3 inches) present, with <30% tree canopy cover with maintained understory.	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable condition.	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions.	,		
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Stream Impact Assessment Form Page 2 Project # Applicant Cowardin Class Data Point SAR length Impact Factor 4. CHANNEL ALTERATION: Stream crossings, riprap, concrete, gabions, or concrete blocks, straightening of channel, channelization, NOTES>> embankments, spoil piles, constrictions, livestock Conditional Category Moderate Minor Negligible Severe 40 - 60% of reach is disrupted by any of the channel of the channel 20-40% of the stream reach is Less than 20% of alterations listed in the parameter guidelines. If Channel Iterations listed in Greater than 80% of reach is disrupted the stream reach the parameter Channelization, dredging, alteration, or hardening absent. Stream has an unaltered pattern or has naturalized. by any of the channel alterations listed in the parameter guidelines AND/OR 80% of banks shored with gabion, s disrupted by any disrupted by any Alteration of the channel Iterations listed i of the channel lterations listed guidelines. If stream has been channelized, normal stable stream has been channelized, normal stable the parameter the parameter riprap, or cement. guidelines. guidelines. stream meander stream meander pattern has not pattern has not SCORE 1.5 1.3 1.1 0.9 0.7 0.5 1.10 REACH CONDITION INDEX and STREAM CONDITION UNITS FOR THIS REACH THE REACH CONDITION INDEX (RCI) >> NOTE: The CIs and RCI should be rounded to 2 decimal places. The CR should be rounded to a whole number. 1.29

RCI= (Sum of all CI's)/5

0

COMPENSATION REQUIREMENT (CR) >>

CR = RCI X LF X IF

INSERT PHOTOS:

Concrete lined in some sections, but has begin to naturalize over these areas.



	Str		SSESS fied Stream M	lethodology 1	for use in Vir	ginia	,			
Project #	Project Na		Locality	Cowardin Class.	HUC	Date	SAR#	Impact/SAR length	Impact Factor	
5337	I-64 Peninsula	Study	New Kent		02080206	7/7/11		19		
Nam	e(s) of Evaluator(s)		e and Informa	ation						
	Doucette	WUS 60N								
. Channel (Condition: Assess the cross-s	ection of the stream		ondition (erosion, Conditional Catego						
	Optimal	Subo	ptimal		ginal	Po	oor	Sev	vere	
Channel Condition	Very little incision or active erosion; 100% stable banks. Vegetative surface protection or natural rock prominent (80-100%). AND/OR	erosion or unprote of banks are s Vegetative protect prominent (60	rew areas of active cted banks. Majority ttable (60-80%). tion or natural rock -80%) AND/OR	Poor. Banks more or Poor due to k Erosion may be pr both banks. Veget	less than Severe or stable than Severe wer bank slopes. esent on 40-60% of tative protection on Streambanks may	Vertically/laterally widen further. Ma are near vertical. 60-80% of bar	ned/incised. unstable. Likely to jority of both banks Erosion present on iks. Vegetative ent on 20-40% of	incision, flow con banks. Streamb rooting depth, n vertical/underd	Istability. Severe ntained within the ed below average najority of banks zut. Vegetative	
	Stable point bars/bankfull benches : present. Access to their original floodplain or fully developed wide bankfull benches. Mid-channel bat and transverse bars few. Transier sediment deposition covers less the 10% of bottom.	stability. The ba channels are we likely has access to or newly developed portions of the sediment covers 1	tures contribute to nkfull and low flow Ill defined. Stream to bankfull benches, ad floodplains along reach. Transient 0-40% of the stream tom.	bevertical or under 60% of stream sediment. Set temporary/tran instability. Depositi stability, may be AND/OR V-shap vegetative protect	rercut. AND/OR 40- n is covered by diment may be sisent, contribute on that contribute to e forming/present. ed channels have ion on > 40% of the ional features which	banks, and is insi erosion. AND/C stream is cover Sediment is tem nature, and contri AND/OR V-shap vegetative protect 40% of the banks a	ifficient to prevent R 60-80% of the red by sediment. ocrary/transient in buting to instability. red channels have ion is present on > and stable sediment is absent.	banks, is not pre Obvious bank sl Erosion/raw ban AND/OR Aggradir than 80% of strear deposition, contrib Multiple thread	on less than 20% of eventing erosion. loughing present. hks on 80-100%. Ig channel. Greater in bed is covered by buting to instability. channels and/or nean flow.	CI
Score	3	2	2.4		2	1	.6		1	3.0
				_	_					
2. RIPARIAI	N BUFFERS: Assess both ba	Cor	nditional Cate	gory				NOTES>>		
2. RIPARIAN Riparian Buffers	Optimal Optimal Tree stratum (dbh > 3 inches) prese with > 60% tree canopy cover and non-maintained understory. Wetlar located within the riparian areas.	High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree ds canopy cover and containing both herbaceous and shrub layers or a non-maintained understory.	nditional Cate ptimal Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory; Recent cutover (dense vegetation).	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover.	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh >3 inches) present, with <30% tree canopy cover with maintained understory.	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable condition.	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions.	NOTES>>		
Riparian Buffers	Optimal Tree stratum (dbh > 3 inches) press with > 60% tree canopy cover and non-maintained understory. Wetlar	High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree ds canopy cover and containing both herbaceous and shrub layers or a non-maintained	Low Suboptimal Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh > 3 inches) present, with <30% tree canopy cover with maintained	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable	NOTES>>		
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Riparian Buffers Condition Scores 1. Delineate ripalescriptors. 2. Determine squelow. 3. Enter the % F	Optimal Tree stratum (dbh > 3 inches) press with > 60% tree canopy cover and non-maintained understory. Wetlar located within the riparian areas. 1.5 parian areas along each stream be quare footage for each by measure footage footage footage for each by measure footage for each by measure footage f	High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree ds canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 Lategories and Coungth and width. Coungth and width. Coungth and width. Coungth and width.	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh > 3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5	NOTES>> CI= (Sum % RA*S Rt Bank CI >	1.50	CI
Condition Scores Delineate ripedescriptors. Deltermine scorelow. English Bank Left Bank Left Bank Line Riparian Ripa	Optimal Tree stratum (dbh > 3 inches) press with > 60% tree canopy cover and non-maintained understory. Wetlar located within the riparian areas. 1.5 parian areas along each stream be quare footage for each by measure footage foota	High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree ds canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 Ink into Condition C ing or estimating let riparian category in	Inditional Cate ptimal Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 Tategories and Coungth and width. Coungth and width. Coungth and width. Coungth and depths; woo	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh > 3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75 ing the povided for you	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % B Blocks 6	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5 the sums Riparian equal 100 100%	NOTES>> CI= (Sum % RA * S		CI 1.50
Condition Scores Delineate rips descriptors. Delta Bank Right Bank Left Bank Left Bank INSTREAI undercut banks;	Optimal Tree stratum (dbh > 3 inches) press with > 60% tree canopy cover and non-maintained understory. Wetlar located within the riparian areas. 1.5 Parian areas along each stream by quare footage for each by measu Riparian Area and Score for each % Riparian Area 100% Score > 1.5 % Riparian Area 100% Score > 1.5 M HABITAT: Varied substrate; root mats; SAV; riffle poole com	High Suboptimal: Riparian areas with tree stratum (dh) > 3 inches) present, with 30% to 60% tree do canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 Ink into Condition C ting or estimating let riparian category in sizes, water velocit blexes, stable feature	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 Lategories and Coungth and width. Coungth and width. Coungth and width. Coungth and depths; wores. Conditional	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85 Indition Scores us calculators are production of the product	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh >3 inches) present, with <a>30 % tree canopy cover with maintained understory. Low 0.75 ing the provided for you	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F Blocks 6	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5 the sums Riparian equal 100 100%	NOTES>> Cl= (Sum % RA * S Rt Bank Cl > Lt Bank Cl >	1.50	
Condition Scores Delineate ripedescriptors. Deltermine scorelow. English Bank Left Bank Left Bank Line Riparian Ripa	Optimal Tree stratum (dbh > 3 inches) press with > 60% tree canopy cover and non-maintained understory. Wetlar located within the riparian areas. 1.5 parian areas along each stream be quare footage for each by measure footage foota	High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree ds canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 Ink into Condition C ing or estimating let riparian category in sizes, water velocit plexes, stable featur Subo Stable habitat ele present in 30-50° are adequate for are ade	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 Sategories and Coungth and width. Coungth and width. Coungth and depths; woores.	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85 Indition Scores us calculators are production of the present in 10-30 are adequate for a sealequate for the present in 10-30 are adequate for the present in 10-30 are adequ	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh > 3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75 ing the povided for you	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F Blocks 6 Habitat element: lacking or are u elements are typic	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5 the sums Riparian equal 100 100%	CI= (Sum % RA * S Rt Bank CI > Lt Bank CI >	1.50	

	St	ream In	npact A	ssessn	nent Fo	rm Pag	e 2		
Project #	Applicant		Locality	Cowardin Class.	HUC	Date	Data Point	SAR length	Impact Factor
								500	1
	L ALTERATION: Stream cross		Conditiona	al Category				NOTES>>	
	Negligible	Mir	nor		erate 60 - 80% of reach		evere		
Channel Alteration	Channelization, dredging, alteration, or hardening absent. Stream has an unaltered pattern or has naturalized.	Less than 20% of the stream reach is disrupted by any of the channel alterations listed in the parameter guidelines.	20-40% of the stream reach is disrupted by any of the channel	is disrupted by any of the channel	is disrupted by any of the channel alterations listed in	Greater than 80% by any of the cha in the parameter 80% of banks s	o of reach is disrupted nnel alterations listed guidelines AND/OR shored with gabion, or cement.		
SCORE	1.5	1.3	1.1	0.9	0.7		0.5		
	REACH C	ONDITION II	NDEX and S	TREAM CO	NDITION UN	ITS FOR TH	HIS REACH		
	RCI should be rounded to 2 decimal places.				·	1	THE BEACH	CONDITION IN	DEV (BCI)

CR = RCI X LF X IF



ESCRIBE PROPOSED IMPACT:	

		Stre	Uni	fied Stream N	lethodology 1	Form	ginia	m 1)			
Project #	ı	Project Name		Locality	Cowardin Class.	HUC	Date	SAR#	Impact/SAR length	Impact Factor	
5337	I-64	Peninsula S	tudy	New Kent		02080206	7/7/11		77		
Name	e(s) of Evaluat	or(s)		e and Inform	ation						
	Doucette		WUS 62N								
1. Channel C	Condition: Asse	ss the cross-sec	tion of the stream								
1	Opti	mal	Subo	ptimal	Conditional Catego Mar	ginal	Po	oor	Sev	ere	
Channel	Very little incision or 100% stable bar		erosion or unproted of banks are s	ew areas of active sted banks. Majority table (60-80%).	Poor. Banks more or Poor due to k	less than Severe or stable than Severe over bank slopes.	Vertically/laterally widen further. Ma	ned/incised. unstable. Likely to jority of both banks	incision, flow cor	stability. Severe	
Condition	surface protection prominent (80-11 Stable point bars/ba present. Access floodplain or fully bankfull benches. and transverse ba sediment deposition 10% of t	or natural rock, 10%). AND/OR nkfull benches are to their original developed wide Mid-channel bars, rs few. Transient ocovers less than	prominent (60 Depositional feat stability. The bar channels are we likely has access t or newly develope portions of the sediment covers 10	tion or natural rock 80%) AND/OR ures contribute to hdfull and low flow I defined. Stream o bankfull benches, d floodplains along reach. Transient 0-40% of the stream tom.	both banks. Vege 40-60% of banks. bevertical or unde 60% of strear sediment. Se temporary/tran instability. Depositi stability, may be AND/OR V-shap vegetative protect	esent on 40-60% of tative protection on Streambanks may ercut. AND/OR 40- is covered by diment may be sient, contribute to on that contribute to forming/present. ed channels have ion on > 40% of the ional features which	60-80% of bar protection press banks, and is insu erosion. AND/O stream is cover Sediment is temp nature, and contri AND/OR V-shap vegetative protect 40% of the banks a	Erosion present on kis. Vegetative ent on 20-40% of ifficient to prevent R 60-80% of the ed by sediment. porary/transient in buting to instability. ed channels have ion is present on > and stable sediment it is absent.	rooting depth, m vertical/underc protection present of banks, is not pre Obvious bank sl Erosion/raw bar AND/OR Aggradin than 80% of stream deposition, contrib Multiple thread	najority of banks ut. Vegetative on less than 20% of eventing erosion. oughing present. els on 80-100%. g channel. Greater hed is covered by uting to instability. channels and/or	CI
Score	3		2	.4		2	1	.6			3.0
Riparian Buffers	Tree stratum (dbh > with > 60% tree ca	3 inches) present, nopy cover and a erstory. Wetlands	Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory.	ditional Cate ptimal Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory, Recent cutover (dense vegetation).	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover.	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh > 3 inches) present, with <30% tree canopy cover with maintained understory.	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable condition.	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions.			
Condition			High	Low	High	Low	High	Low	_		
Condition Scores	1.	5	1.2	1.1	0.85	0.75	0.6	0.5]		
descriptors.	uare footage for ea	ach by measurin	g or estimating le	ngth and width. C	alculators are pro	•	of % F	the sums Riparian			
pelow.		Joseph Land Cacil III	panan balegory II	DIOUNG DEIUW			DIOCKS 6	-quai 100			
pelow. 3. Enter the % R	% Riparian Area	30%	70%					100%			
elow.		30% 1.5	70% 0.5					100%	-		
pelow. B. Enter the % R	% Riparian Area> Score >	1.5							CI= (Sum % RA * S	_	
pelow. 3. Enter the % R	% Riparian Area> Score > % Riparian Area>	1.5 100%						100%	Rt Bank CI >	0.80	CI
Right Bank Left Bank	% Riparian Area> Score > % Riparian Area> Score >	1.5 100% 1.5	0.5					100%	Rt Bank CI >	_	CI 1.15
Right Bank Left Bank INSTREAM	% Riparian Area> Score > % Riparian Area>	1.5 100% 1.5 ried substrate si	0.5		bdy and leafy deb	ris; stable substra	te; low embededr	100%	Rt Bank CI >	0.80	
Right Bank Left Bank 3. INSTREAN undercut banks;	% Riparian Area> Score > % Riparian Area> Score > M HABITAT: Varoot mats; SAV; ril	1.5 100% 1.5 rried substrate si	0.5 zes, water velocit xes, stable featur	es. Condition	al Category			100%	Rt Bank CI >	0.80	
Right Bank Left Bank 3. INSTREAN undercut banks;	% Riparian Area> Score > % Riparian Area> Score > M HABITAT: Va	1.5 100% 1.5 rried substrate si	0.5 zes, water velocit xes, stable featur	es.	al Category	ris; stable substra		100%	Rt Bank CI >	0.80	
Below. 3. Enter the % R Right Bank Left Bank 3. INSTREAN undercut banks;	% Riparian Area> Score > % Riparian Area> Score > M HABITAT: Varoot mats; SAV; ril	1.5 100% 1.5 tried substrate si file poole comple mal	ces, water velocit xes, stable featur Subo Stable habitat ele present in 30-50 are adequate fo	es. Condition	Stable habitat ele present in 10-30° are adequate fo		Habitat elements lacking or are u elements are typic	100%	Rt Bank CI > Lt Bank CI > NOTES>>	0.80	

	St	ream In	npact A	ssessm	nent Fo	rm Pag	e 2			
Project #	Applicant		Locality	Cowardin Class.	HUC	Date	Data Point	SAR length	Impact Factor	
								500	1	
	L ALTERATION: Stream cross poil piles, constrictions, livestock	ings, riprap, conc		oncrete blocks, s	traightening of ch	annel, channeliza	ation,	NOTES>>		
	Negligible	Mi	nor		erate		vere			
Channel Alteration	Channelization, dredging, alteration, or hardening absent. Stream has an unaltered pattern or has naturalized.	Less than 20% of the stream reach is disrupted by any of the channel alterations listed in the parameter guidelines.	20-40% of the stream reach is disrupted by any of the channel	is disrupted by any of the channel	of the channel	Greater than 80% by any of the char in the parameter 80% of banks sl	of reach is disrupted annel alterations listed guidelines AND/OR hored with gabion, or cement.			
SCORE	1.5	1.3	1.1	0.9	0.7	(0.5			
	REACH CONDITION INDEX and STREAM CONDITION UNITS FOR THIS REACH									
NOTE: The Cls and F	RCI should be rounded to 2 decimal places.	The CR should be rou	nded to a whole numb	er.			THE REACH (CONDITION IN	DEX (RCI) >>	

CR = RCI X LF X IF



DESCRIBE PROPOSED IMPACT:		

		Stre		fied Stream N	lethodology f	for use in Virg	ginia				
Project #	ı	Project Name		Locality	Cowardin Class.	HUC	Date	SAR#	Impact/SAR length	Impact Factor	
5337	I-64	Peninsula S	tudy	New Kent		02080206	7/7/11		215		
Name	e(s) of Evalua	tor(s)	Stream Nam	e and Inform	ation	<u>'</u>	•		<u>'</u>		
	Sekula		WUS 64N								
1. Channel C	Condition: Asse	ess the cross-sec	ction of the stream								
	Opti	imal	Subo	ptimal	Conditional Catego Mar	ginal	Po	oor	Sev	vere	
	The state of the s	ARP.		ew areas of active		less than Severe or		ed/incised.	vertical/lateral in	istability. Severe	
Channel Condition	Very little incision of 100% stable bar surface protection prominent (80-11 Stable point bars/be present. Access floodplain or fully bankfull benches. and transverse ba sediment depositio 10% of 1	nks. Vegetative n or natural rock, 00%). AND/OR ankfull benches are to their original of developed wide Mid-channel bars, ars few. Transient in covers less than	of banks are s Vegetative protect prominent (60 Depositional feat stability. The ban channels are we likely has access t or newly develope portions of the sediment covers 10	cted banks. Majority table (60-80%). Itable (60-80%). Itable (60-80%). AND/OR tures contribute to nkfull and low flow III defined. Stream o bankfull benches, and floodplains along reach. Transient 0-40% of the stream tom.	or Poor due to k Erosion may be pr both banks. Vege! 40-60% of banks. bevertical or unde 60% of strean sediment. Se temporary/tran instability. Depositi stability, may be AND/OR V-shap	stable than Severe were bank slopes. esent on 40-60% of tative protection on Streambanks may ercut. AND/OR 40-n is covered by diment may be sisient, contribute to en forming/present. ed channels have ion on > 40% of the	widen further. Ma are near vertical. 60-80% of bar protection press banks, and is instension. AND/O stream is cover Sediment is temp nature, and contri AND/OR V-shap vegetative protect	unstable. Likely to ority of both banks Erosion present on ks. Vegetative int on 20-40% of difficient to prevent R 60-80% of the ed by sediment. ovaray/transient in buting to instability. ed channels have ion is present on > and stable sediment	incision, flow coo banks. Streamb rooting depth, n vertical/under protection present banks, is not pre Obvious bank sl Erosion/raw bar AND/OR Aggradir than 80% of strean deposition, contril Multiple thread	ntained within the ed below average majority of banks cut. Vegetative on less than 20% of eventing erosion. loughing present. hks on 80-100%. In g channel. Greater m bed is covered by puting to instability. channels and/or	CI
					banks and depositi	ional features which	deposition	is absent.		nean flow.	
Score	3	3	2	2.4		2	1	.6		1	2.4
2. RIPARIAN	N BUFFERS: A		Con	n areas along the	gory	ugh measurement		n may be accepta	NOTES>>		
2. RIPARIAN Riparian Buffers		imal 3 inches) present, anopy cover and a derstory. Wetlands	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory.	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation).	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover.	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh >3 inches) present, with <30% tree canopy cover with maintained understory.	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, recently seeded and stabilized, or other comparable condition.	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions.			
Riparian Buffers	Tree stratum (dbh > with > 60% tree ca non-maintained unc located within the	• 3 inches) present, anopy cover and a derstory. Wetlands e riparian areas.	Con Subo High Suboptimal: Riparian areas with tree stratum (abh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation).	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover.	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh >3 inches) present, with <30% tree canopy cover with maintained understory. Low	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, recently seeded and stabilized, or other comparable condition.	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions.			
Riparian	Optia Tree stratum (dbh > with > 60% tree ca	• 3 inches) present, anopy cover and a derstory. Wetlands e riparian areas.	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory.	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation).	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover.	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh >3 inches) present, with <30% tree canopy cover with maintained understory.	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, recently seeded and stabilized, or other comparable condition.	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions.			
Riparian Buffers Condition Scores 1. Delineate ripadescriptors. 2. Determine squelow.	Tree stratum (dbh > with > 60% tree ca non-maintained unc located within the	imal 3 inches) present, anopy cover and a derstory. Wetlands e riparian areas.	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 k into Condition C	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Co	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh >3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5			
Riparian Buffers Condition Scores Delineate ripadescriptors. 2. Determine squelow.	Tree stratum (dbh > with > 60% tree ca non-maintained unch located within the located wit	imal 3 inches) present, anopy cover and a derstory. Wetlands e riparian areas. 5 ach stream bank ach by measurin	Com Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 k into Condition C g or estimating ler	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Co	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh >3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5			
Riparian Buffers Condition Scores Delineate ripa elescriptors. 2. Determine squelow.	Tree stratum (dbh > with > 60% tree ca non-maintained unc located within the	imal 3 inches) present, anopy cover and a derstory. Wetlands e riparian areas. 5 ach stream bank ach by measurin Score for each ri	Com Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 k into Condition C g or estimating ler parian category in	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Co	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh >3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5			
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Riparian Buffers Condition Scores Delineate ripa escriptors. Determine squescriptors. Enter the % R	Tree stratum (dbh > with > 60% tree ca non-maintained unc located within the located with	imal 3 inches) present, anopy cover and a derstory. Wetlands e riparian areas. 5 ach stream bank ach by measurin Score for each ri 50% 1.2	Com Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 k into Condition C g or estimating ler parian category in	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Co	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh >3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5	NOTES>> CI= (Sum % RA*S Rt Bank CI >	0.85	CI
Riparian Buffers Condition Scores Delineate ripa descriptors. Descriptors. Enter the % R Right Bank Left Bank	Tree stratum (dbh > with > 60% tree canon-maintained unclocated within the located within	imal 3 inches) present, anopy cover and a derstory. Wetlands e riparian areas. 5 each stream bani ach by measurin 50% 1.2 100% 1.2	Riparian areas with tree stratum (abh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 K into Condition C g or estimating ler	Inditional Cate ptimal Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory, Recent cutover (dense vegetation). Low 1.1 attegories and Co	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh > 3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75 ing the povided for you	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F Blocks 6	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5 the sums Riparian equal 100 100%	NOTES>>		CI 1.03
Condition Scores Delineate ripa descriptors. Deltermine squelow. Enter the % R Right Bank Left Bank INSTREAM	Tree stratum (dbh > with > 60% tree ca non-maintained unc located within the located with	imal 3 inches) present, anopy cover and a derstory. Wetlands e riparian areas. 5 ach stream band ach by measurin 50% 1.2 100% 1.2 aried substrate si	Righ Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 k into Condition C g or estimating let parian category in 50% 0.5	Ditional Cate ptimal Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Co oright and width. Co the blocks below	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh > 3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75 ing the povided for you	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F Blocks 6	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5 the sums Riparian equal 100 100%	NOTES>> CI= (Sum % RA*S Rt Bank CI >	0.85	
Condition Scores 1. Delineate ripa descriptors. 2. Determine sq below. 3. Enter the % R Right Bank Left Bank 3. INSTREAN undercut banks;	Tree stratum (dbh > with > 60% tree ca non-maintained unc located within the located with	imal 3 inches) present, anopy cover and a derstory. Wetlands e riparian areas. 5 each stream band ach by measurin 50% 1.2 100% 1.2 arried substrate siffle poole complete.	High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 k into Condition C g or estimating let parian category in 50% 0.5	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Co ngth and width. Co n the blocks below y and depths; wodes. Conditions	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85 Indition Scores us calculators are production of the product	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh >3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75 ing the provided for you	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F Blocks 6	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5 the sums Riparian equal 100 100% 100%	NOTES>> Cl= (Sum % RA * S Rt Bank Cl > Lt Bank Cl >	0.85	
Riparian Buffers Condition Scores 1. Delineate ripa descriptors. 2. Determine sq below. 3. Enter the % R Right Bank Left Bank 3. INSTREAN undercut banks;	Tree stratum (dbh > with > 60% tree ca non-maintained unc located within the located with	imal 3 inches) present, anopy cover and a derstory. Wetlands e riparian areas. 5 each stream band ach by measurin 50% 1.2 100% 1.2 arried substrate siffle poole complete.	High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 k into Condition C g or estimating let parian category in 50% 0.5	ditional Cate ptimal Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Co ongth and width. Co on the blocks below y and depths; wodes.	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85 Indition Scores us calculators are production of the product	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh > 3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75 ing the povided for you	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F Blocks 6	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5 the sums Riparian equal 100 100%	NOTES>> Cl= (Sum % RA * S Rt Bank Cl > Lt Bank Cl >	0.85	
Condition Scores 1. Delineate ripa descriptors. 2. Determine sq below. 3. Enter the % R Right Bank Left Bank 3. INSTREAN undercut banks;	Tree stratum (dbh > with > 60% tree ca non-maintained unc located within the located with	imal 3 inches) present, anopy cover and a derstory. Wetlands e riparian areas. 5 each stream bani ach by measurin 50% 1.2 100% 1.2 aried substrate si ffle poole completimal	Righ Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 k into Condition C g or estimating ler parian category in 50% 0.5	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Co ngth and width. Co n the blocks below y and depths; wodes. Conditions	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85 Indition Scores us calculators are processed of the control of	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh >3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75 ing the provided for you	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F Blocks 6	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5 the sums Riparian equal 100 100% 100%	NOTES>> Cl= (Sum % RA * S Rt Bank Cl > Lt Bank Cl >	0.85	

	St	ream In	npact A	ssessm	nent Fo	rm Pag	e 2		
Project #	Applicant		Locality	Cowardin Class.	HUC	Date	Data Point	SAR length	Impact Factor
								500	1
	ALTERATION: Stream cross poil piles, constrictions, livestock	sings, riprap, conc		concrete blocks, s	traightening of ch	annel, channeliza	ation,	NOTES>>	
	Negligible	Mi	nor		erate	Se	vere		
Channel Alteration	Channelization, dredging, alteration, or hardening absent. Stream has an unaltered pattern or has naturalized.	Less than 20% of the stream reach is disrupted by any of the channel alterations listed in the parameter guidelines.	20-40% of the stream reach is disrupted by any of the channel	is disrupted by any	60 - 80% of reach is disrupted by any of the channel alterations listed in the parameter guidelines. If stream has been channelized, normal stable stream meander pattern has not	Greater than 80% by any of the chan in the parameter 80% of banks sh	of reach is disrupted nel alterations listed guidelines AND/OR nored with gabion, or cement.		
SCORE	1.5	1.3	1.1	0.9	0.7	0).5		
	REACH C	ONDITION I	NDEX and S	TREAM CO	NDITION UN	ITS FOR TH	IS REACH		
NOTE: The Cls and F	CI should be rounded to 2 decimal places.	The CR should be rou	nded to a whole numb	er.			THE REACH (CONDITION IN	DEX (RCI) >>
							RCI	= (Sum of all C	l's)/5

COMPENSATION REQUIREMENT (CR) >>

CR = RCI X LF X IF



DESCRIBE PROPOSED IMPACT:	

	Str	eam A	ssess	ment	Form	ı (For	m 1)			
			fied Stream N							
Project #	Project Na		Locality	Cowardin	HUC	Date	SAR #	Impact/SAR	Impact	
				Class.			JAK #	length	Factor	
5337	I-64 Peninsula		New Kent	-ti	02080206	7/7/11		779		
Name	e(s) of Evaluator(s) Sekula	WUS 66N	e and Inform	ation						
. Channel C	Condition: Assess the cross-	section of the stream		ondition (erosion, Conditional Catego						
	Optimal	Subo	ptimal	Mar	ginal	Po	oor	Se	vere	
	-		few areas of active		less than Severe or		ned/incised.		istability. Severe	
Channel Condition	Very little incision or active erosion 100% stable banks. Vegetative surface protection or natural rod prominent (80-100%). ANIX/OR Stable point bars/bankfull benches present. Access to their origina floodplain or fully developed wid bankfull benches. Mid-channel ba and transverse bars few. Transie	of banks are s Vegetative protect prominent (60 Depositional fea stability. The ba channels are we likely has access or newly develope or newly develope	cted banks. Majority stable (60-80%). stable (60-80%). stion or natural rock l-80%) AND/OR tures contribute to nkfull and low flow all defined. Stream to bankfull benches, ed floodplains along reach. Transient	or Poor due to lo Erosion may be pr both banks. Vege 40-60% of banks. bevertical or unde 60% of strean sediment. Se temporary/tran	stable than Severe ower bank slopes. resent on 40-60% of tative protection on Streambanks may ercut. AND/OR 40- n is covered by diment may be sient, contribute on that contribute to	widen further. Ma are near vertical. 60-80% of bar protection prese banks, and is insi erosion. AND/C stream is cove Sediment is tem	unstable. Likely to jority of both banks Erosion present on ks. Vegetative ent on 20-40% of ufficient to prevent R 60-80% of the red by sediment. porary/transient in buting to instability.	banks. Streamb rooting depth, r vertical/underr protection present banks, is not pro Obvious bank s Erosion/raw ban AND/OR Aggradir	ntained within the ed below average majority of banks cut. Vegetative on less than 20% of eventing erosion. loughing present. nks on 80-100%. ng channel. Greater n bed is covered by	
	sediment deposition covers less the 10% of bottom.	sediment covers 1	0-40% of the stream ttom.	AND/OR V-shap vegetative protect banks and depositi	e forming/present. led channels have ion on > 40% of the ional features which	vegetative protect 40% of the banks a deposition	ped channels have tion is present on > and stable sediment in is absent.	deposition, contril Multiple thread subterral	buting to instability. channels and/or nean flow.	CI
Score	3	2	2.4		2	1	.6		1	3.0
Riparian	Tree stratum (dbh > 3 inches) pres	High Suboptimal Riparian areas with tree stratum	with tree stratum	High Marginal:	Low Marginal: Non-maintained, dense herbaceous	High Poor:		Residential	lawn along	
Buffers	with > 60% tree canopy cover and non-maintained understory. Wetla located within the riparian areas	to 60% tree	cover and a	Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover.	vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh >3 inches) present, with <30% tree	Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, recently seeded and stabilized, or other comparable condition.	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions.	left bank.		
	with > 60% tree canopy cover and non-maintained understory. Wetla	ant, present, with 30% to 60% tree to 60% tree containing both herbaceous and shrub layers or a non-maintained understory.	present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation).	dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover.	vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh >3 inches) present, with <30% tree canopy cover with maintained understory.	and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, recently seeded and stabilized, or other comparable condition.	Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions.	left bank.		
	with > 60% tree canopy cover and non-maintained understory. Wetla	present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained	present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense	dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree	vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh >3 inches) present, with <30% tree canopy cover with maintained	and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated nonmaintained area, recently seeded and stabilized, or other comparable	Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable	left bank.		
Condition Scores I. Delineate ripa descriptors. 2. Determine squelow.	with > 60% tree canopy cover and non-maintained understory. Wetla located within the riparian areas	ant, present, with 30% to 60% tree lads canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 ank into Condition Curring or estimating le	present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 Categories and Congth and width. Congth and width. Congth canopy cover and a maintained understory. Recent cutover (dense vegetation).	dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85	vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh > 3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75	and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % I	Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions.	left bank.		
Condition Scores Delineate ripa escriptors. Determine sq elow. Enter the % R	with > 60% tree canopy cover and non-maintained understory. Wetla located within the riparian areas 1.5 arian areas along each stream beguare footage for each by measu. Riparian Area and Score for eac. % Riparian Area.	ant, present, with 30% to 60% tree to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 ank into Condition Curing or estimating le	present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 Categories and Congth and width. Congth and width. Congth canopy cover and a maintained understory. Recent cutover (dense vegetation).	dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85	vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh > 3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75	and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % I	Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5	left bank.		
Condition Scores Delineate ripa escriptors. Determine squelow. Enter the % R	with > 60% tree canopy cover and non-maintained understory. Wetla located within the riparian areas 1.5 arian areas along each stream beguare footage for each by measu	ant, present, with 30% tree to 60% tree to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 ank into Condition Curing or estimating le	present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 Categories and Congth and width. Congth and width. Congth canopy cover and a maintained understory. Recent cutover (dense vegetation).	dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85	vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh > 3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75	and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % I	Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5			
Condition Scores Delineate ripa escriptors. Determine squelow. Enter the % R	with > 60% tree canopy cover and non-maintained understory. Wetla located within the riparian areas 1.5 arian areas along each stream beguare footage for each by measu. Riparian Area and Score for each stream beguare footage for each by measu. Riparian Area and Score for each stream beguare footage for each by measu.	ant, present, with 30% to 60% tree lads canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 ank into Condition Curing or estimating le	present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 Categories and Congth and width. Congth and width. Congth canopy cover and a maintained understory. Recent cutover (dense vegetation).	dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85	vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh > 3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75	and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % I	Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5 the sums Riparian equal 100	CI= (Sum % RA * \$	Scores*0.01)/2	C
Condition Scores Delineate ripa secriptors. Determine squelow. Enter the % R	with > 60% tree canopy cover and non-maintained understory. Wetla located within the riparian areas 1.5 arian areas along each stream beguare footage for each by measu. Riparian Area and Score for eac. % Riparian Area.	ant, present, with 30% to 60% tree to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 ank into Condition Curing or estimating le	present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 Categories and Congth and width. Congth and width. Congth canopy cover and a maintained understory. Recent cutover (dense vegetation).	dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85	vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh > 3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75	and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % I	Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5			CI 0.88
Condition Scores Delineate ripa escriptors. Determine squelow. Enter the % R Right Bank Left Bank B. INSTREAN	with > 60% tree canopy cover and non-maintained understory. Wetla located within the riparian areas 1.5 arian areas along each stream beguare footage for each by measu. Riparian Area and Score for each stream beguare footage for each by measu. Riparian Area and Score for each stream beguare footage for each by measu. Riparian Area and Score for each stream beguare footage for each by measu.	nt, la present, with 30% la to 60% tree anopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 ank into Condition Curring or estimating le r riparian category in 70% 0.5 25% 0.6 e sizes, water velocit	present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 Lategories and Congth and width. Congth and width. Congth and width. Congth and width with the blocks below	dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85 adiculators are pro	vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh >3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75 ing the povided for you	and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F Blocks 6	Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5 the sums Riparian equal 100 100%	CI= (Sum % RA * \$	Scores'0.01)/2	CI 0.88
Condition Scores Delineate ripa lescriptors. Descriptors. Enter the % R Right Bank Left Bank Left Bank INSTREAN	with > 60% tree canopy cover and non-maintained understory. Wetla located within the riparian areas 1.5 arian areas along each stream be quare footage for each by measure footage footage for each by measure footage for each by measure footage footage for each by measure footage for each by measure footage f	ank, la present, with 30% la to 60% tree anopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 ank into Condition Curring or estimating le hriparian category in 70% 0.5 25% 0.6 9 sizes, water velocil plexes, stable featu	present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 Lategories and Congth and width. Congth and	dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85 adiculators are pro	vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh >3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75 ing the pvided for you	and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F Blocks 6	Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5 the sums Riparian equal 100 100% 100%	CI= (Sum % RA * S Rt Bank CI > Lt Bank CI >	Scores'0.01)/2	
Condition Scores Delineate ripa descriptors. Determine squelow. B. Enter the % R Right Bank Left Bank INSTREAN	with > 60% tree canopy cover and non-maintained understory. Wetla located within the riparian areas 1.5 arian areas along each stream by guare footage for each by measure footage footage for each by measure footage footage for each by measure footage footage footage for each by m	nt, la present, with 30% la to 60% tree anopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 ank into Condition Curring or estimating le h riparian category in 70% 0.5 25% 0.6 sizes, water velocil plexes, stable featu Stable habitat elent present in 30-50 are adequate feature 1.00 to 100 to 1	present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 Lategories and Congth and width. Congth and width. Congth and width. Congth and width with the blocks below	dense herbaceous vegetation with either a shrub layer or a tree layer (dsh > 3 inches) present, with <30% tree canopy cover. High 0.85 Indition Scores us Calculators are pro- calculators are pro- dition Scores us Calcula	vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh >3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75 ing the povided for you	and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F Blocks 6 Habitat element: lacking or are ulements are typic	Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5 the sums Riparian equal 100 100%	CI= (Sum % RA * S Rt Bank CI > Lt Bank CI >	Scores'0.01)/2	

	Stream Impact Assessment Form Page 2										
Project #	Applicant Locality Cowardin Class. HUC Date Data Point SAR length Impact Factor										
								500	1		
	L ALTERATION: Stream cross poil piles, constrictions, livestock	ings, riprap, conc		concrete blocks, s	traightening of ch	annel, channeliza	ation,	NOTES>>			
	Negligible	Mi	nor		erate		vere				
Channel Alteration	Channelization, dredging, alteration, or hardening absent. Stream has an unaltered pattern or has naturalized.	Less than 20% of the stream reach is disrupted by any of the channel alterations listed in the parameter guidelines.	20-40% of the stream reach is disrupted by any of the channel	is disrupted by any of the channel	of the channel	Greater than 80% by any of the chan in the parameter 80% of banks sh	of reach is disrupted nel alterations listed guidelines AND/OR nored with gabion, or cement.				
SCORE	1.5	1.3	1.1	0.9	0.7	0).5				
	REACH CONDITION INDEX and STREAM CONDITION UNITS FOR THIS REACH										
NOTE: The Cls and F	RCI should be rounded to 2 decimal places.	The CR should be rou	nded to a whole numb	er.			THE REACH (CONDITION IN	DEX (RCI) >>		

CR = RCI X LF X IF



DESCRIBE PROPOSED IMPACT:		

		Stre	Unit	fied Stream N	lethodology 1	for use in Vir	-	m 1)			
Project #		Project Name		Locality	nels classified a Cowardin Class.	HUC	perennial Date	SAR#	Impact/SAR	Impact Factor	
5337	I-64	Peninsula S	tudy	Henrico	0.0000	02080206	7/11/11		3033		
Nam	e(s) of Evalua	tor(s)	Stream Nam	e and Informa	ation					1	
	Doucette		WUS 68N								
l. Channel (Condition: Ass	ess the cross-sec	ction of the stream		ondition (erosion, Conditional Catego						
	Opt	imal	Subo	ptimal	Mar	ginal	Po	oor	Se	vere	
Channel	Very little incision o	r active erosion; 80	erosion or unproted	ew areas of active cted banks. Majority table (60-80%).	Poor. Banks more	less than Severe or stable than Severe ower bank slopes.	Vertically/laterally	ned/incised. unstable. Likely to jority of both banks	incision, flow co	nstability. Severe	
Condition	100% stable bar surface protectio prominent (80-1 Stable point bars/br present. Access floodplain or fully bankfull benches. and transverse br sediment deposition	n or natural rock, 00%). AND/OR ankfull benches are to their original of developed wide Mid-channel bars, ars few. Transient in covers less than	Vegetative protect prominent (60- Depositional feat stability. The bar channels are well likely has access to or newly develope portions of the resediment covers 10	tition or natural rock- 80%) AND/OR tures contribute to Nafull and low flow Il defined. Stream o bankfull benches, of floodplains along reach. Transient 0-40% of the stream tom.	Erosion may be pr both banks. Veget 40-60% of banks. bevertical or unde 60% of strean sediment. Set temporary/tran instability. Depositi stability, may be AND/OR V-shap	esent on 40-60% of tative protection on Streambanks may ercut. AND/OR 40-n is covered by diment may be sisent, contribute on that contribute to forming/present. ed channels have ion on > 40% of the	are near vertical. 60-80% of bar protection prese banks, and is inst erosion. AND/O stream is cover Sediment is tem, nature, and contri AND/OR V-shap vegetative protect	Erosion present on ks. Vegetative ent on 20-40% of afficient to prevent R 60-80% of the ed by sediment. porary/transient in butting to instability. ed channels have	rooting depth, vertical/under protection present banks, is not pr Obvious banks Erosion/raw ba AND/OR Aggradi than 80% of strea deposition, contri Multiple threac	ned below average majority of banks cut. Vegetative on less than 20% of eventing erosion. Illustration of the control of the c	CI
Score	3	<u> </u>	2	.4		ional features which	-	is absent.		1	2.0
Score		•					'	.0	1		2.0
2. RIPARIAN	N BUFFERS: /		Con Subo	n areas along the aditional Cate ptimal	gory	ginal Low Marginal: Non-maintained,	Po High Poor:	n may be accepta	NOTES>> R right bank, l left bank.		
Riparian Buffers	Opti	imal 3 inches) present, anopy cover and a derstory. Wetlands	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy	gory	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh > 3 inches) present, with <30% tree canopy cover with maintained	Po		NOTES>> R right bank,		
Riparian	Option Tree stratum (dbh > 60% tree cr	imal 3 inches) present, anopy cover and a derstory. Wetlands	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained	ditional Cate ptimal Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh >3 inches) present, with					

Stream Impact Assessment Form Page 2										
Project #	Applicant		Locality	Cowardin Class.	HUC	Date	Data Point	SAR length	Impact Factor	
								500	1	
	L ALTERATION: Stream cross poil piles, constrictions, livestock	ings, riprap, conci		concrete blocks, s	traightening of ch	annel, channeliza	ation,	NOTES>>		
	Negligible	Mir	nor		erate		vere			
Channel Alteration	Channelization, dredging, alteration, or hardening absent. Stream has an unaltered pattern or has naturalized.	Less than 20% of the stream reach is disrupted by any of the channel alterations listed in the parameter guidelines.	20-40% of the stream reach is disrupted by any of the channel	is disrupted by any of the channel	60 - 80% of reach is disrupted by any of the channel alterations listed in the parameter guidelines. If stream has been channelized, normal stable stream meander pattern has not	Greater than 80% by any of the chan in the parameter 80% of banks sh	of reach is disrupted nel alterations listed guidelines AND/OR nored with gabion, or cement.			
SCORE	1.5	1.3	1.1	0.9	0.7	0).5			
	REACH CONDITION INDEX and STREAM CONDITION UNITS FOR THIS REACH									
NOTE: The Cls and F	RCI should be rounded to 2 decimal places.	The CR should be rour	nded to a whole numb	er.			THE REACH (CONDITION IN	DEX (RCI) >>	

CR = RCI X LF X IF



DESCRIBE PROPOSED IMPACT:		

		Stre		fied Stream N	lethodology 1	for use in Virg	ginia	m 1)			
Project #	ı	Project Name		Locality	Cowardin Class.	HUC	Date	SAR #	Impact/SAR length	Impact Factor	
5337	I-64	Peninsula S	tudy	Henrico		02080206	7/1//1		856		
Name	e(s) of Evalua	tor(s)	Stream Nam	e and Informa	ation	<u>'</u>					
	Sekula		WUS 69N								
I. Channel C	Condition: Asse			C	Conditional Catego	ry					
	Opti	imal	Subo	ptimal	Mar	ginal	Po	oor	Se	vere	
	Very little incision o	when arraign 90	erosion or unproted	ew areas of active cted banks. Majority	Poor. Banks more	less than Severe or stable than Severe	Vertically/laterally	ned/incised. unstable. Likely to		stability. Severe	
Channel Condition	100% stable bar surface protection prominent (80-10 Stable point bars/be present. Access floodplain or fully bankfull benches. and transverse ba sediment depositio 10% of 1	nks. Vegetative n or natural rock, 00%). AND/OR ankfull benches are to their original or developed wide Mid-channel bars, ars few. Transient in covers less than	Vegetative protect prominent (60- Depositional feat stability. The bar channels are well likely has access to or newly develope portions of the resediment covers 10 to definite the covers of the resediment covers 10 to definite the covers of the resediment covers 10 to definite the covers of the resediment covers 10 to definite the covers 10 to definite	table (60-80%). tion or natural rock -80%) AND/OR tures contribute to nkfull and low flow II defined. Stream o bankfull benches, ed floodplains along reach. Transient 0-40% of the stream	Erosion may be pr both banks. Veget 40-60% of banks. bevertical or unde 60% of stream sediment. Se- temporary/tran instability. Depositi stability, may be	ower bank slopes. esent on 40-60% of tative protection on Streambanks may ercut. AND/OR 40- n is covered by diment may be sient, contribute on that contribute to e forming/present.	are near vertical. 60-80% of bar protection prese banks, and is inst erosion. AND/O stream is cover Sediment is temp nature, and contri AND/OR V-shap	jority of both banks Erosion present on iks. Vegetative ent on 20-40% of ufficient to prevent IR 60-80% of the ed by sediment. porary/transient in buting to instability. ed channels have	banks. Streamb rooting depth, r vertical/under protection present banks, is not pr Obvious bank s Erosion/raw ba AND/OR Aggradir than 80% of strear	ed below average najority of banks cut. Vegetative on less than 20% of eventing erosion. loughing present. nks on 80-100%. In bed is covered by outing to instability.	
	1070 011		boti	tom.	vegetative protect	ed channels have ion on > 40% of the ional features which	40% of the banks a	tion is present on > and stable sediment n is absent.		channels and/or nean flow.	CI
Score	3	3	2	2.4		2	1	.6		1	2.0
. RIPARIAN	N BUFFERS: A	Assess both bank			· ·	ugh measurement	s of length & widtl	n may be accepta	,		
2. RIPARIAN	N BUFFERS: A		Con Subo	nditional Cate	gory Mar	ginal Low Marginal: Non-maintained,	High Poor: Lawns, mowed,	por	NOTES>>		
RIPARIAN Riparian Buffers	Opti Tree stratum (dbh > with > 60% tree ca	imal 3 inches) present, anopy cover and a derstory. Wetlands	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy	gory	ginal Low Marginal:	Po High Poor:		,		
Riparian Buffers	Opti Tree stratum (dbh > with > 60% tree canon-maintained unclocated within the	imal 3 inches) present, anopy cover and a derstory. Wetlands e riparian areas.	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation).	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover.	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh >3 inches) present, with <30% tree canopy cover with maintained understory. Low	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, recently seeded and stabilized, or other comparable condition.	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions.	,		
Riparian	Option Tree stratum (dbh > with > 60% tree canon-maintained unc	imal 3 inches) present, anopy cover and a derstory. Wetlands e riparian areas.	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory.	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation).	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover.	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh >3 inches) present, with <30% tree canopy cover with maintained understory.	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable condition.	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions.	,		
Riparian Buffers Condition Scores Delineate ripalescriptors.	Opti Tree stratum (dbh > with > 60% tree canon-maintained unclocated within the	imal 3 inches) present, anopy cover and a derstory. Wetlands e riparian areas.	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh > 3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable condition. High 0.6	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions.	,		
Riparian Buffers Condition Scores Delineate ripalescriptors. Determine squelow.	Tree stratum (dbh > with > 60% tree ca non-maintained unclocated within the	imal 3 inches) present, anopy cover and a derstory. Wetlands e riparian areas.	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 into Condition C	Inditional Cate ptimal Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Coungth and width. Coungth and width. Coungth and coungth and width.	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh > 3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5	,		
Riparian Buffers Condition Scores Delineate ripalescriptors. Determine squelow.	Tree stratum (dbh > with > 60% tree ca non-maintained uncolocated within the located with	imal 3 inches) present, anopy cover and a derstory. Wetlands e riparian areas. 5 ach stream bank ach by measurin. Score for each ri	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 into Condition C	Inditional Cate ptimal Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Coungth and width. Coungth and width. Coungth and coungth and width.	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh > 3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5	,		
Riparian Buffers Condition Scores Delineate ripa escriptors. Determine squelow. Enter the % F	Tree stratum (dbh > with > 60% tree ca non-maintained unc located within the	imal 3 inches) present, anopy cover and a derstory. Wetlands e riparian areas. 5 ach stream bank ach by measurin.	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 into Condition C	Inditional Cate ptimal Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Coungth and width. Coungth and width. Coungth and coungth and width.	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh > 3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5	,	Scores*0.01)/2	
Riparian Buffers Condition Scores Delineate ripalescriptors. Determine squelow. Enter the % R Right Bank	Tree stratum (dbh > with > 60% tree ca non-maintained uncolocated within the located with	imal 3 inches) present, anopy cover and a derstory. Wetlands e riparian areas. 5 ach stream bank ach by measurin. Score for each ri	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 into Condition C	Inditional Cate ptimal Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Coungth and width. Coungth and width. Coungth and coungth and width.	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh > 3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5	NOTES>>	Scores*0.01)/2 1.50	CI
Riparian Buffers Condition Scores Delineate ripa escriptors. Determine squelow. Enter the % F	Tree stratum (dbh > with > 60% tree canon-maintained unclocated within the located within	imal 3 inches) present, anopy cover and a derstory. Wetlands e riparian areas. 5 each stream bank ach by measurin Score for each ri	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 into Condition C	Inditional Cate ptimal Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Coungth and width. Coungth and width. Coungth and coungth and width.	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh > 3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5 the sums Riparian equal 100	NOTES>>		CI 1.50
Condition Scores Delineate ripalescriptors. Determine squelow. Right Bank Left Bank B. INSTREAN	Tree stratum (dbh > with > 60% tree canon-maintained unc located within the located withi	imal 3 inches) present, anopy cover and a derstory. Wetlands e riparian areas. 5 ach stream bank ach by measurin 100% 1.5 100% 1.5 aried substrate si	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 Into Condition C g or estimating ler parian category in	Inditional Cate ptimal Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Coungth and width. Country the blocks below y and depths; woo	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85 adculators are pro	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh > 3 inches) present, with < 30% tree canopy cover with maintained understory: Low 0.75 ing the ovided for you	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F Blocks 6	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5 the sums Riparian equal 100 100%	NOTES>> CI= (Sum % RA*: Rt Bank CI >	1.50 1.50	
Condition Scores Delineate ripa elescriptors. Deltre the % R Right Bank Left Bank B. INSTREAN undercut banks;	Tree stratum (dbh > with > 60% tree ca non-maintained unc located within the located with	imal 3 inches) present, enopy cover and a derstory. Wetlands e riparian areas. 5 each stream bank ach by measuring 100% 1.5 100% 1.5 aried substrate siffle poole comple	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 Into Condition C g or estimating ler parian category in zes, water velocity ixes, stable featur	Inditional Cate ptimal Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Coungth and width. Coungth and width. Coungth and depths; wores. Conditional	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <a>3 inches) present, with <a>3 inches) present, or a tree canopy cover. High 0.85 Indition Scores us calculators are production of the control of th	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh >3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75 ing the vided for you	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F Blocks 6	Low Poor: Impervious surfaces, mine pool lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5 the sums Riparian equal 100 100% 100%	NOTES>> CI= (Sum % RA *: Rt Bank CI > Lt Bank CI >	1.50 1.50	
Condition Scores 1. Delineate ripa descriptors. 2. Determine squelow. 3. Enter the % R Right Bank Left Bank 3. INSTREAN	Tree stratum (dbh > with > 60% tree canon-maintained unclocated within the located within	imal 3 inches) present, anopy cover and a derstory. Wetlands e riparian areas. 5 ach stream bani ach by measurin. Score for each ri 100% 1.5 100% 1.5 ried substrate si ffle poole completimal.	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 Into Condition C g or estimating let parian category in zes, water velocity exes, stable featur Subo Stable habitat ele present in 30-50% are adequate fo	Inditional Cate ptimal Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Coungth and width. Coungth and width. Coungth and width. Coungth and depths; wodes.	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85 Indition Scores us calculators are production of the present in 10-30 are adequate for a seadequate for the present in 10-30 are adequate for the present in 10-30 are adeq	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh > 3 inches) present, with < 30% tree canopy cover with maintained understory: Low 0.75 ing the ovided for you	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F Blocks 6	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5 the sums Riparian equal 100 100%	NOTES>> CI= (Sum % RA *: Rt Bank CI > Lt Bank CI >	1.50 1.50	

	St	ream In	npact A	ssessm	ent Fo	rm Pag	e 2		
Project #	Applicant		Locality	Cowardin Class.	HUC	Date	Data Point	SAR length	Impact Factor
								500	1
	L ALTERATION: Stream cross poil piles, constrictions, livestock	sings, riprap, conc		concrete blocks, s	traightening of ch	annel, channeliza	ation,	NOTES>> C both ends.	ulverts on
	Negligible	Mi	nor		erate		vere		
Channel Alteration	Channelization, dredging, alteration, or hardening absent. Stream has an unaltered pattern or has naturalized.	Less than 20% of the stream reach is disrupted by any of the channel alterations listed in the parameter guidelines.	20-40% of the stream reach is disrupted by any of the channel	is disrupted by any of the channel	60 - 80% of reach is disrupted by any of the channel alterations listed in the parameter guidelines. If stream has been channelized, normal stable stream meander pattern has not	Greater than 80% by any of the char in the parameter 80% of banks sl	of reach is disrupted nnel alterations listed guidelines AND/OR hored with gabion, or cement.	I	
SCORE	1.5	1.3	1.1	0.9	0.7	(0.5		
	REACH C	ONDITION	NDEX and S	TREAM CO	NDITION UN	ITS FOR TH	IIS REACH		
VOTE: The Cls and F	RCI should be rounded to 2 decimal places.	The CR should be rou	nded to a whole numb	er.			THE REACH	CONDITION IN	DEX (RCI) >>

RCI= (Sum of all Cl's)/5

COMPENSATION REQUIREMENT (CR) >> CR = RCI X LF X IF



DESCRIBE PROPOSED IMPACT:	

	Stre		fied Stream N	lethodology f	for use in Vir	ginia	· · · · · · · · · · · · · · · · · · ·			
Project #	Project Nam		Locality	Cowardin Class.	HUC	Date	SAR#	Impact/SAR length	Impact Factor	
5337	I-64 Peninsula S	Study	Henrico		02080206	7/11/11		156		
Name	e(s) of Evaluator(s)		e and Informa	ation						
	Doucette	WUS 70N								
. Channel C	Condition: Assess the cross-se	ction of the stream		ondition (erosion, Conditional Catego						
	Optimal	Subo	ptimal		ginal	Po	oor	Sev	vere	
Channel Condition	Very little incision or active erosion; 8 100% stable banks. Vegetative surface protection or natural rock,	of banks are si Vegetative protect	ew areas of active cted banks. Majority table (60-80%). tion or natural rock	Poor. Banks more or Poor due to lo Erosion may be pr	less than Severe or stable than Severe ower bank slopes. esent on 40-60% of tative protection on	Vertically/laterally widen further. Ma are near vertical.	ned/incised. unstable. Likely to jority of both banks Erosion present on	incision, flow cor banks. Streamb rooting depth, n	istability. Severe nationed within the ed below average najority of banks	
	prominent (80-100%). AND/OR Stable point bars/bankfull benches ar present. Access to their original floodplain or fully developed wide bankfull benches. Mid-channel bars and transverse bars few. Transient sediment deposition covers less than 10% of bottom.	Depositional feat stability. The bar channels are wel likely has access to or newly develope portions of the r sediment covers 10	-80%) AND/OR tures contribute to nkfull and low flow II defined. Stream o bankfull benches, def loodplains along reach. Transient 0-40% of the stream tom.	40-60% of banks. bevertical or unde 60% of strean sediment. See temporary/tran instability. Depositi stability, may be AND/OR V-shap vegetative protect	Streambanks may ercut. AND/OR 40- n is covered by diment may be sient, contribute on that contribute to e forming/present. ed channels have ion on > 40% of the ional features which	protection prese banks, and is insi erosion. AND/C stream is cover Sediment is tem nature, and contri AND/OR V-shap vegetative protect 40% of the banks a	into n 20-40% of ufficient to prevent R 60-80% of the red by sediment. Dorary/transient in buting to instability. ed channels have ion is present on > and stable sediment is absent.	protection present banks, is not pre Obvious bank sl Erosion/raw ban AND/OR Aggradir than 80% of strear deposition, contrik Multiple thread	cut. Vegetative on less than 20% of eventing erosion. oughing present. hks on 80-100%. Ig channel. Greater n bed is covered by buting to instability. channels and/or nean flow.	CI
Score	3	2	2.4		2	1	.6		1	3.0
2. RIPARIAN	N BUFFERS: Assess both bar	Con	nditional Cate	gory				NOTES>>		
Riparian Buffers	Optimal Optimal Tree stratum (dbh > 3 inches) presen with > 60% tree canopy cover and a non-maintained understory. Wetland located within the riparian areas.	High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory.	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation).	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover.	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh >3 inches) present, with <30% tree canopy cover with maintained understory.	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable condition.	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions.	NOTES>>		
Riparian Buffers	Optimal Tree stratum (dbh > 3 inches) presen with > 60% tree canopy cover and a non-maintained understory. Wetland	High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches), present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh > 3 inches) present, with <30% tree canopy cover with maintained	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable	NOTES>>		
Riparian Buffers Condition Scores Delineate ripa descriptors. Delineate ripa descriptors.	Optimal Tree stratum (dbh > 3 inches) presen with > 60% tree canopy cover and a non-maintained understory. Wetland located within the riparian areas.	Com Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 Ik into Condition C	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Coungth and width. Coungth	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh > 3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions.	NOTES>>	Scores*0.01)/2	
Riparian Buffers Condition Scores Delineate ripz escriptors. Determine squelow.	Optimal Tree stratum (dbh > 3 inches) presen with > 60% tree canopy cover and a non-maintained understory. Wetland located within the riparian areas. 1.5 arian areas along each stream bar quare footage for each by measuring the properties of t	Com Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 Ik into Condition C	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Coungth and width. Coungth	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh > 3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5	NOTES>> CI= (Sum % RA*S Rt Bank CI >	1.50	CI
Condition Scores Delineate ripalescriptors. Determine squelow. Right Bank Left Bank I. INSTREAM	Optimal Tree stratum (dbh > 3 inches) presen with > 60% tree canopy cover and a non-maintained understory. Wetland located within the riparian areas. 1.5 arian areas along each stream bar quare footage for each by measuring the provided of the control of the	Com Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 Isk into Condition C ag or estimating ler iparian category in	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Congth and width. Control with the blocks below yand depths; woo	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh > 3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75 ing the povided for you	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % B Blocks 6	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5 the sums Riparian equal 100 100%	NOTES>> CI= (Sum % RA * S		CI 1.50
Condition Scores Delineate ripalescriptors. Deltre the % Right Bank Left Bank Left Bank Linstream	Optimal Tree stratum (dbh > 3 inches) presen with > 60% tree canopy cover and a non-maintained understory. Wetland located within the riparian areas. 1.5 arian areas along each stream bar quare footage for each by measuring the street of	High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree cacappy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 It into Condition C ag or estimating ler iparian category in iizes, water velocity exes, stable featur	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Co ngth and width. Co n the blocks below y and depths; wodes. Conditiona	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85 Indition Scores us calculators are production of the product	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh >3 inches) present, with <a>30 % tree canopy cover with maintained understory. Low 0.75 ing the provided for you	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F Blocks 6	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5 the sums Riparian equal 100 100%	NOTES>> Cl= (Sum % RA * S Rt Bank Cl > Lt Bank Cl >	1.50	
Condition Scores Delineate ripa descriptors. Determine squelow. Right Bank Left Bank INSTREAL	Optimal Tree stratum (dbh > 3 inches) presen with > 60% tree canopy cover and a non-maintained understory. Wetland located within the riparian areas. 1.5 arian areas along each stream bar quare footage for each by measuring the street of	Com Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 Ik into Condition C ag or estimating ler iparian category in izzes, water velocity exes, stable featur Subo Stable habitat ele present in 30-509 are adequate fo	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Coungth and width. Coungth and width. Coungth and width. Coungth and depths; woo es.	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85 Indition Scores us calculators are processed of the control of	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh > 3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75 ing the povided for you	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F Blocks 6 Habitat element: lacking or are u elements are typic	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5 the sums Riparian equal 100 100%	CI= (Sum % RA * S Rt Bank CI > Lt Bank CI >	1.50	

	St	ream In	npact A	ssessm	ent Fo	rm Pag	e 2		
Project #	Applicant		Locality	Cowardin Class.	HUC	Date	Data Point	SAR length	Impact Factor
								500	1
	L ALTERATION: Stream cross spoil piles, constrictions, livestock	sings, riprap, conc		oncrete blocks, s	traightening of ch	annel, channeliz	ration,	NOTES>>	
	Negligible	Mi	nor		erate		evere		
Channel Alteration	Channelization, dredging, alteration, or hardening absent. Stream has an unaltered pattern or has naturalized.	Less than 20% of the stream reach is disrupted by any of the channel alterations listed in the parameter guidelines.	20-40% of the stream reach is disrupted by any of the channel	is disrupted by any of the channel	60 - 80% of reach is disrupted by any of the channel alterations listed in the parameter guidelines. If stream has been channelized, normal stable stream meander pattern has not	Greater than 80% by any of the char in the parameter 80% of banks s	o of reach is disrupted nnel alterations listed guidelines AND/OR shored with gabion, or cement.		
SCORE	1.5	1.3	1.1	0.9	0.7		0.5		
	REACH C	ONDITION I	NDEX and S	TREAM CO	NDITION UN	ITS FOR TH	IIS REACH		
IOTE: The Cls and R	RCI should be rounded to 2 decimal places.	The CR should be rou	nded to a whole numb	er.			THE REACH (CONDITION IN	DEX (RCI) >>

CR = RCI X LF X IF



DESCRIBE	PROPOSE	D IMPACT:	
· · · · · · · · · · · · · · · · · · ·	· · · · · · · · · · · · · · · · · · ·	<u> </u>	

	Stre		fied Stream N	lethodology	for use in Vir	ginia	m 1)			
Project #	Project Name		Locality	Cowardin Class.	HUC	Date	SAR#	Impact/SAR length	Impact Factor	
5337	I-64 Peninsula S	study	Henrico		02080206	7/11/11		299		
Name	e(s) of Evaluator(s)		e and Informa	ation						
	Doucette	WUS 72N								
. Channel C	Condition: Assess the cross-sec	ction of the stream		ondition (erosion,						
	Optimal	Subo	ptimal		ginal	Po	oor	Sev	/ere	
Channel Condition	Very little incision or active erosion; 80 100% stable banks. Vegetative surface protection or natural rock,	erosion or unproted of banks are s	ew areas of active cted banks. Majority table (60-80%). tion or natural rock	Poor. Banks more or Poor due to lo Erosion may be pr	less than Severe or e stable than Severe ower bank slopes. resent on 40-60% of	Vertically/laterally widen further. Ma are near vertical.	ned/incised. unstable. Likely to jority of both banks Erosion present on	incision, flow con banks. Streamb	istability. Severe nained within the ed below average najority of banks	
Condition	surface profession of natural ruck, prominent (80-100%). AND/OR Stable point bars/bankfull benches are present. Access to their original floodplain or fully developed wide bankfull benches. Mid-channel bars, and transverse bars few. Transient sediment deposition covers less than 10% of bottom.	Depositional feat stability. The bar channels are we likely has access t or newly develope portions of the sediment covers 10	-80%) AND/OR tures contribute to ndfull and low flow II defined. Stream o bankfull benches, difloodplains along reach. Transient 0-40% of the stream tom.	40-60% of banks. bevertical or unde 60% of strear sediment. Se temporary/tran instability. Depositi stability, may be AND/OR V-shap vegetative protect	tative protection on Streambanks may great. AND/OR 40- m is covered by diment may be issient, contribute to e forming/present. led channels have ion on > 40% of the ional features which	protection prese banks, and is insi ersoion. AND/O stream is cover Sediment is tem nature, and contri AND/OR V-shap vegetative protect 40% of the banks a	uks. Vegetative ent on 20-40% of of officient to prevent R 60-80% of the red by sediment. ocorary/transient in buting to instability. ed channels have ion is present on > and stable sediment is absent.	vertical/underd protection present banks, is not pre Obvious bank si Erosion/raw ban AND/OR Aggradir than 80% of strear deposition, contril Multiple thread	cut. Vegetative on less than 20% of eventing erosion. oughing present.	CI
Score	3	2	.4		2	1	.6		1	3.0
NOTES>>										
	Optimal		ditional Cate	gory	ginal		n may be accepta	NOTES>>		
Riparian Buffers	Optimal Tree stratum (dbh > 3 inches) present with > 60% tree canopy cover and a non-maintained understory. Wetlands located within the riparian areas.	High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree		gory	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hos production, ponds, open water. If present, tree stratum (dbh > 3 inches) present, with <30% tree canopy cover with maintained					
Buffers	Tree stratum (dbh > 3 inches) present with > 60% tree canopy cover and a non-maintained understory. Wetlands located within the riparian areas.	Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation).	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover.	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh >3 inches) present, with <30% tree canopy cover with maintained understory. Low	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, recently seeded and stabilized, or other comparable condition.	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions.			
•	Tree stratum (dbh > 3 inches) present with > 60% tree canopy cover and a non-maintained understory. Wetlands	Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory.	ptimal Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation).	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover.	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh >3 inches) present, with <30% tree canopy cover with maintained understory.	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, recently seeded and stabilized, or other comparable condition.	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions.			
Condition Scores Delineate ripalescriptors. Determine squelow.	Tree stratum (dbh > 3 inches) present with > 60% tree canopy cover and a non-maintained understory. Wetlands located within the riparian areas.	Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 k into Condition C	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Coungth and width. Coungth and width. Coungth areas	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, porduction, ponds, open water. If present, tree stratum (dbh > 3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions.			
Condition Scores Delineate ripa escriptors. Determine squelow. Enter the % R	Tree stratum (dbh > 3 inches) present with > 60% tree canopy cover and a non-maintained understory. Wetlands located within the riparian areas. 1.5 arian areas along each stream ban quare footage for each by measuring the provided of the control of the contro	Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 k into Condition C	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Coungth and width. Coungth and width. Coungth areas	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, porduction, ponds, open water. If present, tree stratum (dbh > 3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5			
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Condition Scores Delineate ripa lescriptors. Determine squelow. Enter the % R Right Bank	Tree stratum (dbh > 3 inches) present with > 60% tree canopy cover and a non-maintained understory. Wetlands located within the riparian areas. 1.5 arian areas along each stream ban quare footage for each by measuring Riparian Area and Score for each maintain areas along each stream ban quare footage for each by measuring Riparian Area and Score for each maintain areas along each stream ban quare footage for each stream ban quare footage for each stream Area and Score for each maintain areas along each stream ban quare footage for each stream	Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 k into Condition C	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Coungth and width. Coungth and width. Coungth areas	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, porduction, ponds, open water. If present, tree stratum (dbh > 3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5	NOTES>> CI= (Sum % RA* S Rt Bank CI >	Scores*0.01)/2 1.50	CI
Condition Scores Delineate ripa escriptors. Determine squelow. Enter the % R Right Bank	Tree stratum (dbh > 3 inches) present with > 60% tree canopy cover and a non-maintained understory. Wetlands located within the riparian areas. 1.5 arian areas along each stream ban quare footage for each by measurin % Riparian Area and Score for each riparian Area 100% Score > 1.5	Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 k into Condition C og or estimating lei iparian category in	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Cor oright and width. Co	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrul layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh > 3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75 ing the povided for you	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F Blocks 6	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5 the sums Riparian equal 100 100%	CI= (Sum % RA * S Rt Bank CI > Lt Bank CI >		CI 1.50
Condition Scores Delineate ripa escriptors. Determine squelow. Enter the % R Right Bank Left Bank B. INSTREAM	Tree stratum (dbh > 3 inches) present with > 60% tree canopy cover and a non-maintained understory. Wetlands located within the riparian areas. 1.5 arian areas along each stream ban quare footage for each by measuring Riparian Area and Score for each maintain areas along each stream ban quare footage for each by measuring Riparian Area and Score for each maintain areas along each stream ban quare footage for each stream ban quare footage for each stream Area and Score for each maintain areas along each stream ban quare footage for each stream	Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 k into Condition C ag or estimating let iparian category in	ptimal Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Coungth and width. Country the blocks below	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrul layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh > 3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75 ing the povided for you	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F Blocks 6	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5 the sums Riparian equal 100 100%	NOTES>> CI= (Sum % RA* S Rt Bank CI >	1.50	
Condition Scores Delineate ripa lescriptors. Descriptors. Enter the % R Right Bank Left Bank Left Bank INSTREAM	Tree stratum (dbh > 3 inches) present with > 60% tree canopy cover and a non-maintained understory. Wetlands located within the riparian areas. 1.5 arian areas along each stream ban quare footage for each by measurin % Riparian Area and Score for each right % Riparian Area and Score \$ 1.5 % Riparian Area \$ 100% \$ Score > 1.5 M HABITAT: Varied substrate s root mats; SAV; riffle poole complete.	Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree is canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 Ik into Condition C ag or estimating let iparian category in iparian category in izes, water velocit exes, stable featur	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Coungth and width. Coungth and width. Coungth and width. Coungth and depths; wodes. Conditiona	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85 Indition Scores us alculators are production of the producti	Ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (bdh > 3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75 ing the povided for you	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F Blocks 6	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5 the sums Riparian equal 100 100%	CI= (Sum % RA * S Rt Bank CI > Lt Bank CI >	1.50	
Condition Scores 1. Delineate ripadescriptors. 2. Determine squelow. 3. Enter the % R Right Bank Left Bank 3. INSTREAN	Tree stratum (dbh > 3 inches) present with > 60% tree canopy cover and a non-maintained understory. Wetlands located within the riparian areas. 1.5 1.5 arian areas along each stream ban quare footage for each by measuring Riparian Area and Score for each maintain areas along each stream ban quare footage for each by measuring Riparian Area and Score for each maintain areas along each stream ban quare footage for each stream ban quare footage for each by measuring Riparian Area and Score for each maintain area and Score some stream and stream areas along each stream ban quare footage for each stream ban quare footage for each stream ban areas along each stream ban quare footage for each stream ban quare foota	Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 Ik into Condition C ag or estimating let iparian category in izes, water velocit exes, stable featur Subo Stable habitat ele present in 30-50 are adequate fo are adequate fo	ptimal Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Coungth and width. Coungth and width. Coungth and width. Coungth and width. Coungth and depths; wodes.	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85 Indition Scores us alculators are production of the production of the present of the present in 10-30 mare adequate for a seadequate for a sead	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh > 3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75 ing the povided for you	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F Blocks 6	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5 the sums Riparian equal 100 100%	CI= (Sum % RA * S Rt Bank CI > Lt Bank CI >	1.50	

	St	ream In	npact A	ssessn	nent Fo	rm Pag	e 2		
Project #	Applicant		Locality	Cowardin Class.	HUC	Date	Data Point	SAR length	Impact Factor
								500	1
	_ ALTERATION: Stream cross poil piles, constrictions, livestock		Condition	al Category				NOTES>>	
	Negligible	Miı	nor		lerate		evere		
Channel Alteration	Channelization, dredging, alteration, or hardening absent. Stream has an unaltered pattern or has naturalized.	Less than 20% of the stream reach is disrupted by any of the channel alterations listed in the parameter guidelines.	20-40% of the stream reach is disrupted by any of the channel alterations listed in the parameter guidelines.	is disrupted by any of the channel	60 - 80% of reach is disrupted by any of the channel alterations listed in the parameter guidelines. If stream has been channelized, normal stable stream meander pattern has not	Greater than 80% by any of the cha in the parameter 80% of banks s	o of reach is disrupted nnel alterations listed guidelines AND/OR shored with gabion, or cement.		
SCORE	1.5	1.3	1.1	0.9	0.7	(0.5		
	REACH C	ONDITION II	NDEX and S	TREAM CO	NDITION UN	ITS FOR TH	HIS REACH		
OTE: The Cle and I	CI should be rounded to 2 decimal places.	The CR should be rour	nded to a whole numb	per.			THE REACH (CONDITION IN	DEX (RCI) >>

CR = RCI X LF X IF

INSERT PHOTOS:





	311		ified Stream N	lethodology 1	for use in Vir	ginia	m 1)			
Project #	Project Na		Locality	Cowardin Class.	HUC	Date	SAR#	Impact/SAR length	Impact Factor	
5337	I-64 Peninsula	a Study	Henrico	570.007	02080206	7/11/11		388	7 0.000	
Name	e(s) of Evaluator(s)	Stream Nam	ne and Inform	ation						
	Doucette	WUS 73N								
. Channel C	Condition: Assess the cross		(Conditional Catego	ory			Con		
	Optimal	Subc	ptimal	Mar	ginal	Po	oor	Se	vere	
	Very little incision or active erosion	erosion or unprote	few areas of active acted banks. Majority	Poor. Banks more	less than Severe or a stable than Severe	Vertically/laterally	ned/incised.		nstability. Severe	
Channel Condition	on the inclusion of active travels and a comparison of the compari	Vegetative protect prominent (60 Depositional fea stability. The ba channels are we likely has access or newly develope portions of the sediment covers 1	stable (60-80%), cition or natural rock 0-80%) AND/OR stures contribute to inkfull and low flow all defined. Stream to bankfull benches, ed floodplains along reach. Transient 0-40% of the stream	Erosion may be pr both banks. Vege 40-60% of banks. bevertical or unde 60% of strear sediment. Se temporary/tran instability. Depositi stability, may be	ower bank slopes. resent on 40-60% of tative protection on on Streambanks may ercut. AND/OR 40- n is covered by diment may be sient, contribute to forming/present.	are near vertical. 60-80% of bar protection prese banks, and is insi erosion. AND/C stream is cover Sediment is tem nature, and contri AND/OR V-shap	jority of both banks Erosion present on aks. Vegetative ent on 20-40% of ufficient to prevent PR 60-80% of the pred by sediment. porary/transient in buting to instability. bed channels have	banks. Streamb rooting depth, r vertical/undern protection present banks, is not pre Obvious bank s Erosion/raw ban AND/OR Aggradir than 80% of strear	ed below average najority of banks cut. Vegetative on less than 20% of eventing erosion. loughing present. nks on 80-100%. ng channel. Greater n bed is covered by outring to instability.	
	10% of Bottom.	bo	ttom.	vegetative protect	ed channels have ion on > 40% of the ional features which	40% of the banks a	tion is present on > and stable sediment n is absent.	Multiple thread	channels and/or nean flow.	CI
Score	3	2	2.4		2	1	.6		1	2.0
Į.			•	11161	ginal	Po	oor			
Riparian Buffers	Tree stratum (dbh > 3 inches) pres with > 60% tree canopy cover an non-maintained understory. Wetla located within the riparian areas	d a to 60% tree ands canopy cover and	with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree	Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh >3	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions.			
•	with > 60% tree canopy cover an non-maintained understory. Wetla	Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree ands canopy cover and containing both herbaceous and shrub layers or a non-maintained understory.	Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation).	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover.	Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh >3 inches) present, with <30% tree canopy cover with maintained understory.	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable condition.	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions.			
•	with > 60% tree canopy cover an non-maintained understory. Wetla	Riparian areas with tree stratum (dbh > 3 inches) ent, da nds containing both herbaceous and shrub layers or a non-maintained	Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree	Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hos production, ponds, open water. If present, tree stratum (dbh > 3 inches) present, with <30% tree canopy cover with maintained	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable			
Condition Scores Delineate ripa lescriptors. Determine squelow.	with > 60% tree canopy cover an non-maintained understory. Wetle located within the riparian areas 1.5 arian areas along each stream I	Riparian areas with tree stratum (dbh 3 inches) present, with 30% tree ands canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 Dank into Condition Curring or estimating le	Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 Categories and Coungth and width. Coungth and width. Coung	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85	Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh > 3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5			
Condition Scores Delineate ripa escriptors. Determine squelow.	with > 60% tree canopy cover an non-maintained understory. Wetla located within the riparian areas 1.5 arian areas along each stream is guare footage for each by meas	Riparian areas with tree stratum (dbh 3 inches) present, with 30% tree ands containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 Dank into Condition Curring or estimating lether inparian category in the part of the containing both personal containing both herbaceous and shrub layers or a non-maintained understory.	Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 Categories and Coungth and width. Coungth and width. Coung	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85	Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh > 3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5			
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	St	ream In	npact A	ssessm	ent Fo	rm Pag	e 2		
Project #	Applicant		Locality	Cowardin Class.	HUC	Date	Data Point	SAR length	Impact Factor
								500	1
	ALTERATION: Stream cross poil piles, constrictions, livestock		Conditiona	al Category				NOTES>>	
	Negligible	Mir	nor		erate	Se	evere		
Channel Alteration	Channelization, dredging, alteration, or hardening absent. Stream has an unaltered pattern or has naturalized.	Less than 20% of the stream reach is disrupted by any of the channel alterations listed in the parameter guidelines.	20-40% of the stream reach is disrupted by any of the channel	is disrupted by any of the channel	60 - 80% of reach is disrupted by any of the channel alterations listed in the parameter guidelines. If stream has been channelized, normal stable stream meander pattern has not	Greater than 80% by any of the char in the parameter 80% of banks s	of reach is disrupted nnel alterations listed guidelines AND/OR hored with gabion, or cement.		
SCORE	1.5	1.3	1.1	0.9	0.7	(0.5		
	REACH C	ONDITION II	NDEX and S	TREAM CO	NDITION UN	ITS FOR TH	IIS REACH		
NOTE: The Cls and F	CI should be rounded to 2 decimal places.	The CR should be rour	nded to a whole numb	er.			THE REACH	CONDITION IN	DEX (RCI) >>

CR = RCI X LF X IF



DESCRIBE PROPOSED IMPACT:		

	Str		fied Stream N	lethodology 1	for use in Vir	ginia	m 1)			
Project #	Project Nar		Locality	Cowardin Class.	HUC	Date	SAR#	Impact/SAR length	Impact Factor	
5337	I-64 Penins	ıla	New Kent	R2UB2	02080206	11/1/11		76		
Nam	ne(s) of Evaluator(s)		e and Inform	ation						
	Aitkenhead / Nies	WUS 70M								
l. Channel (Condition: Assess the cross-s	ection of the stream		ondition (erosion, Conditional Catego						
	Optimal	Subo	ptimal	Mar	ginal	Po	oor	Sev	vere	
Channel	Very little incision or active erosion;	erosion or unprote	few areas of active cted banks. Majority stable (60-80%).	Poor. Banks more	less than Severe or stable than Severe ower bank slopes.	Vertically/laterally	ned/incised.	incision, flow cor	istability. Severe ntained within the ed below average	
Condition	100% stable banks. Vegetative surface protection or natural rock, prominent (80-100%). AND/OR Stable point bars/bankfull benches a present. Access to their original floodplain or fully developed wide bankfull benches. Mid-channel bar and transverse bars few. Transien sediment deposition covers less tha 10% of bottom.	Vegetative protect prominent (60 Depositional feat stability. The balkiely has access to rewly develope portions of the sediment covers 11	stion or natural rock -80%) AND/OR tures contribute to nkfull and low flow all defined. Stream to bankfull benches, ed floodplains along reach. Transient 0-40% of the stream ttom.	both banks. Veget 40-60% of banks. bevertical or unde 60% of strean sediment. Set temporary/tran instability. Depositi stability, may be AND/OR V-shap	esent on 40-60% of tative protection on Streambanks may ercut. AND/OR 40- n is covered by diment may be sisient, contribute on that contribute to forming/present. ed channels have ion on > 40% of the	60-80% of bar protection press banks, and is ins erosion. AND/C stream is cove Sediment is tem nature, and contri AND/OR V-shap vegetative protec	Erosion present on kls. Vegetative ent on 20-40% of difficient to prevent IR 60-80% of the reed by sediment. porary/transient in buting to instability. led channels have tion is present on > and stable sediment	rooting depth, n vertical/underd protection present banks, is not pre Obvious bank sl Erosion/raw ban AND/OR Aggradir than 80% of strear deposition, contril Multiple thread	najority of banks cut. Vegetative on less than 20% of eventing erosion. loughing present. nks on 80-100%. Ig channel. Greater n bed is covered by outing to instability. channels and/or	CI
Sooro	3	1 2	2.4	banks and depositi	ional features which	· · · · · ·	is absent.		nean flow.	2.0
Score	3		4			'	.0		'	3.0
2. RIPARIAI	N BUFFERS: Assess both ba	Cor Subo	nditional Cate	gory Mar	ginal Low Marginal: Non-maintained,	Po High Poor:	h may be accepta	NOTES>>		
2. RIPARIAI Riparian Buffers		High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy	gory	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh > 3 inches) present, with <30% tree canopy cover with	Pe		NOTES>>		
Riparian	Optimal Tree stratum (dbh > 3 inches) prese with > 60% tree canopy cover and non-maintained understory. Wetlan	High Suboptimal: Ripartian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree ds canopy cover and containing both herbaceous and shrub layers or a non-maintained understory.	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation).	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover.	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh >3 inches) present, with <30% tree canopy cover with maintained understory.	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable condition.	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces row crops, active feed lots, trails, or other comparable conditions.	NOTES>>		
Riparian Buffers	Optimal Tree stratum (dbh > 3 inches) prese with > 60% tree canopy cover and non-maintained understory. Wetlan	High Suboptimal: Riparian areas with tree stratum (Ib) present, with 30% to 60% tree ds canopy cover and containing both herbaceous and shrub layers or a non-maintained	Low Suboptimal Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory, Recent cutover (dense	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hospopen water. If present, tree stratum (dbh > 3 inches) present, with <30% tree canopy cover with maintained	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces row crops, active feed lots, trails, or other comparable	NOTES>>		
Riparian Buffers Condition Scores 1. Delineate rip descriptors. 2. Determine scorelow.	Optimal Tree stratum (dbh > 3 inches) prese with > 60% tree canopy cover and non-maintained understory. Wetlan located within the riparian areas. 1.5 Darrian areas along each stream be equare footage for each by measure. Riparian Area and Score for each % Riparian Area and Score for each 100%.	High Suboptimal: Ripartian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree ds canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 Ink into Condition C	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 Lategories and Congth and width. Congth and width. Congth and width. Congth and width. Congth and suboptimal congth and width. Congth and w	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh > 3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % I	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces row crops, active feed lots, trails, or other comparable conditions.	NOTES>>	Scores*0.01)/2	
Riparian Buffers Condition Scores 1. Delineate rip- descriptors. 2. Determine scoelow. 3. Enter the % I	Optimal Tree stratum (dbh > 3 inches) prese with > 60% tree canopy cover and non-maintained understory. Wetlan located within the riparian areas. 1.5 Darian areas along each stream bacquare footage for each by measure. Riparian Area and Score for each % Riparian Area>	High Suboptimal: Ripartian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree ds canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 Ink into Condition C	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 Lategories and Congth and width. Congth and width. Congth and width. Congth and width. Congth and suboptimal congth and width. Congth and w	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh > 3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % I	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces row crops, active feed lots, trails, or other comparable conditions. Low 0.5	NOTES>>	Scores*0.01)/2 1.50	CI
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Condition Scores Delineate rip elescriptors. Determine scorelow. Enter the % I Right Bank Left Bank INSTREA	Optimal Tree stratum (dbh > 3 inches) prese with > 60% tree canopy cover and non-maintained understory. Wetlan located within the riparian areas. 1.5 Darian areas along each stream be equare footage for each by measure. Riparian Area and Score for each we Riparian Area and Score for each we Riparian Area and Score for each we Riparian Area and Score solution. We Riparian Area and Score for each we represent the score solution.	High Suboptimal: Ripartian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree ds canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 Ink into Condition C ing or estimating let riparian category in	Inditional Cate Inditional Cat	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85 Indition Scores us Calculators are pro	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh > 3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75 ing the povided for you	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % I Blocks 6	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces row crops, active feed lots, trails, or other comparable conditions. Low 0.5 the sums Riparian equal 100 100%	NOTES>> Cl= (Sum % RA*S Rt Bank Cl>	1.50	
Riparian Buffers Condition Scores 1. Delineate rip- descriptors. 2. Determine scoelow. 3. Enter the % I Right Bank Left Bank Jundercut banks; Instream Habitat/	Optimal Tree stratum (dbh > 3 inches) prese with > 60% tree canopy cover and non-maintained understory. Wetlan located within the riparian areas. 1.5 Darian areas along each stream bacquare footage for each by measure. Riparian Area and Score for each % Riparian Area 100% Score > 1.5 % Riparian Area> 100% Score > 1.5 M HABITAT: Varied substrate s; root mats; SAV; riffle poole comp	High Suboptimal Riparian areas with tree stratum (dbh > 3 inches) tt. to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 Ink into Condition Co ing or estimating left riparian category in sizes, water velocit inlexes, stable featur Subo Stable habitat ele Subo Stable habitat ele	Inditional Cate potimal Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 Categories and Co northe blocks below ty and depths; wor res. Conditional coptimal	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85 Indition Scores us calculators are production of the produc	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh > 3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75 ing the pvided for you ginal ments are typically	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % I Blocks 6	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces row crops, active feed lots, trails, or other comparable conditions. Low 0.5 the sums Riparian equal 100 100% 100%	CI= (Sum % RA * S Rt Bank CI > Lt Bank CI >	1.50	
Riparian Buffers Condition Scores 1. Delineate rip- descriptors. 2. Determine scoelow. 3. Enter the % I Right Bank Left Bank Jundercut banks: Instream	Optimal Tree stratum (dbh > 3 inches) prese with > 60% tree canopy cover and non-maintained understory. Wetlan located within the riparian areas. 1.5 Darian areas along each stream be equare footage for each by measure. Riparian Area and Score for each % Riparian Area and Score for each % Riparian Area 100% Score > 1.5 % Riparian Area 100% Score > 1.5 M HABITAT: Varied substrates; root mats; SAV; riffle poole company.	High Suboptimal: Ripartan areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree ds canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 Ink into Condition C ing or estimating let riparian category in sizes, water velocit lexes, stable featur Subo Stable habitat ele present in 30-50' are adequate fo popul	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 Categories and Congth and width. Congth and width. Congth and width. Congth and width congth and	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85 Accludators are production of the control of th	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh > 3 inches) present, with <a>30 tree stratum (abh > 3 inches) present, with <a>30 tree traum (dbh > 3 inches) present, with <a>30 tree traum (dbh > 3 inches) present, with <a>30 tree traum (dbh > 3 inches) present, with <a>30 tree traum (dbh > 3 inches) present, with <a>30 tree traum (dbh > 3 inches) present, with <a>30 tree traum (dbh > 3 inches) present, with <a>30 tree traum (dbh > 3 inches) present, with <a>30 tree traum (dbh > 3 inches) present, with <a>30 tree traum (dbh > 3 inches) present, with <a>30 tree traum (dbh > 3 inches) present, with <a>30 tree traum (dbh > 3 inches) present, with <a>30 tree traum (dbh > 3 inches) present, with <a>30 tree traum (dbh > 3 inches) present, with <a>30 tree traum (dbh > 3 inches) present, with <a>30 tree traum (dbh > 3 inches) present, with <a>30 tree traum (dbh > 3 inches) present, with <a>30 tree traum (dbh > 3 inches) present, with <a>30 tree traum (dbh > 3 inches) present, with <a>30 tree traum (dbh > 3 inches) present, with <a>30 tree traum (dbh > 3 inches) present, with <a>30 tree traum (dbh > 3 inches) present, with <a>30 tree traum (dbh > 3 inches) present, with <a>30 tree traum (dbh > 3 inches) present, with <a>30 tree traum (dbh > 3 inches) present, with <a>30 tree traum (dbh > 3 inches) present, with <a>30 tree traum (dbh > 3 inches) present, with <a>30 tree traum (dbh > 3 inches) present, with <a>30 tree traum (dbh > 3 inches) present, with <a>30 tree traum (dbh > 3 inches) present, with <a>30 tree traum (dbh > 3 inches) present, with <a>30 tree traum (dbh > 3 inches) present, with <a>30 tree traum (dbh > 3 inches) present, with <a>30 tree traum (dbh > 3 inches) present, with <a>30 tree traum (dbh > 3 inches) present, with <a>30 tree traum	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % I Blocks of the comparable condition of the comparable condition.	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces row crops, active feed lots, trails, or other comparable conditions. Low 0.5 the sums Riparian equal 100 100% 100%	CI= (Sum % RA * S Rt Bank CI > Lt Bank CI >	1.50	

	St	ream In	npact A	ssessm	nent Fo	rm Pag	e 2		
Project #	Applicant		Locality	Cowardin Class.	HUC	Date	Data Point	SAR length	Impact Factor
								500	1
	L ALTERATION: Stream cross poil piles, constrictions, livestock	ings, riprap, conc		concrete blocks, s	traightening of ch	annel, channeliza	ation,	NOTES>>	
	Negligible	Mi	nor		erate		vere		
Channel Alteration	Channelization, dredging, alteration, or hardening absent. Stream has an unaltered pattern or has naturalized.	Less than 20% of the stream reach is disrupted by any of the channel alterations listed in the parameter guidelines.	20-40% of the stream reach is disrupted by any of the channel	is disrupted by any of the channel	60 - 80% of reach is disrupted by any of the channel alterations listed in the parameter guidelines. If stream has been channelized, normal stable stream meander pattern has not	Greater than 80% by any of the chan in the parameter 80% of banks sh	of reach is disrupted nel alterations listed guidelines AND/OR nored with gabion, or cement.		
SCORE	1.5	1.3	1.1	0.9	0.7	0).5		
	REACH C	ONDITION I	NDEX and S	TREAM CO	NDITION UN	ITS FOR TH	IIS REACH		
NOTE: The Cls and F	RCI should be rounded to 2 decimal places.	The CR should be rou	nded to a whole numb	er.			THE REACH (CONDITION IN	DEX (RCI) >>

CR = RCI X LF X IF



POSED IMPACT:	PO	PRO	IBE	CR	DES
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	Stre		fied Stream N	lethodology f	for use in Vir	ginia	m 1)			
Project #	Project Nam		Locality	Cowardin Class.	HUC	Date	SAR#	Impact/SAR length	Impact Factor	
5337	I-64 Peninsu	la	New Kent	R2UB2	02080206	11/1/11		57		
Name	e(s) of Evaluator(s)		e and Informa	ation						
7	Aitkenhead / Nies	WUS 71M								
1. Channel C	Condition: Assess the cross-se	ction of the stream		ondition (erosion,						
	Optimal	Subo	ptimal		ginal	Po	oor	Se	vere	
Channel	Very little incision or active erosion; 8 100% stable banks. Vegetative	erosion or unproted of banks are s	ew areas of active cted banks. Majority table (60-80%).	Poor. Banks more or Poor due to lo	less than Severe or stable than Severe ower bank slopes.	Vertically/laterally widen further. Ma	ned/incised. unstable. Likely to jority of both banks Erosion present on	incision, flow co banks. Streamb	nstability. Severe intained within the led below average	
Condition	surface protection or natural rock, prominent (80-100%). AND/OR Stable point bars/bankfull benches an present. Access to their original floodplain or fully developed wide bankfull benches. Mid-channel bars, and transverse bars few. Transient sediment deposition covers less than 10% of bottom.	prominent (60- Depositional feat stability. The bar channels are wel likely has access to or newly develope portions of the sediment covers 10	tion or natural rock -80%) AND/OR tures contribute to nkfull and low flow Il defined. Stream to bankfull benches, defloodplains along reach. Transient 0-40% of the stream tom.	both banks. Veget 40-60% of banks. bevertical or unde 60% of strean sediment. Se- temporary/tran instability. Depositi stability, may be AND/OR V-shap vegetative protect	esent on 40-60% of tative protection on Streambanks may ercut. AND/OR 40- n is covered by diment may be sisent, contribute on that contribute to forming/present. ed channels have ion on > 40% of the ional features which	60-80% of bar protection press banks, and is insi erosion. AND/C stream is cover Sediment is temporature, and contri AND/OR V-shap vegetative protect 40% of the banks at the protect stream in the stream of the st	Erosion present on tasks. Vegetative ent on 20-40% of ufficient to prevent R6 60-80% of the red by sediment. porary/transient in buting to instability. led channels have tion is present on > and stable sediment is absent.	vertical/under protection present banks, is not pr Obvious bank s Erosion/raw ba AND/OR Aggradir than 80% of strear deposition, contril Multiple thread	majority of banks cut. Vegetative on less than 20% of eventing erosion. loughing present. nks on 80-100%. ng channel. Greater m bed is covered by buting to instability. Ichannels and/or nean flow.	C
Score	3	2	2.4	- 1	2	ļ	.6		1	2.4
NOTES>>										
2. RIPARIAN	N BUFFERS: Assess both ban	Con	an areas along the nditional Cate	gory	ginal		h may be accepta	NOTES>>		
2. RIPARIAN Riparian Buffers		Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches), present, with 30% to 60% tree	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy	gory	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh > 3 inches) present, with <30% tree canopy cover with maintained					
Riparian Buffers	Optimal Tree stratum (dbh > 3 inches) present with > 60% tree canopy cover and a non-maintained understory. Wetland: located within the riparian areas.	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory, Recent cutover (dense vegetation).	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover.	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh > 3 inches) present, with <30% tree canopy cover with maintained understory. Low	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, recently seeded and stabilized, or other comparable condition.	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions.			
Riparian	Optimal Tree stratum (dbh > 3 inches) present with > 60% tree canopy cover and a non-maintained understory. Wetland:	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory.	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation).	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover.	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh >3 inches) present, with <30% tree canopy cover with maintained understory.	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable condition.	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions.			
Riparian Buffers Condition Scores 1. Delineate ripadescriptors. 2. Determine squelow.	Optimal Tree stratum (dbh > 3 inches) present with > 60% tree canopy cover and a non-maintained understory. Wetland: located within the riparian areas. 1.5 arian areas along each stream bar quare footage for each by measuring the stream of the stream	High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 k into Condition C	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Coungth and width. Coungth	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh > 3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5			
Riparian Buffers Condition Scores Delineate ripa descriptors. Locate per locate ripa descriptors.	Optimal Tree stratum (dbh > 3 inches) present with > 60% tree canopy cover and a non-maintained understory. Wetland: located within the riparian areas. 1.5 arian areas along each stream bar quare footage for each by measuring the provided of the country of t	High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 k into Condition C	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Coungth and width. Coungth	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh > 3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5			
Riparian Buffers Condition Scores 1. Delineate ripa descriptors. 2. Determine squelow. 3. Enter the % R	Optimal Tree stratum (dbh > 3 inches) present with > 60% tree canopy cover and a non-maintained understory. Wetland: located within the riparian areas. 1.5 arian areas along each stream bar quare footage for each by measuring the stream of the stream	High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 k into Condition C	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Coungth and width. Coungth	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh > 3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5		Scores*0.01)/2	
Riparian Buffers Condition Scores Delineate ripa escriptors. Determine squescriptors. Enter the % R	Optimal Tree stratum (dbh > 3 inches) present with > 60% tree canopy cover and a non-maintained understory. Wetlandt located within the riparian areas. 1.5 arian areas along each stream bar quare footage for each by measuring Riparian Area and Score for each to % Riparian Area and Score for each to % Riparian Area and Score \$ 0.75	High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 k into Condition C	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Coungth and width. Coungth	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh > 3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5	NOTES>> CI= (Sum % RA*: Rt Bank CI >	0.75	
Condition Scores 1. Delineate ripa descriptors. 2. Determine squelow. 3. Enter the % R Right Bank Left Bank 3. INSTREAM	Optimal Tree stratum (dbh > 3 inches) present with > 60% tree canopy cover and a non-maintained understory. Wetland: located within the riparian areas. 1.5 arian areas along each stream bar quare footage for each by measuring the provided of the control of t	Com Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 k into Condition C ag or estimating ler iparian category in	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Congth and width. Conthe blocks below	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh > 3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75 ing the povided for you	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % B Blocks 6	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5 the sums Riparian equal 100 100%	NOTES>> Cl= (Sum % RA *:		C: 0.7
Condition Scores 1. Delineate ripa descriptors. 2. Determine sq below. 3. Enter the % R Right Bank Left Bank 3. INSTREAN undercut banks;	Optimal Tree stratum (dbh > 3 inches) present with > 60% tree canopy cover and a non-maintained understory. Wetland: located within the riparian areas. 1.5 arian areas along each stream bar quare footage for each by measuring the street of the street	High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 k into Condition C	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Co ngth and width. Co n the blocks below y and depths; wodes. Conditiona	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85 Indition Scores us calculators are production of the product	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh >3 inches) present, with <a>30 % tree canopy cover with maintained understory. Low 0.75 ing the provided for you	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F Blocks 6	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5 the sums Riparian equal 100 100% 100%	NOTES>> Cl= (Sum % RA *: Rt Bank Cl> Lt Bank Cl>	0.75	
Condition Scores 1. Delineate ripa descriptors. 2. Determine squelow. 3. Enter the % R Right Bank Left Bank 3. INSTREAM	Optimal Tree stratum (dbh > 3 inches) present with > 60% tree canopy cover and a non-maintained understory. Wetlandt located within the riparian areas. 1.5 arian areas along each stream bar quare footage for each by measuring Riparian Area and Score for each to Score > 0.75 % Riparian Area 100% Score > 0.75 M HABITAT: Varied substrate s	Com Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 k into Condition C ag or estimating ler iparian category in izes, water velocity exes, stable featur Subo Stable habitat ele present in 30-50% are adequate fo	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Coungth and width. Coungth and width. Coungth and width. Coungth and depths; woo es.	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85 Indition Scores us calculators are production of the present in 10-30 are adequate for a sealequate for the present in 10-30 are adequate for the present in 10-30 are adequ	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh > 3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75 ing the povided for you	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F Blocks 6	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5 the sums Riparian equal 100 100%	NOTES>> Cl= (Sum % RA *: Rt Bank Cl> Lt Bank Cl>	0.75	

	St	ream In	npact A	ssessn	nent Fo	rm Pag	e 2		
Project #	Applicant		Locality	Cowardin Class.	HUC	Date	Data Point	SAR length	Impact Factor
								500	1
	L ALTERATION: Stream cross		Conditiona	al Category				NOTES>>	
	Negligible	Mir	ior		erate 60 - 80% of reach		evere	4	
Channel Alteration	Channelization, dredging, alteration, or hardening absent. Stream has an unaltered pattern or has naturalized.	Less than 20% of the stream reach is disrupted by any of the channel alterations listed in the parameter guidelines.	20-40% of the stream reach is disrupted by any of the channel	is disrupted by any of the channel	is disrupted by any of the channel	Greater than 80% by any of the char in the parameter 80% of banks si	of reach is disrupted nnel alterations listed guidelines AND/OR hored with gabion, or cement.		
SCORE	1.5	1.3	1.1	0.9	0.7	(0.5		
	REACH C	ONDITION II	NDEX and S	TREAM CO	NDITION UN	ITS FOR TH	IIS REACH		

CR = RCI X LF X IF

INSERT PHOTOS:







		Stre	Uni	fied Stream N	lethodology 1	Form	ginia	m 1)			
Project #		Project Name		Locality	nels classified a Cowardin Class.	HUC	perennial Date	SAR#	Impact/SAR	Impact Factor	
5337	I	-64 Peninsul	a	New Kent	R2UB2	02080206	11/1/11		79	1 0000	
Name	e(s) of Evalua	tor(s)	Stream Nam	e and Informa	ation	'	1				
	Aitkenhead / Nies		WUS72M								
I. Channel C	Condition: Asse	ess the cross-sec	ction of the stream		ondition (erosion, Conditional Catego						
	Opti	imal	Subo	ptimal		ginal	Po	or	Se	vere	
Channel	Very little incision o	r active erosion; 80	erosion or unproted	ew areas of active cted banks. Majority table (60-80%).	Poor. Banks more	less than Severe or e stable than Severe ower bank slopes.		ed/incised. unstable. Likely to ority of both banks	incision, flow co	nstability. Severe ontained within the bed below average	
Condition	100% stable bar surface protection prominent (80-11 Stable point bars/bc present. Access floodplain or fully bankfull benches. and transverse be sediment depositio 10% of l	00%). AND/OR ankfull benches are s to their original or developed wide Mid-channel bars, ars few. Transient on covers less than	Vegetative protect prominent (60 prominent (60 Depositional feat stability. The ball channels are we likely has access to rnewly develope portions of the sediment covers 10	tion or natural rock -80%) AND/OR tures contribute to nkfull and low flow Il defined. Stream o bankfull benches, ad floodplains along reach. Transient 0-40% of the stream tom.	both banks. Vege 40-60% of banks. bevertical or unde 60% of strean sediment. Se- temporary/tran instability. Depositi stability, may be AND/OR V-shap vegetative protect	resent on 40-60% of tative protection on Streambanks may ercut. AND/OR 40- n is covered by diment may be issient, contribute too that contribute to forming/present. ed channels have ion on > 40% of the	60-80% of bar protection press banks, and is insu erosion. AND/O stream is cover Sediment is temp nature, and contri AND/OR V-shap vegetative protect 40% of the banks a	ed channels have ion is present on > and stable sediment	rooting depth, vertical/under protection present banks, is not produced by the control of the co	majority of banks rout. Vegetative on less than 20% or reventing erosion. sloughing present. anks on 80-100%. or g channel. Greate m bed is covered by ibuting to instability. d channels and/or inean flow.	r
Score	3	2	2	2.4		ional features which	-	is absent.	Subterio	1	3.0
Score		,						.0		•	3.0
2. RIPARIAN	N BUFFERS: A		Con Subo	nditional Cate ptimal	gory	ginal Low Marginal:	Po High Poor:	n may be accepta	NOTES>>		
Riparian Buffers	Opti	imal > 3 inches) present, anopy cover and a derstory. Wetlands	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy	gory	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh > 3 inches) present, with <30% tree canopy cover with maintained	Po				
Riparian	Option Tree stratum (dbh > with > 60% tree canon-maintained und	imal > 3 inches) present, anopy cover and a derstory. Wetlands	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh > 3 inches) present, with <30% tree canopy cover with	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable			
Riparian	Option Tree stratum (dbh > with > 60% tree canon-maintained und	imal 3 inches) present, anopy cover and a derstory. Wetlands e riparian areas.	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory.	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation).	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover.	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh >3 inches) present, with <30% tree canopy cover with maintained understory.	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, recently seeded and stabilized, or other comparable condition.	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions.			
Riparian Buffers Condition Scores Delineate ripa descriptors. Delineate ripa descriptors.	Tree stratum (dbh > with > 60% tree cc non-maintained und located within the	imal 3 inches) present, anopy cover and a derstory. Wetlands e riparian areas. 5 each stream banl ach by measurin	Com Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 k into Condition C	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Coungth and width. Coungth	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh > 3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions.			
Riparian Buffers Condition Scores Delineate ripalescriptors. Determine squelow. Enter the % F	Tree stratum (dbh > with > 60% tree ca non-maintained unc located within the	imal 3 inches) present, anopy cover and a derstory. Wetlands e riparian areas. 5 each stream banl ach by measurin	Com Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 k into Condition C	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Coungth and width. Coungth	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh > 3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5			
Riparian Buffers Condition Scores Delineate ripa descriptors. Locate representation of the second	Tree stratum (dbh > with > 60% tree conon-maintained und located within the located withi	imal 3 inches) present, anopy cover and a derstory. Wetlands e riparian areas. 5 each stream bank ach by measurin.	Com Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 k into Condition C g or estimating ler	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Coungth and width. Coungth	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh > 3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5	NOTES>>	Sparse 10 (41/2)	
Riparian Buffers Condition Scores Delineate ripalescriptors. Determine squelow. Enter the % F. Right Bank	Tree stratum (dbh > with > 60% tree conon-maintained und located within the located withi	imal 3 inches) present, anopy cover and a derstory. Wetlands e riparian areas. 5 each stream bank ach by measurin Score for each ri 40% 1.1	Com Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 k into Condition C g or estimating ler parian category in	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Coungth and width. Coungth	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh > 3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5		Scores*0.01)/2	CI
Riparian Buffers Condition Scores Delineate ripe escriptors. Determine sq elow. Enter the % F	Tree stratum (dbh > with > 60% tree ca non-maintained unc located within the located with	imal 3 inches) present, anopy cover and a derstory. Wetlands e riparian areas. 5 ach stream bank ach by measurin. Score for each ri	Com Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 k into Condition C g or estimating ler parian category in 60% 0.75	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Coungth and width. Coungth	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh > 3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5 the sums Riparian qual 100	NOTES>>		C1 0.89
Condition Scores Delineate ripadescriptors. Deltermine squelow. Enter the % Finance of the state of the stat	Tree stratum (dbh > with > 60% tree canon-maintained unc located within the located withi	imal 3 inches) present, anopy cover and a derstory. Wetlands e riparian areas. 5 each stream bank ach by measuring the stream ban	Righ Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 k into Condition C g or estimating let parian category in 60% 0.75 60% 0.75	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Coungth and width. Coungth and width. Coungth and width. Coungth and depths; woodes.	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85 addition Scores us calculators are production of the produc	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh > 3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75 ing the povided for you	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F Blocks 6	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5 the sums tiparian qual 100 100%	NOTES>> CI= (Sum % RA* Rt Bank CI >	0.89	
Condition Scores Delineate ripa descriptors. Deltheate ripa descriptors. Right Bank Left Bank Left Bank J. INSTREAR Landercut banks;	Tree stratum (dbh > with > 60% tree ca non-maintained unc located within the located with	imal 3 inches) present, anopy cover and a derstory. Wetlands e riparian areas. 5 each stream bank ach by measuring the stream ban	High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 k into Condition C g or estimating let parian category in 60% 0.75 60% 0.75 zes, water velocit exes, stable featur	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Coungth and width. Coungth and width. Coungth and width. Coungth and depths; woodes.	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85 Indition Scores us calculators are production of the product	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh > 3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75 ing the povided for you	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F Blocks 6	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5 the sums tiparian qual 100 100%	NOTES>> Cl= (Sum % RA * Rt Bank Cl > Lt Bank Cl >	0.89	
Condition Scores Delineate ripadescriptors. Deltermine squelow. Enter the % Finance of the state of the stat	Tree stratum (dbh > with > 60% tree co conon-maintained und located within the located wi	imal 3 inches) present, anopy cover and a derstory. Wetlands e riparian areas. 5 beach stream bani ach by measuring the stream ba	High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 k into Condition C g or estimating ler parian category in 60% 0.75 ces, water velocit exes, stable featur Subo Stable habitat ele present in 30-50- are adequate fo	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Co ngth and width. Co n the blocks below y and depths; wodes. Conditiona	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85 Indition Scores us calculators are production of the present in 10-30 are adequate for a sealequate for the present in 10-30 are adequate for the present in 10-30 are adequ	Ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh >3 inches) present, with <a>30 % tree canopy cover with maintained understory. Low 0.75 ing the price of the product of the present of t	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F Blocks 6	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5 the sums Riparian qual 100 100% 100% ess; shade;	NOTES>> Cl= (Sum % RA * Rt Bank Cl > Lt Bank Cl >	0.89	

	St	ream In	npact A	ssessm	ent Fo	rm Pag	e 2		
Project #	Applicant		Locality	Cowardin Class.	HUC	Date	Data Point	SAR length	Impact Factor
								500	1
	L ALTERATION: Stream cross spoil piles, constrictions, livestock		Conditiona	al Category				NOTES>>	
	Negligible	Mi	nor		erate 60 - 80% of reach	Se	vere		
Channel Alteration	Channelization, dredging, alteration, or hardening absent. Stream has an unaltered pattern or has naturalized.	Less than 20% of the stream reach is disrupted by any of the channel alterations listed in the parameter guidelines.	20-40% of the stream reach is disrupted by any of the channel alterations listed in the parameter guidelines.	is disrupted by any of the channel	is disrupted by any of the channel	Greater than 80% by any of the chan in the parameter g 80% of banks sh riprap, o	of reach is disrupted nel alterations listed guidelines AND/OR nored with gabion, or cement.		
SCORE	1.5	1.3	1.1	0.9	0.7	0).5		
	REACH C	ONDITION I	NDEX and S	TREAM CO	NDITION UN	ITS FOR TH	IS REACH		
NOTE: The Cls and F	RCI should be rounded to 2 decimal places.	The CR should be rou	nded to a whole numb	er.			THE REACH (CONDITION IN	DEX (RCI) >>

CR = RCI X LF X IF

INSERT PHOTOS:





Upstream



	Stre		fied Stream N	lethodology f	for use in Vir	ginia	,			
Project #	Project Nam		Locality	Cowardin Class.	HUC	Date	SAR#	Impact/SAR length	Impact Factor	
5337	I-64 Peninsu	la	New Kent	R2UB	02080206	11/1/11		64		
Nam	e(s) of Evaluator(s)		e and Informa	ation						
	Aitkenhead / Nies	WUS 73M								
I. Channel (Condition: Assess the cross-se	ction of the stream		ondition (erosion, Conditional Catego						
	Optimal	Subo	ptimal		ginal	Po	oor	Sev	vere	
Channel Condition	Very little incision or active erosion; 81 100% stable banks. Vegetative surface protection or natural rock,	erosion or unproted of banks are s Vegetative protec	ew areas of active cted banks. Majority table (60-80%). tion on natural rock -80%) AND/OR	Poor. Banks more or Poor due to lo Erosion may be pr both banks. Veget	less than Severe or stable than Severe ower bank slopes. resent on 40-60% of tative protection on	Vertically/laterally widen further. Ma are near vertical. 60-80% of bar	ned/incised. unstable. Likely to jority of both banks Erosion present on lks. Vegetative	incision, flow cor banks. Streamb rooting depth, n	ix stability. Severe ntained within the ed below average najority of banks ut. Vegetative	
	prominent (80-100%). AND/OR Stable point bars/bankfull benches are present. Access to their original floodplain or fully developed wide bankfull benches. Mid-channel bars, and transverse bars few. Transient sediment deposition covers less than 10% of bottom.	Depositional feat stability. The bar channels are we likely has access t or newly develope portions of the sediment covers 10	tures contribute to nkfull and low flow Il defined. Stream o bankfull benches, id floodplains along reach. Transient 0-40% of the stream tom.	40-60% of banks. bevertical or unde 60% of strean sediment. See temporary/tran instability. Depositi stability, may be AND/OR V-shap vegetative protecti	Streambanks may prout. AND/OR 40-n is covered by diment may be sient, contribute on that contribute to forming/present. ed channels have ion on > 40% of the ional features which	banks, and is insi erosion. AND/C stream is cover Sediment is tem nature, and contri AND/OR V-shap vegetative protect 40% of the banks a	ent on 20-40% of officient to prevent IR 60-80% of the red by sediment. porary/transient in buting to instability. led channels have ition is present on > and stable sediment in is absent.	protection present banks, is not pre Obvious bank sl Erosion/raw ban AND/OR Aggradir than 80% of strear deposition, contrik Multiple thread	on less than 20% of eventing erosion. Oughing present. hks on 80-100%. It channels de covered by outing to instability. Channels and/or nean flow.	CI
Score	3	2	.4		2	1	.6		1	2.0
2. RIPARIAN	N BUFFERS: Assess both ban				ugh measurement	s of length & widt	h may be accepta			
2. RIPARIAN	N BUFFERS: Assess both ban Optimal	Con	n areas along the ditional Cate ptimal	gory	ugh measurement		h may be accepta	NOTES>>		
RIPARIAN Riparian Buffers		Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory.	ditional Cate ptimal Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation).	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover.	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh >3 inches) present, with <30% tree canopy cover with maintained understory.	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, recently seeded and stabilized, or other comparable condition.	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions.	NOTES>>		
Riparian	Optimal Tree stratum (dbh > 3 inches) present with > 60% tree canopy cover and a non-maintained understory. Wetlands located within the riparian areas.	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation).	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover.	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh > 3 inches) present, with <30% tree canopy cover with maintained understory. Low	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, recently seeded and stabilized, or other comparable condition.	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions.	NOTES>>		
Riparian Buffers	Optimal Tree stratum (dbh > 3 inches) present with > 60% tree canopy cover and a non-maintained understory. Wetlands	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory.	ditional Cate ptimal Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation).	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover.	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh >3 inches) present, with <30% tree canopy cover with maintained understory.	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, recently seeded and stabilized, or other comparable condition.	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions.	NOTES>>		
Riparian Buffers Condition Scores Delineate ripe descriptors. Deleneate ripe descriptors.	Optimal Tree stratum (dbh > 3 inches) present with > 60% tree canopy cover and a non-maintained understory. Wetlands located within the riparian areas.	High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 k into Condition C	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Congth and width. Congth and	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh > 3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions.	NOTES>>		
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Condition Scores 1. Delineate ripalescriptors. 2. Determine sopelow. 3. Enter the % F Right Bank Left Bank 3. INSTREAI	Optimal Tree stratum (dbh > 3 inches) present with > 60% tree canopy cover and a non-maintained understory. Wetlands located within the riparian areas. 1.5 arian areas along each stream bar quare footage for each by measuring Riparian Area and Score for each result of the score in the sc	High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 k into Condition C	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Co ongth and width. Co the blocks below y and depths; wodes. Conditiona	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85 Indition Scores usional calculators are production of the control of the contr	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh >3 inches) present, with <a>30 % tree canopy cover with maintained understory. Low 0.75 ing the provided for you	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F Blocks 6	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5 the sums Riparian equal 100 100%	CI= (Sum % RA * S Rt Bank CI > Lt Bank CI >	1.20	
Condition Scores Delineate ripe descriptors. Deltermine scoelow. English Bank Left Bank INSTREAL	Optimal Tree stratum (dbh > 3 inches) present with > 60% tree canopy cover and a non-maintained understory. Wetlands located within the riparian areas. 1.5 arian areas along each stream barrauare footage for each by measuring the provided of the provi	High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 k into Condition C og or estimating let iparian category in izes, water velocit exes, stable featur Subo Stable habitat ele present in 30-50 are adequate fo are adequate fo	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Coungth and width. Coungth and width. Coungth and width. Coungth and depths; wodes.	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85 Indition Scores usion all Category Mar. Stable habitat ele present in 10-30% are adequate fo are adequate fo	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh > 3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75 ing the povided for you	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F Blocks 6	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5 the sums Riparian equal 100 100%	CI= (Sum % RA * S Rt Bank CI > Lt Bank CI >	1.20	

Stream Impact Assessment Form Page 2 Project # Applicant Cowardin Class Data Point SAR length Impact Factor 4. CHANNEL ALTERATION: Stream crossings, riprap, concrete, gabions, or concrete blocks, straightening of channel, channelization, NOTES>> embankments, spoil piles, constrictions, livestock Conditional Category Moderate Minor Negligible Severe 40 - 60% of reach is disrupted by any of the channel of the channel 20-40% of the stream reach is Less than 20% of Channel Iterations listed in alterations listed in Greater than 80% of reach is disrupted the stream reach the parameter guidelines. If the parameter Channelization, dredging, alteration, or hardening absent. Stream has an unaltered pattern or has naturalized. by any of the channel alterations listed in the parameter guidelines AND/OR 80% of banks shored with gabion, s disrupted by any disrupted by any Alteration of the channel Iterations listed i of the channel lterations listed i guidelines. If tream has been channelized, stream has been channelized, the parameter the parameter riprap, or cement. guidelines. guidelines. normal stable normal stable stream meander stream meander pattern has not pattern has not SCORE 1.5 1.3 1.1 0.9 0.7 0.5 0.50 REACH CONDITION INDEX and STREAM CONDITION UNITS FOR THIS REACH NOTE: The CIs and RCI should be rounded to 2 decimal places. The CR should be rounded to a whole number.

THE REACH CONDITION INDEX (RCI) >>

0.84

RCI= (Sum of all CI's)/5

COMPENSATION REQUIREMENT (CR) >> 0

CR = RCI X LF X IF

INSERT PHOTOS:





		Stre	Unit	fied Stream N	lethodology 1	for use in Virg	-	m 1)			
Project #		Project Name		Locality	cowardin Class.	HUC	Date Date	SAR#	Impact/SAR length	Impact Factor	
5337	ŀ	-64 Peninsul	a	New Kent	R2UB2	02080206	11/1/11		68		
Name	e(s) of Evaluat	tor(s)	Stream Nam	e and Informa	ation					1	
	Aitkenhead / Nies		WUS 74M								
. Channel C	Condition: Asse	ess the cross-sec	tion of the stream		ondition (erosion,						
	Opti	imal	Subo	ptimal		ginal	Po	oor	Se	vere	
Channel	Very little incision o	r active erosion; 80	erosion or unproted	ew areas of active cted banks. Majority table (60-80%).	Poor. Banks more	less than Severe or stable than Severe ower bank slopes.	Vertically/laterally	ned/incised. unstable. Likely to jority of both banks	incision, flow co	nstability. Severe	
Condition	100% stable bar surface protection prominent (80-11 Stable point bars/ba present. Access floodplain or fully bankfull benches. and transverse ba sediment depositio 10% of I	n or natural rock, 00%). AND/OR ankfull benches are to their original developed wide Mid-channel bars, ars few. Transient n covers less than	Vegetative protect prominent (60- Depositional feat stability. The bar channels are well likely has access to rnewly develope portions of the rediment covers 10	itative (u0-90%). It in or natural rock -80%) AND/OR tures contribute to htfull and low flow II defined. Stream o bankfull benches, difloodplains along reach. Transient 0-40% of the stream tom.	Erosion may be pr both banks. Veget 40-60% of banks. bevertical or unde 60% of strean sediment. Set temporary/tran instability. Depositi stability, may be AND/OR V-shap	esent on 40-60% of tative protection on Streambanks may protect. AND/OR 40- n is covered by diment may be sisent, contribute on that contribute to forming/present. ed channels have ion on > 40% of the	are near vertical. 60-80% of bar protection prese banks, and is inst erosion. AND/O stream is cover Sediment is temp nature, and contri AND/OR V-shap vegetative protect	Erosion present on ks. Vegetative ent on 20-40% of ifficient to prevent R 60-80% of the ed by sediment, oorary/transient in buting to instability, ed channels have ion is present on > and stable sediment	banks. Streamlor rooting depth, in vertical/under protection present banks, is not pr Obvious bank s Erosion/raw ba AND/OR Aggradii than 80% of strear deposition, contril Multiple thread	ned below average majority of banks cut. Vegetative on less than 20% of eventing erosion. Isoluophing present. inks on 80-100%. Ing channel. Greater m bed is covered by buting to instability. I channels and/or	CI
Casas	3	<u> </u>	2	.4	banks and depositi	ional features which	deposition	is absent.	Subterra	nean flow.	2.0
Score	3	•		.4		2	1	.0		1	3.0
NOTES>>	N BUFFERS: A		Con Subo	n areas along the aditional Cate ptimal	gory Mar	ginal Low Marginal: Non-maintained,	Po High Poor:	n may be accepta	NOTES>>		
	Opti Tree stratum (dbh > with > 60% tree ca	imal - 3 inches) present, nopy cover and a lerstory. Wetlands	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree	nditional Cate	gory	ginal Low Marginal:	Po		NOTES>>		
. RIPARIAN	Option Tree stratum (dbh > with > 60% tree canon-maintained unc	imal - 3 inches) present, nopy cover and a lerstory. Wetlands	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory.	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation).	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover.	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh >3 inches) present, with <30% tree canopy cover with maintained understory.	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable condition.	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions.	NOTES>>		
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Riparian Buffers Condition Scores Delineate ripa escriptors. Determine squelow. Enter the % F	Tree stratum (dbh > with > 60% tree ca non-maintained unc located within the located with	3 inches) present, unopy cover and a lerstory. Wetlands e riparian areas. 5 each stream bank ach by measuring 100% 1.2	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 into Condition C	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Coungth and width. Co	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh >3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5	NOTES>>		CI
Riparian Buffers Condition Scores Delineate ripaescriptors. Determine squelow.	Tree stratum (dbh > with > 60% tree ca non-maintained uncolocated within the located with	3 inches) present, unopy cover and a ferstory. Wetlands e riparian areas. 5 ach stream bank ach by measuring Score for each ri	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 into Condition C	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Coungth and width. Co	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh >3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5	NOTES>>	Scores*0.01)/2 1.20 1.20	CI 1.20
Riparian Buffers Condition Scores Delineate ripalescriptors. Determine squelow. Enter the % F. Right Bank Left Bank I. Left Bank	Tree stratum (dbh > with > 60% tree ca non-maintained unc located within the located with	5 sach stream bank ach by measuring 100% 1.2 100% 1.2 aried substrate si	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 k into Condition C g or estimating ler parian category in	ditional Cate ptimal Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Coungth and width. Coungth and width. Coungth and width. Coungth and depths; wodes.	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85 Indition Scores us calculators are production of the product	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh > 3 inches) present, with < 30% tree canopy cover with maintained understory: Low 0.75 ing the ovided for you	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F Blocks 6	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5 the sums Riparian equal 100 100%	NOTES>> Cl= (Sum % RA*: Rt Bank Cl >	1.20	
Riparian Buffers Condition Scores Delineate ripalescriptors. Determine squelow. Enter the % F. Right Bank Left Bank I. Left Bank	Tree stratum (dbh > with > 60% tree ca non-maintained unc located within the located with	imal 3 inches) present, nopy cover and a lerstory. Wetlands e riparian areas. 5 each stream bank ach by measuring 100% 1.2 100% 1.2 aried substrate significations in the proofe complete in the proofe complete in the proofe in the proofe in the proofe complete in the proofe in t	Riph Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 Into Condition C g or estimating ler parian category in parian category in categ	ditional Cate ptimal Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Coungth and width. Coungth and width. Coungth and width. Coungth and depths; wodes.	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <a>3 inches) present, with <a>3 inches) present, or a tree canopy cover. High 0.85 Indition Scores us calculators are production of the control of th	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh > 3 inches) present, with < 30% tree canopy cover with maintained understory: Low 0.75 ing the ovided for you	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F Blocks 6	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5 the sums Riparian equal 100 100%	NOTES>> Ci= (Sum % RA *: Rt Bank Ci > Lt Bank Ci >	1.20	
Riparian Buffers Condition Scores Delineate ripalescriptors. Determine squelow. Enter the % F. Right Bank Left Bank INSTREAM Indercut banks;	Tree stratum (dbh > with > 60% tree ca non-maintained unc located within the located with	5 Score for each ri 100% 1.2 100% 1.2 100% 1.2 100% 1.2 100% 1.2 100% 1.2 100% 1.2 100% 1.2 100% 1.2 100% 1.2	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 Into Condition C g or estimating let parian category in Zes, water velocity ixes, stable featur Subo Stable habitat ele present in 30-50% are adequate fo	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Congth and width. Congth and width. Congth and width. Congth and width. Congth and depths; wordes. Conditional	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85 Indition Scores us calculators are production of the present in 10-30 are adequate for a seadequate for the present in 10-30 are adequate for the present in 10-30 are adeq	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh >3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75 ing the vided for you	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F Blocks 6	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5 the sums Riparian equal 100 100% 100%	CI= (Sum % RA *: Rt Bank CI > Lt Bank CI > NOTES>>	1.20	CI 1.20

	St	ream In	npact A	ssessm	nent Fo	rm Pag	e 2		
Project #	Applicant		Locality	Cowardin Class.	HUC	Date	Data Point	SAR length	Impact Factor
								500	1
	ALTERATION: Stream cross poil piles, constrictions, livestock	sings, riprap, conc		concrete blocks, s	traightening of ch	annel, channeliza	ation,	NOTES>>	
	Negligible	Mi	nor		erate	Se	vere		
Channel Alteration	Channelization, dredging, alteration, or hardening absent. Stream has an unaltered pattern or has naturalized.	Less than 20% of the stream reach is disrupted by any of the channel alterations listed in the parameter guidelines.	20-40% of the stream reach is disrupted by any of the channel alterations listed in the parameter guidelines.	is disrupted by any of the channel	is disrupted by any of the channel	Greater than 80% by any of the chan in the parameter 80% of banks sh	of reach is disrupted nel alterations listed guidelines AND/OR nored with gabion, or cement.		
SCORE	1.5	1.3	1.1	0.9	0.7	0).5		
	REACH C	ONDITION I	NDEX and S	TREAM CO	NDITION UN	ITS FOR TH	IS REACH		
VOTE: The Cls and R	CI should be rounded to 2 decimal places.	The CR should be rou	nded to a whole numb	oer.			THE REACH (CONDITION IN	DEX (RCI) >>
							RCI	= (Sum of all C	l's)/5

COMPENSATION REQUIREMENT (CR) >>

CR = RCI X LF X IF



DESCRIBE PROPOSED IMPACT:		

	Stre		fied Stream N	lethodology f	•	ginia				
Project #	Project Nam		Locality	Cowardin Class.	HUC	Date	SAR#	Impact/SAR length	Impact Factor	
5337	I-64 Peninsu	la	New Kent	R2UB3	02080206	11/1/11		65		
Name	e(s) of Evaluator(s)		e and Inform	ation		•				
	Aitkenhead / Nies	WUS 75M								
I. Channel (Condition: Assess the cross-se	ction of the stream		ondition (erosion, Conditional Catego						
	Optimal	Subo	ptimal		ginal	Po	or	Sev	/ere	
Channel	Very little incision or active erosion; 8 100% stable banks. Vegetative	erosion or unproted of banks are s	ew areas of active cted banks. Majority table (60-80%). tion or natural rock	Poor. Banks more or Poor due to lo	less than Severe or stable than Severe wer bank slopes. esent on 40-60% of	Overwiden Vertically/laterally widen further. Maj are near vertical. I	unstable. Likely to ority of both banks	incision, flow cor banks. Streamb	stability. Severe ntained within the ad below average najority of banks	
Condition	surface protection or natural rock, prominent (80-100%). AND/OR Stable point bars/bankfull benches an present. Access to their original floodplain or fully developed wide bankfull benches. Mid-channel bars, and transverse bars few. Transient sediment deposition covers less than 10% of bottom.	prominent (60 Depositional feat stability. The ban channels are we likely has access t or newly develope portions of the sediment covers 10	-80%) AND/OR tures contribute to hafull and low flow III defined. Stream o bankfull benches, ad floodplains along reach. Transient 0-40% of the stream tom.	40-60% of banks, bevertical or unde 60% of stream sediment. Sec temporary/trans instability. Depositi stability, may be AND/OR V-shap vegetative protecti	ative protection on Streambanks may rcut. AND/OR 40- n is covered by diment may be sient, contribute on that contribute to forming/present. ed channels have on on > 40% of the onal features which	protection prese banks, and is insu- erosion. AND/O stream is cover Sediment is temp nature, and contril	ifficient to prevent R 60-80% of the ed by sediment. worary/transient in buting to instability. ed channels have ion is present on > and stable sediment	vertical/underc protection present in banks, is not pre Obvious bank sl Erosion/raw bar AND/OR Aggradin than 80% of strean deposition, contrib Multiple thread	cut. Vegetative on less than 20% of eventing erosion. oughing present.	C
Score	3	2	2.4		2		.6		1	3.0
NOTES		•				•		•		
NOTES>>	N BUFFERS: Assess both ban	Con	nditional Cate	gory				NOTES>>		
	Optimal Optimal Tree stratum (dbh > 3 inches) present with > 60% tree canopy cover and a non-maintained understory. Wetland: located within the riparian areas.	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory.	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover.	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh >3 inches) present, with <30% tree canopy cover with maintained understory. Low	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, recently seeded and stabilized, or other comparable condition.	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions.			
2. RIPARIAI Riparian Buffers Condition	Optimal Tree stratum (dbh > 3 inches) present with > 60% tree canopy cover and a non-maintained understory. Wetlands	High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation).	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh > 3 inches) present, with < 30% tree canopy cover with maintained understory.	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions.			
Riparian Buffers Condition Scores 1. Delineate riparescriptors. 2. Determine squeek	Optimal Tree stratum (dbh > 3 inches) present with > 60% tree canopy cover and a non-maintained understory. Wetland: located within the riparian areas.	High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 k into Condition C	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Co	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh >3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure to of % F	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions.		Scores*0.01)/2	
Riparian Buffers Condition Scores Delineate ripa descriptors. Enter the % F	Optimal Tree stratum (dbh > 3 inches) present with > 60% tree canopy cover and a non-maintained understory. Wetland: located within the riparian areas. 1.5 arian areas along each stream bar quare footage for each by measuring the provided of the country of the provided of the country of	High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 k into Condition C	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Co	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh >3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure to of % F	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5 he sums tiparian qual 100	NOTES>>	Scores*0.01)/2 1.20	CI
Riparian Buffers Condition Scores Delineate ripstescriptors. Determine squelow. Enter the % F	Optimal Tree stratum (dbh > 3 inches) present with > 60% tree canopy cover and a non-maintained understory. Wetland: located within the riparian areas. 1.5 arian areas along each stream bar quare footage for each by measuring Riparian Area and Score for each to Riparian Area and Score for each to Score > 1.2	High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 k into Condition C	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Co	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh >3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure to of % F	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5 he sums tiparian qual 100 100%	NOTES>>		CI 1.2
Riparian Buffers Condition Scores Delineate ripaesecriptors. Determine seelow. Enter the % F. Right Bank Left Bank	Optimal Tree stratum (dbh > 3 inches) present with > 60% tree canopy cover and a non-maintained understory. Wetland: located within the riparian areas. 1.5 arian areas along each stream bar quare footage for each by measuring Riparian Area and Score for each to Riparian Area and Score 1.2 % Riparian Area 100% Score 1.2 M HABITAT: Varied substrate s	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 k into Condition C ag or estimating let iparian category in	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Co ongth and width. Co the blocks below y and depths; woo	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85	Jinal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh > 3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75 Ing the vided for you	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure to the comparable condition to the comparable condition.	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5 he sums tiparian qual 100 100%	NOTES>> CI= (Sum % RA * S Rt Bank CI >	1.20	
Riparian Buffers Condition Scores 1. Delineate ripardescriptors. 2. Determine squelow. 3. Enter the % F. Right Bank Left Bank 3. INSTREAL	Optimal Tree stratum (dbh > 3 inches) present with > 60% tree canopy cover and a non-maintained understory. Wetland located within the riparian areas. 1.5 arian areas along each stream bar quare footage for each by measuring Riparian Area and Score for each two Score > 1.2 % Riparian Area 100% Score > 1.2 M HABITAT: Varied substrate stroot mats; SAV; riffle poole complete optimal	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 k into Condition C ag or estimating let iparian category in izes, water velocit exes, stable featur Subo Stable habitat ele	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopto cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Congth and width. Congth and depths; works. Conditions	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85 Indition Scores using the shrub layer of the shrub la	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh >3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75 ng the vided for you	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure to descript the seeded and stabilized of % For the seeded and stabilized or other comparable condition.	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5 he sums Liparian qual 100 100% 100% cess; shade;	CI= (Sum % RA * S Rt Bank CI > Lt Bank CI >	1.20	
Riparian Buffers Condition Scores Delineate rip descriptors. Determine so pelow. Bright Bank Left Bank Left Bank Instream Habitat/	Optimal Tree stratum (dbh > 3 inches) present with > 60% tree canopy cover and a non-maintained understory. Wetland: located within the riparian areas. 1.5 arian areas along each stream bar quare footage for each by measuring Riparian Area and Score for each within the riparian areas. % Riparian Area 100% Score > 1.2 % Riparian Area 100% Score > 1.2 M HABITAT: Varied substrate stroot mats; SAV; riffle poole complete.	High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 k into Condition C ag or estimating let iparian category in sizes, water velocit exes, stable featur Subo Stable habitat ele present in 30-50 are adequate fo are adequate fo	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Congth and width. Congth and width. Congth and width. Congth and width congth and width congth and width. Congth and width congth and width. Con	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85 Indition Scores using the state of the state	Ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh >3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75 Ing the vided for you	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure to the comparable condition to the comparable condition.	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5 he sums liparian qual 100 100% 100%	CI= (Sum % RA * S Rt Bank CI > Lt Bank CI >	1.20	

	St	ream In	npact A	ssessm	nent Fo	rm Pag	e 2		
Project #	Applicant		Locality	Cowardin Class.	HUC	Date	Data Point	SAR length	Impact Factor
								500	1
	L ALTERATION: Stream cross spoil piles, constrictions, livestock		Condition	al Category				NOTES>>	
	Negligible	Mi	nor		erate 60 - 80% of reach	Se	vere		
Channel Alteration	Channelization, dredging, alteration, or hardening absent. Stream has an unaltered pattern or has naturalized.	Less than 20% of the stream reach is disrupted by any of the channel alterations listed in the parameter guidelines.	20-40% of the stream reach is disrupted by any of the channel alterations listed in the parameter guidelines.	is disrupted by any of the channel	of the channel is disrupted by any of the channel alterations listed in the parameter guidelines. If stream has been channelized, normal stable stream meander pattern has not	Greater than 80% of by any of the chan in the parameter (80% of banks sh	of reach is disrupted nel alterations listed guidelines AND/OR nored with gabion, or cement.		
SCORE	1.5	1.3	1.1	0.9	0.7	0).5		
	REACH C	ONDITION I	NDEX and S	TREAM CO	NDITION UN	ITS FOR TH	IS REACH		
VOTE: The CIs and I	RCI should be rounded to 2 decimal places.	The CR should be rou	nded to a whole numb	er.			THE REACH (CONDITION IN	DEX (RCI) >>

CR = RCI X LF X IF



DESCRIBE PROPOSED IMPACT:		

	Stre		fied Stream N	lethodology f	for use in Vir	ginia	m 1)			
Project #	Project Nam		Locality	Cowardin Class.	s intermittent or	Date	SAR #	Impact/SAR length	Impact Factor	
5337	I-64 Peninsu	la	New Kent	R2UB2	02080206	11/1/11		79		
	e(s) of Evaluator(s)		e and Informa	ation						
	Aitkenhead / Nies	WUS 76M								
I. Channel C	Condition: Assess the cross-se	ction of the stream		ondition (erosion, Conditional Catego						
	Optimal	Subo	ptimal		ginal	Po	oor	Sev	vere	
Channel Condition	Very little incision or active erosion; 8 100% stable banks. Vegetative surface protection or natural rock,	erosion or unproted of banks are s Vegetative protec	ew areas of active cted banks. Majority table (60-80%). tion on natural rock -80%) AND/OR	Poor. Banks more or Poor due to lo Erosion may be pr	less than Severe or stable than Severe ower bank slopes. esent on 40-60% of tative protection on	Vertically/laterally widen further. Ma are near vertical.	ned/incised. unstable. Likely to jority of both banks Erosion present on	incision, flow cor banks. Streambe rooting depth, n	istability. Severe ntained within the ed below average najority of banks	
	prominent (80-100%). AND/OR Stable point bars/bankfull benches ar present. Access to their original floodplain or fully developed wide bankfull benches. Mid-channel bars, and transverse bars few. Transient sediment deposition covers less than 10% of bottom.	Depositional feat stability. The bar channels are we likely has access t or newly develope portions of the sediment covers 10	tures contribute to nkfull and low flow Il defined. Stream to bankfull benches, id floodplains along reach. Transient 0-40% of the stream tom.	40-60% of banks. bevertical or unde 60% of strean sediment. See temporary/tran instability. Depositi stability, may be AND/OR V-shap vegetative protecti	Streambanks may prout. AND/OR 40- n is covered by diment may be sient, contribute on that contribute to forming/present. ed channels have ion on > 40% of the ional features which	protection press banks, and is ins erosion. AND/C stream is cove Sediment is tem nature, and contri AND/OR V-shap vegetative protec 40% of the banks	and on 20-40% of ufficient to prevent R 60-80% of the red by sediment. porary/transient in buting to instability. led channels have tion is present on > and stable sediment in is absent.	protection present of banks, is not pre Obvious bank sl Erosion/raw bar AND/OR Aggradin than 80% of strean deposition, contrib Multiple thread	cut. Vegetative on less than 20% of eventing erosion. loughing present. hks on 80-100%. In grannel. Greater med is covered by outing to instability. channels and/or nean flow.	CI
Score	3	2	.4		2	1	.6		1	2.0
	Optimal		ptimal		ginal Low Marginal:	Po High Poor:	oor	NOTES>>		
Riparian Buffers	Tree stratum (dbh > 3 inches) present with > 60% tree canopy cover and a non-maintained understory. Wetland located within the riparian areas.	to 60% tree canopy cover and	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree	Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay	Lawns, mowed, and maintained areas, nurseries; no-till cropland;	Low Poor: Impervious			
	ocaec within the riparian areas.	containing both herbaceous and shrub layers or a non-maintained understory.	maintained understory. Recent cutover (dense vegetation).	layer (dbh > 3 inches) present, with <30% tree canopy cover.	production, ponds, open water. If present, tree stratum (dbh >3 inches) present, with <30% tree canopy cover with maintained understory.	actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable condition.	surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions.			
Condition	1.5	herbaceous and shrub layers or a non-maintained	understory. Recent cutover (dense	layer (dbh > 3 inches) present, with <30% tree	production, ponds, open water. If present, tree stratum (dbh >3 inches) present, with <30% tree canopy cover with maintained	pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable	spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable			
Scores 1. Delineate ripa descriptors. 2. Determine squbelow.		herbaceous and shrub layers or a non-maintained understory. High 1.2 k into Condition Cong or estimating length	understory, Recent cutover (dense vegetation). Low 1.1 ategories and Co	layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85 Indition Scores usional calculators are pro-	production, ponds, open water. If present, tree stratum (dbh >3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75	pasture, sparsely vegetated non-maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % I	spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions.	CI= (Sum % RA * S	Scores*0.01)/2	
Scores 1. Delineate ripa descriptors. 2. Determine squoelow. 3. Enter the % R Right Bank	1.5 arian areas along each stream bar uare footage for each by measurin Riparian Area and Score for each to % Riparian Area> 100% Score > 1.2 % Riparian Area> 100%	herbaceous and shrub layers or a non-maintained understory. High 1.2 k into Condition Cong or estimating length	understory, Recent cutover (dense vegetation). Low 1.1 ategories and Co	layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85 Indition Scores usional calculators are pro-	production, ponds, open water. If present, tree stratum (dbh >3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75	pasture, sparsely vegetated non-maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % I	spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5	Rt Bank CI >	Scores*0.01)/2 1.20	CI
Scores Delineate ripa descriptors. Determine squelow. Enter the % R Right Bank	1.5 arian areas along each stream bar uare footage for each by measuring Riparian Area and Score for each 100% Score > 1.2 % Riparian Area 100% Score > 1.2	herbaceous and shrub layers or a non-maintained understory. High 1.2 k into Condition Cong or estimating leriparian category in	understory. Recent cutover (dense vegetation). Low 1.1 ategories and Congth and width. Conthe blocks below	layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85 Indition Scores usi Calculators are pro	production, ponds, open water. If present, tree stratum (dbh >3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75 ing the	pasture, sparsely vegetated non-maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % I Blocks 6	spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5 the sums Riparian equal 100 100%	Rt Bank CI >		CI 1.20
Scores Delineate ripa lescriptors. Determine squelow. Enter the % R Right Bank Left Bank INSTREAN	1.5 arian areas along each stream bar uare footage for each by measuring Riparian Area and Score for each to % Riparian Area	herbaceous and shrub layers or a non-maintained understory. High 1.2 k into Condition Cong or estimating let iparian category in iparian category in izes, water velocitizes, water velocitizes, water velocitizes.	understory, Recent cutover (dense vegetation). Low 1.1 ategories and Congth and width. Congth and width. Congth and depths; woo yeard depths; woo	layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85 Indition Scores usi Calculators are pro	production, ponds, open water. If present, tree stratum (dbh >3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75 ing the	pasture, sparsely vegetated non-maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % I Blocks 6	spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5 the sums Riparian equal 100 100%	Rt Bank CI >	1.20	
Scores Delineate ripa descriptors. Determine squ delow. Between the squ delow. Right Bank Left Bank Left Bank	1.5 arian areas along each stream bar uare footage for each by measuring Riparian Area and Score for each to % Riparian Area 100% Score > 1.2 % Riparian Area> 100% Score > 1.2 M HABITAT: Varied substrate soon mats; SAV; riffle poole complete.	herbaceous and shrub layers or a non-maintained understory. High 1.2 k into Condition Cong or estimating leading arian category in items.	understory, Recent cutover (dense vegetation). Low 1.1 ategories and Congth and width. Congth and width. Congth and depths; worders. Conditional	layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85 Indition Scores using the calculators are production of the calculat	production, ponds, open water. If present, tree stratum (dbh > 3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75 ing the evided for you	pasture, sparsely vegetated non-maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % I Blocks 6	spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5 the sums Riparian equal 100 100% 100%	Rt Bank CI >	1.20	
Scores 1. Delineate ripa descriptors. 2. Determine squeelow. 3. Enter the % R Right Bank Left Bank 3. INSTREAN	1.5 arian areas along each stream bar uare footage for each by measuring Riparian Area and Score for each to % Riparian Area	herbaceous and shrub layers or a non-maintained understory. High 1.2 k into Condition Cong or estimating let iparian category in sizes, water velocitiexes, stable featur Subo Stable habitat ele present in 30-50 are adequate fo are non-maintained.	understory, Recent cutover (dense vegetation). Low 1.1 ategories and Congth and width. Congth and width. Congth and depths; wodes.	layer (dbh > 3 inches) present, with <a0% 0.85="" 10-309="" adequate="" al="" and="" are="" calculators="" canopy="" category="" cover.="" debi="" dy="" ele="" fo<="" habitat="" high="" in="" indition="" leafy="" mar.="" present="" pro="" scores="" stable="" td="" tree="" usi=""><td>production, ponds, open water. If present, tree stratum (dbh >3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75 ing the</td><td>pasture, sparsely vegetated non-maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % I Blocks 6 Habitat element lacking or are Lelements are typic</td><td>spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5 the sums Riparian equal 100 100%</td><td>Rt Bank CI ></td><td>1.20</td><td></td></a0%>	production, ponds, open water. If present, tree stratum (dbh >3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75 ing the	pasture, sparsely vegetated non-maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % I Blocks 6 Habitat element lacking or are Lelements are typic	spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5 the sums Riparian equal 100 100%	Rt Bank CI >	1.20	

	St	ream In	npact A	ssessm	nent Fo	rm Pag	e 2		
Project #	Applicant		Locality	Cowardin Class.	HUC	Date	Data Point	SAR length	Impact Factor
								500	1
	L ALTERATION: Stream cross poil piles, constrictions, livestock	ings, riprap, conc		concrete blocks, s	traightening of ch	annel, channeliza	ation,	NOTES>>	
	Negligible	Mi	nor		erate		vere		
Channel Alteration	Channelization, dredging, alteration, or hardening absent. Stream has an unaltered pattern or has naturalized.	Less than 20% of the stream reach is disrupted by any of the channel alterations listed in the parameter guidelines.	20-40% of the stream reach is disrupted by any of the channel	is disrupted by any of the channel	of the channel	Greater than 80% by any of the chan in the parameter 80% of banks st	of reach is disrupted intel alterations listed guidelines AND/OR nored with gabion, or cement.		
SCORE	1.5	1.3	1.1	0.9	0.7	C).5		
	REACH C	ONDITION	NDEX and S	TREAM CO	NDITION UN	ITS FOR TH	IIS REACH		
NOTE: The Cls and F	RCI should be rounded to 2 decimal places.	The CR should be rou	nded to a whole numb	er.			THE REACH (CONDITION IN	DEX (RCI) >>

CR = RCI X LF X IF



DESCRIBE PROPOSED IMPACT:	

		Stre	Unit	fied Stream N	lethodology 1	Form	ginia	m 1)			
Project #		Project Name		Locality	cowardin Class.	HUC	Date Date	SAR#	Impact/SAR length	Impact Factor	
5337	ŀ	-64 Peninsul	a	New Kent	R2UB3	02080206	11/1/11		32		
Name	e(s) of Evalua	tor(s)	Stream Nam	e and Informa	ation						
	Aitkenhead / Nies		WUS 77M								
. Channel C	Condition: Asse	ess the cross-sec	ction of the stream		ondition (erosion, conditional Catego						
	Opti	imal	Subo	ptimal	Mar	ginal	Po	oor	Se	vere	
QL source!	Very little incision o	or active erosion; 80	erosion or unproted	rew areas of active cted banks. Majority	Poor. Banks more	less than Severe or stable than Severe ower bank slopes.	Vertically/laterally	ned/incised. unstable. Likely to jority of both banks	incision, flow co	nstability. Severe	
Channel Condition	100% stable bar surface protection prominent (80-1) Stable point bars/bc present. Access floodplain or fully bankfull benches. and transverse be sediment depositio	nks. Vegetative n or natural rock, 00%). AND/OR ankfull benches are to their original v developed wide Mid-channel bars, ars few. Transient on covers less than	Vegetative protect prominent (60- Depositional feat stability. The bar channels are well likely has access to or newly develope portions of the resediment covers 10 to definite the covers of the resediment covers 10 to definite the covers of the resediment covers 10 to definite the covers of the resediment covers 10 to definite the covers 10 to definite	stable (60-80%). tion or natural rock -80%) AND/OR tures contribute to nkfull and low flow il defined. Stream to bankfull benches, ed floodplains along reach. Transient 0-40% of the stream tom.	Erosion may be pr both banks. Veget 40-60% of banks. bevertical or unde 60% of stream sediment. Se- temporary/tran instability. Depositi stability, may be	ersent on 40-60% of tative protection on Streambanks may ercut. AND/OR 40- n is covered by diment may be sient, contribute on that contribute to e forming/present. ed channels have	are near vertical. 60-80% of bar protection prese banks, and is inst erosion. AND/O stream is cover Sediment is temp nature, and contri AND/OR V-shap vegetative protect	Erosion present on iks. Vegetative ent on 20-40% of ufficient to prevent R 60-80% of the red by sediment. porary/transient in buting to instability. led channels have ion is present on >	rooting depth, r vertical/under protection present banks, is not pr Obvious bank s Erosion/raw ba AND/OR Aggradir than 80% of streat deposition, contril	ned below average majority of banks cut. Vegetative on less than 20% of eventing erosion. Iloughing present. nks on 80-100%. ng channel. Greater m bed is covered by buting to instability. Ichannels and/or	
					banks and depositi	ion on > 40% of the ional features which	deposition	and stable sediment is absent.	subterra	nean flow.	CI
Score	3	3	2	2.4		2	1	.6		1	2.0
2. RIPARIAN	N BUFFERS: A		Con	nditional Cate	gory Mar	ginal Low Marginal: Non-maintained,	Po High Poor:	n may be accepta	NOTES>>		
2. RIPARIAN Riparian Buffers	Opti	imal > 3 inches) present, anopy cover and a derstory. Wetlands	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy	gory	ginal Low Marginal:	Po		,		
Riparian	Option Tree stratum (dbh > with > 60% tree canon-maintained uncon-maintained unco-maintained unco	imal > 3 inches) present, anopy cover and a derstory. Wetlands	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory.	Low Suboptimal Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover.	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh >3 inches) present, with 30% inches) present, with <a href<="" td=""><td>High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable condition.</td><td>Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable</td><td>,</td><td></td><td></td>	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable condition.	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable	,		
Riparian	Option Tree stratum (dbh > with > 60% tree canon-maintained uncon-maintained unco-maintained unco	imal 3 inches) present, anopy cover and a derstory. Wetlands e riparian areas.	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation).	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh >3 inches) present, with <30% tree canopy cover with maintained understory.	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions.	,		
Riparian Buffers Condition Scores Delineate ripalescriptors. 2. Determine squelow.	Tree stratum (dbh > with > 60% tree ca non-maintained unc located within the	imal 3 inches) present, anopy cover and a derstory. Wetlands e riparian areas. 5 each stream bank ach by measurin	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 k into Condition C	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 Lategories and Coungth and width. Coungth and width. Coungth in the position of the positio	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh >3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5	,		
Riparian Buffers Condition Scores Delineate ripa escriptors. Determine sq elow.	Tree stratum (dbh > with > 60% tree ca non-maintained unc located within the located with	imal 3 inches) present, anopy cover and a derstory. Wetlands e riparian areas. 5 each stream bank ach by measurin.	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 k into Condition C	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 Lategories and Coungth and width. Coungth and width. Coungth in the position of the positio	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh >3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5	,		
Riparian Buffers Condition Scores Delineate ripalescriptors. Determine squelow.	Tree stratum (dbh > with > 60% tree ca non-maintained unc located within the	imal 3 inches) present, anopy cover and a derstory. Wetlands e riparian areas. 5 each stream bank ach by measurin	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 k into Condition C	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 Lategories and Coungth and width. Coungth and width. Coungth in the position of the positio	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh >3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5	,		
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Condition Scores 1. Delineate ripa descriptors. 2. Determine squelow. 3. Enter the % R Right Bank Left Bank 3. INSTREAN	Tree stratum (dbh > with > 60% tree canon-maintained unc located within the located withi	imal 3 inches) present, anopy cover and a derstory. Wetlands e riparian areas. 5 each stream bank ach by measurin 100% 1.2 100% 1.2 aried substrate si	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 Into Condition C g or estimating ler parian category in	Inditional Cate potimal Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 Lategories and Coungth and width. Coungth and width. Coungth and width. Coungth and depths; woo y and depths; woo res.	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85 Indition Scores us calculators are production of the product	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh > 3 inches) present, with < 30% tree canopy cover with maintained understory: Low 0.75 ing the ovided for you	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F Blocks 6	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5 the sums Riparian equal 100 100%	NOTES>>		CI 1.20
Condition Scores Delineate ripa elescriptors. Deltre the % R Right Bank Left Bank B. INSTREAN undercut banks;	Tree stratum (dbh > with > 60% tree ca non-maintained und located within the located with	imal 3 inches) present, anopy cover and a derstory. Wetlands e riparian areas. 5.5 each stream bank ach by measuring the stream bank and by measuring the stream bank and the stream bank ach by measuring the stream bank ach by mea	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 Into Condition C g or estimating ler parian category in zes, water velocity ixes, stable featur	Inditional Cate potimal Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 Sategories and Co ngth and width. Co in the blocks below y and depths; woo res. Conditional	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <a>3 inches) present, with <a>3 inches) present, or a tree canopy cover. High 0.85 Indition Scores us calculators are production of the control of th	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh >3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75 ing the vided for you	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F Blocks 6	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5 the sums Riparian equal 100 100%	NOTES>> CI= (Sum % RA *: Rt Bank CI > Lt Bank CI >	1.20	
Condition Scores 1. Delineate ripa descriptors. 2. Determine squelow. 3. Enter the % R Right Bank Left Bank 3. INSTREAN	Tree stratum (dbh > with > 60% tree ca non-maintained und located within the located with	imal 3 inches) present, anopy cover and a derstory. Wetlands e riparian areas. 5 5 cach stream bank ach by measuring the stream	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 Into Condition C g or estimating let parian category in zes, water velocity exes, stable featur Subo Stable habitat ele present in 30-50% are adequate fo	Inditional Cate potimal Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 Lategories and Coungth and width. Coungth and width. Coungth and width. Coungth and depths; woo y and depths; woo res.	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85 Indition Scores us calculators are production of the present in 10-30 are adequate for a seadequate for the present in 10-30 are adequate for the present in 10-30 are adeq	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh > 3 inches) present, with < 30% tree canopy cover with maintained understory: Low 0.75 ing the evided for you	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F Blocks 6	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5 the sums Riparian equal 100 100%	NOTES>> CI= (Sum % RA *: Rt Bank CI > Lt Bank CI >	1.20	

	St	ream In	npact A	ssessm	ent Fo	rm Pag	e 2		
Project #	Applicant		Locality	Cowardin Class.	HUC	Date	Data Point	SAR length	Impact Factor
								500	1
	ALTERATION: Stream cross poil piles, constrictions, livestock	ings, riprap, conc		concrete blocks, s	traightening of ch	annel, channeliza	ation,	NOTES>>	
	Negligible	Mi	nor		erate		vere		
Channel Alteration	Channelization, dredging, alteration, or hardening absent. Stream has an unaltered pattern or has naturalized.	Less than 20% of the stream reach is disrupted by any of the channel alterations listed in the parameter guidelines.	20-40% of the stream reach is disrupted by any of the channel	is disrupted by any of the channel	of the channel	Greater than 80% by any of the chan in the parameter 80% of banks sh	of reach is disrupted nel alterations listed guidelines AND/OR nored with gabion, or cement.		
SCORE	1.5	1.3	1.1	0.9	0.7	0).5		
	REACH C	ONDITION I	NDEX and S	TREAM CO	NDITION UN	ITS FOR TH	IIS REACH		
NOTE: The Cls and F	CI should be rounded to 2 decimal places.	The CR should be rou	nded to a whole numb	er.			THE REACH (CONDITION IN	DEX (RCI) >>

CR = RCI X LF X IF



DESCRIBE PROPOSED IMPACT:		

		Stre	Uni	fied Stream N	lethodology 1	•	ginia	m 1)			
Project #		Project Name		Locality	cowardin Class.	HUC	Date Date	SAR #	Impact/SAR length	Impact Factor	
5337	Į.	-64 Peninsul	a	New Kent	R2UB2	02080206	11/1/11		105		
Name	e(s) of Evalua	tor(s)	Stream Nam	e and Informa	ation						
	Aitkenhead / Nies		WUS 78M								
. Channel C	Condition: Asse	ess the cross-sec	ction of the stream		ondition (erosion, Conditional Catego						
	Opti	imal	Subo	ptimal	Mar	ginal	Po	oor	Se	vere	
Ol sound	Very little incision o	or active erosion; 80	erosion or unproted	ew areas of active cted banks. Majority	Poor. Banks more	less than Severe or stable than Severe ower bank slopes.	Vertically/laterally	ned/incised. unstable. Likely to jority of both banks	incision, flow co	nstability. Severe	
Channel Condition	100% stable bar surface protection prominent (80-1) Stable point bars/be present. Access floodplain or fully bankfull benches. and transverse basediment deposition 10% of	nks. Vegetative n or natural rock, 00%). AND/OR ankfull benches are to their original v developed wide Mid-channel bars, ars few. Transient on covers less than	Vegetative protect prominent (60 Depositional feat stability. The bar channels are we likely has access to rewly develope portions of the sediment covers 11	table (60-80%), tition or natural rock -80%) AND/OR tures contribute to nkfull and low flow II defined. Stream o bankfull benches, ad floodplains along reach. Transient 0-40% of the stream tom.	Erosion may be pr both banks. Veget 40-60% of banks. bevertical or unde 60% of strean sediment. Set temporary/tran instability. Depositi stability, may be AND/OR V-shap	seent on 40-60% of tative protection on Streambanks may rerut. AND/OR 40-n is covered by diment may be sisent, contribute on that contribute to forming/present. ed channels have ion on > 40% of the	are near vertical. 60-80% of bar protection prese banks, and is inst erosion. AND/O stream is cover Sediment is temp nature, and contri AND/OR V-shap vegetative protect	Service of the control of the contro	rooting depth, r vertical/underr protection present banks, is not pro Obvious bank s Erosion/raw ban AND/OR Aggradir than 80% of strear deposition, contril Multiple thread	ed below average majority of banks cut. Vegetative on less than 20% of eventing erosion. loughing present. nks on 80-100%. ng channel. Greater n bed is covered by buting to instability. channels and/or	
					banks and depositi	ional features which	deposition	is absent.	Subterrai	nean flow.	
Score	3	3	2	2.4		2	1	.6	1	1	2.0
. RIPARIAN	N BUFFERS: A		Con	nditional Cate	gory Mar	ginal Low Marginal: Non-maintained,	Po High Poor:	n may be accepta	NOTES>>		
RIPARIAN Riparian Buffers	Opti	imal > 3 inches) present, anopy cover and a derstory. Wetlands	Cor Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy	gory	ginal Low Marginal:	Po		NOTES>>		
Riparian	Option Tree stratum (dbh > with > 60% tree canon-maintained uncon-maintained unco-maintained unco	imal > 3 inches) present, anopy cover and a derstory. Wetlands	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory.	Low Suboptimal Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover.	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh >3 inches) present, with a0b inches) present, with a0b inches) present, with a0b inches) present, word a0b inches) present, word abb inches) present, word <a href<="" td=""><td>High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable condition.</td><td>Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable</td><td>NOTES>></td><td></td><td></td>	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable condition.	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable	NOTES>>		
Riparian	Option Tree stratum (dbh > with > 60% tree canon-maintained uncon-maintained unco-maintained unco	imal 3 inches) present, anopy cover and a derstory. Wetlands e riparian areas.	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation).	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh >3 inches) present, with <30% tree canopy cover with maintained understory.	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions.	NOTES>>		
Riparian Buffers Condition Scores Delineate ripe escriptors. Determine sq elow.	Tree stratum (dbh > with > 60% tree ca non-maintained unc located within the	imal 3 inches) present, anopy cover and a derstory. Wetlands e riparian areas. 5 each stream bankach by measuring	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 into Condition C	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Coungth and width. Coungth	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh > 3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5	NOTES>>		
Riparian Buffers Condition Scores Delineate ripaescriptors. Determine squelow. Enter the % F	Tree stratum (dbh > with > 60% tree ca non-maintained unc located within the located with	imal 3 inches) present, anopy cover and a derstory. Wetlands e riparian areas. 5 each stream bank ach by measurin.	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 into Condition C	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Coungth and width. Coungth	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh > 3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5	NOTES>>		
Riparian Buffers Condition Scores Delineate ripz escriptors. Determine squelow. Enter the % F	Tree stratum (dbh > with > 60% tree ca non-maintained unc located within the	imal 3 inches) present, anopy cover and a derstory. Wetlands e riparian areas. 5 each stream bankach by measuring	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 into Condition C	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Coungth and width. Coungth	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh > 3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5	NOTES>>		
Riparian Buffers Condition Scores Delineate ripaescriptors. Determine squelow. Enter the % F	Tree stratum (dbh > with > 60% tree canon-maintained unc located within the located withi	imal 3 inches) present, anopy cover and a derstory. Wetlands e riparian areas. 5 each stream bank ach by measurin Score for each ri	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 into Condition C	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Coungth and width. Coungth	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh > 3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5	NOTES>>		
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Condition Scores Delineate ripalescriptors. Determine squelow. Right Bank Left Bank B. INSTREAR	Tree stratum (dbh > with > 60% tree canon-maintained unc located within the located withi	imal 3 inches) present, anopy cover and a derstory. Wetlands e riparian areas. 5 each stream bank ach by measurin 100% 1.5 100% 1.5 aried substrate si	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 into Condition C g or estimating let parian category in	Inditional Cate ptimal Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Congth and width. Congth and width. Congth and width. Congth and depths; workers.	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85 Indition Scores us calculators are production of the product	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh >3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75 ing the ovided for you	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F Blocks 6	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5 the sums Riparian equal 100 100%	NOTES>> CI= (Sum % RA**) Rt Bank CI >		CI 1.50
Condition Scores Delineate ripalescriptors. Deltremine squelow. Enter the % Right Bank Left Bank Left Bank INSTREAM Indercut banks;	Tree stratum (dbh > with > 60% tree ca non-maintained und located within the located with	imal 3 inches) present, anopy cover and a derstory. Wetlands e riparian areas. 5 each stream bank ach by measurin 100% 1.5 100% 1.5 aried substrate si	Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 Into Condition C g or estimating le	Inditional Cate ptimal Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Congth and width. Congth and width. Congth and width. Congth and depths; workers.	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <a>3 inches) present, with <a>3 inches) present, or a tree canopy cover. High 0.85 Indition Scores us calculators are production of the control of th	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh >3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75 ing the ovided for you	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F Blocks 6	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5 the sums Riparian equal 100 100%	NOTES>> Ci= (Sum % RA * : Rt Bank Ci > Lt Bank Ci >	1.50	
Condition Scores Delineate ripalescriptors. Determine squelow. Right Bank Left Bank B. INSTREAR	Tree stratum (dbh > with > 60% tree ca non-maintained und located within the located with	imal 3 inches) present, anopy cover and a derstory. Wetlands e riparian areas. 5 5 cach stream bank ach by measuring the stream bank and by measuring the stream bank and the stream bank ach by measuring the stream bank and the stream bank are to stream bank and the stream bank are to stream bank and the stream bank are to stream bank and the stream bank are typically present the stream bank are typically	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 Into Condition C g or estimating let parian category in Zes, water velocit exes, stable featur Subo Stable habitat ele present in 30-509 are adequate fo	Inditional Cate ptimal Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Congth and width. Congth and width. Congth and width. Congth and depths; wores. Conditional	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85 Indition Scores us calculators are production of the present in 10-30 are adequate for a seadequate for the present in 10-30 are adequate for the present in 10-30 are adeq	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh >3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75 ing the price of the production of the present of the	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F Blocks 6	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5 the sums Riparian equal 100 100% 100%	CI= (Sum % RA * : Rt Bank CI > Lt Bank CI > NOTES>>	1.50	

	St	ream In	npact A	ssessm	nent Fo	rm Page	e 2		
Project #	Applicant		Locality	Cowardin Class.	HUC	Date	Data Point	SAR length	Impact Factor
								500	1
	L ALTERATION: Stream cross spoil piles, constrictions, livestock	sings, riprap, conc		concrete blocks, s	traightening of ch	annel, channeliza	ition,	NOTES>>	
	Negligible	Mi	nor		erate	Ser	vere		
Channel Alteration	Channelization, dredging, alteration, or hardening absent. Stream has an unaltered pattern or has naturalized.	Less than 20% of the stream reach is disrupted by any of the channel alterations listed in the parameter guidelines.	20-40% of the stream reach is disrupted by any of the channel alterations listed in the parameter guidelines.	is disrupted by any of the channel	50 - 80% of reach is disrupted by any of the channel alterations listed in the parameter guidelines. If stream has been channelized, normal stable stream meander pattern has not	Greater than 80% of by any of the chan in the parameter g	of reach is disrupted nel alterations listed juidelines AND/OR ored with gabion, r cement.		
SCORE	1.5	1.3	1.1	0.9	0.7	0	.5		
	REACH C	ONDITION I	NDEX and S	TREAM CO	NDITION UN	ITS FOR TH	IS REACH		
VOTE: The Cls and I	RCI should be rounded to 2 decimal places.	The CR should be rou	nded to a whole numb	er.	•		THE REACH (CONDITION IN	DEX (RCI) >>

THE REACH CONDITION INDEX (RCI) >> 1.10

RCI= (Sum of all Cl's)/5

COMPENSATION REQUIREMENT (CR) >>

CR = RCI X LF X IF



DESCRIBE PROPOSED IMPACT:		

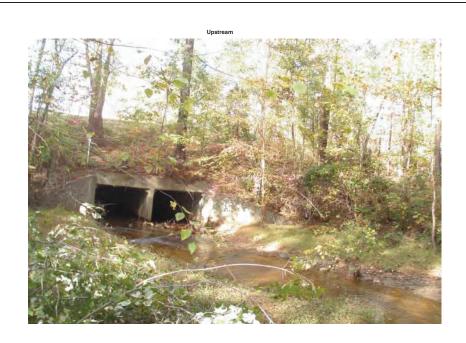
		Stre	Unit	fied Stream N	lethodology 1	for use in Vir	-	m 1)			
Project #		Project Name		Locality	nels classified a Cowardin Class.	HUC	perennial Date	SAR#	Impact/SAR	Impact Factor	
5337	ı	-64 Peninsul	a	New Kent	R2UB2	02080206	11/1/11		69	1 3333	
Nam	e(s) of Evalua	tor(s)	Stream Nam	e and Informa	ation						
	Aitkenhead / Nies		WUS 79M								
1. Channel C	Condition: Ass	ess the cross-sec	ction of the stream		ondition (erosion, Conditional Catego						-
	Opt	imal	Subo	ptimal	Mar	ginal	Po	or	Se	vere	
Channel	Very little incision o	or active erosion; 80 nks. Vegetative	erosion or unproted of banks are s	ew areas of active cted banks. Majority table (60-80%).	Poor. Banks more or Poor due to lo	less than Severe or stable than Severe ower bank slopes.	widen further. Ma	ed/incised. unstable. Likely to ority of both banks Erosion present on	incision, flow co	nstability. Severe ontained within the bed below average	
Condition	surface protectio prominent (80-1 Stable point bars/bs present. Access floodplain or fully bankfull benches. and transverse bs sediment depositio 10% of	00%). AND/OR ankfull benches are s to their original or developed wide Mid-channel bars, ars few. Transient on covers less than	prominent (60- Depositional feat stability. The bar channels are wel likely has access to or newly develope portions of the r sediment covers 10	tion or natural rock -80%) AND/OR tures contribute to nkfull and low flow II defined. Stream o bankfull benches, ad floodplains along reach. Transient 0-40% of the stream tom.	both banks. Veget 40-60% of banks. bevertical or unde 60% of strean sediment. Se- temporary/tran instability. Depositi stability, may be AND/OR V-shap vegetative protect	resent on 40-60% of tative protection on Streambanks may ercut. AND/OR 40- in is covered by diment may be sisent, contribute to forming/present. ed channels have ion on > 40% of the ional features which	60-80% of bar protection press banks, and is insu erosion. AND/O stream is cover Sediment is temp nature, and contri AND/OR V-shap vegetative protect 40% of the banks a	ks. Vegetative int on 20-40% of ifficient to prevent R 60-80% of the ed by sediment in porary/transient in puting to instability.	vertical/under protection present banks, is not produced by the Obvious banks Erosion/raw ba AND/OR Aggradi than 80% of stread deposition, contri Multiple thread	majority of banks recut. Vegetative ron less than 20% or reventing erosion. sloughing present. anks on 80-100%. ng channel. Greate m bed is covered by bibuting to instability. I channels and/or unean flow.	r
Score	3	3	2	2.4		2	-	.6		1	3.0
NOTES>>			•								
2. RIPARIAN	N BUFFERS: A		Con	nditional Cate	gory				NOTES>>		
Riparian Buffers	Opti	imal > 3 inches) present, anopy cover and a derstory. Wetlands	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy	gory	Low Marginal: Non-maintained, dense herbaceous vegetation,	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, recently seeded and stabilized, or other comparable condition.	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions.			
Riparian Buffers	Tree stratum (dbh a with a 60% tree cc non-maintained und located within th	imal 3 inches) present, anopy cover and a derstory. Wetlands e riparian areas.	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory, Recent cutover (dense vegetation).	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover.	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh > 3 inches) present, with <30% tree canopy cover with maintained understory. Low	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, recently seeded and stabilized, or other comparable condition.	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions.			
Riparian	Option Tree stratum (dbh swith > 60% tree cr	imal 3 inches) present, anopy cover and a derstory. Wetlands e riparian areas.	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory.	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation).	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover.	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh >3 inches) present, with <30% tree canopy cover with maintained understory.	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, recently seeded and stabilized, or other comparable condition.	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions.			
Riparian Buffers Condition Scores 1. Delineate ripe descriptors. 2. Determine so	Tree stratum (dbh swith > 60% tree canon-maintained und located within the	imal 3 inches) present, anopy cover and a derstory. Wetlands e riparian areas. 5 each stream banl ach by measurin	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 into Condition C	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Coungth and width. Coungth	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh > 3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5			
Riparian Buffers Condition Scores Delineate ripalescriptors. Determine squelow. Enter the % F	Tree stratum (dbh > with > 60% tree conon-maintained und located within the located withi	imal 3 inches) present, anopy cover and a derstory. Wetlands e riparian areas. 5 ach stream banl ach by measurin.	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 into Condition C	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Coungth and width. Coungth	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh > 3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5			
Riparian Buffers Condition Scores Delineate ripe descriptors. Deleneate ripe descriptors.	Tree stratum (dbh swith > 60% tree canon-maintained und located within the	imal 3 inches) present, anopy cover and a derstory. Wetlands e riparian areas. 5 each stream banl ach by measurin	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 into Condition C	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Coungth and width. Coungth	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh > 3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5	NOTES>>		
Riparian Buffers Condition Scores Delineate ripalescriptors. Determine squelow. Enter the % F	Tree stratum (dbh > with > 60% tree conon-maintained und located within the located withi	imal 3 inches) present, anopy cover and a derstory. Wetlands e riparian areas. 5 each stream bank ach by measurin Score for each ri 100% 1.2	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 into Condition C	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Coungth and width. Coungth	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh > 3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5 the sums Riparian qual 100	NOTES>>		
Riparian Buffers Condition Scores Delineate ripalescriptors. Determine squelow. Enter the % F	Tree stratum (dbh > with > 60% tree connon-maintained und located within the located with	imal 3 inches) present, anopy cover and a derstory. Wetlands e riparian areas. 5 ach stream bank ach by measurin. Score for each ri	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 into Condition C	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Coungth and width. Coungth	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh > 3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5	NOTES>>	Scores*0.01)/2 1.20 1.20	CI 1.20
Condition Scores Delineate ripe descriptors. Deltermine scoelow. English Bank Left Bank Left Bank INSTREA	Tree stratum (dbh > with > 60% tree conon-maintained und located within the located withi	imal 3 inches) present, anopy cover and a derstory. Wetlands e riparian areas. 5 each stream bank ach by measuring the stream bank ach by measuring the stream bank ach by ach	Com Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 Into Condition C g or estimating ler parian category in	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Coungth and width. Coungth and width. Coungth and width. Coungth and depths; woo res.	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85 addition Scores us calculators are production of the produc	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh > 3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75 ing the povided for you	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F Blocks 6	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5 the sums tiparian qual 100 100%	NOTES>> CI= (Sum % RA* Rt Bank CI >	1.20	CI 1.20
Condition Scores Delineate ripe descriptors. Deltermine scoelow. English Bank Left Bank Left Bank INSTREA	Tree stratum (dbh with > 60% tree canon-maintained und located within the located within	imal 3 inches) present, anopy cover and a derstory. Wetlands e riparian areas. 5 each stream bank ach by measuring the stream bank ach by measuring the stream bank ach by ach	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 s into Condition C g or estimating ler parian category in zes, water velocity ixes, stable featur	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Coungth and width. Coungth and width. Coungth and width. Coungth and depths; woo res.	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85 Indition Scores us calculators are production of the product	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh > 3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75 ing the povided for you	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F Blocks e	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5 the sums tiparian qual 100 100%	NOTES>> Cl= (Sum % RA* Rt Bank Cl> Lt Bank Cl>	1.20	
Condition Scores 1. Delineate ripe descriptors. 2. Determine so pelow. 3. Enter the % F Right Bank Left Bank 3. INSTREAT	Tree stratum (dbh > with > 60% tree cc non-maintained und located within th 1. arian areas along of quare footage for e Riparian Area and % Riparian Area> Score > % Riparian Area> Score > M HABITAT: Va ; root mats; SAV; ri	imal 3 inches) present, anopy cover and a derstory. Wetlands e riparian areas. 5 beach stream bani ach by measurin 100% 1.2 100% 1.2 aried substrate si iffle poole completimal re typically present	Com Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 Into Condition C g or estimating ler parian category in zes, water velocity exes, stable featur Subo Stable habitat ele present in 30-50% are adequate fo	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Co ngth and width. Co n the blocks below y and depths; wodes. Conditiona	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85 Indition Scores us calculators are production of the present in 10-30 are adequate for a sedequate for the present in 10-30 are adequate for the present in 10-30 are adequa	Ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh >3 inches) present, with <a>30 % tree canopy cover with maintained understory. Low 0.75 ing the price of the product of the present of t	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F Blocks 6	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5 the sums Riparian qual 100 100% 100% ess; shade;	NOTES>> Cl= (Sum % RA* Rt Bank Cl> Lt Bank Cl>	1.20	

	St	ream In	npact A	ssessm	nent Fo	rm Pag	e 2		
Project #	Applicant		Locality	Cowardin Class.	HUC	Date	Data Point	SAR length	Impact Factor
								500	1
	L ALTERATION: Stream cross poil piles, constrictions, livestock		Condition	al Category				NOTES>>	
	Negligible	Mi	nor		erate 60 - 80% of reach	Se	vere		
Channel Alteration	Channelization, dredging, alteration, or hardening absent. Stream has an unaltered pattern or has naturalized.	Less than 20% of the stream reach is disrupted by any of the channel alterations listed in the parameter guidelines.	20-40% of the stream reach is disrupted by any of the channel alterations listed in the parameter guidelines.	is disrupted by any of the channel	is disrupted by any of the channel alterations listed in the parameter guidelines. If stream has been channelized, normal stable stream meander pattern has not	Greater than 80% of by any of the chan in the parameter (80% of banks sh	of reach is disrupted nel alterations listed guidelines AND/OR nored with gabion, r cement.		
SCORE	1.5	1.3	1.1	0.9	0.7	0).5		
	REACH C	ONDITION I	NDEX and S	TREAM CO	NDITION UN	ITS FOR TH	IS REACH		
NOTE: The CIs and I	RCI should be rounded to 2 decimal places.	The CR should be rou	nded to a whole numb	er.			THE REACH (CONDITION IN	DEX (RCI) >>

RCI= (Sum of all Cl's)/5

COMPENSATION REQUIREMENT (CR) >> 0

CR = RCI X LF X IF



DESCRIBE PROPOSED IMPACT:		

		Stre		ssess				m 1)			
				fied Stream N n wadeable chan							
Project #	F	Project Name		Locality	Cowardin Class.	HUC	Date	SAR #	Impact/SAR length	Impact Factor	
5337	I-	64 Peninsul	a	New Kent	R2UB3	02080206	11/1/11		83		
Name	e(s) of Evaluat	or(s)	Stream Nam	e and Informa	ation						
	Aitkenhead / Nies		WUS 80M								
Channel C	Condition: Asse	ss the cross-sec	tion of the stream								
	Opti	mal	Subo	ptimal	Conditional Catego	ry ginal	Po	oor	Sev	/ere	
	-	ملا	Sep.		1	5	1	and the same of th	1	5	
Channel Condition	Very little incision or 100% stable ban surface protection prominent (80-11 Stable point bars/ba present. Access floodplain or fully bankfull benches.	ks. Vegetative or natural rock, 10%). AND/OR nkfull benches are to their original developed wide	erosion or unproted of banks are si Vegetative protec prominent (60- Depositional feat stability. The bar channels are wel likely has access to	ew areas of active cted banks. Majority table (60-80%), tion or natural rock-80%) AND/OR tures contribute to hkfull and low flow II defined. Stream o ankfull benches, d floodplains along floodplains along	Poor. Banks more or Poor due to lo Erosion may be pri both banks. Veget 40-60% of banks. bevertical or unde 60% of stream sediment. Sec	Streambanks may	Vertically/laterally widen further. Ma are near vertical. 60-80% of bar protection prese banks, and is insu erosion. AND/O stream is cover	ned/incised. unstable. Likely to jority of both banks Erosion present on ks. Vegetative ent on 20-40% of ufficient to prevent R 60-80% of the ed by sediment. porary/transient in	incision, flow cor banks. Streamber rooting depth, n vertical/underc protection present banks, is not pre Obvious banks l Erosion/raw bar		
	and transverse ba sediment deposition 10% of b	n covers less than nottom.	portions of the r sediment covers 10 bott	reach. Transient 0-40% of the stream tom.	instability. Depositiv stability, may be AND/OR V-shapi vegetative protecti banks and depositi	on that contribute to forming/present. ed channels have on on > 40% of the onal features which	nature, and contri AND/OR V-shap vegetative protect 40% of the banks a deposition	buting to instability. ed channels have ion is present on > and stable sediment is absent.	than 80% of strean deposition, contrib Multiple thread subterrar	g channel. Greater n bed is covered by outing to instability. channels and/or nean flow.	CI
Score	3		2	.4		2	1	.6		1	3.0
. RIPARIAN	N BUFFERS: A		Con	n areas along the	gory	ginal		n may be accepta	NOTES>>		
RIPARIAN Riparian Buffers		a inches) present, nopy cover and a erstory. Wetlands	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree	ditional Cate	gory						
Riparian	Opti Tree stratum (dbh > with > 60% tree ca non-maintained und	a inches) present, nopy cover and a erstory. Wetlands	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh >3 inches) present, with <30% tree canopy cover with	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable			
Riparian Buffers	Opti Tree stratum (dbh > with > 60% tree ca non-maintained und	3 inches) present, nopy cover and a erstory. Wetlands riparian areas.	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory.	ditional Cate ptimal Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation).	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover.	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh > 3 inches) present, with < 30% tree canopy cover with maintained understory.	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, recently seeded and stabilized, or other comparable condition.	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions.			
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Riparian Buffers Condition Scores Delineate ripa secriptors. Determine sq slow. Enter the % R	Tree stratum (dbh > with > 60% tree ca a non-maintained und located within the	3 inches) present, nopy cover and a erstory. Wetlands riparian areas.	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 into Condition C	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Coungth and width. Co	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh >3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, or feed lots, trails, or other comparable conditions. Low 0.5	NOTES>>	Scores*0.01)/2 1.20	CI
Riparian Buffers Condition Scores Delineate ripa secriptors. Determine sq	Tree stratum (dbh > with > 60% tree ca non-maintained und located within the	3 inches) present, nopy cover and a erstory. Wetlands riparian areas. 5 ach stream bank ach by measuring 100% 1.2	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 into Condition C	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Coungth and width. Co	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh >3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5	NOTES>>		CI 1.20
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Riparian Buffers Condition Scores Delineate ripa secriptors. Determine sq slow. Enter the % R Right Bank Left Bank INSTREAN	Tree stratum (dbh > with > 60% tree ca non-maintained und located within the located with	3 inches) present, nopy cover and a erstory. Wetlands riparian areas. 5 ach stream bank ach by measuring 100% 1.2 100% 1.2 ried substrate sifle poole comple	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 sinto Condition C g or estimating ler parian category in parian category in	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Coungth and width. Coungth and width. Coungth and width. Coungth and depths; wores. Conditiona	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85 Indition Scores using the control of the control	Ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh -3 inches) present, with +30% tree canopy cover with maintained understory. Low 0.75 Ing the vided for you	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F Blocks e	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5 the sums Riparian equal 100 100% 100%	CI= (Sum % RA * S Rt Bank CI > Lt Bank CI >	1.20	
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	St	ream In	npact A	ssessm	nent Fo	rm Pag	e 2		
Project #	Applicant		Locality	Cowardin Class.	HUC	Date	Data Point	SAR length	Impact Factor
								500	1
	ALTERATION: Stream cross poil piles, constrictions, livestock	sings, riprap, conc		concrete blocks, s	traightening of ch	annel, channeliza	ation,	NOTES>>	
	Negligible	Mi	nor		erate	Se	vere		
Channel Alteration	Channelization, dredging, alteration, or hardening absent. Stream has an unaltered pattern or has naturalized.	Less than 20% of the stream reach is disrupted by any of the channel alterations listed in the parameter guidelines.	20-40% of the stream reach is disrupted by any of the channel alterations listed in the parameter guidelines.	is disrupted by any of the channel	60 - 80% of reach is disrupted by any of the channel alterations listed in the parameter guidelines. If stream has been channelized, normal stable stream meander pattern has not	Greater than 80% by any of the chan in the parameter 80% of banks sh	of reach is disrupted nel alterations listed guidelines AND/OR nored with gabion, or cement.		
SCORE	1.5	1.3	1.1	0.9	0.7	C).5		
	REACH C	ONDITION I	NDEX and S	TREAM CO	NDITION UN	ITS FOR TH	IS REACH		
VOTE: The CIs and I	RCI should be rounded to 2 decimal places.	The CR should be rou	nded to a whole numb	er.			THE REACH (CONDITION IN	DEX (RCI) >>

REACH CONDITION INDEX (RCI) >>

1.57

RCI= (Sum of all Cl's)/5

COMPENSATION REQUIREMENT (CR) >>

>> 0

CR = RCI X LF X IF



ESCRIBE PROPOSED IMPACT:	

		Stre	Uni	fied Stream N	lethodology 1	Form	ginia	m 1)			
Project #		Project Name		Locality	Cowardin Class.	HUC	Date Date	SAR#	Impact/SAR length	Impact Factor	
5337	I	-64 Peninsul	a	New Kent	R2UB2	02080206	11/1/11		28		
Name	e(s) of Evalua	tor(s)	Stream Nam	e and Informa	ation						
	Aitkenhead / Nies		WUS 81M								
. Channel C	Condition: Asse	ess the cross-sec	ction of the stream		ondition (erosion, Conditional Catego						
	Opti	imal	Subo	ptimal	Mar	ginal	Po	oor	Se	vere	
	Very little incision o	or active erosion: 80	erosion or unproted	ew areas of active cted banks. Majority	Poor. Banks more	less than Severe or stable than Severe	Vertically/laterally	ned/incised. unstable. Likely to		nstability. Severe	
Channel Condition	100% stable bar surface protection prominent (80-1) Stable point bars/bar present. Access floodplain or fully bankfull benches. and transverse basediment depositio 10% of	nks. Vegetative n or natural rock, 00%). AND/OR ankfull benches are to their original v developed wide Mid-channel bars, ars few. Transient on covers less than	Vegetative protect prominent (60 Depositional feat stability. The bar channels are we likely has access to rewly develope portions of the sediment covers 11	table (60-80%), tion or natural rock -80%) AND/OR tures contribute to nkfull and low flow observed to bankfull benches, and floodplains along reach. Transient 0-40% of the stream tom.	Erosion may be pr both banks. Veget 40-60% of banks. bevertical or unde 60% of stream sediment. Se- temporary/tran instability. Depositi stability, may be	ower bank slopes. resent on 40-60% of tative protection on Streambanks may ercut. AND/OR 40- n is covered by diment may be issent, contribute to e forming/present. sed channels have	are near vertical. 60-80% of bar protection prese banks, and is insi erosion. AND/C stream is cover Sediment is tem nature, and contri AND/OR V-shap	iority of both banks Erosion present on ks. Vegetative ent on 20-40% of ifficient to prevent R 60-80% of the ed by sediment. corary/transient in buting to instability. ed channels have ion is present on >	rooting depth, r vertical/under protection present banks, is not pr Obvious bank s Erosion/raw ba AND/OR Aggradir than 80% of streat deposition, contril	ned below average majority of banks cut. Vegetative on less than 20% of eventing erosion. cloughing present. Inks on 80-100%. ng channel. Greater m bed is covered by buting to instability. I channels and/or	
					banks and depositi	ion on > 40% of the ional features which	deposition	and stable sediment is absent.	subterra	nean flow.	CI
Score	3	3	2	2.4		2	1	.6		1	2.4
NOTES>>	N BUFFERS: A		Con	n areas along the	gory	ginal Low Marginal: Non-maintained,	Po High Poor:	n may be accepta	NOTES>>		
	Opti Tree stratum (dbh > with > 60% tree ca	imal > 3 inches) present, anopy cover and a derstory. Wetlands	Cor Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy	gory	ginal Low Marginal:	Pe		NOTES>>		
2. RIPARIAN	Option Tree stratum (dbh > with > 60% tree canon-maintained uncompaintained u	imal > 3 inches) present, anopy cover and a derstory. Wetlands	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory.	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation).	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover.	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh >3 inches) present, with <30% tree canopy cover with maintained understory.	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable condition.	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions.	NOTES>>		
2. RIPARIAN	Option Tree stratum (dbh > with > 60% tree canon-maintained uncompaintained u	imal 3 inches) present, anopy cover and a derstory. Wetlands e riparian areas.	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained	Low Suboptimal Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present with <30% tree	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh >3 inches) present, with <30% tree canopy cover with maintained	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable	NOTES>>		
Riparian Buffers Condition Scores Delineate ripalescriptors. 2. Determine squelow.	Tree stratum (dbh > with > 60% tree ca non-maintained unc located within the	imal 3 inches) present, anopy cover and a derstory. Wetlands e riparian areas. 5 each stream bankach by measuring	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 into Condition C	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Coungth and width. Coungth	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh > 3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % I	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5	NOTES>>		
Riparian Buffers Condition Scores Delineate rips escriptors. Determine squelow. Enter the % F	Tree stratum (dbh > with > 60% tree cc non-maintained und located within the	imal 3 inches) present, anopy cover and a derstory. Wetlands e riparian areas. 5 each stream bank ach by measurin.	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 into Condition C	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Coungth and width. Coungth	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh > 3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % I	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5	NOTES>>		
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Riparian Buffers Condition Scores Delineate rips escriptors. Determine squelow. Enter the % F	Tree stratum (dbh > with > 60% tree ca non-maintained unc located within the located with	imal 3 inches) present, anopy cover and a derstory. Wetlands e riparian areas. 5 each stream bank ach by measurin. Score for each ri	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 into Condition C	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Coungth and width. Coungth	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh > 3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % I	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5	NOTES>>	Scores*0.01)/2 1.50 1.50	CI 1.50
Riparian Buffers Condition Scores Delineate ripalescriptors. Determine squelow. Enter the % F. Right Bank Left Bank I. Left Bank	Tree stratum (dbh > with > 60% tree canon-maintained unc located within the located withi	imal 3 inches) present, anopy cover and a derstory. Wetlands e riparian areas. 5 each stream bank ach by measurin 100% 1.5 100% 1.5 aried substrate si	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 into Condition C g or estimating let parian category in	Inditional Cate ptimal Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Congth and width. Congth and width. Congth and width. Congth and depths; workers.	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85 adiculators are pro	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh > 3 inches) present, with < 30% tree canopy cover with maintained understory: Low 0.75 ing the povided for you	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F Blocks 6	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5 the sums Riparian equal 100 100%	NOTES>> Cl= (Sum % RA*: Rt Bank Cl >	1.50	
Riparian Buffers Condition Scores Delineate ripalescriptors. Determine squelow. Enter the % F. Right Bank Left Bank INSTREAM Indercut banks;	Tree stratum (dbh > with > 60% tree ca non-maintained unc located within the located with	imal 3 inches) present, anopy cover and a derstory. Wetlands e riparian areas. 5 each stream bank ach by measurin 100% 1.5 100% 1.5 aried substrate si	Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 Into Condition C g or estimating le	Inditional Cate ptimal Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Congth and width. Congth and width. Congth and width. Congth and depths; workers.	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85 adiculators are pro	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh > 3 inches) present, with < 30% tree canopy cover with maintained understory: Low 0.75 ing the povided for you	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F Blocks 6	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5 the sums Riparian equal 100 100%	NOTES>> Ci= (Sum % RA *: Rt Bank Ci > Lt Bank Ci >	1.50	
Riparian Buffers Condition Scores Delineate ripalescriptors. Determine squelow. Enter the % F. Right Bank Left Bank I. Left Bank	Tree stratum (dbh > with > 60% tree ca non-maintained unc located within the located with	imal 3 inches) present, anopy cover and a derstory. Wetlands e riparian areas. 5 5 cach stream bank ach by measuring the stream bank and by measuring the stream bank and the stream bank ach by measuring the stream bank and the stream bank are to stream bank and the stream bank are to stream bank and the stream bank are to stream bank and the stream bank are typically present the stream bank are typically	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 Into Condition C g or estimating let parian category in Zes, water velocit exes, stable featur Subo Stable habitat ele present in 30-509 are adequate fo	Inditional Cate ptimal Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Congth and width. Congth and width. Congth and width. Congth and depths; wores. Conditional	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85 addition Scores us calculators are pro- dudy and leafy deb al Category Mar Stable habitat ele present in 10-30 are adequate fo	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh >3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75 ing the povided for you	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % f Blocks 6	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5 the sums Riparian equal 100 100% 100%	CI= (Sum % RA *: Rt Bank CI > Lt Bank CI > NOTES>>	1.50	CI 1.50

	St	ream In	npact A	ssessm	ent Fo	rm Pag	e 2		
Project #	Applicant		Locality	Cowardin Class.	HUC	Date	Data Point	SAR length	Impact Factor
								500	1
	ALTERATION: Stream cross poil piles, constrictions, livestock	sings, riprap, conc		concrete blocks, s	traightening of ch	annel, channeliza	ation,	NOTES>>	
	Negligible	Mi	nor		erate	Se	vere		
Channel Alteration	Channelization, dredging, alteration, or hardening absent. Stream has an unaltered pattern or has naturalized.	Less than 20% of the stream reach is disrupted by any of the channel alterations listed in the parameter guidelines.	20-40% of the stream reach is disrupted by any of the channel alterations listed in the parameter guidelines.	is disrupted by any of the channel	60 - 80% of reach is disrupted by any of the channel alterations listed in the parameter guidelines. If stream has been channelized, normal stable stream meander pattern has not	Greater than 80% by any of the chan in the parameter 80% of banks sh	of reach is disrupted nel alterations listed guidelines AND/OR nored with gabion, or cement.		
SCORE	1.5	1.3	1.1	0.9	0.7	C).5		
	REACH C	ONDITION I	NDEX and S	TREAM CO	NDITION UN	ITS FOR TH	IS REACH		
VOTE: The CIs and I	RCI should be rounded to 2 decimal places.	The CR should be rou	nded to a whole numb	er.			THE REACH (CONDITION IN	DEX (RCI) >>

HE REACH CONDITION INDEX (RCI) >>

1.34

RCI= (Sum of all CI's)/5

COMPENSATION REQUIREMENT (CR) >> 0

CR = RCI X LF X IF



DESCRIBE PROPOSED IMPACT:		

		Stre	Unit	fied Stream N	lethodology 1	for use in Vir	-	m 1)			
Project #		Project Name		Locality	cowardin Class.	HUC	Date Date	SAR#	Impact/SAR length	Impact Factor	
5337	I	-64 Peninsul	a	New Kent	R2UB2	02080206	11/1/11		30		
Name	e(s) of Evalua	tor(s)	Stream Nam	e and Informa	ation						
	Aitkenhead / Nies		WUS 82M								
. Channel C	Condition: Asse	ess the cross-sec	tion of the stream		ondition (erosion, Conditional Catego						4
	Opti	imal	Subo	ptimal		ginal	Po	oor	Se	vere	4
Ol source!	Very little incision o	or active erosion; 80	erosion or unproted	ew areas of active	Poor. Banks more	less than Severe or a stable than Severe ower bank slopes.	Vertically/laterally	ned/incised. unstable. Likely to jority of both banks	incision, flow co	nstability. Severe	
Channel Condition	100% stable bar surface protection prominent (80-1 Stable point bars/bc present. Access floodplain or fully bankfull benches. and transverse ba sediment depositio 10% of l	nks. Vegetative n or natural rock, 00%). AND/OR ankfull benches are to their original v developed wide Mid-channel bars, ars few. Transient on covers less than	Vegetative protect prominent (60- Depositional feat stability. The bar channels are well likely has access to rnewly develope portions of the rediment covers 10	table (60-80%). tion or natural rock -80%) AND/OR tures contribute to kfull and low flow I defined. Stream o bankfull benches, d floodplains along reach. Transient 0-40% of the stream tom.	Erosion may be pr both banks. Veget 40-60% of banks. bevertical or unde 60% of strean sediment. Set temporary/tran instability. Depositi stability, may be AND/OR V-shap	ower bank stopes, resent on 40-60% of tative protection on Streambanks may arcut. AND/OR 40-n is covered by diment may be issient, contribute too that contribute to forming/present. ed channels have ion on > 40% of the	are near vertical. 60-80% of bar protection prese banks, and is inst erosion. AND/O stream is cover Sediment is temp nature, and contri AND/OR V-shap vegetative protect	cony of both banks. Forsoin present on ks. Vegetative int on 20-40% of fifficient to prevent R 60-80% of the ed by sediment. ocorary/transient in bouting to instability. ed channels have ion is present on > and stable sediment	rooting depth, r vertical/under protection present banks, is not pr Obvious bank s Erosion/raw ba AND/OR Aggradir than 80% of strear deposition, contril Multiple thread	ned below average majority of banks cut. Vegetative on less than 20% of eventing erosion. Sloughing present. Inks on 80-100%. Ing channel. Greate by buting to instability. I channels and/or	r
0			2	.4	banks and depositi	ional features which	deposition	is absent.	Subterra	nean flow.	0.4
Score	3	3		4		2	1	.6		1	2.4
NOTES>>	N BUFFERS: #		Con Subo	n areas along the aditional Cate ptimal	gory	rginal Low Marginal: Non-maintained,	Po High Poor:	n may be accepta	NOTES>>		
	Opti Tree stratum (dbh > with > 60% tree ca	imal > 3 inches) present, anopy cover and a derstory. Wetlands	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree	nditional Cate	gory	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh > 3 inches) present, with <30% tree canopy cover with maintained	Po		NOTES>>		
2. RIPARIAN	Option Tree stratum (dbh > with > 60% tree canon-maintained uncompaintained u	imal > 3 inches) present, anopy cover and a derstory. Wetlands	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained	Low Suboptimal Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh >3 inches) present, with https://doi.org/10.100/bit/10.76 canopy cover with	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable	NOTES>>		
2. RIPARIAN	Option Tree stratum (dbh > with > 60% tree canon-maintained uncompaintained u	imal 3 inches) present, anopy cover and a derstory. Wetlands e riparian areas.	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory.	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation).	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover.	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, popen water. If present, tree stratum (dbh >3 inches) present, with <30% tree canopy cover with maintained understory.	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable condition.	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions.	NOTES>>		
Riparian Buffers Condition Scores Delineate ripalescriptors. 2. Determine squelow.	Tree stratum (dbh > with > 60% tree ca non-maintained unc located within the	imal 3 inches) present, anopy cover and a derstory. Wetlands e riparian areas. 5 each stream bankach by measuring	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 into Condition C	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Coungth and width. Coungth	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh >3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5	NOTES>>		
Riparian Buffers Condition Scores Delineate ripa escriptors. Determine squelow.	Tree stratum (dbh > with > 60% tree ca non-maintained unc located within the located with	imal 3 inches) present, anopy cover and a derstory. Wetlands e riparian areas. 5 each stream bank ach by measurin.	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 into Condition C	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Coungth and width. Coungth	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh >3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5	NOTES>>		
Riparian Buffers Condition Scores Delineate ripa escriptors. Determine squelow.	Tree stratum (dbh > with > 60% tree ca non-maintained unc located within the	imal 3 inches) present, anopy cover and a derstory. Wetlands e riparian areas. 5 each stream bankach by measuring	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 into Condition C	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Coungth and width. Coungth	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh >3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5	NOTES>>		
Riparian Buffers Condition Scores Delineate rips lescriptors. Determine squelow.	Tree stratum (dbh > with > 60% tree ca non-maintained unc located within the located with	imal 3 inches) present, anopy cover and a derstory. Wetlands e riparian areas. 5 each stream bank ach by measurin Score for each ri	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 into Condition C	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Coungth and width. Coungth	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh >3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5	NOTES>>		
Riparian Buffers Condition Scores Delineate rips escriptors. Determine squelow. Enter the % F	Tree stratum (dbh > with > 60% tree canon-maintained unc located within the located withi	imal 3 inches) present, anopy cover and a derstory. Wetlands e riparian areas. 5 each stream bank ach by measurin Score for each ri 100% 1.2	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 into Condition C	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Coungth and width. Coungth	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh >3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5	NOTES>> Cl= (Sum % RA*: Rt Bank Cl >	1.20	CI 1 20
Riparian Buffers Condition Scores Delineate riparelescriptors. Determine squelow. Enter the % F. Right Bank Left Bank INSTREAM	Tree stratum (dbh > with > 60% tree ca non-maintained unc located within the located with	imal 3 inches) present, anopy cover and a derstory. Wetlands e riparian areas. 5 each stream bank ach by measurin 100% 1.2 100% 1.2 aried substrate si	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 k into Condition C g or estimating ler parian category in	ditional Cate ptimal Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Coungth and width. Coungth and width. Coungth and width. Coungth and depths; wodes.	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85 Indition Scores us calculators are production of the product	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh > 3 inches) present, with <a>30 % tree canopy cover with maintained understory: Low 0.75 ing the povided for you	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F Blocks 6	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5 the sums Riparian equal 100 100%	NOTES>>		
Riparian Buffers Condition Scores Delineate ripalescriptors. Determine squescriptors. Enter the % F. Right Bank Left Bank INSTREAM Left Banks;	Tree stratum (dbh > with > 60% tree ca non-maintained unc located within the located with	imal 3 inches) present, anopy cover and a derstory. Wetlands e riparian areas. 5 each stream bank ach by measurin 100% 1.2 100% 1.2 aried substrate si	Riph Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 Into Condition C g or estimating ler parian category in parian category in categ	ditional Cate ptimal Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Coungth and width. Coungth and width. Coungth and width. Coungth and depths; wodes.	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <a>3 inches) present, with <a>3 inches) present, or a tree canopy cover. High 0.85 Indition Scores us calculators are production of the control of th	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh > 3 inches) present, with <a>30 % tree canopy cover with maintained understory: Low 0.75 ing the povided for you	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F Blocks 6	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5 the sums Riparian equal 100 100%	NOTES>> Ci= (Sum % RA *: Rt Bank Ci > Lt Bank Ci >	1.20	
Riparian Buffers Condition Scores Delineate riparelescriptors. Determine squelow. Enter the % F. Right Bank Left Bank INSTREAM	Tree stratum (dbh > with > 60% tree ca non-maintained unc located within the located with	imal 3 inches) present, anopy cover and a derstory. Wetlands e riparian areas. 5 5 cach stream bank ach by measuring the stream	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 Into Condition C g or estimating let parian category in Zes, water velocity ixes, stable featur Subo Stable habitat ele present in 30-50% are adequate fo	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Congth and width. Congth and width. Congth and width. Congth and width. Congth and depths; wordes. Conditional	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85 Indition Scores us calculators are production of the present in 10-30 are adequate for a seadequate for the present in 10-30 are adequate for the present in 10-30 are adeq	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh >3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75 ing the povided for you	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F Blocks 6	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5 the sums Riparian equal 100 100% 100%	CI= (Sum % RA *: Rt Bank CI > Lt Bank CI > NOTES>>	1.20	CI 1.20

	St	ream In	npact A	ssessm	ent Fo	rm Pag	je 2		
Project #	Applicant		Locality	Cowardin Class.	HUC	Date	Data Point	SAR length	Impact Factor
								500	1
	L ALTERATION: Stream cross poil piles, constrictions, livestock		Conditiona	al Category				NOTES>>	
	Negligible	Mi	nor		erate	Se	evere		
Channel Alteration	Channelization, dredging, alteration, or hardening absent. Stream has an unaltered pattern or has naturalized.	Less than 20% of the stream reach is disrupted by any of the channel alterations listed in the parameter guidelines.	20-40% of the stream reach is disrupted by any of the channel alterations listed in the parameter guidelines.	of the channel	60 - 80% of reach is disrupted by any of the channel alterations listed in the parameter guidelines. If stream has been channelized, normal stable stream meander pattern has not	Greater than 80% by any of the cha in the parameter 80% of banks s	6 of reach is disrupted innel alterations listed guidelines AND/OR shored with gabion, or cement.		
SCORE	1.5	1.3	1.1	0.9	0.7		0.5		
	REACH C	ONDITION	NDEX and S	TREAM CO	NDITION UN	ITS FOR TH	HIS REACH		
NOTE: The Cls and F	RCI should be rounded to 2 decimal places.	The CR should be rou	nded to a whole numb	er.			THE REACH O	CONDITION IN	DEX (RCI) >>

CR = RCI X LF X IF



		Stre	Unit	fied Stream N	lethodology 1	Form	ginia	m 1)			
Project #		Project Name		Locality	nels classified a Cowardin Class.	HUC	perennial Date	SAR#	Impact/SAR length	Impact Factor	
5337	ı	-64 Peninsul	a	New Kent	R4UB2	02080206	11/1/11		102		
Nam	e(s) of Evalua	tor(s)		e and Informa	ation		1				
	Aitkenhead / Nies		WUS 83M								
. Channel (Condition: Asse	ess the cross-sec	ction of the stream		ondition (erosion, Conditional Catego						
	Opt	imal	Subo	ptimal	Mar	ginal	Po	oor	Se	vere	
Channel	Very little incision o	r active erosion; 80	erosion or unproted	ew areas of active cted banks. Majority table (60-80%).	Poor. Banks more	less than Severe or e stable than Severe ower bank slopes.		ed/incised. unstable. Likely to ority of both banks	incision, flow co	nstability. Severe ontained within the bed below average	
Condition	100% stable bar surface protection prominent (80-1) Stable point bars/bar present. Access floodplain or fully bankfull benches. and transverse bar sediment deposition 10% of	00%). AND/OR ankfull benches are to their original or developed wide Mid-channel bars, ars few. Transient on covers less than	Vegetative protect prominent (60- prominent (60- Depositional feat stability. The bar channels are well likely has access to or newly develope portions of the resediment covers 10-	tion or natural rock- 80%) AND/OR tures contribute to nkfull and low flow Il defined. Stream o bankfull benches, di floodplains along reach. Transient 0-40% of the stream tom.	both banks. Veget 40-60% of banks. bevertical or unde 60% of strean sediment. Set temporary/tran instability. Depositi stability, may be AND/OR V-shap	resent on 40-60% of tative protection on Streambanks may percut. AND/OR 40- n is covered by dienent may be sisient, contribute tion that contribute to forming/present. bed channels have ion on > 40% of the	60-80% of bar protection press banks, and is insu- erosion. AND/O stream is cover Sediment is temp nature, and contri AND/OR V-shap vegetative protect	ed channels have	rooting depth, i vertical/under protection present banks, is not pr Obvious bank s Erosion/raw ba AND/OR Aggradi than 80% of streat deposition, contri Multiple thread	majority of banks rout. Vegetative on less than 20% of veventing erosion. sloughing present. Inks on 80-100%. In g channel. Greater m bed is covered by buting to instability. It channels and/or neean flow.	
Sooro	3	1	2	.4		ional features which	deposition	is absent.		1	2.4
Score	•	•		.4			'	.0		1	2.4
2. RIPARIAN	N BUFFERS: A		Con Subo	ditional Cate	gory	ginal Low Marginal:	Po High Poor:	n may be accepta	NOTES>>		
Riparian Buffers	Opti	imal - 3 inches) present, anopy cover and a derstory. Wetlands	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy	gory	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh > 3 inches) present, with <30% tree canopy cover with maintained	Po				
Riparian	Option Tree stratum (dbh swith > 60% tree cr	imal - 3 inches) present, anopy cover and a derstory. Wetlands	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained	continuation of the state of th	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh > 3 inches) present, with <30% tree canopy cover with	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable			
Riparian	Option Tree stratum (dbh swith > 60% tree cr	• 3 inches) present, anopy cover and a derstory. Wetlands e riparian areas.	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory.	ditional Cate ptimal Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation).	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover.	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh >3 inches) present, with <30% tree canopy cover with maintained understory.	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, recently seeded and stabilized, or other comparable condition.	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions.			
Riparian Buffers Condition Scores Delineate ripe descriptors.	Tree stratum (dbh swith > 60% tree canon-maintained und located within the	imal 3 inches) present, anopy cover and a derstory. Wetlands e riparian areas.	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 into Condition C	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Congth and width. Congth and	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh > 3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5			
Riparian Buffers Condition Scores Delineate ripaescriptors. Determine scores Determine scores Enter the % F	Tree stratum (dbh a with a 60% tree cc non-maintained und located within the	imal 3 inches) present, anopy cover and a derstory. Wetlands e riparian areas.	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 into Condition C	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Congth and width. Congth and	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh > 3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5			
Riparian Buffers Condition Scores Delineate ripe escriptors. Determine so	Tree stratum (dbh > with > 60% tree conon-maintained und located within the located withi	imal 3 inches) present, anopy cover and a derstory. Wetlands e riparian areas. 5 ach by measuring score for each right and score for each right	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 80% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 k into Condition C g or estimating ler parian category in	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Co oright and width. Co	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh > 3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5	NOTES>>		
Riparian Buffers Condition Scores Delineate ripe escriptors. Determine so	Tree stratum (dbh > with > 60% tree connon-maintained und located within the located with	imal 3 inches) present, anopy cover and a derstory. Wetlands e riparian areas. 5 ach stream bank ach by measuring 20% 1.1	Com Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 into Condition C g or estimating ler parian category in 15% 0.75	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Co oright and width. Co or	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh > 3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5 the sums Riparian qual 100			CI
Riparian Buffers Condition Scores Delineate ripaescriptors. Determine seelow.	Tree stratum (dbh > with > 60% tree conon-maintained und located within the located withi	imal 3 inches) present, anopy cover and a derstory. Wetlands e riparian areas. 5 ach by measuring score for each right 20%	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 80% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 k into Condition C g or estimating ler parian category in	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 attegories and Co oright and width. Co the blocks below 65%	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh > 3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5	NOTES>> CI= (Sum % RA *	Scores*0.01)/2 0.66 0.66	CI 0.66
Condition Scores Delineate ripe descriptors. Determine so pelow. Right Bank Left Bank INSTREAL	Tree stratum (dbh > with > 60% tree conon-maintained und located within the located withi	imal 3 inches) present, anopy cover and a derstory. Wetlands e riparian areas. 5 ach stream bank ach by measuring 20% 1.1 20% 1.1	Com Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 into Condition C g or estimating ler parian category in 15% 0.75	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Congth and width.	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85 addition Scores us calculators are production of the produc	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh > 3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75 ing the povided for you	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F Blocks 6	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5 the sums stiparian qual 100 100%	NOTES>> CI= (Sum % RA * Rt Bank CI >	0.66	
Condition Scores Delineate ripe descriptors. Determine so pelow. Right Bank Left Bank INSTREAL	Tree stratum (dbh with > 60% tree canon-maintained und located within the located within	imal 3 inches) present, anopy cover and a derstory. Wetlands e riparian areas. 5 ach stream bank ach by measuring 20% 1.1 20% 1.1	Com Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 sinto Condition C g or estimating let parian category in 15% 0.75 15% 0.75 zes, water velocity ixes, stable featur	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Congth and width.	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85 Indition Scores us calculators are production of the product	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh > 3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75 ing the povided for you	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F Blocks 6	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5 the sums stiparian qual 100 100%	NOTES>> CI= (Sum % RA * Rt Bank CI > Lt Bank CI >	0.66	
Condition Scores Delineate ripe descriptors. Deltheate ripe descriptors. Right Bank Left Bank Left Bank INSTREAT	Tree stratum (dbh > with > 60% tree cc non-maintained und located within th 1. arian areas along of quare footage for e Riparian Area and % Riparian Area> Score > % Riparian Area> Score > M HABITAT: Va ; root mats; SAV; ri	imal 3 inches) present, anopy cover and a derstory. Wetlands e riparian areas. 5 each stream bank ach by measuring 20% 1.1 20% 1.1 aried substrate si ffle poole comple imal	Com Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 into Condition C g or estimating ler parian category in 15% 0.75 15% 0.75 zes, water velocity exes, stable featur Subo Stable habitat ele present in 30-50% are adequate fo	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Congth and width.	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85 Indition Scores us calculators are processed of the control of	Ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh >3 inches) present, with <a>30 % tree canopy cover with maintained understory. Low 0.75 ing the price of the product of the present of t	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F Blocks 6	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5 the sums Riparian qual 100 100% 100% ess; shade;	NOTES>> CI= (Sum % RA * Rt Bank CI > Lt Bank CI >	0.66	

	St	ream In	npact A	ssessm	nent Fo	rm Pag	e 2		
Project #	Applicant		Locality	Cowardin Class.	HUC	Date	Data Point	SAR length	Impact Factor
								500	1
	L ALTERATION: Stream cross spoil piles, constrictions, livestock	ings, riprap, conc		concrete blocks, s	traightening of ch	annel, channeliz	ration,	NOTES>>	
	Negligible	Mi	nor		erate	Se	evere		
Channel Alteration	Channelization, dredging, alteration, or hardening absent. Stream has an unaltered pattern or has naturalized.	Less than 20% of the stream reach is disrupted by any of the channel alterations listed in the parameter guidelines.	20-40% of the stream reach is disrupted by any of the channel alterations listed in the parameter guidelines.	of the channel	is disrupted by any of the channel alterations listed in	Greater than 80% by any of the cha in the parameter 80% of banks s	o of reach is disrupted nnel alterations listed guidelines AND/OR shored with gabion, or cement.		
SCORE	1.5	1.3	1.1	0.9	0.7		0.5		
	REACH C	ONDITION I	NDEX and S	TREAM CO	NDITION UN	ITS FOR TH	IIS REACH		
OTE: The Cls and	RCI should be rounded to 2 decimal places.	The CR should be rou	nded to a whole numb	er.			THE REACH O	CONDITION IN	DEX (RCI) >>

CR = RCI X LF X IF



DESCRIBE PROPOSED IMPACT:		

	Stre		fied Stream N	lethodology f	for use in Vir	ginia	,			
Project #	Project Nan		Locality	Cowardin Class.	HUC	Date	SAR#	Impact/SAR length	Impact Factor	
5337	I-64 Peninsu	ıla	New Kent	R2UB3	02080206	11/2/11		101		
Nam	ne(s) of Evaluator(s)		e and Inform	ation						
	Aitkenhead / Nies	WUS 84M								
I. Channel (Condition: Assess the cross-se	ection of the stream		ondition (erosion, Conditional Catego						
	Optimal	Subo	ptimal		ginal	Po	oor	Sev	vere	
Channel Condition	Very little incision or active erosion; 8 100% stable banks. Vegetative surface protection or natural rock,	erosion or unproted of banks are s Vegetative protec	rew areas of active cted banks. Majority table (60-80%). ttable (60-80%). 400-80%) AND/OR	Poor. Banks more or Poor due to lo Erosion may be pr	less than Severe or stable than Severe ower bank slopes. esent on 40-60% of tative protection on	Vertically/laterally widen further. Ma are near vertical.	ned/incised. unstable. Likely to jority of both banks Erosion present on	incision, flow cor banks. Streamb rooting depth, n	istability. Severe national within the ed below average najority of banks	
	prominent (80-100%). AND/OR Stable point bars/bankfull benches at present. Access to their original floodplain or fully developed wide bankfull benches. Mid-channel bars and transverse bars few. Transient sediment deposition covers less that 10% of bottom.	Depositional feat stability. The bar channels are we likely has access t or newly develope portions of the is sediment covers 10	Interest on the stream to bankfull and low flow all defined. Stream to bankfull benches, ad floodplains along reach. Transient 0-40% of the stream tom.	40-60% of banks. bevertical or unde 60% of strean sediment. See temporary/tran instability. Depositi stability, may be AND/OR V-shap vegetative protecti	Streambanks may ercut. AND/OR 40- n is covered by diment may be sient, contribute on that contribute to forming/present. ed channels have ion on > 40% of the ional features which	protection prese banks, and is insi ersoion. AND/O stream is cover Sediment is tem nature, and contri AND/OR V-shap vegetative protect 40% of the banks a	into n 20-40% of ifficient to prevent R 60-80% of the ed by sediment. paralytransient in buting to instability. ed channels have ion is present on > and stable sediment is absent.	protection present banks, is not pre Obvious bank sl Erosion/raw ban AND/OR Aggradir than 80% of strear deposition, contrik Multiple thread	cut. Vegetative on less than 20% of eventing erosion. loughing present. hks on 80-100%. In channel, Greater m bed is covered by outing to instability. channels and/or nean flow.	CI
Score	3	2	2.4		2	1	.6		1	2.4
NOTES>> 2. RIPARIAI	N BUFFERS: Assess both bar		an areas along the		ugh measurement	s of length & widti	n may be accepta	able)		
	Optimal Optimal Tree stratum (dbh > 3 inches) preser with > 60% tree canopy cover and a non-maintained understory. Wetland located within the riparian areas.	High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) t, present, with 30% to 60% tree s canopy cover and containing both herbaceous and shrub layers or a non-maintained	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy	gory	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh >3 inches) present, with <30% tree		Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions.	NOTES>>		
2. RIPARIAI	Optimal Tree stratum (dbh > 3 inches) presen with > 60% tree canopy cover and a non-maintained understory. Wetland	High Suboptimal: Riparian areas with tree stratum (Idh > 3 inches) present, with 30% to 60% tree s canopy cover and containing both herbaceous and shrub layers or a non-maintained understory.	nditional Cate ptimal Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation).	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover.	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh >3 inches) present, with <30% tree canopy cover with maintained understory.	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, recently seeded and stabilized, or other comparable condition.	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions.	NOTES>>		
2. RIPARIAI	Optimal Tree stratum (dbh > 3 inches) presen with > 60% tree canopy cover and a non-maintained understory. Wetland	High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) t, present, with 30% to 60% tree s canopy cover and containing both herbaceous and shrub layers or a non-maintained	Low Suboptimal Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory, Recent cutover (dense	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh > 3 inches) present, with <30% tree canopy cover with maintained	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable	NOTES>>		
Riparian Buffers Condition Scores 1. Delineate rip descriptors. 2. Determine scorelow.	Optimal Tree stratum (dbh > 3 inches) presen with > 60% tree canopy cover and a non-maintained understory. Wetland located within the riparian areas. 1.5 parian areas along each stream ba quare footage for each by measuri	High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree s canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 This into Condition C	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 Lategories and Congth and width. Congth and width. Congth and width. Congth and width. Congth and suboptimal and width. Congth and width. C	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh > 3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions.	NOTES>>		
Riparian Buffers Condition Scores 1. Delineate rip descriptors. 2. Determine scoelow. 3. Enter the % I	Optimal Tree stratum (dbh > 3 inches) preser with > 60% tree canopy cover and a non-maintained understory. Wetland located within the riparian areas. 1.5 arian areas along each stream ba quare footage for each by measuri	High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree s canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 This into Condition C	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 Lategories and Congth and width. Congth and width. Congth and width. Congth and width. Congth and suboptimal and width. Congth and width. C	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh > 3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5	NOTES>>	Scores*0.01)/2	
Riparian Buffers Condition Scores Delineate rip descriptors. Enter the % I	Optimal Tree stratum (dbh > 3 inches) presen with > 60% tree canopy cover and a non-maintained understory. Wetland located within the riparian areas. 1.5 parian areas along each stream ba quare footage for each by measuri	High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree s canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 This into Condition C	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 Lategories and Congth and width. Congth and width. Congth and width. Congth and width. Congth and suboptimal and width. Congth areas with the position of the pos	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh > 3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5	NOTES>>	Scores*0.01)/2 1.50	CI
Riparian Buffers Condition Scores Delineate ripplescriptors Determine scelow. Enter the % I	Optimal Tree stratum (dbh > 3 inches) preser with > 60% tree canopy cover and a non-maintained understory. Wetland located within the riparian areas. 1.5 parian areas along each stream ba quare footage for each by measuring Riparian Area and Score for each % Riparian Area and Score for each % Riparian Area and Score > 1.5 % Riparian Area> 100% Score > 1.5	High Suboptimal: Riparian areas with tree stratum (tdb > 3 inches) present, with 30% to 60% tree scanopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 This into Condition Cong or estimating let	Inditional Cate ptimal Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory, Recent cutover (dense vegetation). Low 1.1 Tategories and Co ongth and width. Co	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh > 3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75 ing the povided for you	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F Blocks 6	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5 the sums Riparian equal 100 100%	CI= (Sum % RA * S Rt Bank CI > Lt Bank CI >		
Riparian Buffers Condition Scores Delineate rip lescriptors. 2. Determine scorelow. 3. Enter the % I Right Bank Left Bank 3. INSTREA	Optimal Tree stratum (dbh > 3 inches) presen with > 60% tree canopy cover and a non-maintained understory. Wetland located within the riparian areas. 1.5 Darian areas along each stream bat quare footage for each by measuring Riparian Area and Score for each % Riparian Area and Score > 1.5 % Riparian Area > 100% Score > 1.5 M HABITAT: Varied substrate	High Suboptimal: Riparian areas with tree stratum (tdh > 3 inches) present, with 30% to 60% tree scanopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 This into Condition C and or estimating let riparian category in	nditional Cate ptimal Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 Tategories and Co	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh > 3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75 ing the povided for you	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F Blocks 6	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5 the sums Riparian equal 100 100%	NOTES>> Cl= (Sum % RA*S Rt Bank Cl>	1.50	
Riparian Buffers Condition Scores Delineate rip descriptors. Determine scoelow. Bright Bank Left Bank Left Bank Instream Habitat/	Optimal Tree stratum (dbh > 3 inches) preser with > 60% tree canopy cover and a non-maintained understory. Wetland located within the riparian areas. 1.5 parian areas along each stream ba quare footage for each by measuring Riparian Area and Score for each % Riparian Area and Score for each % Riparian Area and Score > 1.5 % Riparian Area> 100% Score > 1.5	High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree is canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 This into Condition C and or estimating let in the condition of the condit	nditional Cate ptimal Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 Lategories and Co	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85 adculators are production of the control of the	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh > 3 inches) present, with < 30% tree canopy cover with maintained understory. Low 0.75 ing the ovided for you	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F Blocks 6	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5 the sums Riparian equal 100 100%	CI= (Sum % RA * S Rt Bank CI > Lt Bank CI >	1.50	
Riparian Buffers Condition Scores 1. Delineate rip descriptors. 2. Determine scorelow. 3. Enter the % I Right Bank Left Bank Instream	Optimal Tree stratum (dbh > 3 inches) preser with > 60% tree canopy cover and a nor-maintained understory. Wetland located within the riparian areas. 1.5 arian areas along each stream ba quare footage for each by measuring Riparian Area and Score for each % Riparian Area and Score 1.5 % Riparian Area 100% Score > 1.5 % Riparian Area 100% Score > 1.5 M HABITAT: Varied substrate croot mats; SAV; riffle poole comp	High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches), present, with 30% to 60% tree scanopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 This into Condition C and or estimating let riparian category in sizes, water velocit lexes, stable feature stable feature stable feature are adequate for popul	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 Lategories and Congth and width. Congth and width. Congth and width. Congth and width. Congth and depths; wores. Conditions	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85 Indition Scores usical culture and the second of the seco	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh >3 inches) present, with <a>30 % tree canopy cover with maintained understory. Low 0.75 ing the provided for you	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % If Blocks 6 Habitat elements are typic than 10% 6	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5 the sums Riparian rqual 100 100% 100%	CI= (Sum % RA * S Rt Bank CI > Lt Bank CI >	1.50	CI 1.20

	St	ream In	npact A	ssessm	ent Fo	rm Pag	e 2		
Project #	Applicant		Locality	Cowardin Class.	HUC	Date	Data Point	SAR length	Impact Factor
								500	1
	L ALTERATION: Stream cross spoil piles, constrictions, livestock	sings, riprap, conc		concrete blocks, s	traightening of ch	annel, channeliza	ation,	NOTES>>	
	Negligible	Mi	nor		erate		vere		
Channel Alteration	Channelization, dredging, alteration, or hardening absent. Stream has an unaltered pattern or has naturalized.	Less than 20% of the stream reach is disrupted by any of the channel alterations listed in the parameter guidelines.	20-40% of the stream reach is disrupted by any of the channel alterations listed in the parameter guidelines.	is disrupted by any of the channel	60 - 80% of reach is disrupted by any of the channel alterations listed in the parameter guidelines. If stream has been channelized, normal stable stream meander pattern has not	Greater than 80% of by any of the chan in the parameter \$80% of banks sh	of reach is disrupted nel alterations listed juidelines AND/OR iored with gabion, r cement.		
SCORE	1.5	1.3	1.1	0.9	0.7	0	.5		
	REACH C	ONDITION	NDEX and S	TREAM CO	NDITION UN	ITS FOR TH	IS REACH		
VOTE: The Cls and F	RCI should be rounded to 2 decimal places.	The CR should be rou	nded to a whole numb	oer.			THE REACH (CONDITION IN	DEX (RCI) >>

THE REACH CONDITION INDEX (RCI) >>

RCI= (Sum of all Cl's)/5

COMPENSATION REQUIREMENT (CR) >>

CR = RCI X LF X IF



DESCRIBE PROPOSED IMPACT:	

		Unif	fied Stream N	lethodology f	or use in Virg	•	m 1)			
Project #	Project Nam		Locality	Cowardin Class.	HUC	Date	SAR#	Impact/SAR length	Impact Factor	
5337	I-64 Peninsu	la	New Kent	R2UB2	02080206	11/2/11		157		
	e(s) of Evaluator(s)		e and Informa	ation						
	Aitkenhead / Nies	WUS 85M								
. Channel Co	Condition: Assess the cross-se	ction of the stream		ondition (erosion, conditional Catego						
	Optimal	Subo	ptimal		ginal	Po	oor	Sev	/ere	
Channel Condition	Very little incision or active erosion; 8 100% stable banks. Vegetative surface protection or natural rock,	of banks are st Vegetative protect	ew areas of active cted banks. Majority table (60-80%). tion or natural rock	Poor. Banks more or Poor due to lo	wer bank slopes. esent on 40-60% of	Vertically/laterally widen further. Ma are near vertical.	ned/incised. unstable. Likely to jority of both banks Erosion present on	incision, flow cor banks. Streambe rooting depth, m	stability. Severe nained within the ad below average najority of banks	
	prominent (80-100%). AND/OR Stable point bars/bankfull benches an present. Access to their original floodplain or fully developed wide bankfull benches. Mid-channel bars, and transverse bars few. Transient sediment deposition covers less than 10% of bottom.	Depositional feat stability. The bar channels are wel likely has access to or newly develope portions of the r	-80%) AND/OR tures contribute to hkfull and low flow Il defined. Stream o bankfull benches, of floodplains along reach. Transient 0-40% of the stream tom.	40-60% of banks, bevertical or unde 60% of stream sediment. Sec temporary/trans instability. Depositi stability, may be AND/OR V-shap vegetative protecti	Streambanks may	protection prese banks, and is insi- erosion. AND/O stream is cover Sediment is tem nature, and contri AND/OR V-shap vegetative protect 40% of the banks a	sixs. Vegetative and on 20-40% of ufficient to prevent R 60-80% of the ed by sediment. opcorary/transient in buting to instability. ed channels have ion is present on > and stable sediment is absent.	protection present of banks, is not pre Obvious bank sli Erosion/raw ban AND/OR Aggradin than 80% of stream deposition, contrib Multiple thread	oughing present. hks on 80-100%. g channel. Greater n bed is covered by buting to instability.	CI
Score	3	2	.4	::-	2	1	.6	•	1	2.4
NOTES>>										
Riparian Buffers	Optimal Tree stratum (dbh > 3 inches) present with > 60% tree canopy cover and a non-maintained understory. Wetland located within the riparian areas.	High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory, Recent cutover (dense vegetation).	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover.	Low Marginal: Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh >3 inches) present, with <30% tree canopy cover with maintained understory.	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable condition.	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions.			
		∐:~b	Low		understory.					
Condition	4 -	High	•	High	Low	High	Low			
Condition Scores	1.5	1.2	1.1	0.85		High 0.6	Low 0.5			
Scores 1. Delineate ripar descriptors. 2. Determine squeelow.	1.5 Irian areas along each stream bar uare footage for each by measuring a partial Area and Score for each in the stream of the	1.2 nk into Condition Cong or estimating len	1.1 ategories and Co	0.85 Indition Scores using alculators are pro	0.75	0.6 Ensure of % F	•			
Scores 1. Delineate ripar descriptors. 2. Determine squelow.	urian areas along each stream bar uare footage for each by measurin tiparian Area and Score for each I % Riparian Area> 100%	1.2 nk into Condition Cong or estimating len	1.1 ategories and Co	0.85 Indition Scores using alculators are pro	0.75	0.6 Ensure of % F	0.5 the sums			
Scores 1. Delineate ripar descriptors. 2. Determine squelow. 3. Enter the % Ri	urian areas along each stream bar uare footage for each by measurin Riparian Area and Score for each I	1.2 nk into Condition Cong or estimating len	1.1 ategories and Co	0.85 Indition Scores using alculators are pro	0.75	0.6 Ensure of % F	0.5 the sums Riparian	CI= (Sum % RA * S	Scores*0.011/2	
Scores 1. Delineate ripar descriptors. 2. Determine squipelow. 3. Enter the % Ri Right Bank	urian areas along each stream bar uare footage for each by measurin tiparian Area and Score for each I % Riparian Area> 100%	1.2 nk into Condition Cong or estimating len	1.1 ategories and Co	0.85 Indition Scores using alculators are pro	0.75	0.6 Ensure of % F	0.5 the sums Riparian	CI= (Sum % RA * S Rt Bank CI >	Scores*0.01)/2 1.10	CI
Scores Delineate ripar lescriptors. Determine squelow. Before Ripar the Rip	urian areas along each stream bar uare footage for each by measurin Riparian Area and Score for each 1 % Riparian Area> 100% Score > 1.1	1.2 nk into Condition Cong or estimating len	1.1 ategories and Co	0.85 Indition Scores using alculators are pro	0.75	0.6 Ensure of % F	0.5 the sums Riparian equal 100 100%			CI 1.10
Scores 1. Delineate ripar descriptors. 2. Determine squelow. 3. Enter the % Ri Right Bank Left Bank 3. INSTREAM	arian areas along each stream bar uare footage for each by measurin Riparian Area and Score for each to Riparian Area	1.2 Ak into Condition Cong or estimating ler riparian category in	ategories and Congth and width. Con the blocks below	0.85 Indition Scores using alculators are pro	Low 0.75 Ing the vided for you	0.6 Ensure of % F Blocks 6	0.5 the sums Riparian equal 100 100%	Rt Bank CI >	1.10	
Scores 1. Delineate ripar descriptors. 2. Determine squ below. 3. Enter the % Ri Right Bank Left Bank 3. INSTREAM	urian areas along each stream bar uare footage for each by measurin Riparian Area and Score for each r Riparian Area> 100% Score > 1.1 Riparian Area> 100% Score > 1.1	1.2 Ak into Condition Cong or estimating ler riparian category in	1.1 ategories and Congth and width. Congth and width. Congth and width. Congth and width. Congth and depths; worders.	0.85 Indition Scores using alculators are pro	Low 0.75 Ing the vided for you	0.6 Ensure of % F Blocks 6	0.5 the sums Riparian equal 100 100%	Rt Bank CI >	1.10	
Scores 1. Delineate ripar descriptors. 2. Determine squbelow. 3. Enter the % Ri Right Bank Left Bank 3. INSTREAM	arian areas along each stream bar uare footage for each by measurin Riparian Area and Score for each to Riparian Area	nk into Condition Cong or estimating ler riparian category in sizes, water velocity exes, stable featur Subo Stable habitat elet present in 30-40 are adequate for are adequate for a size and a si	1.1 ategories and Congth and width. Congth and width. Congth and width. Congth and width. Congth and depths; worders.	o.85 Indition Scores using alculators are properties of the second seco	Low 0.75 Ing the vided for you is; stable substra	e; low embededr Habitat element lacking or are u elements are typic	0.5 the sums Riparian equal 100 100%	Rt Bank CI >	1.10	

	St	ream In	npact A	ssessm	ent Fo	rm Pag	e 2		
Project #	Applicant		Locality	Cowardin Class.	HUC	Date	Data Point	SAR length	Impact Factor
								500	1
	L ALTERATION: Stream cross poil piles, constrictions, livestock	ings, riprap, conc		concrete blocks, s	traightening of ch	annel, channeliza	ation,	NOTES>>	
	Negligible	Mi	nor	Mod	erate		vere		
Channel Alteration	Channelization, dredging, alteration, or hardening absent. Stream has an unaltered pattern or has naturalized.	Less than 20% of the stream reach is disrupted by any of the channel alterations listed in the parameter guidelines.	20-40% of the stream reach is disrupted by any of the channel	is disrupted by any of the channel	of the channel	Greater than 80% by any of the chan in the parameter 80% of banks sh	of reach is disrupted nel alterations listed guidelines AND/OR nored with gabion, or cement.		
SCORE	1.5	1.3	1.1	0.9	0.7	0).5		
	REACH C	ONDITION I	NDEX and S	TREAM CO	NDITION UN	ITS FOR TH	IIS REACH		
NOTE: The Cls and F	RCI should be rounded to 2 decimal places.	The CR should be rou	nded to a whole numb	er.			THE REACH (CONDITION IN	DEX (RCI) >>

CR = RCI X LF X IF



DESCRIBE PROPOSED IMPACT:	

		Stre		fied Stream N	lethodology f	for use in Vir	ginia				
Project #	Pro	oject Name		Locality	Cowardin Class.	HUC	Date	SAR#	Impact/SAR length	Impact Factor	
5337	I-64	4 Peninsula	a	New Kent	R2UB2	02080206	11/2/11		136		
Name	e(s) of Evaluator	r(s)		e and Informa	ation						
	Aitkenhead / Nies		WUS 86M								
1. Channel C	Condition: Assess	the cross-sec	tion of the stream		ondition (erosion,						
	Optima	al	Subo	ptimal		ginal	Po	oor	Se	vere	
Channel	Very little incision or act 100% stable banks.		erosion or unproted of banks are st	ew areas of active cted banks. Majority table (60-80%). tion or natural rock	Poor. Banks more or Poor due to lo	less than Severe or stable than Severe wer bank slopes. esent on 40-60% of	Vertically/laterally widen further. Ma	ned/incised. unstable. Likely to jority of both banks Erosion present on	incision, flow co banks. Streamb	istability. Severe ntained within the ed below average	
Condition	surface protection or prominent (80-100% Stable point bars/bankfut present. Access to the floodplain or fully development of the bankfull benches. Midand transverse bars fe sediment deposition company of bottoment of the bankfull benches. Midand transverse bars fe sediment deposition company of bottoment of the bankfull benches with the bankfull bankfu	6). AND/OR ull benches are their original veloped wide I-channel bars, ew. Transient overs less than	prominent (60- Depositional feat stability. The bar channels are wel likely has access to or newly develope portions of the r sediment covers 10	and the stream to the stream t	both banks. Veget 40-60% of banks. bevertical or unde 60% of strean sediment. Set temporary/tran instability. Depositi stability, may be AND/OR V-shap vegetative protecti	details on 140-020 and on Streambanks may rerut. AND/OR 40- n is covered by diment may be sient, contribute on that contribute to forming/present. ed channels have ion on > 40% of the ional features which	60-80% of bar protection press banks, and is insu erosion. AND/O stream is cover Sediment is temp nature, and contri AND/OR V-shap vegetative protect 40% of the banks a	ks. Vegetative ent on 20-40% of ufficient to prevent R 60-80% of the ed by sediment. porary/transient in buting to instability. ed channels have	vertical/undern protection present banks, is not pro Obvious bank s Erosion/raw ban AND/OR Aggradir than 80% of strear deposition, contril Multiple thread	majority of banks cut. Vegetative on less than 20% of eventing erosion. loughing present. nks on 80-100%. ng channel. Greater in bed is covered by puting to instability. channels and/or nean flow.	С
Score	3		2	.4		2	1	.6		1	2.4
NOTES>>											
2. RIPARIAN	N BUFFERS: Asse		Con	n areas along the ditional Cate ptimal	gory	ginal		n may be accepta	NOTES>>		
2. RIPARIAN Riparian Buffers		nches) present, by cover and a story. Wetlands	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy	gory	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh > 3 inches) present, with <30% tree canopy cover with maintained					
Riparian Buffers	Optima Tree stratum (dbh > 3 ir with > 60% tree canop; non-maintained underst	nches) present, by cover and a story. Wetlands	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh >3 inches) present, with <30% tree canopy cover with	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable			
Riparian	Optima Tree stratum (dbh > 3 ir with > 60% tree canop; non-maintained underst	nches) present, by cover and a story. Wetlands	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory.	ditional Cate ptimal Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation).	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover.	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh >3 inches) present, with <a>30 % tree canopy cover with maintained understory.	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, recently seeded and stabilized, or other comparable condition.	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions.			
Riparian Buffers Condition Scores 1. Delineate ripatescriptors. 2. Determine squescriptors. 3. Enter the % F	Optima Tree stratum (dbh > 3 ir with > 60% tree canop non-maintained underst located within the rips	nches) present, by cover and a story. Wetlands barrian areas.	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Congth and width. Congth and	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh > 3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions.			
Riparian Buffers Condition Scores Delineate ripa descriptors. Delineate ripa descriptors.	Optima Tree stratum (dbh > 3 ir with > 60% tree canop non-maintained underst located within the rips 1.5 arian areas along each quare footage for each Riparian Area and Sco	nches) present, by cover and a tory. Wetlands barrian areas.	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Congth and width. Congth and	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh > 3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5			
Riparian Buffers Condition Scores Delineate ripalescriptors. Determine squelow. Enter the % F	Tree stratum (dbh > 3 in with > 60% tree canop non-maintained underst located within the rips. 1.5 arian areas along each quare footage for each Riparian Area and Sco % Riparian Area> Score >	nches) present, by cover and a story. Wetlands barrian areas. h stream bank or by measuring tore for each rig 100% 1.5	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Congth and width. Congth and	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh > 3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5 the sums Riparian requal 100 100%	NOTES>> CI= (Sum % RA * S		
Riparian Buffers Condition Scores Delineate ripalescriptors. Determine squelow. Enter the % F	Tree stratum (dbh > 3 in with > 60% tree canopy non-maintained underst located within the rips. 1.5 arian areas along each quare footage for each Riparian Area and Sco % Riparian Area> Score >	nches) present, by cover and a story. Wetlands barrian areas. h stream bank of by measuring 100% 1.5	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Congth and width. Congth and	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh > 3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5	NOTES>> CI= (Sum % RA** Rt Bank CI >	1.50	
Condition Scores 1. Delineate ripadescriptors. 2. Determine squelow. 3. Enter the % F	Tree stratum (dbh > 3 in with > 60% tree canop non-maintained underst located within the rips. 1.5 arian areas along each quare footage for each Riparian Area and Sco % Riparian Area> Score >	nches) present, by cover and a story. Wetlands barrian areas. h stream bank of by measuring 100% 1.5 100% 1.5 d substrate size	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 Into Condition Con gor estimating ler parian category in	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Coungth and width. Coungth and width. Coungth and width. Coungth and depths; wodes.	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85 Indition Scores usion all calculators are production of the production of the calculators are production.	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh > 3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75 ing the production of the product	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F Blocks 6	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5 the sums Riparian equal 100 100%	NOTES>> CI= (Sum % RA * S		CI 1.5
Condition Scores 1. Delineate ripa descriptors. 2. Determine squeles and the	Tree stratum (dbh > 3 in with > 60% tree canopy non-maintained underst located within the rips. 1.5 arian areas along each quare footage for each Riparian Area and Sco % Riparian Area > Score > % Riparian Area > Score > M HABITAT: Varied; root mats; SAV; riffle	nches) present, by cover and a story. Wetlands parian areas. h stream bank in by measuring fore for each right 100% 1.5 100% 1.5 d substrate size poole comple.	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 Into Condition Co	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Co ongth and width. Co the blocks below y and depths; wodes. Conditiona	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85 Indition Scores usional calculators are production of the control of the contr	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh >3 inches) present, with <a>30 % tree canopy cover with maintained understory. Low 0.75 Ing the production of the present	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F Blocks 6	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5 the sums Riparian equal 100 100% 100%	NOTES>> CI= (Sum % RA *: Rt Bank CI > Lt Bank CI >	1.50	
Condition Scores 1. Delineate ripadescriptors. 2. Determine squelow. 3. Enter the % F	Tree stratum (dbh > 3 in with > 60% tree canop non-maintained underst located within the rip: 1.5 arian areas along each quare footage for each Riparian Area and Sco % Riparian Area > Score > M Riparian Area>	nches) present, by cover and a story. Wetlands varian areas. h stream bank to by measuring 100% 1.5 100% 1.5 d substrate size poole complete all spice al	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 Into Condition Con g or estimating ler parian category in Zes, water velocity xes, stable featur Subo Stable habitat elel present in 30-50% are adequate for are dequate for are dequat	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Coungth and width. Coungth and width. Coungth and width. Coungth and depths; wodes.	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85 Indition Scores usion all Category Mar Stable habitat ele present in 10-30% are adequate fo	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh > 3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75 ing the production of the product	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F Blocks 6	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5 the sums Riparian equal 100 100%	NOTES>> CI= (Sum % RA *: Rt Bank CI > Lt Bank CI >	1.50	

	St	ream In	npact A	ssessm	ent Fo	rm Pag	e 2		
Project #	Applicant		Locality	Cowardin Class.	HUC	Date	Data Point	SAR length	Impact Factor
								500	1
	L ALTERATION: Stream cross spoil piles, constrictions, livestock	sings, riprap, conc		concrete blocks, s	traightening of ch	annel, channeliza	ation,	NOTES>>	
	Negligible	Mi	nor		erate		vere		
Channel Alteration	Channelization, dredging, alteration, or hardening absent. Stream has an unaltered pattern or has naturalized.	Less than 20% of the stream reach is disrupted by any of the channel alterations listed in the parameter guidelines.	20-40% of the stream reach is disrupted by any of the channel alterations listed in the parameter guidelines.	is disrupted by any of the channel	60 - 80% of reach is disrupted by any of the channel alterations listed in the parameter guidelines. If stream has been channelized, normal stable stream meander pattern has not	Greater than 80% of by any of the chan in the parameter \$80% of banks sh	of reach is disrupted nel alterations listed juidelines AND/OR iored with gabion, r cement.		
SCORE	1.5	1.3	1.1	0.9	0.7	0	.5		
	REACH C	ONDITION	NDEX and S	TREAM CO	NDITION UN	ITS FOR TH	IS REACH		
VOTE: The Cls and I	RCI should be rounded to 2 decimal places.	The CR should be rou	nded to a whole numb	oer.			THE REACH (CONDITION IN	DEX (RCI) >>

THE REACH CONDITION INDEX (RCI) >>

RCI= (Sum of all Cl's)/5

COMPENSATION REQUIREMENT (CR) >>

CR = RCI X LF X IF

INSERT PHOTOS:





DESCRIBE PROPOSED IMPACT:

Project # Project Name	mpact Factor
Project # Project Name	•
Name(s) of Evaluator(s) Alternhead / Mice WUS 87M I. Channel Condition: Assess the cross-section of the stream and prevailing condition (erosion, aggridation) Condition Channel Condition Condition Condition Very little incision or active encource, polyment of the stream and prevailing condition (erosion, aggridation) Condition Condition Condition Very little incision or active encource, polyment of the stream and prevailing condition (erosion, aggridation) Condition Condition Condition Condition Very little incision or active encource, polyment of the stream of control of	
Channel Condition: Assess the cross-section of the siteam and prevailing condition (erceion, aggradation) Condition Channel Condition Very little finding or active arrainer, plant or site of the siteam and prevailing condition (erceion, aggradation) Condition Condition Very little finding or active arrainer, plant or site of the condition or surprosected barks. Majority of base size assisted than Severe or Condition of Condition One of the size of the condition of the size of the condition of the conditi	
Channel Condition: Assess the cross-section of the stream and prevailing condition (crossin, aggradation) Condition Wery little incision or active erecision, 100% states behavior. Vegetative surface protection or nutrial rock, 100% states behavior. Vegetative surface protection or nutrial rock, 100% states behavior. Vegetative surface protection or nutrial rock, 100% states behavior. Vegetative surface protection or nutrial rock, 100% states behavior. Vegetative surface protection or nutrial rock, 100% states behavior. Vegetative surface protection or nutrial rock, 100% states behavior. Vegetative surface protection or nutrial rock, 100% states behavior. Vegetative protection or surface protection or surface protection or surface protection or surface protection. Vegetative protection or 100% of banks. Streamheat may be support teachers below the success to bearth, 100% of banks. Streamheat covered by success to sent surface protection or 100% of banks. Streamheat covered by success to sent surface protection or 100% of banks. Streamheat covered by success to sent surface protection or 100% of banks. Streamheat covered by success to sent surface protection or 100% of banks. Streamheat covered by success to sent surface protection or 100% of banks. Streamheat covered by success to sent surface protection or 100% of banks. Streamheat covered by success to sent surface protection or 100% of banks. Streamheat covered by success to sent surface protection or 100% of banks. Streamheat covered by success to sent surface protection or 100% of banks. Streamheat covered by success to sent surface protection or 100% of banks. Streamheat covered by success to sent surface protection or 100% of banks. Streamheat covered by success to sent surface protection or 100% of banks. Streamheat covered by success to sent surface protection or 100% of banks. Streamheat covered by success to sent surface protection or 100% of banks. Streamheat covered by success to sent surface protection or 100% of banks. Streamheat covered by succ	
Channel Channel Channel Condition Co	
Channel Condition Conditio	
Channel Condition Very triss incidence veative receions, 25 (signify) instead, the wares of active condition or comported banks. Majority contribution of the properties (16) (100%), ANDOR Stable point service banks are stable (260-260%). Vegetative potention or reprotected banks. Majority comported to provide the stable point services (260-260%). Vegetative potential process of the reach. ANDOR 400 (260-260%). Vegetative potential process of the reach. ANDOR 400 (260-260%). Vegetative potential process of the reach. ANDOR 400 (260-260%). Vegetative potential process of the reach. Transient and control to composition cours is less than 100 (260-260%). Vegetative potential process of the reach. Transient and control to composition cours is less than 100 (260-260%). Vegetative potential process of the reach. Transient and the received process of the reach. Transient and the received process of the reach. Transient and the received process of the reach. Transient poddiment downs is less than 100 (260-260%). Vegetative potential process of the reach. Transient poddiment downs is less than 100 (260-260%). Vegetative potential process of the reach. Transient poddiment downs is less than 100 (260-260%). Vegetative potential process of the reach. Transient poddiment downs is less than 100 (260-260%). Vegetative potential process of the reach. Transient poddiment downs is less than 100 (260-260%). Vegetative potential process of the reach. Transient poddiment downs is less than 100 (260-260%). Vegetative potential process of the reach. Transient poddiment downs is less than 100 (260-260%). Vegetative potential process of the reach. Transient poddiment downs is less than 100 (260-260%). Vegetative potential process of the reach than 100 (260-260%). Vegetative potential process of the reach than 100 (260-260%). Vegetative potential process of the reach than 100 (260-260%). Vegetative potential process of the reach than 100 (260-260%). Vegetative potential process of the reach than 100 (260-260%). Vegetative potential proc	
Channel Condition Condition Wey stille inclusion or active erosion. Repositive prominent (80-100%), AND/OR 200% (wegetative protection or natural rock prominent (80-100%), AND/OR 200% (and protection) and transverse bars few. Transient and transverse bars few	ty. Severe
Score 3 2.4 2 1.6 1.6 1 NOTES>> RIPARIAN BUFFERS: Assess both bank's 100 foot riparian areas along the entire SAR. (rough measurements of length & width may be acceptable) Conditional Category Optimal Suboptimal High Suboptimal: Riparian areas with research with Suboptimal with Proportion and maintained, and maintained, and maintained area, actively greated on, fill cropland; actively greated on, fill one proposed with suboptimal with research with Suboptimal with research with Suboptimal with research with Suboptimal areas, prevention with Suboptimal areas, prevention with Suboptimal areas, prevention with Suboptimal areas, prevent	ow average y of banks eggetative s than 20% of ng erosion. ng present. 80-100%. nnel. Greater
Riparian Buffers Conditional Category	els and/or CI
Conditional Category	3.0
Conditional Category Optimal Suboptimal Low Suboptimal Riparian areas along the entire SAR. (rough measurements of length & width may be acceptable) NOTES>> Optimal Suboptimal Low Marginal Riparian areas with tree stratum (dbh > 3 inches) present, with > 60% tree canopy cover and a nor-maintained understory. Welfards allocated within the riparian areas. Occasion Sorges I Tree stratum (dbh > 3 inches) present, with > 60% tree canopy cover and a nor-maintained understory. Welfards allocated within the riparian areas. I Tree stratum (dbh > 3 inches) present, with > 60% tree canopy cover and a nor-maintained understory. Welfards allocated within the riparian areas. I Tree stratum (dbh > 3 inches) present, with > 60% tree canopy cover and a nor-maintained understory. Welfards allocated within the riparian areas. I Tree stratum (dbh > 3 inches) present, with > 60% tree canopy cover and a nor-maintained understory. Recent cutover with + 30% tree canopy cover with tree stratum (dbh > 3 inches) present, with + 30% tree canopy cover with maintained area present, tree stratum (dbh > 3 inches) present, with + 30% tree canopy cover with maintained area present, tree stratum (dbh > 3 inches) present, with + 30% tree canopy cover with maintained area present, tree stratum (dbh > 3 inches) present, with + 30% tree canopy cover with tree stratum (dbh > 3 inches) present, with + 30% tree canopy cover with tree canopy cover with tree canopy cover with tree and tree canopy cover with tree canopy cover wi	
Condition Scores 1.5 1.2 1.1 0.85 0.75 0.6 0.5 Delineate riparian areas along each stream bank into Condition Categories and Condition Scores using the escriptors. Determine square footage for each by measuring or estimating length and width. Calculators are provided for you ellow. Enter the % Riparian Area and Score for each riparian category in the blocks below. Blocks equal 100 Right Bank % Riparian Area> 100% Score > 1.5	
Scores 1.3 1.2 1.1 0.85 0.75 0.6 0.5 Delineate riparian areas along each stream bank into Condition Categories and Condition Scores using the lescriptors. Determine square footage for each by measuring or estimating length and width. Calculators are provided for you leflow. B. Enter the % Riparian Area and Score for each riparian category in the blocks below. Blocks equal 100 Right Bank % Riparian Area> 100% Score > 1.5	
escriptors. Determine square footage for each by measuring or estimating length and width. Calculators are provided for you elow. Enter the % Riparian Area and Score for each riparian category in the blocks below. Blocks equal 100 Right Bank % Riparian Area> 100% 100% Score > 1.5	
Right Bank Score > 1.5	
CI= (Sum % RA * Sc	
Left Bank Riparian Area 100% Rt Bank Cl >	· ·
Score > 1.5 Lt Bank CI > In Instream Habitat: Varied substrate sizes, water velocity and depths; woody and leafy debris; stable substrate; low embeddeness; shade; ndercut banks; root mats; SAV; riffle poole complexes, stable features.	1.50 CI
Conditional Category	· ·
Instream Habitat/ Available Cover Optimal Suboptimal Suboptimal Marginal Poor Stable habitat elements are typically present in greater than 50% of the reach. Stable habitat elements are typically present in 10-30% of the reach and are adequate for maintenance of populations. Stable habitat elements are typically present in 10-30% of the reach and are adequate for maintenance of populations. Habitat elements listed above are lacking or are unstable. Habitat elements are typically present in 10-30% of the reach and are adequate for maintenance of populations.	1.50 CI
Score 1.5 1.2 0.9 0.5	1.50 CI

	St	ream In	npact A	ssessm	ent Fo	rm Pag	e 2		
Project #	Applicant		Locality	Cowardin Class.	HUC	Date	Data Point	SAR length	Impact Factor
								500	1
	L ALTERATION: Stream cross poil piles, constrictions, livestock	sings, riprap, conc		concrete blocks, s	traightening of ch	annel, channeliza	ation,	NOTES>>	
	Negligible	Mi	nor	Mod	erate	Se	vere		
Channel Alteration	Channelization, dredging, alteration, or hardening absent. Stream has an unaltered pattern or has naturalized.	Less than 20% of the stream reach is disrupted by any of the channel alterations listed in the parameter guidelines.	20-40% of the stream reach is disrupted by any of the channel alterations listed in the parameter guidelines.	40 - 60% of reach is disrupted by any of the channel alterations listed in the parameter guidelines. If stream has been channelized, normal stable stream meander pattern has not	60 - 80% of reach is disrupted by any of the channel alterations listed in the parameter guidelines. If stream has been channelized, normal stable stream meander pattern has not	by any of the char in the parameter 80% of banks sl	of reach is disrupted nnel alterations listed guidelines AND/OR hored with gabion, or cement.		
SCORE	1.5	1.3	1.1	0.9	0.7	(0.5		
	REACH C	ONDITION	NDEX and S	TREAM CO	NDITION UN	ITS FOR TH	IIS REACH		
VOTE: The Cls and F	RCI should be rounded to 2 decimal places.	The CR should be rou	ided to a whole numb	er.			THE REACH (CONDITION IN	DEX (RCI) >>

CR = RCI X LF X IF



DESCRIBE PROPOSED IMPACT:			
		•	

Ephemeral Stream Assessment Form (Form 1a)

Unified Stream Methodology for use in Virginia

For use in ephemeral streams

Project #	Project Name	Locality	Cowardin Class.	HUC	Date	SAR#	Impact/SAR length	Impact Factor
5337	I-64 Peninsula	New Kent		02080206	11/2/11		151	

Stream Name and Information Name(s) of Evaluator(s)

WUS 88M Aitkenhead / Nies

2. RIPARIAN BUFFERS: Assess both bank's 100 foot riparian areas along the entire SAR. (rough measurements of length & width may be acceptable) Conditional Catagory

		Con	iditional Cate	gory			
	Optimal	Subo	ptimal	Mar	ginal	Po	oor
Riparian Buffers	Tree stratum (dbh > 3 inches) present, with > 60% tree canopy cover and an non-maintained understory. Wetlands areas.	High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory.	with tree stratum (dbh > 3 inches) present, with >30% tree canopy	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover.	Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh > 3 inches) present, with < Additional-riches inches) present, with Additional-riches inches) present, with Additional-riches understory.	and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable condition	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions.
		High	Low	High	Low	High	Low
Condition Scores	1.5	1.2	1.1	0.85	0.75	0.6	0.5
	•						•

Delineate riparian areas along each stream bank into Condition Categories and Condition Scores using the

2. Determine square footage for each by measuring or estimating length and width. Calculators are provided for you

3. Enter the % Riparian Area and Score for each riparian category in the blocks below

1.1

Blocks equal 100 % Riparian Area> 60% 10% 30% 100% Right Bank Score > 1.1 0.6 0.5 CI= (Sum % RA * Scores*0.01)/2

100% 100% % Riparian Area>

Rt Bank CI > 0.87 Lt Bank CI > 1.10

NOTES>>

THE REACH CONDITION INDEX (RCI) >> 0.50

CI

0.99

0

NOTE: The CIs and RCI should be rounded to 2 decimal places. The CR should be rounded to a whole number RCI= (Riparian CI)/2

REACH CONDITION INDEX and STREAM CONDITION UNITS FOR THIS REACH

COMPENSATION REQUIREMENT (CR) >>

CR = RCI X LF X IF

Ensure the sums

of % Riparian

INSERT PHOTOS:

Left Bank

Score >

Upstream



DESCRIBE PROPOSED IMPACT:		

		Stre		fied Stream N	lethodology f	for use in Vir	ginia	m 1)			
Project #	I	Project Name		Locality	Cowardin Class.	HUC	Date Date	SAR#	Impact/SAR length	Impact Factor	
5337	I-64	Peninsula S	tudy	New Kent	R2UB3	02080206	11/2/11		72		
Name	e(s) of Evalua	tor(s)		e and Inform	ation						
	Aitkenhead / Nies		WUS 89M								
I. Channel C	Condition: Asse	ess the cross-sec	ction of the stream		ondition (erosion, Conditional Catego						
	Opti	imal	Subo	ptimal		ginal	Po	oor	Se	vere	
Channel Condition	Very little incision or 100% stable bar surface protection promisers (90.14	nks. Vegetative n or natural rock,	erosion or unproted of banks are s Vegetative protect prominent (60	ew areas of active cted banks. Majority table (60-80%). tion or natural rock -80%) AND/OR	Poor. Banks more or Poor due to lo Erosion may be pr both banks. Veget	less than Severe or stable than Severe ower bank slopes. esent on 40-60% of tative protection on	Vertically/laterally widen further. Ma are near vertical. 60-80% of bar	ned/incised. unstable. Likely to jority of both banks Erosion present on lks. Vegetative	incision, flow co banks. Streamb rooting depth, r	stability. Severe ntained within the ed below average najority of banks cut. Vegetative	
	prominent (80-11 Stable point bars/ba present. Access floodplain or fully bankfull benches. and transverse ba sediment depositio 10% of I	ankfull benches are to their original or developed wide Mid-channel bars, ars few. Transient on covers less than bottom.	Depositional feat stability. The bai channels are we likely has access t or newly develope portions of the sediment covers 10 bot	tures contribute to nkfull and low flow Il defined. Stream o bankfull benches, and floodplains along reach. Transient 0-40% of the stream tom.	bevertical or unde 60% of stream sediment. Sed temporary/tran instability. Depositi stability, may be AND/OR V-shap vegetative protecti banks and depositi	Streambanks may prout. AND/OR 40-n is covered by diment may be sient, contribute on that contribute to e forming/present. ed channels have ion on > 40% of the ional features which	banks, and is insterosion. AND/C stream is cover Sediment is term nature, and contri AND/OR V-shap vegetative protect 40% of the banks a deposition	ent on 20-40% of difficient to prevent R 60-80% of the eed by sediment. corary/transient in buting to instability. eed channels have ion is present on > and stable sediment is absent.	protection present banks, is not pr Obvious bank s Erosion/raw ba AND/OR Aggradir than 80% of strear deposition, contril Multiple thread subterrar	on less than 20% of eventing erosion. loughing present. inks on 80-100%. In granter med is covered by buting to instability. channels and/or nean flow.	CI
Score	3	3	2	2.4		2	1	.6		1	2.4
2. RIPARIAI	Opti		Con	n areas along the nditional Cate ptimal	gory	ginal	Pe	n may be accepta	NOTES>>		
Riparian Buffers		imal 3 inches) present, anopy cover and a derstory. Wetlands	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy	gory	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh > 3 inches) present, with <30% tree canopy cover with maintained			NOTES>>		
Riparian Buffers	Optia Tree stratum (dbh > with > 60% tree ca	imal 3 inches) present, anopy cover and a derstory. Wetlands	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh >3 inches) present, with					

	St	ream In	npact A	ssessm	nent Fo	rm Pag	e 2		
Project #	Applicant		Locality	Cowardin Class.	HUC	Date	Data Point	SAR length	Impact Factor
								500	1
	ALTERATION: Stream cross poil piles, constrictions, livestock		Conditiona	al Category			,	NOTES>>	
	Negligible	Mir	nor		erate		vere		
Channel Alteration	Channelization, dredging, alteration, or hardening absent. Stream has an unaltered pattern or has naturalized.	Less than 20% of the stream reach is disrupted by any of the channel alterations listed in the parameter guidelines.	20-40% of the stream reach is disrupted by any of the channel alterations listed in the parameter guidelines.	is disrupted by any of the channel	60 - 80% of reach is disrupted by any of the channel alterations listed in the parameter guidelines. If stream has been channelized, normal stable stream meander pattern has not	Greater than 80% by any of the char in the parameter 80% of banks sl riprap, c	of reach is disrupted intel alterations listed guidelines AND/OR hored with gabion, or cement.		
SCORE	1.5	1.3	1.1	0.9	0.7	().5		
	REACH C	ONDITION I	NDEX and S	TREAM CO	NDITION UN	ITS FOR TH	IIS REACH		
OTE: The Cls and F	RCI should be rounded to 2 decimal places.	The CR should be rour	nded to a whole numb	er.			THE REACH (CONDITION IN	DEX (RCI) >>

CR = RCI X LF X IF

INSERT PHOTOS:

Upstream



DESCRIBE PROPOSED IMPACT:		

		Stre		fied Stream N	lethodology f	or use in Virg	ginia	,			
Project #	F	Project Name		Locality	Cowardin Class.	HUC	perennial Date	SAR#	Impact/SAR length	Impact Factor	
5337	I-64	Peninsula S	tudy	New Kent	R4UB2	02080206	11/2/11		106		
Name	e(s) of Evaluat	tor(s)		e and Informa	ation						
	Aitkenhead / Nies		WUS 90M								
1. Channel C	Condition: Asse	ess the cross-sec	ction of the stream		ondition (erosion, Conditional Catego						
	Opti	mal	Subo	ptimal		ginal	Po	oor	Se	vere	
Channel Condition	Very little incision or 100% stable ban surface protection prominent (80-10	iks. Vegetative or natural rock,	erosion or unproted of banks are s Vegetative protect prominent (60	ew areas of active cted banks. Majority table (60-80%). tion or natural rock -80%) AND/OR	Poor. Banks more or Poor due to lo Erosion may be pr both banks. Veget	less than Severe or stable than Severe wer bank slopes. esent on 40-60% of attive protection on	Vertically/laterally widen further. Ma are near vertical. 60-80% of bar	unstable. Likely to jority of both banks Erosion present on ks. Vegetative	incision, flow co banks. Streamb rooting depth, r	ustability. Severe ntained within the ed below average najority of banks tut. Vegetative	
	Stable point bars/ba present. Access floodplain or fully bankfull benches. and transverse ba sediment deposition 10% of b	inkfull benches are to their original developed wide Mid-channel bars, rs few. Transient n covers less than bottom.	stability. The bar channels are we likely has access t or newly develope portions of the i sediment covers 10 bot	tures contribute to nkfull and low flow Il defined. Stream to bankfull benches, and floodplains along reach. Transient 0-40% of the stream tom.	bevertical or unde 60% of stream sediment. Sed temporary/tran instability. Depositi stability, may be AND/OR V-shap vegetative protecti banks and depositi	Streambanks may rout. AND/OR 40-n is covered by diment may be sient, contribute on that contribute to forming/present. ed channels have ion on > 40% of the onal features which	banks, and is insuerosion. AND/O stream is cover Sediment is temp nature, and contri AND/OR V-shap vegetative protect 40% of the banks a deposition	ant on 20-40% of officient to prevent R 60-80% of the ed by sediment. corary/transient in buting to instability. ed channels have ion is present on > and stable sediment is absent.	protection present banks, is not pro Obvious bank s Erosion/raw bau AND/OR Aggradir than 80% of strear deposition, contril Multiple thread subterrar	on less than 20% of eventing erosion. loughing present. nks on 80-100%. ng channel. Greater n bed is covered by buting to instability. channels and/or nean flow.	CI
Score	3		2	2.4		2	1	.6		1	2.0
2. RIPARIAN	N BUFFERS: A		Con	n areas along the	gory	ginal		n may be accepta	NOTES>>		
Riparian Buffers		mal 3 inches) present, nopy cover and a erstory. Wetlands	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy	gory	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh >3 inches) present, with <30% tree canopy cover with maintained			NOTES>>		
Riparian Buffers	Opti Tree stratum (dbh > with > 60% tree ca non-maintained und	mal 3 inches) present, nopy cover and a erstory. Wetlands	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh >3 inches) present, with ~30% tree canopy cover with	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable	NOTES>>		
Riparian	Opti Tree stratum (dbh > with > 60% tree ca non-maintained und	mal 3 inches) present, nopy cover and a elerstory. Wetlands riparian areas.	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory.	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation).	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover.	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh > 3 inches) present, with <a>30 % tree canopy cover with maintained understory.	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, recently seeded and stabilized, or other comparable condition.	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions.	NOTES>>		
Riparian Buffers Condition Scores Delineate ripadescriptors. 2. Determine squelow.	Tree stratum (dbh > with > 60% tree ca non-maintained und located within the	mal 3 inches) present, nopy cover and a erestory. Wetlands riparian areas.	Com Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 k into Condition C	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Coungth and width. Coungth	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh >3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5	NOTES>>		
Riparian Buffers Condition Scores Delineate ripalescriptors. Determine squelow. Enter the % F	Tree stratum (dbh > with > 60% tree ca non-maintained und located within the	mal 3 inches) present, nopy cover and a lerstory. Wetlands riparian areas.	Com Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 k into Condition C g or estimating ler	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 attegories and Congth and width. Congth and width	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh >3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5	NOTES>>		
Riparian Buffers Condition Scores Delineate ripa descriptors. 2. Determine squelow.	Tree stratum (dbh > with > 60% tree ca a non-maintained und located within the	mal 3 inches) present, nopy cover and a erestory. Wetlands riparian areas.	Com Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 k into Condition C	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Coungth and width. Coungth	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh >3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5	NOTES>>		
Riparian Buffers Condition Scores Delineate ripalescriptors. Determine squelow. Enter the % F	Tree stratum (dbh > with > 60% tree ca non-maintained und located within the	mal 3 inches) present, nopy cover and a lerstory. Wetlands riparian areas. 5 ach stream bank ach by measurin 40% 1.1	Com Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 k into Condition C g or estimating ler parian category in 10% 0.6	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Congth and width. Conthe blocks below 50% 0.5	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh >3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5 the sums Riparian regual 100 100%	NOTES>> Cl= (Sum % RA**		
Riparian Buffers Condition Scores Delineate ripalescriptors. Determine squelow. Enter the % F	Tree stratum (dbh > with > 60% tree ca non-maintained und located within the located with	mal 3 inches) present, nopy cover and a erestory. Wetlands riparian areas. 5 ach stream bank ach by measurin 40% 1.1	Com Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 Into Condition C g or estimating ler parian category in 10% 0.6	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Congth and width. Conthe blocks below 50% 0.5	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh >3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5	NOTES>> Cl= (Sum % RA** Rt Bank Cl >	0.75	CI
Riparian Buffers Condition Scores Delineate ripe lescriptors. Determine squelow. Enter the % F Right Bank Left Bank	Tree stratum (dbh > with > 60% tree ca a non-maintained und located within the located wi	mal 3 inches) present, nopy cover and a lerstory. Wetlands riparian areas. 5 ach stream banl ach by measurin 40% 1.1 40% 1.1	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 Into Condition C g or estimating ler parian category in 10% 0.6	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 attegories and Congth and width.	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh > 3 inches) present, with <a>only wow of with maintained understory. Low 0.75	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F Blocks 6	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5 the sums Riparian equal 100 100%	CI= (Sum % RA * ; Rt Bank CI > Lt Bank CI >		CI 0.75
Condition Scores Delineate ripalescriptors. Determine squelow. Enter the % Right Bank Left Bank I. INSTREAM	Tree stratum (dbh > with > 60% tree ca non-maintained und located within the located with	mal 3 inches) present, nopy cover and a erestory. Wetlands riparian areas. 5 ach stream bank ach by measurin 40% 1.1 40% 1.1	Com Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 into Condition C g or estimating let parian category in 10% 0.6	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Congth and width.	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh > 3 inches) present, with <a>only wow of with maintained understory. Low 0.75	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F Blocks 6	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5 the sums Riparian equal 100 100%	NOTES>> Cl= (Sum % RA**) Rt Bank Cl >	0.75	
Condition Scores Delineate ripadescriptors. Deltermine squelow. Enter the % Right Bank Left Bank Left Bank	Tree stratum (dbh > with > 60% tree ca non-maintained und located within the located with	mal 3 inches) present, nopy cover and a erestory. Wetlands riparian areas. 5 seach stream bant ach by measurin 40% 1.1 40% 1.1 tried substrate siffle poole complete.	High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 sinto Condition C g or estimating let parian category in 10% 0.6 10% 0.6 zes, water velocit ixxes, stable featur	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Congth and width. Congth and con	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85 Indition Scores usional calculators are production of the control of the contr	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh -3 inches) present, with +30% tree canopy cover with maintained understory. Low 0.75	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F Blocks 6	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5 the sums Riparian riqual 100 100%	CI= (Sum % RA * ; Rt Bank CI > Lt Bank CI >	0.75	
Riparian Buffers Condition Scores 1. Delineate ripa descriptors. 2. Determine sq below. 3. Enter the % R Right Bank Left Bank 3. INSTREAN undercut banks;	Tree stratum (dbh > with > 60% tree ca non-maintained und located within the located with	mal 3 inches) present, nopy cover and a erestory. Wetlands riparian areas. 5 seach stream bant ach by measurin 40% 1.1 40% 1.1 tried substrate siffle poole complete.	High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 sinto Condition C g or estimating let parian category in 10% 0.6 10% 0.6 zes, water velocit ixxes, stable featur	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Coungth and width. Coungth and	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85 Indition Scores usional calculators are production of the control of the contr	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh > 3 inches) present, with <a>only wow of with maintained understory. Low 0.75	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F Blocks 6	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5 the sums Riparian equal 100 100%	CI= (Sum % RA * ; Rt Bank CI > Lt Bank CI >	0.75	
Condition Scores 1. Delineate ripa descriptors. 2. Determine squelow. 3. Enter the % R Right Bank Left Bank 3. INSTREAN undercut banks;	Tree stratum (dbh > with > 60% tree ca non-maintained und located within the located with	mal 3 inches) present, nopy cover and a lerstory. Wetlands in parian areas. 5 ach stream banl ach by measurin 40% 1.1 40% 1.1 4ried substrate si ffle poole comple mal et typically present	Com Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 Into Condition C g or estimating let parian category in 10% 0.6 10% 0.6 Stable habitat ele present in 30-509 are adequate fo	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Congth and width. Congth and con	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85 Indition Scores usion all Category Mar Stable habitat ele present in 10-30% are adequate fo	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh -3 inches) present, with +30% tree canopy cover with maintained understory. Low 0.75	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F Blocks 6	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5 the sums Riparian riqual 100 100%	CI= (Sum % RA * : Rt Bank CI > Lt Bank CI > NOTES>>	0.75	

	St	ream In	npact A	ssessm	nent Fo	rm Pag	e 2			
Project #	Applicant		Locality	Cowardin Class.	HUC	Date	Data Point	SAR length	Impact Factor	
								500	1	
	L ALTERATION: Stream cross spoil piles, constrictions, livestock	ings, riprap, conc		concrete blocks, s	traightening of ch	annel, channeliz	ration,	NOTES>>		
	Negligible	Mi	nor	Mod	erate	Se	evere			
Channel Alteration	Channelization, dredging, alteration, or hardening absent. Stream has an unaltered pattern or has naturalized.	Less than 20% of the stream reach is disrupted by any of the channel alterations listed in the parameter guidelines.	20-40% of the stream reach is disrupted by any of the channel alterations listed in the parameter guidelines.	of the channel	is disrupted by any of the channel alterations listed in	Greater than 80% by any of the cha in the parameter 80% of banks s	o of reach is disrupted nnel alterations listed guidelines AND/OR shored with gabion, or cement.			
SCORE	1.5	1.3	1.1	0.9	0.7		0.5			
	REACH C	ONDITION I	NDEX and S	TREAM CO	NDITION UN	ITS FOR TH	IIS REACH			
OTE: The Cls and I	RCI should be rounded to 2 decimal places.	The CR should be rou	nded to a whole numb	er.			THE REACH O	CONDITION IN	DEX (RCI) >>	

HE REACH CONDITION INDEX (RCI) >>

0.79

RCI= (Sum of all Cl's)/5
COMPENSATION REQUIREMENT (CR) >>

()>> 0

CR = RCI X LF X IF

INSERT PHOTOS:

Upstream



DESCRIBE PROPOSED IMPACT:			

		Stre	Unit	fied Stream N	lethodology 1	for use in Vir	-	m 1)			
Project #		Project Name		Locality	nels classified a Cowardin Class.	HUC	perennial Date	SAR#	Impact/SAR	Impact Factor	
5337	ŀ	-64 Peninsul	a	New Kent	R4UB2	02080206	11/2/11		113		
Name	e(s) of Evalua	tor(s)	Stream Nam	e and Informa	ation						
	Aitkenhead / Nies		WUS 91M								
. Channel C	Condition: Asse	ess the cross-sec	tion of the stream		ondition (erosion, Conditional Catego						
	Opti	imal	Subo	ptimal	Mar	ginal	Po	oor	Se	vere	
Channel	Very little incision o	r active erosion; 80	erosion or unproted	ew areas of active cted banks. Majority table (60-80%).	Poor. Banks more	less than Severe or estable than Severe ower bank slopes.		ed/incised. unstable. Likely to ority of both banks	incision, flow co	nstability. Severe	
Condition	100% stable bar surface protection prominent (80-11 Stable point bars/ba present. Access floodplain or fully bankfull benches. and transverse be sediment depositio 10% of l	n or natural rock, 00%). AND/OR ankfull benches are to their original of developed wide Mid-channel bars, ars few. Transient on covers less than	Vegetative protect prominent (60- Depositional feat stability. The bar channels are well likely has access to or newly develope portions of the resediment covers 10	tion or natural rock- 80%) AND/OR tures contribute to nkfull and low flow Il defined. Stream o bankfull benches, de floodplains along reach. Transient 0-40% of the stream tom.	both banks. Veget 40-60% of banks. bevertical or unde 60% of strean sediment. Set temporary/tran instability. Depositi stability, may be AND/OR V-shap	resent on 40-60% of tative protection on Streambanks may ercut. AND/OR 40- n is covered by diment may be sisent, contribute tion that contribute to forming/present. ed channels have ion on > 40% of the	60-80% of bar protection press banks, and is insu- erosion. AND/O stream is cover Sediment is temp nature, and contri AND/OR V-shap vegetative protect	ed channels have	rooting depth, vertical/under protection present banks, is not pr Obvious bank s Erosion/raw ba AND/OR Aggradi than 80% of strea deposition, contri Multiple threac	ned below average majority of banks rout. Vegetative ton less than 20% or reventing erosion. Sloughing present. anks on 80-100%. ng channel. Greate m bed is covered by ibuting to instability. d channels and/or inean flow.	,
Score	3	<u> </u>	2	2.4		ional features which	-	is absent.		1	1.6
Score		•		4			'	.0		1	1.0
. RIPARIAN	N BUFFERS: A		Con Subo	nditional Cate ptimal	gory	ginal Low Marginal:	Po High Poor:	n may be accepta	NOTES>>		
2. RIPARIAN Riparian Buffers	Opti	imal 3 inches) present, anopy cover and a derstory. Wetlands	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy	gory	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh > 3 inches) present, with <30% tree canopy cover with maintained	Po				
Riparian	Option Tree stratum (dbh > with > 60% tree canon-maintained und	imal 3 inches) present, anopy cover and a derstory. Wetlands	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh > 3 inches) present, with <30% tree canopy cover with	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable			
Riparian	Option Tree stratum (dbh > with > 60% tree canon-maintained und	• 3 inches) present, anopy cover and a derstory. Wetlands e riparian areas.	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory.	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation).	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover.	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh >3 inches) present, with <30% tree canopy cover with maintained understory.	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, recently seeded and stabilized, or other comparable condition.	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions.			
Riparian Buffers Condition Scores Delineate ripa electriptors.	Tree stratum (dbh > with > 60% tree ca non-maintained unc located within the	imal 3 inches) present, anopy cover and a derstory. Wetlands e riparian areas.	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 into Condition C	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Coungth and width. Coungth	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh > 3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5			
Riparian Buffers Condition Scores Delineate ripaescriptors. Determine squelow. Enter the % F	Tree stratum (dbh > with > 60% tree conon-maintained und located within the located withi	imal 3 inches) present, anopy cover and a derstory. Wetlands e riparian areas. 5 ach stream bank ach by measurin.	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 into Condition C	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Coungth and width. Coungth	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh > 3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5			
Riparian Buffers Condition Scores Delineate ripaescriptors. Determine squelow.	Tree stratum (dbh > with > 60% tree ca non-maintained unc located within the	imal 3 inches) present, anopy cover and a derstory. Wetlands e riparian areas.	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 into Condition C	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Coungth and width. Coungth	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh > 3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5	NOTES>>		
Riparian Buffers Condition Scores Delineate ripaescriptors. Determine squelow. Enter the % F	Tree stratum (dbh > with > 60% tree canon-maintained unc located within the located withi	imal 3 inches) present, anopy cover and a derstory. Wetlands e riparian areas. 5 ach stream bank ach by measurin Score for each ri 100% 1.1	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 into Condition C	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Coungth and width. Coungth	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh > 3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5 the sums Riparian qual 100	NOTES>>		CI
Riparian Buffers Condition Scores Delineate ripasecriptors. Determine squadow. Enter the % F	Tree stratum (dbh > with > 60% tree conon-maintained und located within the located withi	imal 3 inches) present, anopy cover and a derstory. Wetlands e riparian areas. 5 ach stream bank ach by measurin. Score for each ri	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 into Condition C	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Coungth and width. Coungth	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh > 3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5	NOTES>>	Scores*0.01)/2 1.10 1.10	CI 1.10
Condition Scores Delineate ripa escriptors. Determine sq elow. Enter the % F Right Bank Left Bank	Tree stratum (dbh > with > 60% tree canon-maintained unc located within the located withi	imal 3 inches) present, anopy cover and a derstory. Wetlands e riparian areas. 5 ach stream bank ach by measuring the stream bank	Com Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 Into Condition C g or estimating ler parian category in	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Coungth and width. Coungth and width. Coungth and width. Coungth and depths; woo res.	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85 addition Scores us calculators are production of the produc	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh > 3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75 ing the povided for you	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F Blocks 6	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5 the sums tiparian qual 100 100%	NOTES>> CI= (Sum % RA * Rt Bank CI >	1.10	
Condition Scores Delineate ripalescriptors. Determine squelow. Enter the % F. Right Bank Left Bank	Tree stratum (dbh > with > 60% tree ca non-maintained unc located within the located with	imal 3 inches) present, anopy cover and a derstory. Wetlands e riparian areas. 5 each stream bank ach by measurin 100% 1.1 100% 1.1 aried substrate siffle poole comple	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 sinto Condition C g or estimating ler parian category in parian category in	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Coungth and width. Coungth and width. Coungth and width. Coungth and depths; woo res.	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85 Indition Scores us calculators are production of the product	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh > 3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75 ing the povided for you	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F Blocks 6	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5 the sums tiparian qual 100 100%	NOTES>> CI= (Sum % RA * Rt Bank CI > Lt Bank CI >	1.10	
Condition Scores Delineate ripa descriptors. Delto Bank Right Bank Left Bank Left Bank Linter Left Bank Left Bank	Tree stratum (dbh > with > 60% tree co conon-maintained und located within the located wi	imal 3 inches) present, anopy cover and a derstory. Wetlands e riparian areas. 5 each stream bani ach by measurin 100% 1.1 100% 1.1 aried substrate si ffle poole completimal	Com Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 Into Condition C g or estimating ler parian category in Zes, water velocity ixes, stable featur Subo Stable habitat ele present in 30-50% are adequate fo	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Co ngth and width. Co n the blocks below y and depths; wodes. Conditiona	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85 Indition Scores us calculators are processed of the control of	Ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh >3 inches) present, with <a>30 % tree canopy cover with maintained understory. Low 0.75 ing the price of the product of the present of t	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F Blocks 6	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5 the sums Riparian qual 100 100% 100% ess; shade;	NOTES>> CI= (Sum % RA * Rt Bank CI > Lt Bank CI >	1.10	

	St	ream In	npact A	ssessm	nent Fo	rm Pag	e 2		
Project #	Applicant		Locality	Cowardin Class.	HUC	Date	Data Point	SAR length	Impact Factor
								500	1
	L ALTERATION: Stream cross poil piles, constrictions, livestock	sings, riprap, conci		concrete blocks, s	traightening of ch	annel, channeliza	ation,	NOTES>>	
	Negligible	Mir	nor		erate	Se	vere		
Channel Alteration	Channelization, dredging, alteration, or hardening absent. Stream has an unaltered pattern or has naturalized.	Less than 20% of the stream reach is disrupted by any of the channel alterations listed in the parameter guidelines.	20-40% of the stream reach is disrupted by any of the channel	is disrupted by any of the channel	60 - 80% of reach is disrupted by any of the channel alterations listed in the parameter guidelines. If stream has been channelized, normal stable stream meander pattern has not	Greater than 80% by any of the chan in the parameter 80% of banks sh	of reach is disrupted nnel alterations listed guidelines AND/OR hored with gabion, or cement.		
SCORE	1.5	1.3	1.1	0.9	0.7	C	0.5		
	REACH C	ONDITION II	NDEX and S	TREAM CO	NDITION UN	ITS FOR TH	IIS REACH		
NOTE: The Cls and R	RCI should be rounded to 2 decimal places.	The CR should be rour	nded to a whole numb	er.			THE REACH (CONDITION IN	DEX (RCI) >>

RCI= (Sum of all Cl's)/5

COMPENSATION REQUIREMENT (CR) >>

CR = RCI X LF X IF



	Stre		fied Stream N	lethodology 1	for use in Vir	ginia	m 1)			
Project #	Project Nam		Locality	Cowardin Class.	HUC	Date	SAR #	Impact/SAR length	Impact Factor	
5337	I-64 Peninsu	la	New Kent	R4UB2	02080206	11/2/11		42		
	e(s) of Evaluator(s)		e and Informa	ation						
	Aitkenhead / Nies	WUS 92M								
I. Channel C	Condition: Assess the cross-se	ction of the stream		ondition (erosion, Conditional Catego						
	Optimal	Suboptimal		Marginal		Poor		Severe		
Channel	Very little incision or active erosion; 8/100% stable banks. Vegetative	erosion or unproted of banks are s	ew areas of active cted banks. Majority table (60-80%). tion or natural rock	Poor. Banks more or Poor due to lo	less than Severe or stable than Severe ower bank slopes. esent on 40-60% of	Vertically/laterally widen further. Ma	ned/incised. unstable. Likely to jority of both banks Erosion present on	incision, flow con banks. Streamb	istability. Severe	
Condition	surface protection or natural rock, prominent (80-100%). AND/OR Stable point bars/bankfull benches ar present. Access to their original floodplain or fully developed wide bankfull benches. Mid-channel bars, and transverse bars few. Transient sediment deposition covers less than 10% of bottom.	prominent (60 Depositional feat stability. The bar channels are we likely has access t or newly develope portions of the sediment covers 10	-80%) AND/OR tures contribute to hkfull and low flow II defined. Stream o bankfull benches, d floodplains along reach. Transient 0-40% of the stream tom.	both banks. Veget 40-60% of banks. bevertical or unde 60% of strean sediment. Se- temporary/tran instability. Depositi stability, may be AND/OR V-shap vegetative protect	tative protection on Streambanks may rerut. AND/OR 40- n is covered by diment may be sisent, contribute on that contribute to e forming/present. ed channels have ion on > 40% of the ional features which	60-80% of bar protection press banks, and is ins erosion. AND/C stream is cove Sediment is tem nature, and contri AND/OR V-shap vegetative protec 40% of the banks	nks. Vegetative and no 20-40% of ufficient to prevent R 60-80% of the red by sediment, porary/transient in buting to instability, leed channels have tion is present on > and stable sediment is absent.	vertical/underd protection present banks, is not pre Obvious bank si Erosion/raw ban AND/OR Aggradir than 80% of strear deposition, contrit Multiple thread	najority of banks cut. Vegetative on less than 20% of eventing erosion. loughing present. nks on 80-100%. Ig channel. Greater n bed is covered by puting to instability. channels and/or nean flow.	CI
Score	3	2	.4	- 1	2	· · · · · ·	.6	,	1	2.0
NOTES>>										
Riparian Buffers	Tree stratum (dbh > 3 inches) present with > 60% tree canopy cover and a		Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy	High Marginal: Non-maintained, dense herbaceous vegetation with	Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas	High Poor: Lawns, mowed, and maintained areas, nurseries;	Low Poor:			
	non-maintained understory. Wetlands located within the riparian areas.		cover and a maintained understory. Recent cutover (dense vegetation).	either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover.	lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh >3 inches) present, with <30% tree canopy cover with maintained understory.	no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable condition.	Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions.			
	located within the riparian areas.	canopy cover and containing both herbaceous and shrub layers or a non-maintained understory.	maintained understory. Recent cutover (dense vegetation).	layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover.	tree stratum, hay production, ponds, open water. If present, tree stratum (dbh >3 inches) present, with <30% tree canopy cover with maintained understory.	no-till cropland; actively grazed pasture, sparselly vegetated non- maintained area, recently seeded and stabilized, or other comparable condition.	surfaces, mine, spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions.			
Condition Scores		canopy cover and containing both herbaceous and shrub layers or a non-maintained understory.	maintained understory. Recent cutover (dense vegetation).	layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover.	tree stratum, hay production, ponds, open water. If present, tree stratum (dbh >3 inches) present, with <30% tree canopy cover with maintained understory.	no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable condition.	surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions.			
Condition Scores 1. Delineate ripal descriptors. 2. Determine squaelow.	located within the riparian areas.	s canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 It into Condition Cong or estimating length of the condition Condit	maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Congth and width. Congth and width. Congth cutover (dense vegetation).	layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85 addition Scores us addulators are pro-	tree stratum, hay production, ponds, open water. If present, tree stratum (dbh >3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75	no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % I	surfaces, mine, spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions.			
Condition Scores Delineate ripal descriptors. Determine squelow. Enter the % R	1.5 arian areas along each stream bar uare footage for each by measuring	s canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 It into Condition Cong or estimating length of the condition Condit	maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Congth and width. Congth and width. Congth cutover (dense vegetation).	layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85 addition Scores us addulators are pro-	tree stratum, hay production, ponds, open water. If present, tree stratum (dbh >3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75	no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % I	surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5			
Condition Scores Delineate ripal descriptors. Determine squelow.	1.5 arian areas along each stream bar uare footage for each by measuring Riparian Area and Score for each records.	s canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 It into Condition Cong or estimating length of the condition Condit	maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Congth and width. Congth and width. Congth cutover (dense vegetation).	layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85 addition Scores us addulators are pro-	tree stratum, hay production, ponds, open water. If present, tree stratum (dbh >3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75	no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % I	surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5 the sums Riparian	Cl= (Sim % R4 * 6	Scores*0.011/2	
Condition Scores 1. Delineate ripal descriptors. 2. Determine squelow. 3. Enter the % R Right Bank	1.5 arian areas along each stream bar uare footage for each by measuring Riparian Area and Score for each response to the stream of the strea	s canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 It into Condition Cong or estimating length of the condition Condit	maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Congth and width. Congth and width. Congth cutover (dense vegetation).	layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85 addition Scores us addulators are pro-	tree stratum, hay production, ponds, open water. If present, tree stratum (dbh >3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75	no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % I	surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5 the sums Riparian	CI= (Sum % RA * \$	Scores*0.01)/2 1.10	CI
Condition Scores Delineate ripal descriptors. Determine squelow. Enter the % R	1.5 arian areas along each stream bar uare footage for each by measuring Riparian Area and Score for each rows Riparian Area and Score for each rows Score > 1.1	s canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 It into Condition Cong or estimating length of the condition Condit	maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Congth and width. Congth and width. Congth cutover (dense vegetation).	layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85 addition Scores us addulators are pro-	tree stratum, hay production, ponds, open water. If present, tree stratum (dbh >3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75	no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % I	surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5 the sums Riparian equal 100			CI 1.10
Condition Scores 1. Delineate ripal descriptors. 2. Determine squelow. 3. Enter the % R Right Bank Left Bank 1. INSTREAN	1.5 arian areas along each stream bar uare footage for each by measuring Riparian Area and Score for each resulting the stream Area and Score for each resu	s canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 Ik into Condition Cong or estimating let iparian category in interest in the condition condition category in interest in the condition category in the category in t	maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Congth and width. Cong	layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85 Indition Scores us alculators are pro	tree stratum, hay production, ponds, open water. If present, tree stratum (bdh > 3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75 ing the povided for you	no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % I Blocks 6	surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5 the sums Riparian equal 100 100%	Rt Bank CI >	1.10	
Condition Scores 1. Delineate ripa descriptors. 2. Determine squ below. 3. Enter the % R Right Bank Left Bank 3. INSTREAN	1.5 arian areas along each stream bar uare footage for each by measuring Riparian Area and Score for each resulting Score > 1.1 % Riparian Area 100% Score > 1.1 % Riparian Area 100% Score > 1.1	as canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 As into Condition Cong or estimating length in the category in the	maintained	layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85 Indition Scores us alculators are pro- dial Category	tree stratum, hay production, ponds, open water. If present, tree stratum (dbh >3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75 ing the vided for you	no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, rother comparable condition. High 0.6 Ensure of % I Blocks 6	surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5 the sums Riparian equal 100 100%	Rt Bank CI >	1.10	
Condition Scores 1. Delineate ripa descriptors. 2. Determine squelelow. 3. Enter the % R Right Bank Left Bank 3. INSTREAN	1.5 arian areas along each stream bar uare footage for each by measuring Riparian Area and Score for each resulting the stream Area and Score for each resu	s canopy cover and containing both herbaceous and shrub layers or a non-maintend understory. High 1.2 Ik into Condition Cong or estimating legiparian category in sizes, water velocit exes, stable feature. Subo Stable habitat ele present in 30-50 are adequate for a non-maintend processor in 30-50 are a non-m	maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Congth and width. Congth and width. Congth and depths; workes.	layer or a tree layer (dbh > 3 inches) present, with https://db.nc/stree-canopy.cover. High 0.85 Indition Scores us alculators are production Scores us alculat	tree stratum, hay production, ponds, open water. If present, tree stratum (bdh > 3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75 ing the povided for you	no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % I Blocks 6 Habitat element lacking or are Lelements are typic	surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5 the sums Riparian equal 100 100%	Rt Bank CI >	1.10	

	St	ream In	npact A	ssessm	nent Fo	rm Pag	e 2		
Project #	Applicant		Locality	Cowardin Class.	HUC	Date	Data Point	SAR length	Impact Factor
								500	1
	L ALTERATION: Stream cross poil piles, constrictions, livestock	ings, riprap, conc		concrete blocks, s	traightening of ch	annel, channeliza	ation,	NOTES>>	
	Negligible	Mi	nor		erate		vere		
Channel Alteration	Channelization, dredging, alteration, or hardening absent. Stream has an unaltered pattern or has naturalized.	Less than 20% of the stream reach is disrupted by any of the channel alterations listed in the parameter guidelines.	20-40% of the stream reach is disrupted by any of the channel	is disrupted by any of the channel	60 - 80% of reach is disrupted by any of the channel alterations listed in the parameter guidelines. If stream has been channelized, normal stable stream meander pattern has not	Greater than 80% by any of the chan in the parameter 80% of banks sh	of reach is disrupted nel alterations listed guidelines AND/OR nored with gabion, or cement.		
SCORE	1.5	1.3	1.1	0.9	0.7	0).5		
	REACH CONDITION INDEX and STREAM CONDITION UNITS FOR THIS REACH								
NOTE: The Cls and F	RCI should be rounded to 2 decimal places.	The CR should be rou	nded to a whole numb	er.			THE REACH (CONDITION IN	DEX (RCI) >>

COMPENSATION REQUIREMENT (CR) >>

CR = RCI X LF X IF

INSERT PHOTOS:





		Stre	Uni	fied Stream N	lethodology 1	Form	ginia	m 1)			
Project #		Project Name		Locality	Cowardin Class.	HUC	Date Date	SAR#	Impact/SAR length	Impact Factor	
5337	I	-64 Peninsul	a	New Kent	R2UB3	02080206	11/2/11		70		
Name	e(s) of Evalua	tor(s)	Stream Nam	e and Informa	ation						
	Aitkenhead / Nies		WUS 93M								
. Channel C	Condition: Asse	ess the cross-sec	ction of the stream		ondition (erosion, Conditional Catego						
	Opti	imal	Subo	ptimal	Mar	ginal	Po	oor	Se	vere	
QL	Very little incision o	or active erosion; 80	erosion or unproted	ew areas of active cted banks. Majority	Poor. Banks more	less than Severe or stable than Severe ower bank slopes.	Vertically/laterally	ned/incised. unstable. Likely to jority of both banks	incision, flow co	nstability. Severe	
Channel Condition	100% stable bar surface protection prominent (80-1) Stable point bars/bc present. Access floodplain or fully bankfull benches. and transverse be sediment depositio 10% of	nks. Vegetative n or natural rock, 00%). AND/OR ankfull benches are to their original v developed wide Mid-channel bars, ars few. Transient on covers less than	Vegetative protect prominent (60 Depositional feat stability. The bar channels are we likely has access t or newly develope portions of the is sediment covers 11	table (60-80%), titon or natural rock -80%) AND/OR tures contribute to nkfull and low flow II defined. Stream o bankfull benches, and floodplains along reach. Transient 0-40% of the stream tom.	Erosion may be pr both banks. Veget 40-60% of banks. bevertical or unde 60% of strean sediment. Set temporary/tran instability. Depositi stability, may be AND/OR V-shap	resent on 40-60% of tative protection on Streambanks may ercut. AND/OR 40- in is covered by diment may be sient, contribute on that contribute to forming/present.	are near vertical. 60-80% of bar protection prese banks, and is inst erosion. AND/O stream is cover Sediment is temp nature, and contri AND/OR V-shap vegetative protect	Erosion present on ks. Vegetative ent on 20-40% of ufficient to prevent R 60-80% of the ed by sediment. porary/transient in buting to instability, ed channels have ion is present on >	rooting depth, r vertical/under protection present banks, is not pr Obvious bank s Erosion/raw ba AND/OR Aggradii than 80% of strear deposition, contril Multiple thread	ed below average majority of banks cut. Vegetative on less than 20% of eventing erosion. loughing present. nks on 80-100%. ng channel. Greater n bed is covered by buting to instability. channels and/or	
					banks and depositi	ion on > 40% of the ional features which	deposition	and stable sediment is absent.	Subterra	nean flow.	
Score	3	3	2	2.4		2	1	.6		1	1.0
2. RIPARIAN	N BUFFERS: A		Con	nditional Cate	gory Mar	ginal Low Marginal: Non-maintained,	Po High Poor:	n may be accepta	NOTES>>		
2. RIPARIAN Riparian Buffers	Opti Tree stratum (dbh > with > 60% tree ca	imal > 3 inches) present, anopy cover and a derstory. Wetlands	Cor Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy	gory	ginal Low Marginal:	Po		NOTES>>		
Riparian	Option Tree stratum (dbh > with > 60% tree canon-maintained uncompaintained u	imal > 3 inches) present, anopy cover and a derstory. Wetlands	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory.	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation).	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover.	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh >3 inches) present, with <30% tree canopy cover with maintained understory.	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable condition.	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions.	NOTES>>		
Riparian	Option Tree stratum (dbh > with > 60% tree canon-maintained uncompaintained u	imal 3 inches) present, anopy cover and a derstory. Wetlands e riparian areas.	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained	Low Suboptimal Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present with <30% tree	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh > 3 inches) present, with <30% tree canopy cover with maintained	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable	NOTES>>		
Riparian Buffers Condition Scores Delineate ripalescriptors. 2. Determine squelow.	Tree stratum (dbh > with > 60% tree ca non-maintained unc located within the	imal 3 inches) present, anopy cover and a derstory. Wetlands e riparian areas. 5 each stream bank ach by measurin	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 k into Condition C	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Coungth and width. Coungth	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh > 3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5	NOTES>>		
Riparian Buffers Condition Scores Delineate ripz escriptors. Determine squelow. Enter the % F	Tree stratum (dbh > with > 60% tree cc on-maintained und located within the	imal 3 inches) present, anopy cover and a derstory. Wetlands e riparian areas. 5 each stream bank ach by measurin	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 k into Condition C	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Coungth and width. Coungth	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh > 3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5	NOTES>>		
Riparian Buffers Condition Scores Delineate ripalescriptors. Determine squelow.	Tree stratum (dbh > with > 60% tree ca non-maintained unc located within the located with	imal 3 inches) present, anopy cover and a derstory. Wetlands e riparian areas. 5 each stream bank ach by measurin.	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 k into Condition C	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Coungth and width. Coungth	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh > 3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5	NOTES>>		
Riparian Buffers Condition Scores Delineate ripaescriptors. Determine squelow. Enter the % F	Tree stratum (dbh > with > 60% tree ca non-maintained unc located within the located with	imal 3 inches) present, anopy cover and a derstory. Wetlands e riparian areas. 5 each stream bank ach by measurin Score for each ri	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 k into Condition C	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Coungth and width. Coungth	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh > 3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5	NOTES>>		
Riparian Buffers Condition Scores Delineate ripz escriptors. Determine squelow. Enter the % F	Tree stratum (dbh > with > 60% tree ca non-maintained unc located within the located with	imal 3 inches) present, anopy cover and a derstory. Wetlands e riparian areas. 5 each stream bank ach by measurin. Score for each ri	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 k into Condition C	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Coungth and width. Coungth	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh > 3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5	NOTES>>	Scores*0.01)/2 1.20 1.20	CI 1.20
Condition Scores 1. Delineate ripadescriptors. 2. Determine squelow. 3. Enter the % F. Right Bank Left Bank 3. INSTREAR	Tree stratum (dbh > with > 60% tree canon-maintained unc located within the located withi	imal 3 inches) present, anopy cover and a derstory. Wetlands e riparian areas. 5 each stream bank ach by measurin 100% 1.2 100% 1.2 aried substrate si	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 into Condition C g or estimating let parian category in	Inditional Cate ptimal Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Coungth and width. Coungth and width. Coungth and width. Coungth and depths; woo res.	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present with <30% tree canopy cover. High 0.85 adiculators are pro	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh >3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75 ing the ovided for you	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F Blocks 6	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5 the sums Riparian equal 100 100%	NOTES>> Cl= (Sum % RA*: Rt Bank Cl >	1.20	
Condition Scores Delineate ripa elescriptors. Deltre the % F Right Bank Left Bank Left Bank B. INSTREAN Left banks;	Tree stratum (dbh > with > 60% tree ca non-maintained unc located within the located with	imal 3 inches) present, anopy cover and a derstory. Wetlands e riparian areas. 5 each stream bank ach by measurin 100% 1.2 100% 1.2 aried substrate si	Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 Into Condition C g or estimating le	Inditional Cate ptimal Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Coungth and width. Coungth and width. Coungth and width. Coungth and depths; woo res.	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85 adiculators are pro	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh >3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75 ing the ovided for you	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F Blocks 6	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5 the sums Riparian equal 100 100%	NOTES>> Ci= (Sum % RA *: Rt Bank Ci > Lt Bank Ci >	1.20	_
Condition Scores 1. Delineate ripadescriptors. 2. Determine squelow. 3. Enter the % F. Right Bank Left Bank 3. INSTREAR	Tree stratum (dbh > with > 60% tree ca non-maintained unc located within the located with	imal 3 inches) present, anopy cover and a derstory. Wetlands e riparian areas. 5 5 cach stream bank ach by measuring the stream	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 Into Condition C g or estimating let parian category in Zes, water velocit exes, stable featur Subo Stable habitat ele present in 30-509 are adequate fo	Inditional Cate ptimal Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Congth and width. Congth and width. Congth and width. Congth and depths; wores. Conditional	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85 addition Scores us calculators are pro- duly and leafy deb al Category Mar Stable habitat ele present in 10-30 are adequate fo	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh >3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75 ing the price of the production of the present of the	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F Blocks 6	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5 the sums Riparian equal 100 100% 100%	CI= (Sum % RA *: Rt Bank CI > Lt Bank CI > NOTES>>	1.20	CI 1.20

	St	ream In	npact A	ssessm	ent Fo	rm Pag	e 2		
Project #	Applicant		Locality	Cowardin Class.	HUC	Date	Data Point	SAR length	Impact Factor
								500	1
	ALTERATION: Stream cross poil piles, constrictions, livestock	ings, riprap, conci		concrete blocks, s	traightening of ch	annel, channeliza	ation,	NOTES>>	
	Negligible	Mii	nor		erate	Se	vere		
Channel Alteration	or hardening absent. Stream has an	Less than 20% of the stream reach is disrupted by any of the channel alterations listed in the parameter guidelines.	20-40% of the stream reach is disrupted by any of the channel alterations listed in the parameter guidelines.	is disrupted by any of the channel	of the channel	Greater than 80% by any of the char in the parameter 80% of banks sl	of reach is disrupted nnel alterations listed guidelines AND/OR hored with gabion, or cement.		
SCORE	1.5	1.3	1.1	0.9	0.7	(0.5		
	REACH C	ONDITION II	NDEX and S	TREAM CO	NDITION UN	ITS FOR TH	IIS REACH		
NOTE: The Cls and F	CI should be rounded to 2 decimal places.	The CR should be rour	nded to a whole numb	er.			THE REACH (CONDITION IN	DEX (RCI) >>

COMPENSATION REQUIREMENT (CR) >>

CR = RCI X LF X IF



DESCRIBE PROPOSED IMPACT:

Ephemeral Stream Assessment Form (Form 1a) Unified Stream Methodology for use in Virginia

For use in ephemeral streams

Project #	Project Name	Locality	Cowardin Class.	нис	Date	SAR#	Impact/SAR length	Impact Factor
5337	I-64 Peninsula	New Kent		02080206	11/2/11		179	

Name(s) of Evaluator(s) Stream Name and Information

WUS 95M

2. RIPARIAN BUFFERS: Assess both bank's 100 foot riparian areas along the entire SAR. (rough measurements of length & width may be acceptable)

		Cor	ditional Cate	gory				NOTES>>		
	Optimal	Subo	ptimal	Mar	ginal	Po	oor			
Riparian Buffers	Tree stratum (dbh > 3 inches) preser with > 60% tree canopy cover and a non-maintained understory. Wetland areas.	to 60% tree	with tree stratum (dbh > 3 inches)	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover.	Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh >3 inches) present, with <30% tree canopy cover with maintained understory.	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable condition.	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions.			
		High	Low	High	Low	High	Low			
Condition Scores	1.5	1.2	1.1	0.85	0.75	0.6	0.5			
descriptors.	arian areas along each stream ba						the sums Riparian			
3. Enter the % F	Riparian Area and Score for each	riparian category ir	the blocks below	1.		Blocks 6	equal 100			
Right Bank	% Riparian Area> 100%						100%			
	Score > 1.2								2	
	4000/						4000/	CI= (Sum % RA * S	,	
Left Rank	% Riparian Area> 100%						100%	Rt Bank CI >	1.20	

100% 100% % Riparian Area> 1.2

REACH CONDITION INDEX and STREAM CONDITION UNITS FOR THIS REACH NOTE: The CIs and RCI should be rounded to 2 decimal places. The CR should be rounded to a whole number

THE REACH CONDITION INDEX (RCI) >> RCI= (Riparian CI)/2

Lt Bank CI >

1.20

1.20

0.60

0

COMPENSATION REQUIREMENT (CR) >>

CR = RCI X LF X IF

INSERT PHOTOS:

Left Bank

UPSTREAM



DOWNSTREAM



DESCRIBE PROPOSED IMPACT:		

	Stre		fied Stream N	lethodology f	for use in Vir	ginia				ì
Project #	Project Nam		Locality	Cowardin Class.	HUC	Date	SAR#	Impact/SAR length	Impact Factor	ı
5337	I-64 Peninsu	la	New Kent	R2UB2	02080206	11/2/11		60		ı
Name	e(s) of Evaluator(s)		e and Inform	ation						1
	Aitkenhead / Nies	WUS 96M								ı
I. Channel C	Condition: Assess the cross-se	ction of the stream		ondition (erosion, Conditional Catego						ı
	Optimal	Subo	ptimal	Mar	ginal	Po	oor	Se	vere	1
Channel	Very little incision or active erosion; 8 100% stable banks. Vegetative	erosion or unproted of banks are s	few areas of active cted banks. Majority stable (60-80%).	Poor. Banks more or Poor due to lo	less than Severe or stable than Severe over bank slopes.	Vertically/laterally widen further. Ma	ned/incised. unstable. Likely to jority of both banks	incision, flow co	nstability. Severe ntained within the ed below average	
Condition	surface protection or natural rock, prominent (80-100%). AND/OR Stable point bars/bankfull benches an present. Access to their original floodplain or fully developed wide bankfull benches. Mid-channel bars, and transverse bars few. Transient sediment deposition covers less than 10% of bottom.	prominent (60 Depositional feat stability. The bar channels are we likely has access t or newly develope portions of the sediment covers 10	tition or natural rock -80%) AND/OR tures contribute to nkfull and low flow Il defined. Stream to bankfull benches, ad floodplains along reach. Transient 0-40% of the stream tom.	both banks. Veget 40-60% of banks. bevertical or unde 60% of strean sediment. Set temporary/tran instability. Depositi stability, may be AND/OR V-shap vegetative protecti	esent on 40-60% of tative protection on Streambanks may ercut. AND/OR 40- n is covered by diment may be sient, contribute on that contribute to forming/present. ed channels have ion on > 40% of the	60-80% of bar protection press banks, and is insi erosion. AND/C stream is cover Sediment is tem nature, and contri AND/OR V-shap vegetative protect 40% of the banks a	Erosion present on kls. Vegetative ant on 20-40% of ufficient to prevent R 60-80% of the red by sediment. porary/transient in buting to instability. ed channels have cion is present on > and stable sediment	rooting depth, r vertical/underr protection present banks, is not pro Obvious bank s Erosion/raw ban AND/OR Aggradir than 80% of strear deposition, contril Multiple thread	majority of banks cut. Vegetative on less than 20% of eventing erosion. loughing present. nks on 80-100%. ng channel. Greater n bed is covered by outing to instability. channels and/or nean flow.	CI
Score	3	2	2.4		ional features which	· · · · · · · · · · · · · · · · · · ·	is absent.		1	2.4
								1	•	2.7
NOTES>> 2. RIPARIAN	N BUFFERS: Assess both ban	Con	ptimal Cate	gory	ginal Low Marginal:	Po High Poor:	n may be accepta	notes>>		
		Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy	gory	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh > 3 inches) present, with <30% tree canopy cover with maintained	Pe		NOTES>>		
2. RIPARIAN	Optimal Tree stratum (dbh > 3 inches) present with > 60% tree canopy cover and a non-maintained understory. Wetlands	Riparian areas with tree stratum (dbh > 3 inches), present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained	Low Suboptimal Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory, Recent cutover (dense	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh >3 inches) present, with					

	St	ream In	npact A	ssessm	nent Fo	rm Pag	e 2		
Project #	Applicant		Locality	Cowardin Class.	HUC	Date	Data Point	SAR length	Impact Factor
								500	1
	L ALTERATION: Stream cross spoil piles, constrictions, livestock	sings, riprap, conc		concrete blocks, s	traightening of ch	annel, channeliza	ation,	NOTES>>	
	Negligible	Mi	nor	Mod	erate	Se	vere		
Channel Alteration	Channelization, dredging, alteration, or hardening absent. Stream has an unaltered pattern or has naturalized.	Less than 20% of the stream reach is disrupted by any of the channel alterations listed in the parameter guidelines.	20-40% of the stream reach is disrupted by any of the channel alterations listed in the parameter guidelines.	is disrupted by any of the channel	60 - 80% of reach is disrupted by any of the channel alterations listed in the parameter guidelines. If stream has been channelized, normal stable stream meander pattern has not	Greater than 80% by any of the chan in the parameter 80% of banks sh	of reach is disrupted nel alterations listed guidelines AND/OR nored with gabion, or cement.		
SCORE	1.5	1.3	1.1	0.9	0.7	C).5		
	REACH C	ONDITION	NDEX and S	TREAM CO	NDITION UN	ITS FOR TH	IIS REACH		
VOTE: The Cls and I	RCI should be rounded to 2 decimal places.	The CR should be rou	nded to a whole numb	er.			THE REACH (CONDITION IN	DEX (RCI) >>

COMPENSATION REQUIREMENT (CR) >>

CR = RCI X LF X IF



DESCRIBE PROPOSED IMPACT:		

Ephemeral Stream Assessment Form (Form 1a) Unified Stream Methodology for use in Virginia

For use in ephemeral streams

Project #	Project Name	Locality	Cowardin Class.	нис	Date	SAR#	Impact/SAR length	Impact Factor
5337	I-64 Peninsula	New Kent		02080206	11/2/11		134	

Name(s) of Evaluator(s) Stream Name and Information

WUS 97M

2. RIPARIAN BUFFERS: Assess both bank's 100 foot riparian areas along the entire SAR. (rough measurements of length & width may be acceptable)

		Cor	nditional Cate	gory				NOTES>>		
	Optimal	Subo	ptimal	Mar	ginal	Po	oor			
Riparian Buffers	Tree stratum (dbh > 3 inches) preser with - 60% tree canopy cover and a non-maintained understory. Wetland areas.	to 60% tree ds canopy cover and containing both herbaceous and shrub layers or a non-maintained understory.	cover and a maintained understory. Recent cutover (dense vegetation).	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover.	lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh >3 inches) present, with <30% tree canopy cover with maintained understory.	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable condition.	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions.			
		High	Low	High	Low	High	Low			
Condition Scores	1.5	1.2	1.1	0.85	0.75	0.6	0.5			
descriptors.	arian areas along each stream ba		· ·				the sums Riparian			
3. Enter the % F	Riparian Area and Score for each	riparian category in	n the blocks below	<i>i</i> .		Blocks 6	equal 100			
Diaht Bank	% Riparian Area> 100%						100%	1		
Right Bank	Score > 1.2							1		
								CI= (Sum % RA * \$	Scores*0.01)/2	
Left Bank	% Riparian Area> 100%						100%	Rt Bank CI >	1.20	
Lon Dank	Score > 1.2							I t Bank CI >	1 20	1

REACH CONDITION INDEX and STREAM CONDITION UNITS FOR THIS REACH

NOTE: The CIs and RCI should be rounded to 2 decimal places. The CR should be rounded to a whole number

1.2

THE REACH CONDITION INDEX (RCI) >> RCI= (Riparian CI)/2

Lt Bank CI >

1.20

1.20

0.60

COMPENSATION REQUIREMENT (CR) >> 0

CR = RCI X LF X IF

INSERT PHOTOS:

UPSTREAM



DESCRIBE PROPOSED IMPACT:		

		Stre	Unif	SSESS fied Stream M	lethodology f	or use in Virg	ginia	m 1)			
Project #	Pr	oject Name		Locality	Cowardin Class.	HUC	Date	SAR#	Impact/SAR length	Impact Factor	
	I-64	4 Peninsula	a								
Name	e(s) of Evaluato	r(s)	Stream Nam	e and Informa	ation						
	Aitkenhead / Nies										
Channel C	Condition: Assess	s the cross-sec	tion of the stream								
	Optim	ial	Subo	ptimal	Conditional Catego Mar	ginal	Po	oor	Sev	/ere	
	Very little incision or ac	ative exercises: 90		ew areas of active ted banks. Majority	Poor. Banks more	less than Severe or stable than Severe	Vertically/laterally	ned/incised. unstable. Likely to		stability. Severe	
Channel Condition	100% stable banks. surface protection on prominent (80-100%) Stable point bars/bank present. Access to floodplain or fully de bankfull benches. Mic and transverse bars i sediment deposition c sediment deposition c	vegetative r natural rock, 7%). AND/OR full benches are their original eveloped wide d-channel bars, few. Transient covers less than	Vegetative protect prominent (60- Depositional feat stability. The bar channels are wel likely has access to or newly develope portions of the r	table (60-80%). tion or natural rock 80%) AND/OR ures contribute to hkfull and low flow I defined. Stream to bankfull benches, d floodplains along each. Transient -40% of the stream tom.	Erosion may be pr both banks. Veget 40-60% of banks. bevertical or unde 60% of strean sediment. Sed temporary/tran instability. Depositi stability, may be AND/OR V-shap	ower bank slopes. essent on 40-60% of attive protection on Streambanks may rout. AND/OR 40-in is covered by diment may be sient, contribute on that contribute to forming/present. ed channels have	are near vertical. 60-80% of bar protection prese banks, and is inst erosion. AND/O stream is cover Sediment is temp nature, and contri AND/OR V-shap vegetative protect	jority of both banks Erosion present on ks. Vegetative ent on 20-40% of afficient to prevent R 60-80% of the ed by sediment. porary/transient in buting to instability. ed channels have ion is present on >	banks. Streamberooting depth, no vertical/undercy vertical/undercy protection present banks, is not pre Obvious bank sl Erosion/raw bar AND/OR Aggradin than 80% of strean deposition, contrib	ed below average najority of banks cut. Vegetative on less than 20% of eventing erosion. oughing present.	CI
					banks and depositi	on on > 40% of the onal features which	deposition	and stable sediment is absent.		nean flow.	
Score	3		2	.4		2	1	.6	,	1	
RIPARIAN	N BUFFERS: Ass	sess both bank				igh measurement	s of length & widtl	n may be accepta			
. RIPARIAN	N BUFFERS: Ass		Con	n areas along the ditional Cate ptimal	gory	ginal		n may be accepta	NOTES>>		
RIPARIAN Riparian Buffers		inches) present, py cover and a story. Wetlands	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory.	ditional Cate ptimal Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation).	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover.	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh > 3 inches) present, with <a>30 % tree canopy cover with maintained understory.	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, recently seeded and stabilized, or other comparable condition.	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions.			
Riparian Buffers	Optima Tree stratum (dbh > 3 i with > 60% tree canonon-maintained unders located within the rij	inches) present, py cover and a story. Wetlands	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High	ditional Cate ptimal Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation).	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover.	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh >3 inches) present, with <30% tree canopy cover with maintained understory. Low	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, recently seeded and stabilized, or other comparable condition.	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions.			
Riparian Buffers	Optima Tree stratum (dbh > 3 with > 60% tree canon non-maintained understands of the control of	inches) present, py cover and a story. Wetlands	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory.	ditional Cate ptimal Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation).	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover.	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh > 3 inches) present, with <a>30 % tree canopy cover with maintained understory.	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, recently seeded and stabilized, or other comparable condition.	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions.			
Riparian Buffers Condition Scores Delineate ripasscriptors. Determine squadow.	Optima Tree stratum (dbh > 3 i with > 60% tree canonon-maintained unders located within the rij	inches) present, py cover and a story. Wetlands parian areas.	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 sinto Condition Co	ditional Cate ptimal Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Cor	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh >3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions.			
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Condition Scores Delineate ripa Secriptors. Determine square Enter the % F	Tree stratum (dbh > 3 with > 60% tree canon non-maintained unders located within the riple of the results of th	inches) present, py cover and a story. Wetlands parian areas.	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 Into Condition Con g or estimating ler parian category in	ditional Cate ptimal Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Cor	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85 Indition Scores using the state of the state	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh > 3 inches) present, with <a>only wow of with maintained understory. Low 0.75	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F Blocks 6	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5 the sums Riparian equal 100 0%	NOTES>> CI= (Sum % RA * S Rt Bank CI >	0.00	
Condition Scores Delineate ripa secriptors. Determine squadow. Enter the % R Right Bank Left Bank INSTREAM	Tree stratum (dbh > 3 with > 60% tree canon non-maintained unders located within the right of the control of th	inches) present, py cover and a story. Wetlands parian areas. Ch stream bank h by measuring ore for each rig	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 sinto Condition Co	ditional Cate ptimal Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Cor ogth and width. Co the blocks below y and depths; wodes. Conditiona	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85 Indition Scores using alculators are production of the prod	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh -3 inches) present, with +30% tree canopy cover with maintained understory. Low 0.75	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F Blocks 6	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5 the sums Riparian equal 100 0%	CI= (Sum % RA * S Rt Bank CI > Lt Bank CI >	0.00	
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Stream Impact Assessment Form Page 2 Applicant Project # Cowardin Class Data Point SAR length Impact Factor 4. CHANNEL ALTERATION: Stream crossings, riprap, concrete, gabions, or concrete blocks, straightening of channel, channelization, NOTES>> embankments, spoil piles, constrictions, livestock Conditional Category Moderate Minor Negligible Severe 40 - 60% of reach is disrupted by any of the channel of the channel 20-40% of the stream reach is Less than 20% of Channel Iterations listed in alterations listed in Greater than 80% of reach is disrupted the stream reach the parameter guidelines. If the parameter Channelization, dredging, alteration, or hardening absent. Stream has an unaltered pattern or has naturalized. by any of the channel alterations listed in the parameter guidelines AND/OR 80% of banks shored with gabion, s disrupted by any disrupted by any Alteration of the channel Iterations listed i of the channel lterations listed i guidelines. If tream has been channelized, stream has been channelized, the parameter the parameter riprap, or cement. guidelines. guidelines. normal stable normal stable stream meander stream meander pattern has not pattern has not SCORE 1.5 1.3 1.1 0.9 0.7 0.5 REACH CONDITION INDEX and STREAM CONDITION UNITS FOR THIS REACH

NOTE: The CIs and RCI should be rounded to 2 decimal places. The CR should be rounded to a whole number.

THE REACH CONDITION INDEX (RCI) >>

0.00

RCI= (Sum of all Cl's)/5
COMPENSATION REQUIREMENT (CR) >>

R) >> 0

CR = RCI X LF X IF







Downstream



		Stre	Unit	fied Stream N	lethodology 1	for use in Vir	-	m 1)			
Project #		Project Name		Locality	nels classified a Cowardin Class.	HUC	perennial Date	SAR#	Impact/SAR	Impact Factor	
5337	ŀ	-64 Peninsul	a	New Kent	R2UB2	02080206	11/2/11		267	1.550	1
Nam	e(s) of Evalua	tor(s)		e and Informa	ation						
	Aitkenhead / Nies		WUS 99M								
1. Channel (Condition: Asse	ess the cross-sec	ction of the stream		ondition (erosion,						
	Opti	imal	Subo	ptimal		ginal	Po	oor	Se	vere	
Channel	Very little incision o	r active erosion; 80	erosion or unproted	ew areas of active cted banks. Majority table (60-80%).	Poor. Banks more	less than Severe or e stable than Severe ower bank slopes.		ed/incised. unstable. Likely to ority of both banks	incision, flow co	nstability. Severe ontained within the ped below average	
Condition	nutrace protection prominent (80-1) Stable point barrobe present. Access floodplain or fully bankfull benches. and transverse basediment depositio 10% of l	00%). AND/OR ankfull benches are s to their original or developed wide Mid-channel bars, ars few. Transient on covers less than	Vegetative protect prominent (60- Depositional feat stability. The bar channels are well likely has access to or newly develope portions of the resediment covers 10	tion or natural rock -80%) AND/OR -80%) AND/OR tures contribute to nkfull and low flow II defined. Stream o bankfull benches, d floodplains along reach. Transient 0-40% of the stream tom.	both banks. Vege 40-60% of banks. bevertical or unde 60% of strean sediment. Se- temporary/tran instability. Depositi stability, may be AND/OR V-shap vegetative protect	resent on 40-60% of tative protection on Streambanks may ercut. AND/OR 40- in is covered by diment may be sisent, contribute to forming/present. eed channels have ion on > 40% of the ional features which	60-80% of bar protection press banks, and is insu erosion. AND/O stream is cover Sediment is temp nature, and contri AND/OR V-shap vegetative protect 40% of the banks a	ed channels have ion is present on > and stable sediment	rooting depth, vertical/under protection present banks, is not pr Obvious bank s Erosion/raw ba AND/OR Aggradithan 80% of strea deposition, contri Multiple threac	majority of banks rcut. Vegetative t on less than 20% of reventing erosion. sloughing present. anks on 80-100%. Ing channel. Greate m bed is covered by ibuting to instability. d channels and/or unean flow.	
Score	3	3	2	2.4		2	-	is absent.		1	1.6
NOTES>>			l .				l .				
2. RIPARIAN	N BUFFERS: A		Con	n areas along the ditional Cate ptimal	gory	ginal		n may be accepta	NOTES>>		
Riparian Buffers	Opti Tree stratum (dbh > with > 60% tree ca	imal > 3 inches) present, anopy cover and a derstory. Wetlands	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy	gory	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh > 3 inches) present, with <30% tree canopy cover with maintained					
Riparian Buffers	Option Tree stratum (dbh > with > 60% tree canon-maintained unc	imal > 3 inches) present, anopy cover and a derstory. Wetlands	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh > 3 inches) present, with <30% tree canopy cover with	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable			
Riparian	Option Tree stratum (dbh > with > 60% tree canon-maintained unc	imal 3 inches) present, anopy cover and a derstory. Wetlands e riparian areas.	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory.	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation).	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover.	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh >3 inches) present, with <30% tree canopy cover with maintained understory.	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, recently seeded and stabilized, or other comparable condition.	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions.			
Riparian Buffers Condition Scores Delineate ripe descriptors. Deleneate ripe descriptors.	Tree stratum (dbh > with > 60% tree ca non-maintained unc located within the	imal 3 inches) present, anopy cover and a derstory. Wetlands e riparian areas. 5 each stream banl ach by measurin	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 into Condition C	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Co	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh > 3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5			
Riparian Buffers Condition Scores Delineate ripe descriptors.	Tree stratum (dbh > with > 60% tree conon-maintained und located within the located withi	imal 3 inches) present, anopy cover and a derstory. Wetlands e riparian areas. 5 ach stream banl ach by measurin.	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 into Condition C	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Co	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh > 3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5			
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Condition Scores Delineate ripe descriptors. Deltermine scoelow. English Bank Left Bank Left Bank INSTREA	Tree stratum (dbh > with > 60% tree ca non-maintained unc located within the located with	imal 3 inches) present, anopy cover and a derstory. Wetlands e riparian areas. 5 each stream bank ach by measuring the stream bank ach by measuring the stream bank ach by ach	Com Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 Into Condition C g or estimating ler parian category in	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Coungth and width. Coungth and width. Coungth and width. Coungth and depths; woodes.	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85 addition Scores us calculators are production of the produc	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh > 3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75 ing the povided for you	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F Blocks 6	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5 the sums tiparian qual 100 100%	NOTES>> CI= (Sum % RA * Rt Bank CI >		CI 1.20
Condition Scores Delineate ripe descriptors. Deltermine scoelow. English Bank Left Bank Left Bank INSTREA	Tree stratum (dbh > with > 60% tree ca non-maintained unc located within the located with	imal 3 inches) present, anopy cover and a derstory. Wetlands e riparian areas. 5 each stream bank ach by measuring the stream bank ach by measuring the stream bank ach by ach	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 s into Condition C g or estimating ler parian category in zes, water velocity ixes, stable featur	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Coungth and width. Coungth and width. Coungth and width. Coungth and depths; woodes.	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85 Indition Scores us calculators are production of the product	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh > 3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75 ing the povided for you	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F Blocks e	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5 the sums tiparian qual 100 100%	NOTES>> CI= (Sum % RA * Rt Bank CI > Lt Bank CI >	1.20	
Condition Scores Delineate ripe descriptors. Delineate ripe descriptors. Ender the % F Right Bank Left Bank Left Bank INSTREAI undercut banks;	Tree stratum (dbh > with > 60% tree cc non-maintained und located within the located with	imal 3 inches) present, anopy cover and a derstory. Wetlands e riparian areas. 5 beach stream bani ach by measurin 100% 1.2 100% 1.2 aried substrate si iffle poole completimal re typically present	Com Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 Into Condition C g or estimating ler parian category in zes, water velocity exes, stable featur Subo Stable habitat ele present in 30-50% are adequate fo	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Co ngth and width. Co n the blocks below y and depths; wodes. Conditiona	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85 Indition Scores us calculators are production of the production of the production of the production of the present in 10-30 are adequate for a season of the present in 10-30 are	Ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh >3 inches) present, with <a>30 % tree canopy cover with maintained understory. Low 0.75 ing the price of the product of the present of t	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F Blocks 6	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5 the sums Riparian qual 100 100% 100% ess; shade;	NOTES>> CI= (Sum % RA * Rt Bank CI > Lt Bank CI >	1.20	

	St	ream In	npact A	ssessm	nent Fo	rm Pag	e 2		
Project #	Applicant		Locality	Cowardin Class.	HUC	Date	Data Point	SAR length	Impact Factor
								500	1
	L ALTERATION: Stream cross poil piles, constrictions, livestock		Conditiona	al Category				NOTES>>	
	Negligible	Mi	nor		erate		vere		
Channel Alteration	Channelization, dredging, alteration, or hardening absent. Stream has an unaltered pattern or has naturalized.	Less than 20% of the stream reach is disrupted by any of the channel alterations listed in the parameter guidelines.	20-40% of the stream reach is disrupted by any of the channel	is disrupted by any of the channel	60 - 80% of reach is disrupted by any of the channel alterations listed in the parameter guidelines. If stream has been channelized, normal stable stream meander pattern has not	Greater than 80% by any of the char in the parameter 80% of banks sl	of reach is disrupted innel alterations listed guidelines AND/OR hored with gabion, or cement.		
SCORE	1.5	1.3	1.1	0.9	0.7	(0.5		
	REACH C	ONDITION	NDEX and S	TREAM CO	NDITION UN	ITS FOR TH	IIS REACH		
NOTE: The Cls and R	RCI should be rounded to 2 decimal places.	The CR should be rou	nded to a whole numb	er.			THE REACH (CONDITION IN	DEX (RCI) >>

CR = RCI X LF X IF

INSERT PHOTOS:





		Stre	Uni	fied Stream N	lethodology 1	Form	ginia	m 1)			
Project #		Project Name		Locality	cowardin Class.	HUC	Date Date	SAR#	Impact/SAR length	Impact Factor	
5337	ŀ	-64 Peninsul	a	New Kent	R2UB2	02080206	11/2/11		804		
Name	e(s) of Evalua	tor(s)	Stream Nam	e and Informa	ation						
	Aitkenhead / Nies		WUS 100M								
. Channel C	Condition: Asse	ess the cross-sec	ction of the stream		ondition (erosion, conditional Catego						
	Opti	imal	Subo	ptimal	Mar	ginal	Po	oor	Se	vere	
Channel	Very little incision o	or active erosion; 80	erosion or unproted	ew areas of active cted banks. Majority table (60-80%).	Poor. Banks more	less than Severe or e stable than Severe ower bank slopes.	Vertically/laterally	ied/incised. unstable. Likely to jority of both banks	incision, flow co	nstability. Severe intained within the	
Condition	100% stable bar surface protection prominent (80-11 Stable point bars/ba present. Access floodplain or fully bankfull benches. and transverse ba sediment depositio 10% of l	n or natural rock, 00%). AND/OR ankfull benches are s to their original v developed wide Mid-channel bars, ars few. Transient on covers less than	Vegetative protect prominent (60 Depositional feat stability. The ban channels are we likely has access to or newly develope portions of the to sediment covers 10	itable (00-90%). Itable (00-90%). AND/OR tures contribute to hifull and low flow II defined. Stream o bankfull benches, id floodplains along reach. Transient 0-40% of the stream tom.	Erosion may be pr both banks. Veget 40-60% of banks. bevertical or unde 60% of strean sediment. Set temporary/tran instability. Depositi stability, may be AND/OR V-shap	resent on 40-60% of tative protection on Streambanks may ercut. AND/OR 40- m is covered by diment may be usient, contribute ion that contribute to be forming/present.	are near vertical. 60-80% of bar protection press banks, and is insi erosion. AND/O stream is cover Sediment is tem nature, and contri AND/OR V-shap vegetative protect	Erosion present on ks. Vegetative ent on 20-40% of ufficient to prevent R 60-80% of the ed by sediment. porary/transient in buting to instability, ed channels have ion is present on >	rooting depth, r vertical/under protection present banks, is not pr Obvious bank s Erosion/raw ba AND/OR Aggradir than 80% of strear deposition, contril Multiple thread	ned below average majority of banks cut. Vegetative on less than 20% of eventing erosion. sloughing present. Inks on 80-100%. ng channel. Greater m bed is covered by buting to instability. I channels and/or	CI
					banks and depositi	ion on > 40% of the ional features which	deposition	and stable sediment is absent.	Subterra	nean flow.	
Score	3	3	2	2.4		2	1	.6		1	1.6
NOTES>>	N BUFFERS: A		Con	nditional Cate	gory Mar	ginal Low Marginal: Non-maintained,		n may be accepta	NOTES>>		
	Opti	imal > 3 inches) present, anopy cover and a derstory. Wetlands	Cor Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy	gory	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh > 3 inches) present, with <30% tree canopy cover with maintained	Po High Poor:		NOTES>>		
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2. RIPARIAN	Option Tree stratum (dbh > with > 60% tree canon-maintained uncon-maintained unco-maintained unco	imal 3 inches) present, anopy cover and a derstory. Wetlands e riparian areas.	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation).	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh >3 inches) present, with <30% tree canopy cover with maintained understory.	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions.	NOTES>>		
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Riparian Buffers Condition Scores Delineate riparelescriptors. Determine squelow. Enter the % F. Right Bank Left Bank INSTREAM	Tree stratum (dbh > with > 60% tree canon-maintained unc located within the located withi	imal 3 inches) present, anopy cover and a derstory. Wetlands e riparian areas. 5 each stream bank ach by measurin 100% 1.2 100% 1.2 aried substrate si	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 into Condition C g or estimating ler parian category in	Inditional Cate ptimal Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Coungth and width. Coungth and width. Coungth and width. Coungth and depths; woo res.	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85 Indition Scores us calculators are production of the produc	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh > 3 inches) present, with <a>30 % tree canopy cover with maintained understory: Low 0.75 ing the povided for you	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F Blocks 6	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5 the sums Riparian equal 100 100%	NOTES>>		CI 1.20
Riparian Buffers Condition Scores Delineate ripalescriptors. Determine squescriptors. Enter the % F. Right Bank Left Bank INSTREAM Left Banks;	Tree stratum (dbh > with > 60% tree ca non-maintained unc located within the located with	imal 3 inches) present, anopy cover and a derstory. Wetlands e riparian areas. 5.5 each stream bank ach by measuring the stream bank and by measuring the stream bank and the stream bank ach by measuring the stream bank ach by mea	Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 Into Condition C g or estimating le	Inditional Cate ptimal Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Congth and width. Congth and width. Congth and width. Congth and depths; wores. Conditional	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <a>3 inches) present, with <a>3 inches) present, or a tree canopy cover. High 0.85 Indition Scores us calculators are production of the control of th	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh >3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75 ing the povided for you	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F Blocks 6	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5 the sums Riparian equal 100 100%	NOTES>> Ci= (Sum % RA *: Rt Bank Ci > Lt Bank Ci >	1.20	
Riparian Buffers Condition Scores Delineate riparelescriptors. Determine squelow. Enter the % F. Right Bank Left Bank INSTREAM	Tree stratum (dbh > with > 60% tree ca non-maintained unc located within the located with	imal 3 inches) present, anopy cover and a derstory. Wetlands e riparian areas. 5 5 cach stream bank ach by measuring the stream	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 Into Condition C g or estimating let parian category in Zes, water velocit exes, stable featur Subo Stable habitat ele present in 30-509 are adequate fo	Inditional Cate ptimal Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Coungth and width. Coungth and width. Coungth and width. Coungth and depths; woo res.	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85 Indition Scores us calculators are production of the present in 10-30 are adequate for a seadequate for the present in 10-30 are adequate for the present in 10-30 are adeq	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh > 3 inches) present, with <a>30 % tree canopy cover with maintained understory: Low 0.75 ing the povided for you	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % f Blocks 6	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5 the sums Riparian equal 100 100% 100%	CI= (Sum % RA *: Rt Bank CI > Lt Bank CI > NOTES>>	1.20	

	St	ream In	npact A	ssessm	nent Fo	rm Pag	e 2		
Project #	Applicant		Locality	Cowardin Class.	HUC	Date	Data Point	SAR length	Impact Factor
								500	1
	L ALTERATION: Stream cross poil piles, constrictions, livestock	ings, riprap, concr		concrete blocks, s	traightening of ch	annel, channeliza	ation,	NOTES>>	
	Negligible	Mir	nor		erate	Se	vere		
Channel Alteration	Channelization, dredging, alteration, or hardening absent. Stream has an unaltered pattern or has naturalized.	Less than 20% of the stream reach is disrupted by any of the channel alterations listed in the parameter guidelines.	20-40% of the stream reach is disrupted by any of the channel alterations listed in the parameter guidelines.	is disrupted by any of the channel	60 - 80% of reach is disrupted by any of the channel alterations listed in the parameter guidelines. If stream has been channelized, normal stable stream meander pattern has not	Greater than 80% by any of the chan in the parameter 80% of banks sh	of reach is disrupted nel alterations listed guidelines AND/OR nored with gabion, or cement.		
SCORE	1.5	1.3	1.1	0.9	0.7	0).5		
	REACH C	ONDITION II	NDEX and S	TREAM CO	NDITION UN	ITS FOR TH	IIS REACH		
VOTE: The Cle and E	RCI should be rounded to 2 decimal places.	The CR should be rour	nded to a whole numb	er.			THE REACH O	CONDITION IN	DEX (RCI) >>

COMPENSATION REQUIREMENT (CR) >> 0

CR = RCI X LF X IF

INSERT PHOTOS:

Upstream



		Stre	Unit		lethodology 1	for use in Virg	ginia	m 1)			
Project #		Project Name		Locality	cowardin Class.	HUC	Date Date	SAR#	Impact/SAR length	Impact Factor	_
5337	ŀ	-64 Peninsul	a	New Kent	R2UB2	02080206	11/2/11		78		
Name	e(s) of Evalua	tor(s)	Stream Nam	e and Informa	ation						
	Aitkenhead / Nies		WUS 101M								
. Channel C	Condition: Asse	ess the cross-sec	ction of the stream		ondition (erosion, conditional Catego						
	Opti	imal	Subo	ptimal	Mar	ginal	Po	oor	Se	vere	
Channel	Very little incision o	or active erosion; 80	erosion or unproted	ew areas of active cted banks. Majority table (60-80%).	Poor. Banks more	less than Severe or stable than Severe ower bank slopes.	Vertically/laterally	ned/incised. unstable. Likely to jority of both banks	incision, flow co	nstability. Severe	
Condition	100% stable bar surface protection prominent (80-1) Stable point bars/be present. Access floodplain or fully bankfull benches. and transverse be sediment depositio 10% of l	n or natural rock, 00%). AND/OR ankfull benches are s to their original v developed wide Mid-channel bars, ars few. Transient on covers less than	Vegetative protect prominent (60- Depositional feat stability. The bar channels are well likely has access to or newly develope portions of the rediment covers 10 to the redi	itable (b0-90%). Itable (b0-90%). AND/OR tures contribute to hkfull and low flow II defined. Stream o bankfull benches, dd floodplains along reach. Transient 0-40% of the stream tom.	Erosion may be pr both banks. Veget 40-60% of banks. bevertical or unde 60% of strean sediment. Set temporary/tran instability. Depositi stability, may be AND/OR V-shap	esent on 40-60% of tative protection on Streambanks may ercut. AND/OR 40- n is covered by diment may be sient, contribute on that contribute to forming/present.	are near vertical. 60-80% of bar protection press banks, and is insi erosion. AND/O stream is cover Sediment is tem nature, and contri AND/OR V-shap vegetative protect	Erosion present on iks. Vegetative ent on 20-40% of ufficient to prevent R 60-80% of the red by sediment. porary/transient in buting to instability. led channels have it on is present on >	rooting depth, r vertical/under protection present banks, is not pr Obvious bank s Erosion/raw ba AND/OR Aggradir than 80% of streat deposition, contril	ned below average majority of banks cut. Vegetative on less than 20% o eventing erosion. Iloughing present. nks on 80-100%. ng channel. Greate m bed is covered by buting to instability. channels and/or	
					banks and depositi	ion on > 40% of the ional features which	deposition	and stable sediment is absent.		nean flow.	
Score	3	3		2.4		2	1	.6		1	1.6
. RIPARIAN	N BUFFERS: A		Con	nditional Cate	gory Mar	ginal Low Marginal: Non-maintained,		n may be accepta	NOTES>>		
RIPARIAN Riparian Buffers	Opti	imal > 3 inches) present, anopy cover and a derstory. Wetlands	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy	gory	ginal Low Marginal:	Po High Poor:				
Riparian	Option Tree stratum (dbh > with > 60% tree canon-maintained uncon-maintained unco-maintained unco	imal > 3 inches) present, anopy cover and a derstory. Wetlands	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory.	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation).	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover.	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh >3 inches) present, with <30% tree canopy cover with maintained understory.	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable condition.	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions.			
Riparian	Option Tree stratum (dbh > with > 60% tree canon-maintained uncon-maintained unco-maintained unco	imal 3 inches) present, anopy cover and a derstory. Wetlands e riparian areas.	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained	Low Suboptimal Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh >3 inches) present, with <30% tree canopy cover with maintained	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable			
Riparian Buffers Condition Scores Delineate ripalescriptors. 2. Determine squelow.	Tree stratum (dbh > with > 60% tree ca non-maintained unc located within the	imal 3 inches) present, anopy cover and a derstory. Wetlands e riparian areas. 5 each stream bank ach by measurin	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 k into Condition C	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Coungth and width. Coungth	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh >3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5			
Riparian Buffers Condition Scores Delineate ripa escriptors. Determine squelow.	Tree stratum (dbh > with > 60% tree ca non-maintained unc located within the located with	imal 3 inches) present, anopy cover and a derstory. Wetlands e riparian areas. 5 each stream bank ach by measurin.	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 k into Condition C	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Coungth and width. Coungth	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh >3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5			
Riparian Buffers Condition Scores Delineate ripalescriptors. Determine squelow.	Tree stratum (dbh > with > 60% tree ca non-maintained unc located within the	imal 3 inches) present, anopy cover and a derstory. Wetlands e riparian areas. 5 each stream bank ach by measurin	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 k into Condition C	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Coungth and width. Coungth	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh >3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5	NOTES>>		
Riparian Buffers Condition Scores Delineate ripaescriptors. Determine squelow. Enter the % F	Tree stratum (dbh > with > 60% tree canon-maintained unc located within the located withi	imal 3 inches) present, anopy cover and a derstory. Wetlands e riparian areas. 5 each stream bank ach by measurin Score for each ri	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 k into Condition C	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Coungth and width. Coungth	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh >3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5 the sums Riparian equal 100	NOTES>>		
Riparian Buffers Condition Scores Delineate ripz escriptors. Determine squelow. Enter the % F	Tree stratum (dbh > with > 60% tree ca non-maintained unc located within the located with	imal 3 inches) present, anopy cover and a derstory. Wetlands e riparian areas. 5 each stream bank ach by measurin. Score for each ri	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 k into Condition C	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Coungth and width. Coungth	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh >3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5	NOTES>>	Scores*0.01)/2 1.20 1.20	CI 1.20
Condition Scores 1. Delineate ripadescriptors. 2. Determine squelow. 3. Enter the % F. Right Bank Left Bank 3. INSTREAR	Tree stratum (dbh > with > 60% tree canon-maintained unc located within the located withi	imal 3 inches) present, anopy cover and a derstory. Wetlands e riparian areas. 5 each stream bank ach by measurin 100% 1.2 100% 1.2 aried substrate si	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 Into Condition C g or estimating ler parian category in	Inditional Cate ptimal Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Coungth and width. Coungth and width. Coungth and width. Coungth and depths; woo res.	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85 Indition Scores us calculators are production of the produc	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh > 3 inches) present, with < 30% tree canopy cover with maintained understory: Low 0.75 ing the ovided for you	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F Blocks 6	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5 the sums Riparian equal 100 100%	NOTES>> CI= (Sum % RA*: Rt Bank CI >	1.20	CI 1.20
Condition Scores Delineate ripa elescriptors. Deltre the % F Right Bank Left Bank Left Bank B. INSTREAN Left banks;	Tree stratum (dbh > with > 60% tree ca non-maintained unc located within the located with	imal 3 inches) present, anopy cover and a derstory. Wetlands e riparian areas. 5 each stream bank ach by measurin 100% 1.2 100% 1.2 aried substrate si	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 Into Condition C g or estimating ler parian category in zes, water velocity ixes, stable featur	Inditional Cate ptimal Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Coungth and width. Coungth and width. Coungth and width. Coungth and depths; woo res.	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <a>3 inches) present, with <a>3 inches) present, or a tree canopy cover. High 0.85 Indition Scores us calculators are production of the control of th	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh > 3 inches) present, with < 30% tree canopy cover with maintained understory: Low 0.75 ing the ovided for you	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F Blocks 6	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5 the sums Riparian equal 100 100%	NOTES>> CI= (Sum % RA *: Rt Bank CI > Lt Bank CI >	1.20	
Condition Scores 1. Delineate ripadescriptors. 2. Determine squelow. 3. Enter the % F. Right Bank Left Bank 3. INSTREAR	Tree stratum (dbh > with > 60% tree ca non-maintained unc located within the located with	imal 3 inches) present, anopy cover and a derstory. Wetlands e riparian areas. 5 5 cach stream bank ach by measuring the stream	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 Into Condition C g or estimating let parian category in Zes, water velocity exes, stable featur Subo Stable habitat ele present in 30-50% are adequate fo	Inditional Cate ptimal Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Congth and width. Congth and width. Congth and width. Congth and depths; wores. Conditional	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85 Indition Scores us calculators are production of the present in 10-30 are adequate for a seadequate for the present in 10-30 are adequate for the present in 10-30 are adeq	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh >3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75 ing the vided for you	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % f Blocks 6	Low Poor: Impervious surfaces, mine pool lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5 the sums Riparian equal 100 100% 100%	NOTES>> CI= (Sum % RA *: Rt Bank CI > Lt Bank CI >	1.20	

	St	ream In	npact A	ssessm	nent Fo	rm Pag	e 2		
Project #	Applicant		Locality	Cowardin Class.	HUC	Date	Data Point	SAR length	Impact Factor
								500	1
	L ALTERATION: Stream cross poil piles, constrictions, livestock	ings, riprap, conc		concrete blocks, s	traightening of ch	annel, channeliza	ation,	NOTES>>	
	Negligible	Mi	nor		erate		vere		
Channel Alteration	Channelization, dredging, alteration, or hardening absent. Stream has an unaltered pattern or has naturalized.	Less than 20% of the stream reach is disrupted by any of the channel alterations listed in the parameter guidelines.	20-40% of the stream reach is disrupted by any of the channel alterations listed in the parameter guidelines.	is disrupted by any of the channel	of the channel	Greater than 80% by any of the char in the parameter 80% of banks sl	of reach is disrupted annel alterations listed guidelines AND/OR hored with gabion, or cement.		
SCORE	1.5	1.3	1.1	0.9	0.7	(0.5		
	REACH C	ONDITION I	NDEX and S	TREAM CO	NDITION UN	ITS FOR TH	IIS REACH		
VOTE: The Cls and F	RCI should be rounded to 2 decimal places.	The CR should be rou	nded to a whole numb	er.			THE REACH (CONDITION IN	DEX (RCI) >>

CR = RCI X LF X IF





ECCDIBE	DDODOSED	IMPACT.

		Stre	Unit	SSESS fied Stream N	lethodology 1	for use in Virg	ginia	m 1)			
Project #		Project Name		Locality	cowardin Class.	HUC	Date Date	SAR#	Impact/SAR length	Impact Factor	
5337	ŀ	-64 Peninsul	a	New Kent	R2UB2	02080206	11/2/11		275		
Name	e(s) of Evalua	tor(s)	Stream Nam	e and Informa	ation						
	Aitkenhead / Nies		WUS 102M								
. Channel C	Condition: Asse	ess the cross-sec	ction of the stream		ondition (erosion, conditional Catego						
	Opti	imal	Subo	ptimal	Mar	ginal	Po	oor	Se	vere	
	Very little incision o	r active erosion: 80	erosion or unproted	ew areas of active cted banks. Majority	Poor. Banks more	less than Severe or stable than Severe	Vertically/laterally	ped/incised. unstable. Likely to	incision flow co	nstability. Severe	
Channel Condition	100% stable bar surface protection prominent (80-1) Stable point bars/ba present. Access floodplain or fully bankfull benches. and transverse basediment depositio sediment depositio	nks. Vegetative n or natural rock, 00%). AND/OR ankfull benches are to their original or developed wide Mid-channel bars, ars few. Transient in covers less than	Vegetative protect prominent (60- Depositional feat stability. The bar channels are well likely has access to or newly develope portions of the resediment covers 10 to definite the covers of the resediment covers 10 to definite the covers of the resediment covers 10 to definite the covers of the resediment covers 10 to definite the covers 10 to definite	table (60-80%), tion or natural rock -80%) AND/OR tures contribute to nkfull and low flow ill obankfull benches, at floodplains along reach. Transient 0-40% of the stream tom.	Erosion may be pr both banks. Veget 40-60% of banks. bevertical or unde 60% of stream sediment. Se- temporary/tran instability. Depositi stability, may be	ower bank slopes. esent on 40-60% of tative protection on Streambanks may ercut. AND/OR 40- n is covered by diment may be sient, contribute on that contribute to e forming/present. ed channels have	are near vertical. 60-80% of bar protection prese banks, and is inst erosion. AND/O stream is cover Sediment is temp nature, and contri AND/OR V-shap	iority of both banks Erosion present on ks. Vegetative ent on 20-40% of ufficient to prevent R 60-80% of the ed by sediment. corary/transient in buting to instability. ed channels have ion is present on >	pariks. Steamb rooting depth, r vertical/under protection present banks, is not pr Obvious bank s Erosion/raw ba AND/OR Aggradir than 80% of strear deposition, contril	ned below average majority of banks cut. Vegetative on less than 20% of eventing erosion. cloughing present. Inks on 80-100%. ng channel. Greater m bed is covered by buting to instability. I channels and/or	
					banks and depositi	ion on > 40% of the ional features which	deposition	and stable sediment is absent.	subterra	nean flow.	CI
Score	3	3	2	2.4		2	1	.6		1	1.6
. RIPARIAN	N BUFFERS: A		Con	nditional Cate	gory Mar	ginal Low Marginal: Non-maintained,	Po High Poor:	n may be accepta	NOTES>>		
RIPARIAN Riparian Buffers	Opti	imal - 3 inches) present, anopy cover and a derstory. Wetlands	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy	gory	ginal Low Marginal:	Po		NOTES>>		
Riparian	Option Tree stratum (dbh > with > 60% tree canon-maintained unc	imal - 3 inches) present, anopy cover and a derstory. Wetlands	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory.	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation).	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover.	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh >3 inches) present, with <30% tree canopy cover with maintained understory.	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable condition.	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions.	NOTES>>		
Riparian	Option Tree stratum (dbh > with > 60% tree canon-maintained unc	imal 3 inches) present, anopy cover and a derstory. Wetlands e riparian areas.	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained	Low Suboptimal Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh >3 inches) present, with <30% tree canopy cover with maintained	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable	NOTES>>		
Riparian Buffers Condition Scores Delineate ripa escriptors. Determine sq elow.	Tree stratum (dbh > with > 60% tree ca non-maintained unc located within the	imal 3 inches) present, anopy cover and a derstory. Wetlands e riparian areas.	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 k into Condition C	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Coungth and width. Coungth	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh >3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5	NOTES>>		
Riparian Buffers Condition Scores Delineate ripasscriptors. Determine squadow.	Tree stratum (dbh > with > 60% tree ca non-maintained unc located within the located with	imal 3 inches) present, anopy cover and a derstory. Wetlands e riparian areas. 5 ach stream bank ach by measuring.	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 k into Condition C	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Coungth and width. Coungth	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh >3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5	NOTES>>		
Riparian Buffers Condition Scores Delineate ripaescriptors. Determine squelow. Enter the % F	Tree stratum (dbh > with > 60% tree ca non-maintained unc located within the	imal 3 inches) present, anopy cover and a derstory. Wetlands e riparian areas.	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 k into Condition C	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Coungth and width. Coungth	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh >3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5	NOTES>>		
Riparian Buffers Condition Scores Delineate ripasecriptors. Determine squelow. Enter the % F	Tree stratum (dbh > with > 60% tree canon-maintained unc located within the located withi	imal 3 inches) present, anopy cover and a derstory. Wetlands e riparian areas. 5 each stream bank ach by measuring 100% 1.2	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 k into Condition C	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Coungth and width. Coungth	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh >3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5	NOTES>>		
Riparian Buffers Condition Scores Delineate ripascriptors. Determine squelow. Enter the % F	Tree stratum (dbh > with > 60% tree ca non-maintained unc located within the located with	imal 3 inches) present, anopy cover and a derstory. Wetlands e riparian areas. 5 each stream bank ach by measuring 100% 1.2 100%	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 k into Condition C	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Coungth and width. Coungth	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh >3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5	NOTES>>	1.20	CI 1.20
Riparian Buffers Condition Scores Delineate ripa escriptors. Determine squelow. Enter the % F Right Bank Left Bank	Tree stratum (dbh > with > 60% tree canon-maintained unc located within the located withi	imal 3 inches) present, anopy cover and a derstory. Wetlands e riparian areas. 5 ach stream bank ach by measuring 100% 1.2 100% 1.2 aried substrate si	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 Into Condition C g or estimating ler parian category in	Inditional Cate ptimal Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Coungth and width. Coungth and width. Coungth and width. Coungth and depths; woo res.	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85 Indition Scores us calculators are production of the produc	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh > 3 inches) present, with < 30% tree canopy cover with maintained understory: Low 0.75 ing the ovided for you	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F Blocks 6	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5 the sums Riparian equal 100 100%	NOTES>> Cl= (Sum % RA*: Rt Bank Cl >		CI 1.20
Riparian Buffers Condition Scores Delineate ripa escriptors. Determine squelow. Enter the % F Right Bank Left Bank INSTREAL ndercut banks;	Tree stratum (dbh > with > 60% tree ca non-maintained unc located within the located with	imal 3 inches) present, anopy cover and a derstory. Wetlands e riparian areas. 5 ach stream bank ach by measuring 100% 1.2 100% 1.2 aried substrate si	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 Into Condition C g or estimating ler parian category in zes, water velocity ixes, stable featur	Inditional Cate ptimal Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Coungth and width. Coungth and width. Coungth and width. Coungth and depths; woo res.	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <a>3 inches) present, with <a>3 inches) present, or a tree canopy cover. High 0.85 Indition Scores us calculators are production of the control of th	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh > 3 inches) present, with < 30% tree canopy cover with maintained understory: Low 0.75 ing the ovided for you	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F Blocks 6	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5 the sums Riparian equal 100 100%	NOTES>> Ci= (Sum % RA *: Rt Bank Ci > Lt Bank Ci >	1.20	
Condition Scores Delineate ripalescriptors. Determine squelow. Enter the % F. Right Bank Left Bank	Tree stratum (dbh > with > 60% tree ca non-maintained unc located within the located with	imal 3 inches) present, anopy cover and a derstory. Wetlands e riparian areas. 5 5 cach stream bank ach by measuring 100% 1.2 100% 1.2 aried substrate si ffle poole completimal	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 Into Condition C g or estimating let parian category in Zes, water velocity exes, stable featur Subo Stable habitat ele present in 30-50% are adequate fo	Inditional Cate ptimal Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Congth and width. Congth and width. Congth and width. Congth and depths; wores. Conditional	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85 Indition Scores us calculators are production of the present in 10-30 are adequate for a seadequate for the present in 10-30 are adequate for the present in 10-30 are adeq	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh >3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75 ing the vided for you	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F Blocks 6	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5 the sums Riparian equal 100 100% 100%	CI= (Sum % RA *: Rt Bank CI > Lt Bank CI > NOTES>>	1.20	

	St	ream In	npact A	ssessm	nent Fo	rm Pag	e 2		
Project #	Applicant		Locality	Cowardin Class.	HUC	Date	Data Point	SAR length	Impact Factor
								500	1
	L ALTERATION: Stream cross poil piles, constrictions, livestock	ings, riprap, conc		concrete blocks, s	traightening of ch	annel, channeliza	ation,	NOTES>>	
	Negligible	Mi	nor		erate		vere		
Channel Alteration	Channelization, dredging, alteration, or hardening absent. Stream has an unaltered pattern or has naturalized.	Less than 20% of the stream reach is disrupted by any of the channel alterations listed in the parameter guidelines.	20-40% of the stream reach is disrupted by any of the channel	is disrupted by any of the channel	60 - 80% of reach is disrupted by any of the channel alterations listed in the parameter guidelines. If stream has been channelized, normal stable stream meander pattern has not	Greater than 80% by any of the chan in the parameter 80% of banks sh	of reach is disrupted nel alterations listed guidelines AND/OR nored with gabion, or cement.		
SCORE	1.5	1.3	1.1	0.9	0.7	0).5		
	REACH C	ONDITION I	NDEX and S	TREAM CO	NDITION UN	ITS FOR TH	IIS REACH		
NOTE: The Cls and F	RCI should be rounded to 2 decimal places.	The CR should be rou	nded to a whole numb	er.			THE REACH (CONDITION IN	DEX (RCI) >>

RCI= (Sum of all Cl's)/5

COMPENSATION REQUIREMENT (CR) >> CR = RCI X LF X IF



DESCRIBE PROPOSED IMPACT:

		Stre	Uni	fied Stream N	lethodology 1	Form	ginia	m 1)			
Project #		Project Name		Locality	nels classified a Cowardin Class.	HUC	perennial Date	SAR#	Impact/SAR	Impact Factor	
5337	ı	-64 Peninsul	a	New Kent	R2UB2	02080206	11/2/11		78		
Nam	e(s) of Evalua	tor(s)		e and Informa	ation	•					
	Aitkenhead / Nies		WUS 103M								
1. Channel (Condition: Ass	ess the cross-sec	ction of the stream		ondition (erosion,						
	Opt	imal	Subo	ptimal		ginal	Po	oor	Se	vere	
Channel	Very little incision o	r active erosion; 80	erosion or unproted	ew areas of active cted banks. Majority table (60-80%).	Poor. Banks more	less than Severe or a stable than Severe ower bank slopes.	widen further. Ma	unstable. Likely to ority of both banks	incision, flow co	nstability. Severe ontained within the bed below average	
Condition	nutrace protection prominent (80-1 Stable point barrobro present Access floodplain or fully bankfull benches, and transverse brosediment deposition 10% of	00%). AND/OR ankfull benches are to their original or developed wide Mid-channel bars, ars few. Transient on covers less than	Vegetative protect prominent (60 prominent (60 Depositional feat stability. The ball channels are we likely has access to rnewly develope portions of the sediment covers 10	tion or natural rock -80%) AND/OR -80%) AND/OR -80%) AND/OR -80% A	both banks. Vege 40-60% of banks. bevertical or unde 60% of strean sediment. Se- temporary/tran instability. Depositi stability, may be AND/OR V-shap vegetative protect	resent on 40-60% of tative protection on Streambanks may ercut. AND/OR 40- n is covered by diment may be issient, contribute ion that contribute to forming/present. sed channels have ion on > 40% of the	60-80% of bar protection press banks, and is insu erosion. AND/O stream is cover Sediment is temp nature, and contri AND/OR V-shap vegetative protect 40% of the banks a	ed channels have ion is present on > and stable sediment	rooting depth, vertical/undei protection present banks, is not pi Obvious bank s Erosion/raw ba AND/OR Aggradi than 80% of strea deposition, contri Multiple threac	majority of banks rout. Vegetative to n less than 20% of reventing erosion. sloughing present. anks on 80-100% ng channel. Greater m bed is covered by ibuting to instability. d channels and/or unean flow.	CI
Score	3	3	2	2.4		ional features which	-	is absent.		1	1.6
NOTES>>	<u> </u>	<u> </u>	_	···					<u> </u>	·	1.0
2. RIPARIAN	N BUFFERS: A		Cor	n areas along the additional Cate	gory	ginal	Po	n may be accepta	NOTES>>		
2. RIPARIAN Riparian Buffers	Opti	imal 3 inches) present, anopy cover and a derstory. Wetlands	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy	gory	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh > 3 inches) present, with <30% tree canopy cover with maintained			,		
Riparian Buffers	Option Tree stratum (dbh > 60% tree cr	imal 3 inches) present, anopy cover and a derstory. Wetlands	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh > 3 inches) present, with <30% tree canopy cover with	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable	,		
Riparian	Option Tree stratum (dbh > 60% tree cr	• 3 inches) present, anopy cover and a derstory. Wetlands e riparian areas.	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory.	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation).	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover.	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh >3 inches) present, with <30% tree canopy cover with maintained understory.	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, recently seeded and stabilized, or other comparable condition.	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions.	,		
Riparian Buffers Condition Scores Delineate ripe descriptors. Deleneate ripe descriptors.	Tree stratum (dbh swith > 60% tree canon-maintained und located within the	imal 3 inches) present, anopy cover and a derstory. Wetlands e riparian areas.	Com Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 k into Condition C	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Co	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh > 3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5	,		
Riparian Buffers Condition Scores Delineate riptescriptors. Determine squelow. Enter the % F	Tree stratum (dbh > with > 60% tree conon-maintained und located within the located withi	imal 3 inches) present, anopy cover and a derstory. Wetlands e riparian areas. 5 ach stream banl ach by measurin.	Com Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 k into Condition C	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Co	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh > 3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5	,		
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Condition Scores Delineate ripe descriptors. Deltermine scoelow. English Bank Left Bank Left Bank INSTREA	Tree stratum (dbh with > 60% tree canon-maintained und located within the located within	imal 3 inches) present, anopy cover and a derstory. Wetlands e riparian areas. 5 ach stream bank ach by measuring the stream bank	High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 k into Condition C g or estimating let parian category in zes, water velocit exes, stable featur	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Coungth and width. Coungth and width. Coungth and width. Coungth and depths; woodes.	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85 Indition Scores us calculators are production of the product	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh > 3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75 ing the povided for you	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F Blocks e	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5 the sums tiparian qual 100 100%	NOTES>> CI= (Sum % RA * Rt Bank CI > Lt Bank CI >	1.20	
Condition Scores Delineate ripe descriptors. Delineate ripe descriptors. Ender the % F Right Bank Left Bank Left Bank INSTREAI undercut banks;	Tree stratum (dbh > with > 60% tree cc non-maintained und located within th 1. arian areas along of quare footage for e Riparian Area and % Riparian Area> Score > % Riparian Area> Score > M HABITAT: Va ; root mats; SAV; ri	imal 3 inches) present, anopy cover and a derstory. Wetlands e riparian areas. 5 each stream bani ach by measurin 100% 1.2 100% 1.2 aried substrate si ffle poole completimal	Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 k into Condition C g or estimating ler parian category in parian category in Stable habitat ele present in 30-50% are adequate fo	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Co ngth and width. Co n the blocks below y and depths; wodes. Conditiona	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85 Indition Scores us calculators are production of the production of the production of the production of the present in 10-30 are adequate for a season of the present in 10-30 are	Ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh >3 inches) present, with <a>30 % tree canopy cover with maintained understory. Low 0.75 ing the price of the product of the present of t	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F Blocks 6	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5 the sums Riparian qual 100 100% 100% ess; shade;	NOTES>> CI= (Sum % RA * Rt Bank CI > Lt Bank CI >	1.20	

	St	ream In	npact A	ssessm	ent Fo	rm Pag	e 2		
Project #	Applicant		Locality	Cowardin Class.	HUC	Date	Data Point	SAR length	Impact Factor
								500	1
	L ALTERATION: Stream cross poil piles, constrictions, livestock	ings, riprap, conc		oncrete blocks, s	traightening of ch	annel, channeliz	ation,	NOTES>>	
	Negligible	Mi	nor		erate		evere		
Channel Alteration	Channelization, dredging, alteration, or hardening absent. Stream has an unaltered pattern or has naturalized.	Less than 20% of the stream reach is disrupted by any of the channel alterations listed in the parameter guidelines.	20-40% of the stream reach is disrupted by any of the channel	is disrupted by any of the channel	60 - 80% of reach is disrupted by any of the channel alterations listed in the parameter guidelines. If stream has been channelized, normal stable stream meander pattern has not	Greater than 80% by any of the char in the parameter 80% of banks s	of reach is disrupted nnel alterations listed guidelines AND/OR hored with gabion, or cement.		
SCORE	1.5	1.3	1.1	0.9	0.7	(0.5		
	REACH C	ONDITION I	NDEX and S	TREAM CO	NDITION UN	ITS FOR TH	IIS REACH		
OTE: The Cls and F	RCI should be rounded to 2 decimal places.	The CR should be rou	nded to a whole numb	er.			THE REACH (CONDITION IN	DEX (RCI) >>

CR = RCI X LF X IF

INSERT PHOTOS:



		Stre	Unit	fied Stream N	lethodology 1	Form	ginia	m 1)			
Project #		Project Name		Locality	cowardin Class.	HUC	Date Date	SAR#	Impact/SAR length	Impact Factor	
5337	Į.	-64 Peninsul	a	New Kent	R2UB2	02080206	11/2/11		1165		
Name	e(s) of Evalua	tor(s)	Stream Nam	e and Informa	ation						
	Aitkenhead / Nies		WUS 104M								
. Channel C	Condition: Asse	ess the cross-sec	ction of the stream		ondition (erosion, Conditional Catego						
	Opti	mal	Subo	ptimal	Mar	ginal	Po	oor	Se	vere	
Ol averal	Very little incision o	r active erosion; 80	erosion or unproted	ew areas of active cted banks. Majority	Poor. Banks more	less than Severe or stable than Severe ower bank slopes.	Vertically/laterally	ned/incised. unstable. Likely to jority of both banks	incision, flow co	nstability. Severe	
Channel Condition	100% stable bar surface protection prominent (80-1) Stable point bars/be present. Access floodplain or fully bankfull benches. and transverse basediment deposition 10% of	nks. Vegetative n or natural rock, 00%). AND/OR ankfull benches are to their original developed wide Mid-channel bars, ars few. Transient n covers less than	Vegetative protect prominent (60- Depositional feat stability. The bar channels are well likely has access to or newly develope portions of the resediment covers 10 to definite the covers of the resediment covers 10 to definite the covers of the resediment covers 10 to definite the covers of the resediment covers 10 to definite the covers 10 to definite	table (60-80%), tition or natural rock -80%) AND/OR tures contribute to nkfull and low flow II defined. Stream o bankfull benches, ad floodplains along reach. Transient 0-40% of the stream tom.	Erosion may be pr both banks. Veget 40-60% of banks. bevertical or unde 60% of strean sediment. Set temporary/tran instability. Depositi stability, may be AND/OR V-shap	seent on 40-60% of tative protection on Streambanks may rerut. AND/OR 40-n is covered by diment may be sisent, contribute on that contribute to forming/present. ed channels have ion on > 40% of the	are near vertical. 60-80% of bar protection press banks, and is insi erosion. AND/O stream is cover Sediment is tem nature, and contri AND/OR V-shap vegetative protect	Seriosion present on ks. Vegetative int on 20-40% of fifficient to prevent R 60-80% of the ed by sediment. occary/transient in buting to instability. ed channels have ion is present on > and stable sediment	rooting depth, r vertical/underr protection present banks, is not pro Obvious bank s Erosion/raw ban AND/OR Aggradir than 80% of strear deposition, contril Multiple thread	ed below average majority of banks cut. Vegetative on less than 20% of eventing erosion. loughing present. nks on 80-100%. ng channel. Greater n bed is covered by buting to instability. channels and/or	
					banks and depositi	ional features which	deposition	is absent.	Subterrai	nean flow.	
Score	3	5	2	2.4		2	1	.6	1	1	3.0
. RIPARIAN	N BUFFERS: #		Con	nditional Cate	gory Mar	ginal Low Marginal: Non-maintained,	Po High Poor:	n may be accepta	NOTES>>		
RIPARIAN Riparian Buffers	Opti Tree stratum (dbh > with > 60% tree ca	mal 3 inches) present, unopy cover and a lerstory. Wetlands	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy	gory	ginal Low Marginal:	Pe		NOTES>>		
Riparian	Option Tree stratum (dbh > with > 60% tree canon-maintained uncompaintained u	mal 3 inches) present, unopy cover and a lerstory. Wetlands	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory.	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation).	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover.	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh >3 inches) present, with <30% tree canopy cover with maintained understory.	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable condition.	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions.	NOTES>>		
Riparian	Option Tree stratum (dbh > with > 60% tree canon-maintained uncompaintained u	3 inches) present, inopy cover and a derstory. Wetlands e riparian areas.	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained	Low Suboptimal Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh > 3 inches) present, with <30% tree canopy cover with maintained	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable	NOTES>>		
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Condition Scores Delineate ripalescriptors. Determine squelow. Enter the % F. Right Bank Left Bank	Tree stratum (dbh > with > 60% tree ca non-maintained unc located within the located with	5 Score for each ri 100% 1.5 100% 1.5 100% 1.5 100% 1.5 100% 1.5 100% 1.5 100% 1.5 100% 1.5	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 Into Condition C g or estimating let parian category in Zes, water velocity exes, stable featur Subo Stable habitat ele present in 30-50% are adequate fo	Inditional Cate ptimal Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Congth and width. Congth and width. Congth and width. Congth and depths; wores. Conditional	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85 Indition Scores us calculators are production of the present in 10-30 are adequate for a seadequate for the present in 10-30 are adequate for the present in 10-30 are adeq	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh >3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75 ing the price of the production of the present of the	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % f Blocks 6	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5 the sums Riparian equal 100 100% 100%	CI= (Sum % RA * : Rt Bank CI > Lt Bank CI > NOTES>>	1.50	_

	St	ream In	npact A	ssessm	nent Fo	rm Pag	e 2		
Project #	Applicant		Locality	Cowardin Class.	HUC	Date	Data Point	SAR length	Impact Factor
								500	1
	L ALTERATION: Stream cross poil piles, constrictions, livestock		Conditiona	al Category				NOTES>>	
	Negligible	Mir	nor		erate	Se	vere		
Channel Alteration	Channelization, dredging, alteration, or hardening absent. Stream has an unaltered pattern or has naturalized.	Less than 20% of the stream reach is disrupted by any of the channel alterations listed in the parameter guidelines.	20-40% of the stream reach is disrupted by any of the channel alterations listed in the parameter guidelines.	is disrupted by any of the channel	60 - 80% of reach is disrupted by any of the channel alterations listed in the parameter guidelines. If stream has been channelized, normal stable stream meander pattern has not	Greater than 80% by any of the chan in the parameter 80% of banks sh	of reach is disrupted inel alterations listed guidelines AND/OR nored with gabion, or cement.		
SCORE	1.5	1.3	1.1	0.9	0.7	0).5		
	REACH C	ONDITION II	NDEX and S	TREAM CO	NDITION UN	ITS FOR TH	IIS REACH		
VOTE: The Cls and F	RCI should be rounded to 2 decimal places.	The CR should be rour	nded to a whole numb	er.			THE REACH (CONDITION IN	DEX (RCI) >>

COMPENSATION REQUIREMENT (CR) >> 0

CR = RCI X LF X IF

INSERT PHOTOS:

Upstream



		Stre	Uni	fied Stream N	lethodology 1	Form	ginia	m 1)			
Project #		Project Name		Locality	cowardin Class.	HUC	Date Date	SAR#	Impact/SAR length	Impact Factor	
5337	ŀ	-64 Peninsul	a	New Kent	R2UB2	02080206	11/2/11		188		
Name	e(s) of Evalua	tor(s)	Stream Nam	e and Informa	ation						
	Aitkenhead / Nies		WUS 105M								
. Channel C	Condition: Asse	ess the cross-sec	ction of the stream		ondition (erosion, conditional Catego						
	Opti	imal	Subo	ptimal	Mar	ginal	Po	oor	Se	vere	
Channal	Very little incision o	or active erosion; 80	erosion or unproted	ew areas of active cted banks. Majority table (60-80%).	Poor. Banks more	less than Severe or stable than Severe ower bank slopes.	Vertically/laterally	ned/incised. unstable. Likely to jority of both banks	incision, flow co	stability. Severe	
Channel Condition	100% stable bar surface protection prominent (80-1) Stable point bars/bc present. Access floodplain or fully bankfull benches. and transverse bc sediment depositio 10% of	n or natural rock, 00%). AND/OR ankfull benches are s to their original v developed wide Mid-channel bars, ars few. Transient on covers less than	Vegetative protect prominent (60 Depositional feat stability. The ban channels are we likely has access to or newly develope portions of the to sediment covers 10	table (b0-90%). Italia (b0-90%). AND/OR tures contribute to hkfull and low flow Il defined. Stream o bankfull benches, ad floodplains along reach. Transient 0-40% of the stream tom.	Erosion may be pr both banks. Veget 40-60% of banks. bevertical or unde 60% of strean sediment. Set temporary/tran instability. Depositi stability, may be AND/OR V-shap	resent on 40-60% of tative protection on Streambanks may ercut. AND/OR 40- in is covered by diment may be sient, contribute on that contribute to forming/present.	are near vertical. 60-80% of bar protection press banks, and is insi erosion. AND/O stream is cover Sediment is tem nature, and contri AND/OR V-shap vegetative protect	Erosion present on iks. Vegetative ent on 20-40% of ufficient to prevent R 60-80% of the red by sediment. porary/transient in buting to instability. led channels have it on is present on >	rooting depth, r vertical/under protection present banks, is not pr Obvious bank s Erosion/raw ba AND/OR Aggradir than 80% of streat deposition, contril	ed below average majority of banks cut. Vegetative on less than 20% of eventing erosion. loughing present. nks on 80-100%. ng channel. Greater n bed is covered by buting to instability. channels and/or	CI
					banks and depositi	ion on > 40% of the ional features which	deposition	and stable sediment is absent.		nean flow.	
Score	3	3	2	2.4		2	1	.6		1	3.0
NOTES>>	N BUFFERS: A		Con	n areas along the	gory Mar	ginal Low Marginal: Non-maintained,	Po High Poor:	n may be accepta	NOTES>>		
	Opti	imal > 3 inches) present, anopy cover and a derstory. Wetlands	Cor Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy	gory	ginal Low Marginal:	Pe		,		
. RIPARIAN	Option Tree stratum (dbh > with > 60% tree canon-maintained uncon-maintained unco-maintained unco	imal > 3 inches) present, anopy cover and a derstory. Wetlands	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory.	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation).	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover.	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh >3 inches) present, with <30% tree canopy cover with maintained understory.	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable condition.	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions.	,		
2. RIPARIAN	Option Tree stratum (dbh > with > 60% tree canon-maintained uncon-maintained unco-maintained unco	imal 3 inches) present, anopy cover and a derstory. Wetlands e riparian areas.	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained	Low Suboptimal Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh > 3 inches) present, with <30% tree canopy cover with maintained	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable	,		
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Riparian Buffers Condition Scores Delineate ripalescriptors. Determine squelow. Enter the % F. Right Bank Left Bank I. Left Bank	Tree stratum (dbh > with > 60% tree canon-maintained unc located within the located withi	imal 3 inches) present, anopy cover and a derstory. Wetlands e riparian areas. 5 each stream bank ach by measurin 100% 1.5 100% 1.5 aried substrate si	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 into Condition C g or estimating ler parian category in	Inditional Cate ptimal Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Coungth and width. Coungth and width. Coungth and width. Coungth and depths; woo res.	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85 Indition Scores us calculators are production of the produc	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh > 3 inches) present, with < 30% tree canopy cover with maintained understory. Low 0.75 ing the ovided for you	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F Blocks 6	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5 the sums Riparian equal 100 100%	NOTES>> CI= (Sum % RA*: Rt Bank CI >		
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Riparian Buffers Condition Scores Delineate ripalescriptors. Determine squelow. Enter the % F. Right Bank Left Bank I. Left Bank	Tree stratum (dbh > with > 60% tree ca non-maintained unc located within the located with	imal 3 inches) present, anopy cover and a derstory. Wetlands e riparian areas. 5 5 cach stream bank ach by measuring the stream	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 Into Condition C g or estimating let parian category in Zes, water velocit exes, stable featur Subo Stable habitat ele present in 30-509 are adequate fo	Inditional Cate ptimal Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Congth and width. Congth and width. Congth and width. Congth and depths; wores. Conditional	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85 Indition Scores us calculators are production of the present in 10-30 are adequate for a seadequate for the present in 10-30 are adequate for the present in 10-30 are adeq	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh >3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75 ing the price of the production of the present of the	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % f Blocks 6	Low Poor: Impervious surfaces, mine pool lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5 the sums Riparian equal 100 100% 100%	NOTES>> CI= (Sum % RA *: Rt Bank CI > Lt Bank CI >	1.50	CI 1.50

	St	ream In	npact A	ssessm	nent Fo	rm Pag	e 2		
Project #	Applicant		Locality	Cowardin Class.	HUC	Date	Data Point	SAR length	Impact Factor
								500	1
	L ALTERATION: Stream cross poil piles, constrictions, livestock	sings, riprap, conci		concrete blocks, s	traightening of ch	annel, channeliza	ation,	NOTES>>	
	Negligible	Mir	nor		erate	Se	vere		
Channel Alteration	Channelization, dredging, alteration, or hardening absent. Stream has an unaltered pattern or has naturalized.	Less than 20% of the stream reach is disrupted by any of the channel alterations listed in the parameter guidelines.	20-40% of the stream reach is disrupted by any of the channel alterations listed in the parameter guidelines.	is disrupted by any of the channel	60 - 80% of reach is disrupted by any of the channel alterations listed in the parameter guidelines. If stream has been channelized, normal stable stream meander pattern has not	Greater than 80% by any of the char in the parameter 80% of banks sl	of reach is disrupted nnel alterations listed guidelines AND/OR hored with gabion, or cement.		
SCORE	1.5	1.3	1.1	0.9	0.7	(0.5		
	REACH C	ONDITION II	NDEX and S	TREAM CO	NDITION UN	ITS FOR TH	IIS REACH		
VOTE: The Cls and R	RCI should be rounded to 2 decimal places.	The CR should be rour	nded to a whole numb	er.			THE REACH (CONDITION IN	DEX (RCI) >>

CR = RCI X LF X IF





	Str		fied Stream N	lethodology f	or use in Virg	ginia	m 1)			
Project #	Project Nan		Locality	Cowardin Class.	HUC	Date	SAR#	Impact/SAR length	Impact Factor	
5337	I-64 Peninsu	la	New Kent	R2UB3	02080206	11/2/11		77		
Name	e(s) of Evaluator(s)	Stream Nam	e and Informa	ation						
	Aitkenhead / Nies	WUS 106M								
l. Channel C	Condition: Assess the cross-s	ection of the stream		ondition (erosion, Conditional Catego						
	Optimal	Subo	ptimal	Mar	ginal	Po	or	Sev	vere	
Channel	Very little incision or active erosion; i	erosion or unproted	ew areas of active cted banks. Majority table (60-80%).	Poor. Banks more	less than Severe or stable than Severe ower bank slopes.	Overwiden Vertically/laterally widen further. Mai	unstable. Likely to	incision, flow cor	estability. Severe	
Condition	100% stable banks. Vegetative surface protection or natural rock, prominent (80-100%). AND/OR Stable point bars/bankfull benches a present. Access to their original floodplain or fully developed wide bankfull benches. Mid-channel bars and transverse bars few. Transient sediment deposition covers less tha 10% of bottom.	Vegetative protect prominent (60 Depositional feat stability. The banchannels are we likely has access to rewly develope portions of the sediment covers 1	tition or natural rock- 80%) AND/OR tures contribute to nkfull and low flow Il defined. Stream o bankfull benches, af floodplains along reach. Transient 0-40% of the stream tom.	Erosion may be pri both banks. Veget 40-60% of banks. bevertical or unde 60% of stream sediment. Sec temporary/trans instability. Depositi stability, may be AND/OR V-shapi vegetative protecti	esent on 40-60% of attive protection on Streambanks may rout. AND/OR 40- n is covered by diment may be sient, contribute on that contribute to forming/present. ed channels have on on > 40% of the	are near vertical. I 60-80% of ban protection prese banks, and is insuerosion. AND/O stream is cover Sediment is temp nature, and contril AND/OR V-shap vegetative protect 40% of the banks a	Erosion present on ks. Vegetative nt on 20-40% of ffficient to prevent R 60-80% of the ed by sediment. orary/transient in outing to instability. ed channels have on is present on > nd stable sediment	rooting depth, n vertical/underc protection present banks, is not pre Obvious bank sl Erosion/raw bar AND/OR Aggradin than 80% of strean deposition, contrit Multiple thread	ed below average majority of banks but. Vegetative on less than 20% of eventing erosion. loughing present. nks on 80-100%. In g channel. Greater in bed is covered by buting to instability. channels and/or nean flow.	CI
Score	3	2	2.4		onal features which	deposition	is absent.		1	3.0
Score	3			1 4				1	'	3.0
2. RIPARIAN	N BUFFERS: Assess both ba	Con	n areas along the	gory	ginal	Po	n may be accepta	NOTES>>		
Riparian Buffers		Cor Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches), present, with 30% to 60% tree	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy	gory	ginal Low Marginal: Non-maintained, dense herbaceous vegetation,	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable condition.		,		
Riparian Buffers	Optimal Tree stratum (dbh > 3 inches) preser with > 60% tree canopy cover and non-maintained understory. Wetland located within the riparian areas.	High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree s canopy cover and containing both herbaceous and shrub layers or a non-maintained	Low Suboptimal Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh > 3 inches) present, with <30% tree canopy cover with maintained	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable	,		
Riparian	Optimal Tree stratum (dbh > 3 inches) preser with > 60% tree canopy cover and a non-maintained understory. Wetland	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree s canopy cover and containing both herbaceous and shrub layers or a non-maintained understory.	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation).	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover.	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh >3 inches) present, with <a>30 % tree canopy cover with maintained understory.	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable condition.	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions.	,		
Riparian Buffers Condition Scores Delineate ripa descriptors. 2. Determine squelow.	Optimal Tree stratum (dbh > 3 inches) preser with > 60% tree canopy cover and a non-maintained understory. Wetland located within the riparian areas. 1.5 arian areas along each stream ba quare footage for each by measur	High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches). In present, with 30% to 60% tree so canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 The into Condition Comports of the conditio	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Coungth and width. Coungth	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh > 3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure t of % F	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5	,		
Riparian Buffers Condition Scores Delineate ripalescriptors. Determine squelow.	Optimal Tree stratum (dbh > 3 inches) preser with > 60% tree canopy cover and a non-maintained understory. Wetland located within the riparian areas. 1.5 arian areas along each stream ba quare footage for each by measur	High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches). In present, with 30% to 60% tree so canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 The into Condition Comports of the conditio	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Coungth and width. Coungth	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh > 3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure t of % F	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5 he sums tiparian qual 100	,		
Riparian Buffers Condition Scores Delineate ripalescriptors. 2. Determine squelow.	Optimal Tree stratum (dbh > 3 inches) preser with > 60% tree canopy cover and a non-maintained understory. Wetland located within the riparian areas. 1.5 arian areas along each stream ba quare footage for each by measur	High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches). In present, with 30% to 60% tree so canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 The into Condition Comports of the conditio	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Coungth and width. Coungth	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh > 3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure t of % F	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5	NOTES>>		
Riparian Buffers Condition Scores Delineate ripz lescriptors. Determine squelow. Enter the % F	Optimal Tree stratum (dbh > 3 inches) preser with > 60% tree canopy cover and a non-maintained understory. Wetland located within the riparian areas. 1.5 arian areas along each stream ba quare footage for each by measur Riparian Area and Score for each % Riparian Area 100% Score > 1.5	High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches). In present, with 30% to 60% tree so canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 The into Condition Comports of the conditio	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Coungth and width. Coungth	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh > 3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure t of % F	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5 he sums tiparian qual 100 100%	NOTES>>		
Riparian Buffers Condition Scores Delineate ripz escriptors. Determine squelow.	Optimal Tree stratum (dbh > 3 inches) preser with > 60% tree canopy cover and a non-maintained understory. Wetland located within the riparian areas. 1.5 arian areas along each stream ba quare footage for each by measur Riparian Area and Score for each % Riparian Area 100% Score > 1.5	High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches). In present, with 30% to 60% tree so canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 The into Condition Comports of the conditio	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Coungth and width. Coungth	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh > 3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure t of % F	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5 he sums tiparian qual 100	NOTES>>	1.50	CI 1.50
Condition Scores 1. Delineate ripadescriptors. 2. Determine squelow. 3. Enter the % F	Optimal Tree stratum (dbh > 3 inches) preser with > 60% tree canopy cover and a non-maintained understory. Wetland located within the riparian areas. 1.5 arian areas along each stream ba quare footage for each by measur Riparian Area and Score for each % Riparian Area 100% Score > 1.5	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree s canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 The into Condition Con and or estimating let riparian category in	Inditional Cate ptimal Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Congth and width. Congth and width. Congth and width. Congth and depths; workers.	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85 Indition Scores using the saleculators are producted to the saleculators ar	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh > 3 inches) present, with <a>30 % tree canopy cover with maintained understory. Low 0.75 Ing the wided for you	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure to the comparable condition of % For the comparable condition.	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5 he sums tiparian qual 100 100%	NOTES>> CI= (Sum % RA* S Rt Bank CI >		CI 1.50
Condition Scores Delineate ripalescriptors. Delta Bank Right Bank Left Bank Left Bank Lindercut banks;	Optimal Tree stratum (dbh > 3 inches) preser with > 60% tree canopy cover and a non-maintained understory. Wetland located within the riparian areas. 1.5 arian areas along each stream ba quare footage for each by measur Riparian Area and Score for each % Riparian Area 100% Score > 1.5 % Riparian Area> 100% Score > 1.5 M HABITAT: Varied substrate	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree s canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 The into Condition C Triparian category in Risizes, water velocit exes, stable feature	Inditional Cate ptimal Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Congth and width. Congth and width. Congth and width. Congth and depths; workers.	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <a>30 tree canopy cover. High 0.85 Indition Scores usional calculators are production of the canopy cover.	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh > 3 inches) present, with <a>30 % tree canopy cover with maintained understory. Low 0.75 Ing the wided for you	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure t of % 6 Blocks e	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5 he sums tiparian qual 100 100%	NOTES>> CI= (Sum % RA * S Rt Bank CI > Lt Bank CI >	1.50	
Condition Scores 1. Delineate ripadescriptors. 2. Determine squelow. 3. Enter the % F	Optimal Tree stratum (dbh > 3 inches) preser with > 60% tree canopy cover and a non-maintained understory. Wetland located within the riparian areas. 1.5 arian areas along each stream ba quare footage for each by measur Riparian Area and Score for each % Riparian Area 100% Score > 1.5 % Riparian Area> 100% Score > 1.5 M HABITAT: Varied substrate ; root mats; SAV; riffle poole comp	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree s canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 It into Condition C and or estimating let riparian category in Stable habitat ele present in 30-50 are adequate fo are adequate fo	Inditional Cate ptimal Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Congth and width. Congth and width. Congth and width. Congth and depths; wores. Conditional	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85 Indition Scores using a calculators are producted by the canopy cover. Stable habitate lee present in 10-30% are adequate for a degree of the canopy cover.	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh >3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75 Ing the wided for you	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure to the comparable condition of the comparable condition.	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5 he sums Liparian qual 100 100% 100%	NOTES>> CI= (Sum % RA * S Rt Bank CI > Lt Bank CI >	1.50	

	St	ream In	npact A	ssessm	ent Fo	rm Pag	e 2		
Project #	Applicant		Locality	Cowardin Class.	HUC	Date	Data Point	SAR length	Impact Factor
								500	1
	ALTERATION: Stream cross poil piles, constrictions, livestock	sings, riprap, conci	rete, gabions, or c	concrete blocks, s	traightening of ch	annel, channeliza	ation,	NOTES>>	
				al Category					
	Negligible	Mir	nor		erate		vere		
Channel Alteration	Channelization, dredging, alteration, or hardening absent. Stream has an unaltered pattern or has naturalized.	Less than 20% of the stream reach is disrupted by any of the channel alterations listed in the parameter guidelines.	20-40% of the stream reach is disrupted by any of the channel alterations listed in the parameter guidelines.	is disrupted by any of the channel	of the channel	Greater than 80% by any of the chan in the parameter \$80% of banks sh	of reach is disrupted nel alterations listed juidelines AND/OR lored with gabion, r cement.		
SCORE	1.5	1.3	1.1	0.9	0.7	0	.5		
	REACH C	ONDITION	NDEX and S	TREAM CO	NDITION UN	ITS FOR TH	IS REACH		
NOTE: The CIs and R	RCI should be rounded to 2 decimal places.	The CR should be rour	nded to a whole numb	er.			THE REACH O	CONDITION IN	DEX (RCI) >>
							RCI	= (Sum of all C	l's)/5

COMPENSATION REQUIREMENT (CR) >>

CR = RCI X LF X IF

INSERT PHOTOS:





		Stre	Unit	fied Stream N	lethodology 1	for use in Virg	-	m 1)			
Project #		Project Name		Locality	cowardin Class.	HUC	Date Date	SAR#	Impact/SAR length	Impact Factor	
5337	ŀ	-64 Peninsul	a	New Kent	R2UB2	02080206	11/3/11		182		
Name	e(s) of Evalua	tor(s)	Stream Nam	e and Informa	ation	<u>'</u>					
	Aitkenhead / Nies		WUS 107M								
. Channel C	Condition: Asse	ess the cross-sec	tion of the stream		ondition (erosion, Conditional Catego						
	Opti	mal	Subo	ptimal	Mar	ginal	Po	oor	Se	vere	
Channel	Very little incision o	r active erosion; 80	erosion or unproted	ew areas of active cted banks. Majority table (60-80%).	Poor. Banks more	less than Severe or e stable than Severe ower bank slopes.	Vertically/laterally	ned/incised. unstable. Likely to jority of both banks	incision, flow co	nstability. Severe	
Condition	100% stable bar surface protection prominent (80-11 Stable point bars/ba present. Access floodplain or fully bankfull benches. and transverse ba sediment depositio 10% of I	n or natural rock, 00%). AND/OR ankfull benches are to their original developed wide Mid-channel bars, ars few. Transient n covers less than	Vegetative protect prominent (60- Depositional feat stability. The bar channels are well likely has access to rnewly develope portions of the rediment covers 10	itable (b0-90%). Itable (b0-90%). AND/OR tures contribute to nkfull and low flow II defined. Stream o bankfull benches, d floodplains along reach. Transient 0-40% of the stream tom.	Erosion may be pr both banks. Veget 40-60% of banks. bevertical or unde 60% of strean sediment. Set temporary/tran instability. Depositi stability, may be AND/OR V-shap	resent on 40-60% of tative protection on Streambanks may percut. AND/OR 40- n is covered by diment may be sisent, contribute toon that contribute to be forming/present. ed channels have ion on > 40% of the	are near vertical. 60-80% of bar protection prese banks, and is inst erosion. AND/O stream is cover Sediment is temp nature, and contri AND/OR V-shap vegetative protect	Erosion present on ks. Vegetative ent on 20-40% of ifficient to prevent R 60-80% of the ed by sediment, oorary/transient in buting to instability, ed channels have ion is present on > and stable sediment	rooting depth, r vertical/underr protection present banks, is not pro Obvious bank s Erosion/raw ban AND/OR Aggradir than 80% of strear deposition, contril Multiple thread	ed below average majority of banks cut. Vegetative on less than 20% of eventing erosion. loughing present. nks on 80-100%. ng channel. Greater n bed is covered by buting to instability. channels and/or	
0			2	2.4	banks and depositi	ional features which	deposition	is absent.	Subterrai	nean flow.	0.0
Score	3)		4			I,	.6		1	3.0
2. RIPARIAN	N BUFFERS: A		Con Subo	nditional Cate	gory Mar	ginal Low Marginal: Non-maintained,	Po High Poor:	n may be accepta	NOTES>>		
RIPARIAN Riparian Buffers	Opti Tree stratum (dbh > with > 60% tree ca	imal - 3 inches) present, nopy cover and a lerstory. Wetlands	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy	gory	ginal Low Marginal:	Po		NOTES>>		
Riparian	Option Tree stratum (dbh > with > 60% tree canon-maintained unc	imal - 3 inches) present, nopy cover and a lerstory. Wetlands	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory.	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation).	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover.	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh >3 inches) present, with <30% tree canopy cover with maintained understory.	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable condition.	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions.	NOTES>>		
Riparian Buffers	Option Tree stratum (dbh > with > 60% tree canon-maintained unc	3 inches) present, inopy cover and a derstory. Wetlands e riparian areas.	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained	Low Suboptimal Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh >3 inches) present, with <30% tree canopy cover with maintained	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable	NOTES>>		
Riparian Buffers Condition Scores Delineate ripalescriptors. Determine squelow.	Tree stratum (dbh > with > 60% tree ca non-maintained unc located within the	imal 3 inches) present, incopy cover and a lerstory. Wetlands e riparian areas.	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 into Condition C	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Coungth and width. Coungth	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh > 3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5	NOTES>>		
Riparian Buffers Condition Scores Delineate ripaescriptors. Determine squelow. Enter the % F	Tree stratum (dbh > with > 60% tree ca non-maintained unc located within the	imal 3 inches) present, unopy cover and a ferstory. Wetlands e riparian areas.	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 into Condition C	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Coungth and width. Coungth	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh > 3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5	NOTES>>		
Riparian Buffers Condition Scores Delineate ripz escriptors. Determine squelow. Enter the % F	Tree stratum (dbh > with > 60% tree ca non-maintained unc located within the	imal 3 inches) present, incopy cover and a lerstory. Wetlands e riparian areas.	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 into Condition C	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Coungth and width. Coungth	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh > 3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5	NOTES>>		
Riparian Buffers Condition Scores Delineate ripaescriptors. Determine squelow. Enter the % F	Tree stratum (dbh > with > 60% tree ca non-maintained unc located within the located with	imal 3 inches) present, unopy cover and a lerstory. Wetlands e riparian areas. 5 each stream bank ach by measuring 100% 1.5	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 into Condition C	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Coungth and width. Coungth	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh > 3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5	NOTES>>		
Riparian Buffers Condition Scores Delineate ripaescriptors. Determine squelow. Enter the % F	Tree stratum (dbh > with > 60% tree ca non-maintained uncolocated within the located with	imal 3 inches) present, unopy cover and a lerstory. Wetlands e riparian areas. 5 ach stream bank ach by measuring 100% 1.5 100%	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 into Condition C	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Coungth and width. Coungth	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh > 3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5	NOTES>>	1.50	CI 1.50
Condition Scores Delineate ripalescriptors. Determine squelow. Right Bank Left Bank B. INSTREAR	Tree stratum (dbh > with > 60% tree ca non-maintained unc located within the located with	5 sach stream bank ach by measuring 100% 1.5 100% 1.5 aried substrate si	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 k into Condition C g or estimating ler parian category in	Inditional Cate ptimal Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Congth and width. Congth and width. Congth and width. Congth and depths; workers.	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85 Indition Scores us calculators are production of the product	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh > 3 inches) present, with < 30% tree canopy cover with maintained understory: Low 0.75 ing the povided for you	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F Blocks 6	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5 the sums Riparian equal 100 100%	NOTES>> CI= (Sum % RA**) Rt Bank CI >		CI 1.50
Condition Scores Delineate ripalescriptors. Deltremine squelow. Enter the % Right Bank Left Bank Left Bank INSTREAM Indercut banks;	Tree stratum (dbh > with > 60% tree ca non-maintained unc located within the located with	imal 3 inches) present, nopy cover and a lerstory. Wetlands e riparian areas. 5 each stream bank ach by measuring 100% 1.5 100% 1.5 aried substrate significations if the poole complete in the stream in the stre	Riph Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 Into Condition C g or estimating ler parian category in parian category in categ	Inditional Cate ptimal Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Congth and width. Congth and width. Congth and width. Congth and depths; workers.	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <a>3 inches) present, with <a>3 inches) present, or a tree canopy cover. High 0.85 Indition Scores us calculators are production of the control of th	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh > 3 inches) present, with < 30% tree canopy cover with maintained understory: Low 0.75 ing the povided for you	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F Blocks 6	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5 the sums Riparian equal 100 100%	NOTES>> Ci= (Sum % RA * : Rt Bank Ci > Lt Bank Ci >	1.50	
Condition Scores Delineate ripalescriptors. Determine squelow. Right Bank Left Bank B. INSTREAR	Tree stratum (dbh > with > 60% tree ca non-maintained unc located within the located with	5 Score for each ri 100% 1.5 100% 1.5 100% 1.5 100% 1.5 100% 1.5 100% 1.5 100% 1.5	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 Into Condition C g or estimating let parian category in Zes, water velocity ixes, stable featur Subo Stable habitat ele present in 30-50% are adequate fo	Inditional Cate ptimal Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Congth and width. Congth and width. Congth and width. Congth and depths; wores. Conditional	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85 Indition Scores us calculators are production of the present in 10-30 are adequate for a seadequate for the present in 10-30 are adequate for the present in 10-30 are adeq	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh >3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75 ing the provided for you	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F Blocks 6	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5 the sums Riparian equal 100 100% 100%	CI= (Sum % RA * : Rt Bank CI > Lt Bank CI > NOTES>>	1.50	

	St	ream In	npact A	ssessm	nent Fo	rm Pag	e 2		
Project #	Applicant		Locality	Cowardin Class.	HUC	Date	Data Point	SAR length	Impact Factor
								500	1
	L ALTERATION: Stream cross poil piles, constrictions, livestock	sings, riprap, conci		concrete blocks, s	traightening of ch	annel, channeliz	zation,	NOTES>>	
	Negligible	Mir	nor		erate		evere		
Channel Alteration	Channelization, dredging, alteration, or hardening absent. Stream has an unaltered pattern or has naturalized.	Less than 20% of the stream reach is disrupted by any of the channel alterations listed in the parameter guidelines.	20-40% of the stream reach is disrupted by any of the channel alterations listed in the parameter guidelines.	is disrupted by any of the channel	of the channel	Greater than 80% by any of the cha in the parameter 80% of banks s	o of reach is disrupted nnel alterations listed guidelines AND/OR shored with gabion, or cement.		
SCORE	1.5	1.3	1.1	0.9	0.7	(0.5		
	REACH C	ONDITION II	NDEX and S	TREAM CO	NDITION UN	ITS FOR TH	HIS REACH		
NOTE: The Cls and R	RCI should be rounded to 2 decimal places.	The CR should be rour	nded to a whole numb	er.			THE REACH (CONDITION IN	DEX (RCI) >>

COMPENSATION REQUIREMENT (CR) >> 0

CR = RCI X LF X IF



DESCRIBE PROPOSED IMPACT:	

	Str		fied Stream N	lethodology f	for use in Vir	ginia	111 1)			
Project #	Project Nan		Locality	Cowardin Class.	HUC	Date Date	SAR#	Impact/SAR length	Impact Factor	
5337	I-64 Peninsu	ıla	New Kent	R2UB2	02080206	11/2/11		398		
Name	e(s) of Evaluator(s)		e and Inform	ation						
	Aitkenhead / Nies	WUS108M								
I. Channel C	Condition: Assess the cross-s	ection of the stream		ondition (erosion, Conditional Catego						
	Optimal	Subo	ptimal	Mar	ginal	Po	oor	Se	vere	
Channel	Very little incision or active erosion; 100% stable banks. Vegetative	erosion or unproted of banks are s	ew areas of active cted banks. Majority table (60-80%).	Poor. Banks more or Poor due to lo	less than Severe or stable than Severe ower bank slopes.	Vertically/laterally widen further. Ma	ned/incised. unstable. Likely to jority of both banks	incision, flow co	nstability. Severe ntained within the ed below average	
Condition	surface protection or natural rock, prominent (80-100%). AND/OR Stable point bars/bankfull benches a present. Access to their original floodplain or fully developed wide bankfull benches. Mid-channel bars and transverse bars few. Transient sediment deposition covers less tha 10% of bottom.	prominent (60 Depositional feat stability. The bar channels are we likely has access t or newly develope portions of the sediment covers 10	tion or natural rock -80%) AND/OR tures contribute to nkfull and low flow II defined. Stream o bankfull benches, ad floodplains along reach. Transient 0-40% of the stream tom.	both banks. Veget 40-60% of banks. bevertical or unde 60% of strean sediment. Se- temporary/tran instability. Depositi stability, may be AND/OR V-shap vegetative protect	resent on 40-60% of tative protection on . Streambanks may ercut. AND/OR 40-n is covered by diment may be issient, contribute to e forming/present. ed channels have ion on > 40% of the	60-80% of bar protection press banks, and is ins erosion. AND/C stream is cove Sediment is tem nature, and contri AND/OR V-shap vegetative protec 40% of the banks	Erosion present on nks. Vegetative mt on 20-40% of ufficient to prevent R 60-80% of the red by sediment. oorary/transient in buting to instability, ed channels have ion is present on > and stable sediment	vertical/undern protection present banks, is not pro Obvious banks is Erosion/raw bank AND/OR Aggradir than 80% of strear deposition, contril Multiple thread	majority of banks cut. Vegetative on less than 20% of eventing erosion. loughing present. hks on 80-100%. g channel. Greater m bed is covered by buting to instability. channels and/or nean flow.	CI
Score	3	2	2.4	- 1	ional features which	· · · · · ·	is absent.		1	2.0
NOTES>>		_				_		I	<u>-</u>	2.10
	N BUFFERS: Assess both ba	Con	nditional Cate ptimal	gory	ginal Low Marginal:	Pe	n may be accepta	NOTES>>		
		Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy	gory	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hos production, ponds, open water. If present, tree stratum (dbh > 3 inches) present, with <30% tree canopy cover with maintained			NOTES>>		
2. RIPARIAN Riparian Buffers	Optimal Tree stratum (dbh > 3 inches) preser with > 60% tree canopy cover and a non-maintained understory. Wetland	High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) t, present, with 30% to 60% tree s canopy cover and containing both herbaceous and shrub layers or a non-maintained	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh > 3 inches) present, with <30% tree canopy cover with	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable	NOTES>>		
2. RIPARIAN	Optimal Tree stratum (dbh > 3 inches) preser with > 60% tree canopy cover and a non-maintained understory. Wetland	High Suboptimal: Riparian areas with tree stratum (Idh > 3 inches) present, with 30% to 60% tree s canopy cover and containing both herbaceous and shrub layers or a non-maintained understory.	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation).	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover.	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh >3 inches) present, with <30% tree canopy cover with maintained understory.	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable condition.	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions.	NOTES>>		
Riparian Buffers Condition Scores 1. Delineate ripa descriptors. 2. Determine sq below. 3. Enter the % R	Optimal Tree stratum (dbh > 3 inches) preser with > 60% tree canopy cover and non-maintained understory. Wetland located within the riparian areas.	High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree s canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 This into Condition C	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Co	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, bord production, ponds, open water. If present, tree stratum (dbh > 3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % I	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions.	NOTES>>		
Riparian Buffers Condition Scores Delineate ripa elescriptors. 2. Determine squelow.	Optimal Tree stratum (dbh > 3 inches) preser with > 60% tree canopy cover and a non-maintained understory. Wetland located within the riparian areas. 1.5 arian areas along each stream ba quare footage for each by measur.	High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree s canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 This into Condition C	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Co	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, bord production, ponds, open water. If present, tree stratum (dbh > 3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % I	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5	NOTES>>		
Riparian Buffers Condition Scores Delineate ripa lescriptors. Determine squelow. Enter the % R Right Bank	Optimal Tree stratum (dbh > 3 inches) preser with > 60% tree canopy cover and a non-maintained understory. Wetland located within the riparian areas. 1.5 arian areas along each stream barguare footage for each by measur Riparian Area and Score for each % Riparian Area 100% Score > 1.2	High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree s canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 This into Condition C	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Co	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, bord production, ponds, open water. If present, tree stratum (dbh > 3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % I	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5 the sums Riparian equal 100	NOTES>>	Scores*0.01)/2	CI
Riparian Buffers Condition Scores Delineate ripalescriptors. Determine squelow.	Optimal Tree stratum (dbh > 3 inches) preser with > 60% tree canopy cover and a non-maintained understory. Wetland located within the riparian areas. 1.5 arian areas along each stream barguare footage for each by measur Riparian Area and Score for each % Riparian Area 100% Score > 1.2	High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree s canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 This into Condition C	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Co	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, bord production, ponds, open water. If present, tree stratum (dbh > 3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % I	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5	NOTES>>		<u>CI</u> 1.20
Riparian Buffers Condition Scores Delineate ripalescriptors. Delemine squelow. Enter the % R Right Bank Left Bank INSTREAM	Optimal Tree stratum (dbh > 3 inches) preser with > 60% tree canopy cover and a non-maintained understory. Wetland located within the riparian areas. 1.5 arian areas along each stream barguare footage for each by measur within the maintained understory. Wetland located within the riparian areas. 1.5 Arian areas along each stream barguare footage for each by measur within the riparian areas along each stream barguare footage for each by measur within the riparian area and Score for each % Riparian Area and Score for each % Riparian Area and Score 1.2 We Riparian Area and 100%	High Suboptimal: Riparian areas with tree stratum (tdh > 3 inches) present, with 30% to 60% tree scanopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 This into Condition C and or estimating let riparian category in	Ditional Cate ptimal Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Co oright and width. Co the blocks below	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh > 3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75 ing the povided for you	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % I Blocks 6	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5 the sums Riparian equal 100 100%	NOTES>> Cl= (Sum % RA** Rt Bank Cl >	1.20	
Riparian Buffers Condition Scores 1. Delineate ripa descriptors. 2. Determine squelow. 3. Enter the % R Right Bank Left Bank 3. INSTREAN undercut banks;	Optimal Tree stratum (dbh > 3 inches) preser with > 60% tree canopy cover and a non-maintained understory. Wetland located within the riparian areas. 1.5 arian areas along each stream baquare footage for each by measur Riparian Area and Score for each % Riparian Area 100% Score > 1.2 % Riparian Area> 100% Score > 1.2 M HABITAT: Varied substrate root mats; SAV; riffle poole comp	High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree s canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 nk into Condition C riparian category in sizes, water velocit lexes, stable featur	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Co ngth and width. Co n the blocks below y and depths; wodes. Conditions	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85 Indition Scores us calculators are production of the product	Ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (bdh > 3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75 ing the povided for you	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % I Blocks 6	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5 the sums Riparian equal 100 100%	NOTES>> Cl= (Sum % RA *: Rt Bank Cl > Lt Bank Cl >	1.20	
Riparian Buffers Condition Scores 1. Delineate ripa descriptors. 2. Determine sq below. 3. Enter the % R Right Bank Left Bank 3. INSTREAN	Optimal Tree stratum (dbh > 3 inches) preser with > 60% tree canopy cover and a non-maintained understory. Wetland located within the riparian areas. 1.5 arian areas along each stream barguare footage for each by measur Riparian Area and Score for each % Riparian Area 100% Score > 1.2 % Riparian Area> 100% Score > 1.2 M HABITAT: Varied substrate	High Suboptimal: Riparian areas with tree stratum (Idh) > 3 inches) present, with 30% to 60% tree scanopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 This into Condition C and or estimating let riparian category in Sizes, water velocit lexes, stable featur Subo Stable habitat ele present in 30-50 are adequate fo are adequate fo	ditional Cate ptimal Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Co ongth and width. Co on the blocks below y and depths; wodes.	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85 Indition Scores us calculators are production of the production of the production of the production of the present in 10-30 are adequate for a season of the present in 10-30 are	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh > 3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75 ing the povided for you	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % I Blocks 6 Habitat element lacking or are Lelements are typic	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5 the sums Riparian equal 100 100%	CI= (Sum % RA * : Rt Bank CI > Lt Bank CI > NOTES>>	1.20	

	St	ream In	npact A	ssessm	nent Fo	rm Pag	e 2		
Project #	Applicant		Locality	Cowardin Class.	HUC	Date	Data Point	SAR length	Impact Factor
								500	1
	L ALTERATION: Stream cross poil piles, constrictions, livestock	sings, riprap, conci		concrete blocks, s	traightening of ch	annel, channeliz	zation,	NOTES>>	
	Negligible	Mir	nor		erate		evere		
Channel Alteration	Channelization, dredging, alteration, or hardening absent. Stream has an unaltered pattern or has naturalized.	Less than 20% of the stream reach is disrupted by any of the channel alterations listed in the parameter guidelines.	20-40% of the stream reach is disrupted by any of the channel alterations listed in the parameter guidelines.	is disrupted by any of the channel	of the channel	Greater than 80% by any of the cha in the parameter 80% of banks s	o of reach is disrupted nnel alterations listed guidelines AND/OR shored with gabion, or cement.		
SCORE	1.5	1.3	1.1	0.9	0.7		0.5		
	REACH C	CONDITION II	NDEX and S	TREAM CO	NDITION UN	ITS FOR TH	HIS REACH		
NOTE: The Cls and R	RCI should be rounded to 2 decimal places.	The CR should be roun	nded to a whole numb	er.			THE REACH (CONDITION IN	DEX (RCI) >>

CR = RCI X LF X IF

INSERT PHOTOS:





	Stre		fied Stream N	lethodology f	•	-				
Project #	Project Nam		Locality	Cowardin Class.	HUC	Date	SAR#	Impact/SAR length	Impact Factor	
5337	I-64 Peninsu	la	New Kent	R2UB2	02080206	11/3/11		189		
Nam	e(s) of Evaluator(s)		e and Inform	ation						
	Aitkenhead / Nies	WUS 109M								
I. Channel (Condition: Assess the cross-se	ection of the stream		ondition (erosion, Conditional Catego						
	Optimal	Subo	ptimal	Mar	ginal	Po	oor	Se	vere	
Channel	Very little incision or active erosion; 8 100% stable banks. Vegetative	of banks are s	ew areas of active cted banks. Majority table (60-80%).	Poor. Banks more or Poor due to lo	less than Severe or stable than Severe ower bank slopes.	Vertically/laterally widen further. Ma	ned/incised. unstable. Likely to jority of both banks	incision, flow co	nstability. Severe ntained within the ed below average	
Condition	surface protection or natural rock, prominent (80-100%). AND/OR Stable point bars/bankfull benches an present. Access to their original floodplain or fully developed wide bankfull benches. Mid-channel bars and transverse bars few. Transient sediment deposition covers less than 10% of bottom.	prominent (60 Depositional feat stability. The bar channels are we likely has access t or newly develope portions of the sediment covers 10	tion or natural rock -80%) AND/OR tures contribute to nkfull and low flow II defined. Stream o bankfull benches, ad floodplains along reach. Transient 0-40% of the stream tom.	both banks. Veget 40-60% of banks. bevertical or unde 60% of strean sediment. Set temporary/tran instability. Depositi stability, may be AND/OR V-shap vegetative protecti	esent on 40-60% of rative protection on Streambanks may prout. AND/OR 40- n is covered by diment may be sisent, contribute on that contribute to forming/present. ed channels have ion on > 40% of the	60-80% of bar protection press banks, and is insi erosion. AND/C stream is cover Sediment is tem nature, and contri AND/OR V-shap vegetative protect 40% of the banks a	Erosion present on ks. Vegetative mt on 20-40% of ufficient to prevent R 60-80% of the red by sediment. oorary/transient in buting to instability. ed channels have ion is present on > and stable sediment	vertical/undern protection present banks, is not pro Obvious banks is Erosion/raw bank AND/OR Aggradir than 80% of strear deposition, contril Multiple thread	majority of banks cut. Vegetative on less than 20% of eventing erosion. loughing present. hks on 80-100%. g channel. Greater m bed is covered by buting to instability. channels and/or nean flow.	CI
Score	3	2	2.4		onal features which	· · · · · · · · · · · · · · · · · · ·	is absent.		1	2.4
					<u>-</u>				•	2.7
NOTES>> 2. RIPARIAN	N BUFFERS: Assess both bar	Con Subo	nditional Cate ptimal	gory	ginal Low Marginal:	Po High Poor:	n may be accepta	NOTES>>		
	_	Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches), present, with 30% to 60% tree	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy	gory	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, had production, ponds, open water. If present, tree stratum (dbh > 3 inches) present, with <30% tree canopy cover with maintained	Pe		NOTES>>		
2. RIPARIAN	Optimal Tree stratum (dbh > 3 inches) presen with > 60% tree canopy cover and a non-maintained understory. Wetland	High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree s canopy cover and containing both herbaceous and shrub layers or a non-maintained	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh >3 inches) present, with 30% inches) present, canopy cover with	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces row crops, active feed lots, trails, or other comparable	NOTES>>		
2. RIPARIAI	Optimal Tree stratum (dbh > 3 inches) presen with > 60% tree canopy cover and a non-maintained understory. Wetland	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches). I, present, with 30% to 60% tree s canopy cover and containing both herbaceous and shrub layers or a non-maintained understory.	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation).	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover.	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh >3 inches) present, with <a>30 % tree canopy cover with maintained understory.	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, recently seeded and stabilized, or other comparable condition.	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces row crops, active feed lots, trails, or other comparable conditions.	NOTES>>		
Riparian Buffers Condition Scores 1. Delineate riparescriptors. 2. Determine squeek	Optimal Tree stratum (dbh > 3 inches) presen with > 60% tree canopy cover and a non-maintained understory. Wetland located within the riparian areas. 1.5 arian areas along each stream bar quare footage for each by measuri	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree s canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 The into Condition Con and or estimating len the condition Con and con and condition Con and condition Con and condition Con and con and condition Con and c	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Co	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh > 3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces row crops, active feed lots, trails, or other comparable conditions.	NOTES>>		
Riparian Buffers Condition Scores Delineate rips descriptors. Delta between the second	Optimal Tree stratum (dbh > 3 inches) presen with > 60% tree canopy cover and a non-maintained understory. Wetland located within the riparian areas. 1.5 arian areas along each stream bar quare footage for each by measuri	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree s canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 The into Condition Con and or estimating len the condition Con and con and condition Con and condition Con and condition Con and con and condition Con and c	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Co	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh > 3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces row crops, active feed lots, trails, or other comparable conditions. Low 0.5	NOTES>>	Scores*0.01)/2	
Riparian Buffers Condition Scores Delineate ripa descriptors. Deltermine sopelow. Below. Right Bank	Optimal Tree stratum (dbh > 3 inches) presen with > 60% tree canopy cover and a non-maintained understory. Wetland located within the riparian areas. 1.5 arian areas along each stream bar quare footage for each by measuring the properties of t	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree s canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 The into Condition Con and or estimating len the condition Con and con and condition Con and condition Con and condition Con and con and condition Con and c	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Co	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh > 3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces row crops, active feed lots, trails, or other comparable conditions. Low 0.5	NOTES>> Cl= (Sum % RA** Rt Bank Cl >	Scores*0.01)/2 1.50	CI
Condition Scores Left Bank	Optimal Tree stratum (dbh > 3 inches) presen with > 60% tree canopy cover and a non-maintained understory. Wetland located within the riparian areas. 1.5 arian areas along each stream bar quare footage for each by measuri Riparian Area and Score for each % Riparian Area 100% Score > 1.5 % Riparian Area 100% Score > 1.5	High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 Ask into Condition Cong or estimating ler	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory, Recent cutover (dense vegetation). Low 1.1 attegories and Co ongth and width. Co	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh > 3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75 Ing the wided for you	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F Blocks 6	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces row crops, active feed lots, trails, or other comparable conditions. Low 0.5 the sums Riparian equal 100 100%	NOTES>> Cl= (Sum % RA *: Rt Bank Cl > Lt Bank Cl >		CI 1.50
Riparian Buffers Condition Scores Delineate ripalescriptors. Determine scores Enter the % F. Right Bank Left Bank INSTREAL	Optimal Tree stratum (dbh > 3 inches) presen with > 60% tree canopy cover and a non-maintained understory. Wetland located within the riparian areas. 1.5 arian areas along each stream bar quare footage for each by measuring the properties of t	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree s canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 The into Condition Cong or estimating let riparian category in	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Co ongth and width. Co the blocks below y and depths; woo	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh > 3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75 Ing the wided for you	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F Blocks 6	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces row crops, active feed lots, trails, or other comparable conditions. Low 0.5 the sums Riparian equal 100 100%	NOTES>> Cl= (Sum % RA** Rt Bank Cl >	1.50	
Riparian Buffers Condition Scores 1. Delineate ripalescriptors. 2. Determine societow. 3. Enter the % F Right Bank Left Bank 3. INSTREAI	Optimal Tree stratum (dbh > 3 inches) presen with > 60% tree canopy cover and a non-maintained understory. Wetland located within the riparian areas. 1.5 arian areas along each stream bar quare footage for each by measuring Riparian Area and Score for each % Riparian Area 100% Score > 1.5 % Riparian Area 100% Score > 1.5 M HABITAT: Varied substrate a root mats; SAV; riffle poole comp	High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree s canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 It into Condition C Interpretation of the condition of th	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Co ngth and width. Co n the blocks below y and depths; wodes. Conditions	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85 adiculators are production of the canopy cover.	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh >3 inches) present, with https://district.org/https://district.org/lines/by/<a hre<="" td=""><td>High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F Blocks 6</td><td>Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces row crops, active feed lots, trails, or other comparable conditions. Low 0.5 the sums Riparian equal 100 100%</td><td>NOTES>> Cl= (Sum % RA *: Rt Bank Cl > Lt Bank Cl ></td><td>1.50</td><td></td>	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F Blocks 6	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces row crops, active feed lots, trails, or other comparable conditions. Low 0.5 the sums Riparian equal 100 100%	NOTES>> Cl= (Sum % RA *: Rt Bank Cl > Lt Bank Cl >	1.50	
Riparian Buffers Condition Scores 1. Delineate riparescriptors. 2. Determine scorelow. 3. Enter the % F Right Bank Left Bank 3. INSTREAR	Optimal Tree stratum (dbh > 3 inches) presen with > 60% tree canopy cover and a non-maintained understory. Wetland located within the riparian areas. 1.5 arian areas along each stream bar quare footage for each by measuri Riparian Area and Score for each % Riparian Area and Score for each % Riparian Area 100% Score > 1.5 M Riparian Area> 100%	Com Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree s canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 Ak into Condition C ang or estimating let riparian category in Sizes, water velocit exes, stable featur Subo Stable habitat ele typresent in a)-Su- are adequate fo are adequate fo are adequate fo	ditional Cate ptimal Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Co ongth and width. Co on the blocks below y and depths; wodes.	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85 Indition Scores usion calculators are producted to the control of the control	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh > 3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75 Ing the wided for you	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F Blocks 6	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces row crops, active feed lots, trails, or other comparable conditions. Low 0.5 the sums Riparian equal 100 100%	CI= (Sum % RA * : Rt Bank CI > Lt Bank CI > NOTES>>	1.50	

	St	ream In	npact A	ssessm	nent Fo	rm Pag	e 2		
Project #	Applicant		Locality	Cowardin Class.	HUC	Date	Data Point	SAR length	Impact Factor
								500	1
	L ALTERATION: Stream cross spoil piles, constrictions, livestock	sings, riprap, conc		concrete blocks, s	traightening of ch	annel, channeliz	ation,	NOTES>>	
	Negligible	Mi	nor		erate	Se	evere		
Channel Alteration	Channelization, dredging, alteration, or hardening absent. Stream has an unaltered pattern or has naturalized.	Less than 20% of the stream reach is disrupted by any of the channel alterations listed in the parameter guidelines.	20-40% of the stream reach is disrupted by any of the channel alterations listed in the parameter guidelines.	is disrupted by any of the channel	is disrupted by any of the channel	Greater than 80% by any of the char in the parameter 80% of banks s	of reach is disrupted nnel alterations listed guidelines AND/OR hored with gabion, or cement.		
SCORE	1.5	1.3	1.1	0.9	0.7	(0.5		
	REACH C	ONDITION	NDEX and S	TREAM CO	NDITION UN	ITS FOR TH	IIS REACH		
NOTE: The Cls and F	RCI should be rounded to 2 decimal places.	The CR should be rou	nded to a whole numb	er.			THE REACH (CONDITION IN	DEX (RCI) >>

CR = RCI X LF X IF

INSERT PHOTOS:

Downstream



Upstream



		Stre	Unit	SSESS fied Stream N	lethodology f	or use in Virg	ginia	m 1)			
Project #		Project Name		Locality	nels classified a Cowardin Class.	s intermittent or	perennial Date	SAR#	Impact/SAR length	Impact Factor	
5337	-	-64 Peninsul	a	New Kent	R2UB2	02080206	11/3/11		1382	1 dotor	
Name	e(s) of Evalua	tor(s)	Stream Nam	e and Informa	ation						
	Aitkenhead / Nies		WUS110M								
Channel C	Condition: Ass	ess the cross-sec	ction of the stream	n and prevailing co	ondition (erosion,	aggradation)					
	Ont	imal	Subo	ptimal	Conditional Catego	ry ginal	Po	oor	Sev	rere	
		W.	SB	9	1			*	4	5	
Channel Condition	100% stable bar surface protection prominent (80-1) Stable point bars/bar	00%). AND/OR ankfull benches are s to their original / developed wide Mid-channel bars,	erosion or unproted of banks are st Vegetative protect prominent (60-Depositional feat stability. The bar channels are well likely has access t or newly develope	ew areas of active cted banks. Majority table (60-80%), tion or natural rock-80%) AND/OR tures contribute to nkfull and low flow II defined. Stream o bankfull benches, ad floodplains along	Poor. Banks more or Poor due to Ic Erosion may be pri both banks. Veget 40-60% of banks. bevertical or unde 60% of stream sediment. Sed temporary/tran:	less than Severe or stable than Severe wer bank slopes. esent on 40-60% of ative protection on Streambanks may rout. AND/OR 40- n is covered by diment may be sient, contribute on that contribute to	Vertically/laterally widen further. Ma are near vertical. 60-80% of bar protection prese banks, and is inst erosion. AND/O stream is cover Sediment is temp	ned/incised. unstable. Likely to jority of both banks Erosion present on also. Vegetative ent on 20-40% of ufficient to prevent R60-80% of the red by sediment.	rooting depth, m vertical/underc protection present of banks, is not pre Obvious bank sli Erosion/raw ban AND/OR Aggradin	attained within the bad below average hajority of banks ut. Vegetative on less than 20% of eventing erosion, boughing present, liks on 80-100%. It is considered to the property of the proper	
	10% of		sediment covers 10 bott	reach. Transient 0-40% of the stream tom.	stability, may be AND/OR V-shap vegetative protecti banks and depositi	forming/present. ed channels have on on > 40% of the onal features which	AND/OR V-shap vegetative protect 40% of the banks a deposition	buting to instability. ed channels have tion is present on > and stable sediment is absent.	deposition, contrib Multiple thread subterran	channels and/or ean flow.	CI
Score	3	3	2	2.4]	2	1	.6			3.0
. RIPARIAN	N BUFFERS: /	Assess both bank	Con	an areas along the	gory	ginal	Po	h may be accepta	NOTES>>		
RIPARIAN Riparian Buffers	Opt Tree stratum (dbh: with > 60% tree ca	imal > 3 inches) present, anopy cover and a derstory. Wetlands	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy	gory	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh > 3 inches) present, with <30% tree canopy cover with maintained			NOTES>>		
Riparian Buffers	Opt Tree stratum (dbh : with > 60% tree cr. non-maintained un	imal > 3 inches) present, anopy cover and a derstory. Wetlands	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained	Low Suboptimal Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh >3 inches) present, with 30% trees canopy cover with	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable	NOTES>>		
Riparian	Opt Tree stratum (dbh: with > 60% tree canon-maintained unalocated within the	imal > 3 inches) present, anopy cover and a derstory. Wetlands	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory.	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation).	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover.	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh >3 inches) present, with <30% tree canopy cover with maintained understory.	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable condition.	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions.	NOTES>>		
Riparian Buffers Condition Scores Delineate ripz escriptors. Determine squelow.	Opt Tree stratum (dbh: with > 60% tree canon-maintained unalocated within the	imal > 3 inches) present, anopy cover and a derstory. Wetlands e riparian areas.	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 into Condition C	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Coungth and width. Coungth	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <a>30 % tree canopy cover. High 0.85	Ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh > 3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions.	NOTES>>		
Riparian Buffers Condition Scores Delineate ripe escriptors. Determine squelow. Enter the % F	Tree stratum (dbh: with > 60% tree conon-maintained un located within th 1. arian areas along of	imal 3 inches) present, anopy cover and a derstory. Wetlands e riparian areas. 5 each stream bank each by measuring.	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 into Condition C	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Coungth and width. Coungth	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <a>30 % tree canopy cover. High 0.85	Ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh > 3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5	NOTES>>		
Riparian Buffers Condition Scores Delineate ripa secriptors. Determine squelow. Enter the % F	Tree stratum (dbh with > 60% tree canon-maintained un located within the located within t	imal > 3 inches) present, anopy cover and a derstory. Wetlands e riparian areas. 5 each stream bank each by measuring 100% 1.2	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 into Condition C g or estimating ler parian category in	Low Low Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Coungth and width. Counter the blocks below	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <a>30 % tree canopy cover. High 0.85	Ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh > 3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5 the sums Riparian equal 100	NOTES>>		Cl
Riparian Buffers Condition Scores Delineate ripasscriptors. Determine squelow. Enter the % F	Tree stratum (dbh: with > 60% tree conon-maintained un located within th 1. arian areas along of uare footage for e Riparian Area and	imal 3 inches) present, anopy cover and a derstory. Wetlands e riparian areas. 5 each stream bank each by measuring score for each ri	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 into Condition C	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Coungth and width. Coungth	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <a>30 % tree canopy cover. High 0.85	Ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh > 3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5	NOTES>>	ccores*0.01)/2 1.20 0.66	CI 0.93
Condition Scores Delineate ripa escriptors. Determine sq elow. Enter the % F Right Bank Left Bank	Tree stratum (dbh : with > 60% tree canon-maintained un located within the located within	imal 3 inches) present, anopy cover and a derstory. Wetlands e riparian areas. 5 each stream bank each by measuring 100% 1.2 20% 1.2 aried substrate si	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 into Condition C g or estimating ler parian category in 20% 0.6 Zes, water velocity	Inditional Cate ptimal Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Coungth and width. Coung	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85 Indition Scores using the saleculators are producted to the saleculators ar	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh > 3 inches) present, with <a>ony word water. If present, tree canopy cover with maintained understory. Low 0.75 Ing the vided for you	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F Blocks 6	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5 the sums Riparian equal 100 100%	NOTES>> CI= (Sum % RA*S Rt Bank CI>	1.20	
Condition Scores Delineate ripalescriptors. Determine squelow. Enter the % Right Bank Left Bank INSTREAM Indercut banks;	Tree stratum (dbh : with > 60% tree conon-maintained un located within the located within	imal 3 inches) present, anopy cover and a derstory. Wetlands e riparian areas. 5 each stream bank each by measuring 100% 1.2 20% 1.2 aried substrate si iffle poole comple	Right Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 Into Condition C g or estimating ler parian category in 20% 0.6 zes, water velocity ixes, stable features.	Inditional Cate ptimal Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Congth and width. Congth and width. Congth and width. Congth and width. Congth and depths; workes. Conditional	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <a>30% tree canopy cover. High 0.85 Indition Scores usional calculators are producted to the canopy cover.	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh >3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75 Ing the vided for you	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F Blocks 6	Low Poor: Impervious surfaces, mine poil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5 the sums Riparian equal 100 100% 100%	NOTES>> Ci= (Sum % RA * S Rt Bank Ci > Lt Bank Ci >	1.20	
Condition Scores Delineate ripalescriptors. Determine squelow. Enter the % F. Right Bank Left Bank	Tree stratum (dbh with > 60% tree conon-maintained un located within the located within t	imal 3 inches) present, anopy cover and a derstory. Wetlands e riparian areas. 5 each stream bankeach by measuring 100% 1.2 20% 1.2 aried substrate si iffle poole completimal	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 into Condition C g or estimating let parian category in 20% 0.6 Zes, water velocity exes, stable featur Subo Stable habitat ele present in 30-50% are adequate fo	Inditional Cate ptimal Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Coungth and width. Coung	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85 Indition Scores using a calculators are producted by the canopy cover. Stable habitate lee present in 10-30% are adequate for a degree of the canopy cover.	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh > 3 inches) present, with <a>ony word water. If present, tree canopy cover with maintained understory. Low 0.75 Ing the vided for you	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F Blocks 6	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5 the sums Riparian equal 100 100%	Ci= (Sum % RA * S Rt Bank Ci > Lt Bank Ci >	1.20	

	St	ream In	npact A	ssessm	ent Fo	rm Pag	e 2		
Project #	Applicant		Locality	Cowardin Class.	HUC	Date	Data Point	SAR length	Impact Factor
								500	1
	_ ALTERATION: Stream cross poil piles, constrictions, livestock	sings, riprap, conc		concrete blocks, s	traightening of ch	annel, channeliza	ation,	NOTES>>	
	Negligible	Mi	nor		erate		vere		
Channel Alteration	Channelization, dredging, alteration, or hardening absent. Stream has an unaltered pattern or has naturalized.	Less than 20% of the stream reach is disrupted by any of the channel alterations listed in the parameter guidelines.	20-40% of the stream reach is disrupted by any of the channel alterations listed in the parameter guidelines.	is disrupted by any of the channel	of the channel	Greater than 80% by any of the char in the parameter 80% of banks sl	of reach is disrupted anel alterations listed guidelines AND/OR hored with gabion, or cement.		
SCORE	1.5	1.3	1.1	0.9	0.7	(0.5		
	REACH C	ONDITION	NDEX and S	TREAM CO	NDITION UN	ITS FOR TH	IIS REACH		
NOTE: The Cls and F	RCI should be rounded to 2 decimal places.	The CR should be rou	nded to a whole numb	er.	•		THE REACH (CONDITION IN	DEX (RCI) >>

CR = RCI X LF X IF

INSERT PHOTOS:





Same			
Name(s) of Evaluator(s) Name(s) of Evaluator(s) Altherhead Niese WUS 111M 1. Channel Condition: Assess the cross-section of the stream and prevailing condition (eroson, aggradation) Condition Optimal Suboptimal Suboptimal Suboptimal Suboptimal Suboptimal Suboptimal Warginal Poor Altherhead Niese Wis pittle incidency admine among sequence of section of the stream and prevailing condition (eroson, aggradation) Condition Optimal Suboptimal Warginal Poor Warginal Poor Warginal Poor Warginal Poor Proor dishe to know how happen precessors or indicated with stream of section and stream of section and stream of section and section and stream of section and stream of section and stream of section and stream of section and section and stream of section and stream of section and sec	# Impact/SA length	# .	
Channel Condition: Assess the cross-section of the steems and prevailing condition (errorion, apgradation) Condition Channel Viry, title incision or active errorion, polymerature (20 89%) AUCID (20 5 8 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	298		
Channel Condition: Assess the cross-section of the stream and prevailing condition (erosion, aggradation) Conditional Caregory Very little incision or active erotion. So suboptimal Warginal Poor Warginal Wargi			
Channel Condition Channel Condition Channel Condition Channel Condition Channel Condition Cond			
Channel Voy (tills incident or active encoding or incomplete to the property of the condition of active encoding or channel and the property of the condition o			
Channel Condition Wey still incidion or active encolor, beginned to protected the state of backs are stable (6.95%), by or ba	S		Severe
Channel Condition Wey little incidation or active protection and proprieted banks. Vegetative protection or comprehensive processors or comprehensive processors or comprehensive processors. Vegetative protection or comprehensive protection or comprehensive processors. Access to their original processors and transverse base like / Transverse search less or combinate to stability. The bankful and low fibe protection flooring who present on 4-0-00% of banks. Vegetative protection on the present or developed flooring may be present and 4-0-00% of banks. Vegetative protection on the present or developed flooring may be forming/present. AMD/OR 4-0-00 for present or developed flooring may be forming/present. AMD/OR 4-0-00 for newly developed flooring may be forming/present. AMD/OR 4-0-00 for newly developed flooring may be forming/present. AMD/OR 4-0-00 for newly developed flooring may be forming/present. AMD/OR 4-0-00 for newly developed flooring may be forming/present. AMD/OR 4-0-00 for newly developed flooring may be forming/present. AMD/OR 4-0-00 for newly developed flooring may be forming/present. AMD/OR 4-0-00 for newly developed flooring may be forming/present. AMD/OR 4-0-00 for newly developed flooring may be forming/present. AMD/OR 4-0-00 for newly developed flooring may be forming/present. AMD/OR 4-0-00 for newly developed flooring may be forming/present. AMD/OR 4-0-00 for newly developed flooring may be forming/present. AMD/OR 4-0-00 for newly developed flooring	vertical/laters	vertical/later	ateral instability. Severe
Score 3 2.4 2 1.6 NOTES>> RIPARIAN BUFFERS: Assess both bank's 100 foot riparian areas along the entire SAR. (rough measurements of length & width may be acceptable) Conditional Category Optimal Suboptimal Righ Suboptimal Righarian areas with tree stratum (dbh > 3 inches) present, with 100 in 3 inches) pr	elly to incision, flow banks. Strear rooting depth vertical/und protection prese banks, is not the other than 10 than	elly to incision, flow banks. Streat rooting deported banks, is no obvious bar the banks, is no Obvious bar Erosion/raw AND/OR Aggrithan 80% of stideposition, co	flow contained within the treambed below average tdepth, majority of banks l/undercut. Vegetative oresent on less than 20% of snot preventing erosion. bank sloughing present. fraw banks on 80-100%. tograding channel. Greater of stream bed is covered by — contributing to instability.
Conditional Category	iviulupie une	iviuliple iiii	thread channels and/or ubterranean flow.
Conditional Category Optimal Suboptimal Low Suboptimal Light and a condition areas with tree stratum (dh > 3 inches) present, with > 60% tree canopy cover and a non-maintained understory. Wetlands located within the riparian areas along each stream bank into Condition Categories and Condition Scores 1.5 1.2 1.1 0.85 0.75 0.6 0.5 I. Delineate riparian areas along each stream bank into Condition Categories and Condition Scores using the secret of the Score > 1.5 Left Bank Optimal Suboptimal Low Suboptimal Light areas along the entire SAR. (rough measurements of length & width may be acceptable) NOTE Low Marginal: Numerical Light Marginal: Non-maintained, with ree stratum, hay lighter a shrub layer or a tree stratum, hay layer or a tree canopy cover and a non-maintained understory. Wetlands located within the riparian areas. In the stratum of the stratum (dh > 3 inches) present, with - 80% tree canopy cover and a shrub layers or a non-maintained understory. High Low High Low High Low High Low High Low of the comparable condition. Condition Scores 1.5 1.2 1.1 0.85 0.75 0.6 0.5 I. Delineate riparian areas along each stream bank into Condition Categories and Condition Scores using the sescriptors. 2. Determine square foolage for each by measuring or estimating length and width. Calculators are provided for you selow. 3. Enter the % Riparian Areas and Score for each riparian category in the blocks below. Left Bank Picture Categories and Condition Scores using the secret category in the blocks below. Clie (Sur Left Bank Picture Categories and Condition Scores using the secret Categories and Ca			1
Riparian Buffers Tree stratum (dbh > 3 inches) present, with 50% tree canopy cover and a located within the finarian areas, with 1 the stratum (dbh > 3 inches) present, with 50% tree canopy cover and a located within the finarian areas, with 1 the stratum (dbh > 3 inches) present, with 30% tree canopy cover and a located within the finarian areas. Buffers Riparian Buffers Tree stratum (dbh > 3 inches) present, with 30% tree canopy cover and a located within the finarian areas. Indicated within the riparian areas. Indicated within the riparian areas. Indicated within the riparian areas and shrub layers or a non-maintained understory. High Name with 1 the stratum (dbh > 3 inches) present, with 30% tree canopy cover and and shrub layers or a non-maintained understory. Repetition). High Low High Low High Low High Low with 30% tree canopy cover. with 30% tree canopy cover with 30% tree canopy cover. with 30% tree canopy cover with 30% tree canopy cover. with 30% tree canopy cover with 30% tree canopy cover. with 30% tree canopy cover with 30% tree canopy cover. with 30% tree canopy cover with 30% tree canopy cover. with 30% tree canopy cover with 30% tree canopy cover. with 30% tree canopy cover with 30% tree canopy cover. with 30% tree canopy cover with 30% tree canopy cover. wi	, ,		
Riparian Buffers Tree stratum (dbh > 3 inches) present, with 50% tree canopy cover and a non-maintained understory. Wellands located within the riparian areas and located within the riparian areas. High Marginal: Riparian areas with tree stratum (dbh > 3 inches) present, with 50% tree canopy cover and a non-maintained understory. Wellands located within the riparian areas. High Low Low High Low with 40% tree canopy cover and a non-maintained understory. Wellands located within the riparian areas. High Marginal: Non-maintained, dense herbaceous well ense herbaceous and maintained area, includes present, with 20% tree canopy cover and a non-maintained understory. Wellands located within the riparian areas. High Low High Low High Low High Low canopy cover with maintained understory. Condition Scores 1.5 1.2 1.1 0.85 0.75 0.6 0.5 Ensure the sums of % Riparian areas elong each stream bank into Condition Categories and Condition Scores using the lescriptors. Delineate riparian areas along each stream bank into Condition Categories and Condition Scores using the lescriptors. Delineate riparian areas along each stream bank into Condition Categories and Condition Scores using the lescriptors. Delineate riparian areas along each stream bank into Condition Categories and Condition Scores using the lescriptors. Delineate riparian areas along each stream bank into Condition Categories and Condition Scores using the lescriptors. Delineate riparian areas along each stream bank into Condition Categories and Condition Scores using the lescriptors. Delineate riparian areas along each stream bank into Condition Categories and Condition Scores using the lescriptors. Delineate riparian areas along each stream bank into Condition Categories and Condition Scores using the lescriptors. Delineate riparian areas along each stream bank into Condition Categories and Condition Scores using the lescriptors. Delineate riparian areas along each stream bank into Condition Scores using the lescriptors. Delineate riparian	NOTES>>	NOTES>>	>>
Condition Scores 1.5 1.2 1.1 0.85 0.75 0.6 0.5 1. Delineate riparian areas along each stream bank into Condition Categories and Condition Scores using the descriptors. 2. Determine square footage for each by measuring or estimating length and width. Calculators are provided for you below. 3. Enter the % Riparian Area and Score for each riparian category in the blocks below. Right Bank % Riparian Area 100% 100% Score > 1.5 Cl= (Surther Bank % Riparian Area 100% 100% 100% Score > 1.5 Left Bank % Riparian Area 100% 100% 100% 100% Score > 1.5 Left Bank % Riparian Area 100% 100% 100% Score > 1.5	pus mine ds, faces, faces, active ails, or arable ns.	sus mine mine description of the state of th	
Scores 1.3 1.2 1.1 0.85 0.75 0.6 0.5 1.5 1.2 1.1 0.85 0.75 0.6 0.5 1.5 1.2 1.1 0.85 0.75 0.6 0.5 0.6 0.5 1.5 1.2 1.1 0.85 0.75 0.6 0.6		<u>'</u>	
Electriptors:	1		
Score > 1.5 Cl= (Sur Left Bank % Riparian Area > 100% Rt Bank Score > 1.5 Lt Bank Scor		1	
Score > 1.5 Left Bank We Riparian Area > 100% Rt Ba Score > 1.5 Lt Ba 3. INSTREAM HABITAT: Varied substrate sizes, water velocity and depths; woody and leafy debris; stable substrate; low embededness; shade; undercut banks; root mats; SAV; riffle poole complexes, stable features.			
Left Bank We Riparian Area 100% 100% Rt Bank		6	
Lt Ba 3. INSTREAM HABITAT: Varied substrate sizes, water velocity and depths; woody and leafy debris; stable substrate; low embededness; shade; undercut banks; root mats; SAV; riffle poole complexes, stable features.	6		6 RA * Scores*0.011/2
undercut banks; root mats; SAV; riffle poole complexes, stable features.	6 Cl= (Sum % RA	CI= (Sum % R/	6 RA * Scores*0.01)/2
	6 Cl= (Sum % RA	CI= (Sum % R/ 6 Rt Bank CI	CI > 1.50
	CI= (Sum % RA 6 Rt Bank CI : Lt Bank CI :	CI= (Sum % R. Rt Bank CI Lt Bank CI	CI> 1.50 CI> 1.50
Instream Habitat/ Available Cover Optimal Suboptimal Suboptimal Marginal Poor Stable habitat elements are typically present in 30-50% of the reach and are adequate for maintenance of populations. Stable habitat elements are typically present in 10-30% of the reach and are adequate for maintenance of populations. Habitat elements are typically present in 10-30% of the reach and are adequate for maintenance of populations. Habitat elements are typically present in 10-30% of the reach and are adequate for maintenance of populations. Habitat elements are typically present in 10-30% of the reach and are adequate for maintenance of populations.	CI= (Sum % RA 6 Rt Bank CI : Lt Bank CI :	CI= (Sum % R. Rt Bank CI Lt Bank CI	CI> 1.50 CI> 1.50
Score 1.5 1.2 0.9 0.5	CI= (Sum % RA 6 Rt Bank CI: Lt Bank CI: NOTES>>	CI= (Surm % R. R. Bank CI Lt Bank CI NOTES>>	CI> 1.50 CI> 1.50

	St	ream In	npact A	ssessm	nent Fo	rm Pag	e 2		
Project #	Applicant		Locality	Cowardin Class.	HUC	Date	Data Point	SAR length	Impact Factor
								500	1
	L ALTERATION: Stream cross poil piles, constrictions, livestock		Conditiona	al Category				NOTES>>	
	Negligible	Mi	nor		erate		vere		
Channel Alteration	Channelization, dredging, alteration, or hardening absent. Stream has an unaltered pattern or has naturalized.	Less than 20% of the stream reach is disrupted by any of the channel alterations listed in the parameter guidelines.	20-40% of the stream reach is disrupted by any of the channel alterations listed in the parameter guidelines.	is disrupted by any of the channel	60 - 80% of reach is disrupted by any of the channel alterations listed in the parameter guidelines. If stream has been channelized, normal stable stream meander pattern has not	Greater than 80% by any of the char in the parameter 80% of banks sl	of reach is disrupted innel alterations listed guidelines AND/OR hored with gabion, or cement.		
SCORE	1.5	1.3	1.1	0.9	0.7	(0.5		
	REACH C	ONDITION I	NDEX and S	TREAM CO	NDITION UN	ITS FOR TH	IIS REACH		
NOTE: The Cls and R	RCI should be rounded to 2 decimal places.	The CR should be rou	nded to a whole numb	er.			THE REACH (CONDITION IN	DEX (RCI) >>

>> 0

CR = RCI X LF X IF

INSERT PHOTOS:





Upstream



		Stre	Uni		lethodology 1	for use in Virg	ginia	m 1)			
Project #	I	Project Name		Locality	Cowardin Class.	HUC	Date	SAR#	Impact/SAR length	Impact Factor	
5337	I	-64 Peninsul	a	New Kent	R2UB2	02080206	11/3/11		98		
Name	e(s) of Evalua	tor(s)	Stream Nam	e and Informa	ation						
	Aitkenhead / Nies		WUS 112M								
I. Channel C	Condition: Asse			C	Conditional Catego	ry					
	Opti	imal	Subo	ptimal	Mar	ginal	Po	oor	Se	vere	
	Very little incision o	or active erosion: 80	erosion or unproted	ew areas of active	Poor. Banks more	less than Severe or stable than Severe ower bank slopes.	Vertically/laterally	ied/incised. unstable. Likely to jority of both banks	incision flow co	nstability. Severe	
Channel Condition	100% stable bar surface protection prominent (80-11 Stable point bars/bar present. Access floodplain or fully bankfull benches. and transverse bar sediment deposition 10% of 1	nks. Vegetative n or natural rock, 00%). AND/OR ankfull benches are to their original v developed wide Mid-channel bars, ars few. Transient on covers less than	Vegetative protect prominent (60 Depositional feat stability. The bar channels are we likely has access t or newly develope portions of the is sediment covers 11.	stable (60-80%). tion or natural rock- e80%) AND/OR tures contribute to nkfull and low flow to bankfull benches, ed floodplains along reach. Transient 0-40% of the stream tom.	Erosion may be pr both banks. Veget 40-60% of banks. bevertical or unde 60% of stream sediment. Se- temporary/tran instability. Depositi stability, may be	eresent on 40-60% of tative protection on Streambanks may ercut. AND/OR 40-n is covered by diment may be sient, contribute on that contribute to e forming/present. ed channels have	are near vertical. 60-80% of bar protection prese banks, and is inst erosion. AND/O stream is cover Sediment is temp nature, and contri AND/OR V-shap	icony of both ballists. Vegetative int on 20-40% of ifficient to prevent R 60-80% of the ed by sediment. Dorary/transient in buting to instability. ed channels have ion is present on >	pariks. Steamb rooting depth, r vertical/under protection present banks, is not pr Obvious bank s Erosion/raw ba AND/OR Aggradir than 80% of strear deposition, contril	ned below average majority of banks cut. Vegetative on less than 20% of eventing erosion. sloughing present. Inks on 80-100%. Ing channel. Greater m bed is covered by buting to instability.	
					vegetative protect banks and deposit	ion on > 40% of the ional features which	40% of the banks a	and stable sediment is absent.		l channels and/or nean flow.	CI
Score	3	3	2	2.4		2	1	.6		1	2.0
. RIPARIAN	N BUFFERS: #		Con	nditional Cate	gory	ginal Low Marginal:	Po	n may be accepta	NOTES>>		
Riparian Buffers	Opti	imal > 3 inches) present, anopy cover and a derstory. Wetlands	Cor Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy	gory	ginal			NOTES>>		
Riparian	Option Tree stratum (dbh > with > 60% tree canon-maintained uncommaintained u	imal > 3 inches) present, anopy cover and a derstory. Wetlands	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory.	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation).	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover.	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh >3 inches) present, with <30% tree canopy cover with maintained understory.	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable condition.	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions.	NOTES>>		
Riparian	Option Tree stratum (dbh > with > 60% tree canon-maintained uncommaintained u	imal 3 inches) present, anopy cover and a derstory. Wetlands e riparian areas.	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained	Low Suboptimal Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh >3 inches) present, with <30% tree canopy cover with maintained	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable	NOTES>>		
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Riparian Buffers Condition Scores Delineate ripz escriptors. Determine squelow. Enter the % F	Tree stratum (dbh > with > 60% tree cc non-maintained und located within the	imal 3 inches) present, anopy cover and a derstory. Wetlands e riparian areas. 5 each stream bank ach by measurin.	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 into Condition C	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 Lategories and Congth and width.	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh >3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5	NOTES>>		
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Riparian Buffers Condition Scores Delineate ripz escriptors. Determine squelow.	Tree stratum (dbh > with > 60% tree canon-maintained unc located within the located withi	imal 3 inches) present, anopy cover and a derstory. Wetlands e riparian areas. 5 each stream bank ach by measurin Score for each ri	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 into Condition C g or estimating ler parian category in 20% 0.6	Low Low Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 Lategories and Coungth and width.	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh >3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5	NOTES>>		
Riparian Buffers Condition Scores Delineate ripaescriptors. Determine squelow. Enter the % F	Tree stratum (dbh > with > 60% tree ca non-maintained unc located within the located with	imal 3 inches) present, anopy cover and a derstory. Wetlands e riparian areas. 5 each stream bank ach by measurin. Score for each ri	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 into Condition C g or estimating ler parian category in	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 Tategories and Coungth and width. Counth blocks below 30%	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh >3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5	NOTES>>	Scores*0.01)/2 0.82 0.82	C1 0.82
Condition Scores 1. Delineate ripa descriptors. 2. Determine squelow. 3. Enter the % F Right Bank Left Bank 3. INSTREAR	Tree stratum (dbh > with > 60% tree canon-maintained unc located within the located withi	imal 3 inches) present, anopy cover and a derstory. Wetlands e riparian areas. 5 each stream bank ach by measurin 50% 1.1 50% 1.1 aried substrate si	Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 Into Condition C g or estimating ler	Inditional Cate optimal Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 Lategories and Coungth and width. Coungth and coungth and width. Coungth and coungth a	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85 Indition Scores us calculators are production of the product	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh > 3 inches) present, with < 30% tree canopy cover with maintained understory: Low 0.75 ing the ovided for you	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F Blocks 6	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5 the sums Riparian equal 100 100%	NOTES>> Cl= (Sum % RA*: Rt Bank Cl >	0.82	
Condition Scores Delineate ripalescriptors. Delta Bank Right Bank Left Bank Left Bank INSTREAM Left Banks;	Tree stratum (dbh > with > 60% tree ca non-maintained und located within the located with	imal 3 inches) present, anopy cover and a derstory. Wetlands e riparian areas. 5 each stream bank ach by measurin 50% 1.1 50% 1.1 aried substrate si	Riphrian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 Into Condition C g or estimating let parian category in 20% 0.6 20% 0.6 zes, water velocit ixes, stable features.	Inditional Cate optimal Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 Lategories and Coungth and width. Coungth and coungth and width. Coungth and coungth a	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <a>3 inches) present, with <a>3 inches) present, or a tree canopy cover. High 0.85 Indition Scores us calculators are production of the control of th	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh > 3 inches) present, with < 30% tree canopy cover with maintained understory: Low 0.75 ing the evided for you	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F Blocks 6	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5 the sums Riparian equal 100 100%	NOTES>> Ci= (Sum % RA *: Rt Bank Ci > Lt Bank Ci >	0.82	
Condition Scores 1. Delineate ripadescriptors. 2. Determine squelow. 3. Enter the % F. Right Bank Left Bank 3. INSTREAR	Tree stratum (dbh > with > 60% tree ca non-maintained und located within the located with	imal 3 inches) present, anopy cover and a derstory. Wetlands e riparian areas. 5 5 cach stream bank ach by measuring the stream	Right Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 Into Condition C g or estimating let parian category in 20% 0.6 20% 0.6 Stable habitat ele present in 30-50% are adequate fo areas with 100 contains and 100 co	Inditional Cate potimal Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 Lategories and Coungth and width. Cou	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85 Indition Scores us calculators are production of the present in 10-30 are adequate for a seadequate for the present in 10-30 are adequate for the present in 10-30 are adeq	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh >3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75 ing the vided for you	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F Blocks 6	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5 the sums Riparian equal 100 100% 100%	CI= (Sum % RA *: Rt Bank CI > Lt Bank CI > NOTES>>	0.82	

									1
	St	ream In	npact A	ssessm	ent Fo	rm Pag	e 2		
Project #	Applicant		Locality	Cowardin Class.	HUC	Date	Data Point	SAR length	Impact Factor
								500	1
	L ALTERATION: Stream cross spoil piles, constrictions, livestock	ings, riprap, conci	rete, gabions, or o	concrete blocks, s	traightening of ch	annel, channeliz	ation,	NOTES>>	
			Condition	al Category					
	Negligible	Mir	nor		erate	Se	evere		
Channel Alteration	or hardening absent. Stream has an	Less than 20% of the stream reach is disrupted by any of the channel alterations listed in the parameter guidelines.	20-40% of the stream reach is disrupted by any of the channel alterations listed in the parameter guidelines.	is disrupted by any of the channel	is disrupted by any of the channel	Greater than 80% by any of the char in the parameter 80% of banks s	of reach is disrupted nnel alterations listed guidelines AND/OR hored with gabion, or cement.		
SCORE	1.5	1.3	1.1	0.9	0.7	(0.5		
	REACH C	ONDITION II	NDEX and S	TREAM CO	NDITION UN	ITS FOR TH	IIS REACH		
NOTE: The CIs and R	RCI should be rounded to 2 decimal places.	The CR should be rour	nded to a whole numb	oer.	•		THE REACH (CONDITION IN	DEX (RCI) >>
							RC	= (Sum of all C	l's)/5

COMPENSATION REQUIREMENT (CR) >> 0

CR = RCI X LF X IF

INSERT PHOTOS:

Upstream



		Stre	Uni	fied Stream N	lethodology 1	for use in Virg	-	m 1)			
Project #	I	Project Name		Locality	Cowardin Class.	HUC	Date	SAR#	Impact/SAR length	Impact Factor	
5337	I	-64 Peninsul	a	New Kent	R2UB2	02080206	11/3/11		47		
Name	e(s) of Evalua	tor(s)	Stream Nam	e and Informa	ation						
	Aitkenhead / Nies		WUS 113M								
. Channel C	Condition: Asse	ess the cross-sec	ction of the stream		ondition (erosion, Conditional Catego						
	Opti	imal	Subo	ptimal	Mar	ginal	Po	oor	Se	vere	
	Very little incision o	or active erosion: 80	erosion or unproted	ew areas of active cted banks. Majority	Poor. Banks more	less than Severe or stable than Severe ower bank slopes.	Vertically/laterally	ned/incised. unstable. Likely to jority of both banks		nstability. Severe	
Channel Condition	100% stable bar surface protection prominent (80-1) Stable point bars/be present. Access floodplain or fully bankfull benches. and transverse be sediment depositio 10% of	nks. Vegetative n or natural rock, 00%). AND/OR ankfull benches are to their original v developed wide Mid-channel bars, ars few. Transient on covers less than	Vegetative protect prominent (60 Depositional feat stability. The bar channels are we likely has access t or newly develope portions of the is sediment covers 11.	table (60-80%), titon or natural rock -80%) AND/OR tures contribute to nkfull and low flow Il defined. Stream o bankfull benches, and floodplains along reach. Transient 0-40% of the stream tom.	Erosion may be pr both banks. Veget 40-60% of banks. bevertical or unde 60% of strean sediment. Set temporary/tran instability. Depositi stability, may be AND/OR V-shap	esent on 40-60% of tative protection on Streambanks may ercut. AND/OR 40- n is covered by diment may be sient, contribute on that contribute to forming/present.	are near vertical. 60-80% of bar protection press banks, and is insi erosion. AND/O stream is cover Sediment is tem nature, and contri AND/OR V-shap vegetative protect	Erosion present on ks. Vegetative ent on 20-40% of ufficient to prevent R 60-80% of the ed by sediment. porary/transient in buting to instability, ed channels have ion is present on >	rooting depth, r vertical/under protection present banks, is not pr Obvious bank s Erosion/raw ba AND/OR Aggradii than 80% of strear deposition, contril Multiple thread	ned below average majority of banks cut. Vegetative on less than 20% of eventing erosion. sloughing present. Inks on 80-100%. ng channel. Greater m bed is covered by buting to instability. I channels and/or	
					banks and depositi	ion on > 40% of the ional features which	deposition	and stable sediment is absent.	subterra	nean flow.	
Score	3	3	2	2.4		2	1	.6		1	1.6
2. RIPARIAN	N BUFFERS: A		Con	nditional Cate	gory Mar	ginal Low Marginal: Non-maintained,	Po High Poor:	n may be accepta	NOTES>>		
2. RIPARIAN Riparian Buffers	Opti Tree stratum (dbh > with > 60% tree ca	imal > 3 inches) present, anopy cover and a derstory. Wetlands	Cor Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy	gory	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh >3 inches) present, with <30% tree canopy cover with maintained	Pe		NOTES>>		
Riparian	Option Tree stratum (dbh > with > 60% tree canon-maintained uncompaintained u	imal > 3 inches) present, anopy cover and a derstory. Wetlands	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained	Low Suboptimal Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh >3 inches) present, with 30% inches) present, with <a href<="" td=""><td>High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable</td><td>Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable</td><td>NOTES>></td><td></td><td></td>	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable	NOTES>>		
Riparian	Option Tree stratum (dbh > with > 60% tree canon-maintained uncompaintained u	imal 3 inches) present, anopy cover and a derstory. Wetlands e riparian areas.	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory.	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation).	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover.	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh >3 inches) present, with <30% tree canopy cover with maintained understory.	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable condition.	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions.	NOTES>>		
Riparian Buffers Condition Scores Delineate ripalescriptors.	Tree stratum (dbh > with > 60% tree ca non-maintained unc located within the	imal 3 inches) present, anopy cover and a derstory. Wetlands e riparian areas. 5 each stream bankach by measuring	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 into Condition C	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Coungth and width. Coungth	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh > 3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % I	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5	NOTES>>		
Riparian Buffers Condition Scores Delineate ripe escriptors. Determine sq elow.	Tree stratum (dbh > with > 60% tree ca non-maintained unc located within the located with	imal 3 inches) present, anopy cover and a derstory. Wetlands e riparian areas. 5 each stream bank ach by measurin.	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 k into Condition C g or estimating ler parian category in	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Co	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh > 3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % I	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5	NOTES>>		
Riparian Buffers Condition Scores Delineate ripalescriptors. Determine squelow.	Tree stratum (dbh > with > 60% tree ca non-maintained unc located within the	imal 3 inches) present, anopy cover and a derstory. Wetlands e riparian areas. 5 each stream bankach by measuring	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 into Condition C	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Coungth and width. Coungth	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh > 3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % I	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5	NOTES>>		
Riparian Buffers Condition Scores Delineate ripz escriptors. Determine squelow.	Tree stratum (dbh > with > 60% tree ca non-maintained unc located within the located with	imal 3 inches) present, anopy cover and a derstory. Wetlands e riparian areas. 5 each stream bank ach by measurin Score for each ri	Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 Into Condition C g or estimating let	Low Low Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Coungth and width. Counter To% 0.5	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh > 3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % I	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5	NOTES>>		
Riparian Buffers Condition Scores Delineate ripaescriptors. Determine squelow. Enter the % F	Tree stratum (dbh > with > 60% tree canon-maintained unc located within the located withi	imal 3 inches) present, anopy cover and a derstory. Wetlands e riparian areas. 5 each stream bank ach by measurin Score for each ri 10% 1.2	Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 Into Condition C g or estimating ler	Inditional Cate ptimal Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Congth and width. Congth and width. Content of the blocks below 0.5	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh > 3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % I	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5	NOTES>> Cl= (Sum % RA*: Rt Bank Cl >	0.59	CI
Condition Scores 1. Delineate ripadescriptors. 2. Determine squelow. 3. Enter the % F. Right Bank Left Bank 3. INSTREAR	Tree stratum (dbh > with > 60% tree ca non-maintained unc located within the located with	imal 3 inches) present, anopy cover and a derstory. Wetlands e riparian areas. 5 each stream bank ach by measurin 10% 1.2 80% 1.2 aried substrate si	Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 Into Condition C g or estimating ler	Inditional Cate ptimal Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Coungth and width. Coung	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85 Indition Scores us calculators are production of the product	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh > 3 inches) present, with < 30% tree canopy cover with maintained understory: Low 0.75 ing the evided for you	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F Blocks 6	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5 the sums Riparian equal 100 100%	NOTES>>		
Condition Scores Delineate ripalescriptors. Delta Bank Right Bank Left Bank Left Bank INSTREAM Left Banks;	Tree stratum (dbh > with > 60% tree ca non-maintained unc located within the located with	imal 3 inches) present, anopy cover and a derstory. Wetlands e riparian areas. 5.5 each stream bank ach by measuring the stream ba	Riphrian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 Into Condition C g or estimating let parian category in 20% 0.6 10% 0.6 zes, water velocit ixes, stable features.	Inditional Cate ptimal Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Coungth and width. Coungth	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <a>3 inches) present, with <a>3 inches) present, or a tree canopy cover. High 0.85 Indition Scores us calculators are production of the control of th	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh >3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75 ing the vided for you	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F Blocks 6	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5 the sums Riparian equal 100 100% 100%	NOTES>> Ci= (Sum % RA *: Rt Bank Ci > Lt Bank Ci >	0.59	
Condition Scores 1. Delineate ripadescriptors. 2. Determine squelow. 3. Enter the % F. Right Bank Left Bank 3. INSTREAR	Tree stratum (dbh > with > 60% tree ca non-maintained unc located within the located with	imal 3 inches) present, anopy cover and a derstory. Wetlands e riparian areas. 5 5 cach stream bank ach by measuring the stream	Right Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 Into Condition C g or estimating let parian category in 20% 0.6 10% 0.6 Stable habitat ele present in 30-50% are adequate fo areas with 10% are adequate fo are designed.	Inditional Cate ptimal Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Coungth and width. Coung	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85 Indition Scores us calculators are production of the present in 10-30 are adequate for a seadequate for the present in 10-30 are adequate for the present in 10-30 are adeq	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh > 3 inches) present, with < 30% tree canopy cover with maintained understory: Low 0.75 ing the evided for you	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % f Blocks 6	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5 the sums Riparian equal 100 100%	CI= (Sum % RA *: Rt Bank CI > Lt Bank CI > NOTES>>	0.59	CI 0.83

	St	ream In	npact A	ssessm	ent Fo	rm Pag	e 2		
Project #	Applicant		Locality	Cowardin Class.	HUC	Date	Data Point	SAR length	Impact Factor
								500	1
	L ALTERATION: Stream cross poil piles, constrictions, livestock	sings, riprap, conc		concrete blocks, s	traightening of ch	annel, channeliz	ation,	NOTES>>	
	Negligible	Mi	nor	Mod	erate	Se	vere		
Channel Alteration	or hardening absent. Stream has an	Less than 20% of the stream reach is disrupted by any of the channel alterations listed in the parameter guidelines.	20-40% of the stream reach is disrupted by any of the channel alterations listed in the parameter guidelines.	is disrupted by any of the channel	of the channel	Greater than 80% by any of the char in the parameter 80% of banks s	of reach is disrupted nnel alterations listed guidelines AND/OR hored with gabion, or cement.		
SCORE	1.5	1.3	1.1	0.9	0.7	(0.5		
	REACH C	ONDITION	NDEX and S	TREAM CO	NDITION UN	ITS FOR TH	IIS REACH		
NOTE: The Cls and F	RCI should be rounded to 2 decimal places.	The CR should be rou	nded to a whole numb	er.			THE REACH	CONDITION IN	DEX (RCI) >>

CR = RCI X LF X IF



		Stre	Unit	fied Stream N	lethodology 1	Form	ginia	m 1)			
Project #		Project Name		Locality	cowardin Class.	HUC	Date Date	SAR#	Impact/SAR length	Impact Factor	
5337	ŀ	-64 Peninsul	a	New Kent	R2UB2	02080206	11/3/11		109		
Name	e(s) of Evalua	tor(s)	Stream Nam	e and Informa	ation						
	Aitkenhead / Nies		WUS 114M								
. Channel C	Condition: Asse	ess the cross-sec	tion of the stream		ondition (erosion, Conditional Catego						
	Opti	imal	Subo	ptimal	Mar	ginal	Po	oor	Se	vere	
	Very little incision o	r active erosion: 80	erosion or unproted	ew areas of active cted banks. Majority	Poor. Banks more	less than Severe or stable than Severe	Vertically/laterally	ned/incised. unstable. Likely to		nstability. Severe	
Channel Condition	100% stable bar surface protection prominent (80-11 Stable point bars/bar present. Access floodplain or fully bankfull benches. and transverse bar sediment deposition	nks. Vegetative n or natural rock, 00%). AND/OR ankfull benches are to their original or developed wide Mid-channel bars, ars few. Transient in covers less than	Vegetative protect prominent (60- Depositional feat stability. The bar channels are well likely has access to rnewly develope portions of the rediment covers 10	table (60-80%). tion or natural rock -80%) AND/OR tures contribute to nkfull and low flow II defined. Stream o bankfull benches, d floodplains along reach. Transient 0-40% of the stream tom.	Erosion may be pr both banks. Veget 40-60% of banks. bevertical or unde 60% of stream sediment. Se- temporary/tran instability. Depositi stability, may be	ower bank slopes. resent on 40-60% of tative protection on Streambanks may ercut. AND/OR 40- n is covered by diment may be isient, contribute to e forming/present. sed channels have	are near vertical. 60-80% of bar protection prese banks, and is inst erosion. AND/O stream is cover Sediment is temp nature, and contri AND/OR V-shap	jority of both banks Erosion present on iks. Vegetative ent on 20-40% of afficient to prevent R 60-80% of the red by sediment. corary/transient in buting to instability. ed channels have ion is present on >	rooting depth, r vertical/underr protection present banks, is not pr Obvious bank s Erosion/raw ban AND/OR Aggradir than 80% of strear deposition, contril	ed below average majority of banks cut. Vegetative on less than 20% of eventing erosion. loughing present. nks on 80-100%. ng channel. Greatern bed is covered by buting to instability.	
			500	tom.	vegetative protect	ion on > 40% of the ional features which	40% of the banks a	and stable sediment is absent.		channels and/or nean flow.	CI
Score	3	3	2	.4		2	1	.6		1	2.4
	N BUFFERS: A		Con Subo	ditional Cate	gory	ginal Low Marginal:	Po High Poor:	n may be accepta	NOTES>>		
	Opti	imal - 3 inches) present, anopy cover and a derstory. Wetlands	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree	ditional Cate	gory	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh >3 inches) present, with https://doi.org/10.100/bit/10.76 canopy cover with	Po				
. RIPARIAN	Option Tree stratum (dbh > with > 60% tree canon-maintained unc	imal - 3 inches) present, anopy cover and a derstory. Wetlands	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory.	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation).	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover.	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh >3 inches) present, with <30% tree canopy cover with maintained understory.	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable condition.	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions.			
Riparian Buffers	Option Tree stratum (dbh > with > 60% tree canon-maintained unc	imal 3 inches) present, anopy cover and a derstory. Wetlands e riparian areas.	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh > 3 inches) present, with <30% tree canopy cover with maintained	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable			
Riparian Buffers Condition Scores Delineate ripa escriptors. Determine squelow.	Tree stratum (dbh > with > 60% tree ca non-maintained unc located within the	imal 3 inches) present, anopy cover and a derstory. Wetlands e riparian areas.	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 into Condition C	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Coungth and width. Coungth	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh > 3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5			
Riparian Buffers Condition Scores Delineate ripaescriptors. Determine squelow. Enter the % F	Tree stratum (dbh > with > 60% tree ca non-maintained unc located within the located with	imal 3 inches) present, anopy cover and a derstory. Wetlands e riparian areas. 5 ach stream bank ach by measuring.	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 into Condition C	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Coungth and width. Coungth	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh > 3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5			
Riparian Buffers Condition Scores Delineate ripa escriptors. Determine squelow.	Tree stratum (dbh > with > 60% tree ca non-maintained unc located within the	imal 3 inches) present, anopy cover and a derstory. Wetlands e riparian areas.	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 into Condition C	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Coungth and width. Coungth	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh > 3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5	NOTES>>		
Riparian Buffers Condition Scores Delineate rips escriptors. Determine squelow. Enter the % F	Tree stratum (dbh > with > 60% tree canon-maintained unc located within the located withi	imal 3 inches) present, anopy cover and a derstory. Wetlands e riparian areas. 5 each stream bank ach by measuring 100% 1.5	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 into Condition C	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Coungth and width. Coungth	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh > 3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5 the sums Riparian equal 100	NOTES>>		
Riparian Buffers Condition Scores Delineate ripaescriptors. Determine squelow. Enter the % F	Tree stratum (dbh > with > 60% tree ca non-maintained unc located within the located with	imal 3 inches) present, anopy cover and a derstory. Wetlands e riparian areas. 5 ach stream bank ach by measuring Score for each riparian areas.	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 into Condition C	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Coungth and width. Coungth	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh > 3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5	NOTES>>	Scores*0.01)/2 1.50 1.50	CI 1.50
Riparian Buffers Condition Scores Delineate ripalescriptors. Determine squelow. Enter the % F. Right Bank Left Bank B. INSTREAR	Tree stratum (dbh > with > 60% tree canon-maintained unc located within the located withi	imal 3 inches) present, anopy cover and a derstory. Wetlands e riparian areas. 5 ach stream bank ach by measuring 100% 1.5 100% 1.5 aried substrate si	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 k into Condition C g or estimating ler parian category in	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Coungth and width. Coungth and width. Coungth and width. Coungth and depths; wodes.	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85 Indition Scores us calculators are production of the produc	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh >3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75 ing the povided for you	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F Blocks 6	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5 the sums Riparian equal 100 100%	NOTES>> CI= (Sum % RA** Rt Bank CI >	1.50	
Riparian Buffers Condition Scores Delineate ripalescriptors. Determine squescriptors. Enter the % F. Right Bank Left Bank INSTREAM Indercut banks;	Tree stratum (dbh > with > 60% tree ca non-maintained unc located within the located with	imal 3 inches) present, anopy cover and a derstory. Wetlands e riparian areas. 5 each stream bank ach by measuring 100% 1.5 100% 1.5 aried substrate significations in the poole complete.	Riph Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 Into Condition C g or estimating ler parian category in	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Coungth and width. Coungth and width. Coungth and width. Coungth and depths; wores. Conditiona	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <a>3 inches) present, with <a>3 inches) present, or a tree canopy cover. High 0.85 Indition Scores us calculators are production of the control of th	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh >3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75 ing the povided for you	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F Blocks 6	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5 the sums Riparian equal 100 100%	NOTES>> CI= (Sum % RA * : Rt Bank CI > Lt Bank CI >	1.50	
Riparian Buffers Condition Scores Delineate ripalescriptors. Determine squelow. Enter the % F. Right Bank Left Bank B. INSTREAR	Tree stratum (dbh > with > 60% tree ca non-maintained unc located within the located with	imal 3 inches) present, anopy cover and a derstory. Wetlands e riparian areas. 5 ach stream bank ach by measuring 100% 1.5 100% 1.5 aried substrate si ffle poole completimal	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 Into Condition C g or estimating let parian category in Zes, water velocity exes, stable featur Subo Stable habitat ele present in 30-50% are adequate fo	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Coungth and width. Coungth and width. Coungth and width. Coungth and depths; wodes.	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85 Indition Scores us calculators are production of the present in 10-30 are adequate for a seadequate for the present in 10-30 are adequate for the present in 10-30 are adeq	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh >3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75 ing the povided for you	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F Blocks 6	Low Poor: Impervious surfaces, mine poil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5 the sums Riparian equal 100 100% 100%	NOTES>> CI= (Sum % RA * : Rt Bank CI > Lt Bank CI >	1.50	CI 1.50

	St	ream In	npact A	ssessm	nent Fo	rm Pag	e 2		
Project #	Applicant		Locality	Cowardin Class.	HUC	Date	Data Point	SAR length	Impact Factor
								500	1
	L ALTERATION: Stream cross spoil piles, constrictions, livestock	ings, riprap, conc		concrete blocks, s	traightening of ch	annel, channeliza	ation,	NOTES>>	
	Negligible	Mi	nor		erate	Se	vere		
Channel Alteration	Channelization, dredging, alteration, or hardening absent. Stream has an unaltered pattern or has naturalized.	Less than 20% of the stream reach is disrupted by any of the channel alterations listed in the parameter guidelines.	20-40% of the stream reach is disrupted by any of the channel alterations listed in the parameter guidelines.	is disrupted by any of the channel	60 - 80% of reach is disrupted by any of the channel alterations listed in the parameter guidelines. If stream has been channelized, normal stable stream meander pattern has not	Greater than 80% by any of the chan in the parameter 80% of banks sh	of reach is disrupted nel alterations listed guidelines AND/OR nored with gabion, or cement.	ı	
SCORE	1.5	1.3	1.1	0.9	0.7	C).5		
	REACH C	ONDITION I	NDEX and S	TREAM CO	NDITION UN	ITS FOR TH	IIS REACH		
VOTE: The Cls and I	RCI should be rounded to 2 decimal places.	The CR should be rou	nded to a whole numb	er.			THE REACH	CONDITION IN	DEX (RCI) >>

CR = RCI X LF X IF

INSERT PHOTOS:



		Stre	Unit	fied Stream N	lethodology 1	for use in Vir	-	m 1)			
Project #		Project Name		Locality	nels classified a Cowardin Class.	HUC	perennial Date	SAR#	Impact/SAR length	Impact Factor	
5337	ı	-64 Peninsul	a	New Kent	R4UB2	02080206	11/3/11		333		
Nam	e(s) of Evalua	tor(s)	Stream Nam	e and Informa	ation						
	Aitkenhead / Nies		WUS 115M								
. Channel C	Condition: Asse	ess the cross-sec	tion of the stream		ondition (erosion, Conditional Catego						
	Opt	imal	Subo	ptimal	Mar	ginal	Po	oor	Se	vere	
Channel	Very little incision o	or active erosion; 80	erosion or unproted	ew areas of active cted banks. Majority table (60-80%).	Poor. Banks more	less than Severe or e stable than Severe ower bank slopes.		ed/incised. unstable. Likely to ority of both banks	incision, flow co	nstability. Severe	
Condition	100% stable bar surface protection prominent (80-1) Stable point bars/bar present. Access floodplain or fully bankfull benches. and transverse bar sediment deposition 10% of	00%). AND/OR ankfull benches are s to their original or developed wide Mid-channel bars, ars few. Transient on covers less than	Vegetative protect prominent (60- Depositional feat stability. The bar channels are well likely has access to or newly develope portions of the resediment covers 10	tion or natural rock -80%) AND/OR tures contribute to nkfull and low flow II defined. Stream o bankfull benches, defloodplains along reach. Transient 0-40% of the stream tom.	both banks. Veget 40-60% of banks. bevertical or unde 60% of strean sediment. Set temporary/tran instability. Depositi stability, may be AND/OR V-shap	resent on 40-60% of tative protection on Streambanks may ercut. AND/OR 40- n is covered by dienent may be sisient, contribute tion that contribute to forming/present. ed channels have ion on > 40% of the	60-80% of bar protection press banks, and is insu- erosion. AND/O stream is cover Sediment is temp nature, and contri AND/OR V-shap vegetative protect	ed channels have	rooting depth, i vertical/under protection present banks, is not pr Obvious bank s Erosion/raw ba AND/OR Aggradi than 80% of streat deposition, contri Multiple thread	ned below average majority of banks cut. Vegetative on less than 20% of eventling erosion. Gloughing present. Inks on 80-100%. In gchannel. Greater med is covered by buting to instability. Ichannels and/or nean flow.	
Sooro	3	2	2	2.4		ional features which	deposition	is absent.		1	3.0
Score	•	•		4			'	.0		<u>'</u>	3.0
. RIPARIAI	N BUFFERS: /		Con Subo	an areas along the nditional Cate ptimal Low Suboptimal	gory	ginal Low Marginal: Non-maintained,	Po High Poor:	n may be accepta	NOTES>>		
RIPARIAN Riparian Buffers	Opti	imal > 3 inches) present, anopy cover and a derstory. Wetlands	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy	gory	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh > 3 inches) present, with <30% tree canopy cover with maintained	Po		,		
Riparian	Option Tree stratum (dbh > 60% tree cr	imal > 3 inches) present, anopy cover and a derstory. Wetlands	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh > 3 inches) present, with <30% tree canopy cover with	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable	,		
Riparian	Tree stratum (dbh a with a 60% tree cc non-maintained und located within th	imal > 3 inches) present, anopy cover and a derstory. Wetlands	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory.	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation).	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover.	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh >3 inches) present, with <30% tree canopy cover with maintained understory.	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, recently seeded and stabilized, or other comparable condition.	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions.	,		
Riparian Buffers Condition Scores Delineate ripelescriptors. Determine so	Tree stratum (dbh swith > 60% tree canon-maintained und located within the	imal 3 inches) present, anopy cover and a derstory. Wetlands e riparian areas. 5 each stream banl ach by measurin	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 into Condition C	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Coungth and width. Coungth	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh > 3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5	,		
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Riparian Buffers Condition Scores Delineate ripascriptors. Determine square. Enter the % F	Tree stratum (dbh > with > 60% tree conon-maintained und located within the located withi	imal 3 inches) present, anopy cover and a derstory. Wetlands e riparian areas. 5 ach stream bank ach by measurin. Score for each ri	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 Into Condition C g or estimating ler parian category in	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Co ongth and width. Co on the blocks below	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh > 3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5	NOTES>>	Scores*0.01)/2 0.58 1.14	CI 0.86
Condition Scores Delineate ripe escriptors. Determine so elow. Enter the % F. Right Bank Left Bank	Tree stratum (dbh > with > 60% tree conon-maintained und located within the located withi	imal 3 inches) present, anopy cover and a derstory. Wetlands e riparian areas. 5 each stream bank ach by measuring the stream ban	Com Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 into Condition C g or estimating ler parian category in 20% 0.6 10% 0.6	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Coungth and width. Coungth and depths; woo res.	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85 addition Scores us calculators are production of the produc	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh > 3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75 ing the povided for you	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F Blocks 6	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5 the sums tiparian qual 100 100%	NOTES>> CI= (Sum % RA * Rt Bank CI >	0.58	
Condition Scores Delineate ripe escriptors. Determine so elow. Enter the % F. Right Bank Left Bank	Tree stratum (dbh with > 60% tree canon-maintained und located within the located within	imal 3 inches) present, anopy cover and a derstory. Wetlands e riparian areas. 5 each stream bank ach by measuring the stream ban	Com Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 sinto Condition C g or estimating let parian category in 20% 0.6 10% 0.6 zes, water velocity xes, stable featur	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Coungth and width. Coungth and depths; woo res.	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85 Indition Scores us calculators are production of the product	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh > 3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75 ing the povided for you	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F Blocks e	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5 the sums tiparian qual 100 100%	NOTES>> CI= (Sum % RA * Rt Bank CI > Lt Bank CI >	0.58	
Condition Scores Delineate ripe descriptors. Deltheate ripe descriptors. Right Bank Left Bank Left Bank INSTREAT	Tree stratum (dbh > with > 60% tree cc on non-maintained und located within the located w	imal 3 inches) present, anopy cover and a derstory. Wetlands e riparian areas. 5.5 each stream bank ach by measuring the stream bank and by measuring the stream bank and the stream bank ach by measuring the stream bank ach by mea	Com Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 into Condition C g or estimating ler parian category in 20% 0.6 10% 0.6 Stable habitat ele present in 30-50% are adequate fo	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Congth and width. Congth and depths; wores. Conditions	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85 Indition Scores us calculators are production of the production of the production of the production of the present in 10-30 are adequate for a season of the present in 10-30 are	Ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh >3 inches) present, with <a>30 % tree canopy cover with maintained understory. Low 0.75 ing the price of the product of the present of t	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F Blocks 6	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5 the sums Riparian qual 100 100% 100% ess; shade;	NOTES>> CI= (Sum % RA * Rt Bank CI > Lt Bank CI >	0.58	

	St	ream In	npact A	ssessm	ent Fo	rm Pag	e 2		
Project #	Applicant		Locality	Cowardin Class.	HUC	Date	Data Point	SAR length	Impact Factor
								500	1
	L ALTERATION: Stream cross spoil piles, constrictions, livestock	sings, riprap, conci		concrete blocks, s	traightening of ch	annel, channeliza	ation,	NOTES>>	
	Negligible	Mii	nor		erate		vere		
Channel Alteration	Channelization, dredging, alteration, or hardening absent. Stream has an unaltered pattern or has naturalized.	Less than 20% of the stream reach is disrupted by any of the channel alterations listed in the parameter guidelines.	20-40% of the stream reach is disrupted by any of the channel	is disrupted by any of the channel	of the channel	Greater than 80% by any of the chan in the parameter 80% of banks sh	of reach is disrupted nnel alterations listed guidelines AND/OR hored with gabion, or cement.		
SCORE	1.5	1.3	1.1	0.9	0.7	C	0.5		
	REACH C	ONDITION II	NDEX and S	TREAM CO	NDITION UN	ITS FOR TH	IIS REACH		
NOTE: The Cls and F	RCI should be rounded to 2 decimal places.	The CR should be rour	nded to a whole numb	er.			THE REACH (CONDITION IN	DEX (RCI) >>

CR = RCI X LF X IF

INSERT PHOTOS:



		Stre		fied Stream N	lethodology f	or use in Virg	ginia	m 1)			
Project #	Р	Project Name		Locality	nels classified a Cowardin Class.	s intermittent or	perennial Date	SAR#	Impact/SAR length	Impact Factor	
5337	I-6	64 Peninsula	a	New Kent	R2UB2	02080206	11/3/11		111	7 4444	
Name	e(s) of Evaluate	or(s)	Stream Nam	e and Informa	ation						
	Aitkenhead / Nies		WUS 116M								
. Channel C	Condition: Asses	ss the cross-sec	tion of the stream								
	Optir	mal	Subo	ptimal	Conditional Catego Mar	_{ry} ginal	Po	oor	Sev	rere	
	Wall	ملا		ew areas of active		less than Severe or stable than Severe		ed/incised. unstable. Likely to	vertical/lateral in		
Channel Condition	Very little incision or . 100% stable bank surface protection prominent (80-100 Stable point bars/bar present. Access t floodplain or fully c bankfull benches. M and transverse bar sediment deposition 10% of b0 100% of b0 100	ks. Vegetative or natural rock, 0%). AND/OR nkfull benches are to their original developed wide Mid-channel bars, s few. Transient	of banks are si Vegetative protec prominent (60- Depositional feat stability. The bar channels are wel likely has access to or newly develope portions of the r	teet barks, majorny table (60-80%), tion or natural rock-80%) AND/OR tures contribute to nkfull and low flow II defined. Stream o bankfull benches, ad floodplains along reach. Transient 0-40% of the stream	or Poor due to lo Erosion may be pri both banks. Veget 40-60% of banks. bevertical or unde 60% of stream sediment. Sec temporary/trans instability. Deposition stability, may be	ower bank slopes. esent on 40-60% of ative protection on Streambanks may ercut. AND/OR 40- n is covered by diment may be sient, contribute on that contribute to forming/present.	widen further. Ma are near vertical. 60-80% of bar protection prese banks, and is inst erosion. AND/O stream is cover Sediment is temp nature, and contri AND/OR V-shap	iority of both banks Erosion present on ks. Vegetative int on 20-40% of ifficient to prevent R 60-80% of the ed by sediment. oorary/transient in buting to instability, ed channels have	banks, is not pre Obvious bank sle Erosion/raw ban	ed below average najority of banks ut. Vegetative on less than 20% of eventing erosion. Doughing present. Iks on 80-100%. g channel. Greater bed is covered by	
	10% 01 bt	ottom.	boti	tom.		ed channels have ion on > 40% of the onal features which		ion is present on > and stable sediment i is absent.	Multiple thread subterran	channels and/or	CI
Score	3		2	2.4		2	-	.6		1	3.0
NOTES>>											
. RIPARIAN	N BUFFERS: As		Con	nditional Cate	gory			n may be accepta	NOTES>>		
Riparian Buffers	Optin Tree stratum (dbh > : with > 60% tree can non-maintained unde located within the	a inches) present, hopy cover and a erstory. Wetlands	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy	gory	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh > 3 inches) present, with with with yow maintained understory. 					
Riparian Buffers	Optin Tree stratum (dbh > with > 60% tree can non-maintained unde	a inches) present, hopy cover and a erstory. Wetlands	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, had production, ponds, open water. If present, tree stratum (dbh > 3 inches) present, with <30% tree canopy cover with maintained	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable			
Riparian	Optin Tree stratum (dbh > with > 60% tree can non-maintained unde	mal 3 inches) present, nopy cover and a erstory. Wetlands riparian areas.	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory.	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation).	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover.	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh >3 inches) present, with <a>30 % tree canopy cover with maintained understory.	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, recently seeded and stabilized, or other comparable condition.	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions.			
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Riparian Buffers Condition Scores Delineate ripa escriptors. Determine sq	Tree stratum (dbh > : with > 60% tree can non-maintained unde located within the 1.5 arian areas along ea quare footage for ea	mal 3 inches) present, nopy cover and a errstory. Wetlands riparian areas.	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 into Condition C	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Coungth and width. Coungth	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh > 3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5			
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Riparian Buffers Condition Scores Delineate ripe escriptors. Determine squelow. Enter the % F	Tree stratum (dbh > : with > 60% tree can non-maintained unde located within the 1.5 arian areas along ea quare footage for ea Riparian Area and S % Riparian Area> Score >	mal 3 inches) present, nopy cover and a erstory. Wetlands riparian areas. 5 arch stream bank och by measuring 100% 1.2 100%	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 into Condition C	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Coungth and width. Coungth	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh > 3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5	NOTES>> CI= (Sum % RA * S Rt Bank CI >	1.20	CI
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Stream Impact Assessment Form Page 2									
Project #	Applicant		Locality	Cowardin Class.	HUC	Date	Data Point	SAR length	Impact Factor
								500	1
	ALTERATION: Stream cross poil piles, constrictions, livestock	ings, riprap, conc		concrete blocks, s	traightening of ch	annel, channeliza	ation,	NOTES>>	
	Negligible	Mi	nor	Mod	erate		vere		
Channel Alteration	Channelization, dredging, alteration, or hardening absent. Stream has an unaltered pattern or has naturalized.	Less than 20% of the stream reach is disrupted by any of the channel alterations listed in the parameter guidelines.	20-40% of the stream reach is disrupted by any of the channel	is disrupted by any of the channel	60 - 80% of reach is disrupted by any of the channel alterations listed in the parameter guidelines. If stream has been channelized, normal stable stream meander pattern has not	Greater than 80% by any of the chan in the parameter 80% of banks sh	of reach is disrupted nel alterations listed guidelines AND/OR nored with gabion, or cement.		
SCORE	1.5	1.3	1.1	0.9	0.7	0).5		
REACH CONDITION INDEX and STREAM CONDITION UNITS FOR THIS REACH									
NOTE: The Cls and F	RCI should be rounded to 2 decimal places.	The CR should be rou	nded to a whole numb	er.			THE REACH (CONDITION IN	DEX (RCI) >>

CR = RCI X LF X IF



		Stre	Unit	fied Stream N	lethodology 1	Form	ginia	m 1)			
Project #		Project Name		Locality	cowardin Class.	HUC	Date Date	SAR#	Impact/SAR length	Impact Factor	
5337	I	-64 Peninsul	a	New Kent	R2UB2	02080206	11/3/11		326		
Name	e(s) of Evalua	tor(s)	Stream Nam	e and Informa	ation						
	Aitkenhead / Nies		WUS 117M								
. Channel C	Condition: Asse	ess the cross-sec	tion of the stream		ondition (erosion, conditional Catego						
	Opti	imal	Subo	ptimal	Mar	ginal	Po	oor	Se	vere	
Channal	Very little incision o	r active erosion; 80	erosion or unproted	ew areas of active cted banks. Majority table (60-80%).	Poor. Banks more	less than Severe or stable than Severe ower bank slopes.	Vertically/laterally	ned/incised. unstable. Likely to jority of both banks	incision, flow co	stability. Severe	
Channel Condition	100% stable bar surface protection prominent (80-11 Stable point bars/be present. Access floodplain or fully bankfull benches. and transverse be sediment depositio 10% of l	n or natural rock, 00%). AND/OR ankfull benches are to their original developed wide Mid-channel bars, ars few. Transient n covers less than	Vegetative protect prominent (60- Depositional feat stability. The bar channels are well likely has access to rnewly develope portions of the rediment covers 10	itative (u0-60%), it tion or natural rock- 80%) AND/OR tures contribute to natural not low flow ill defined. Stream o bankfull benches, id floodplains along reach. Transient 10-40% of the stream tom.	Erosion may be pr both banks. Veget 40-60% of banks. bevertical or unde 60% of strean sediment. Set temporary/tran instability. Depositi stability, may be AND/OR V-shap	esent on 40-60% of tative protection on Streambanks may ercut. AND/OR 40- n is covered by diment may be sient, contribute on that contribute to forming/present.	are near vertical. 60-80% of bar protection prese banks, and is inst erosion. AND/O stream is cover Sediment is temp nature, and contri AND/OR V-shap vegetative protect	Erosion present on iks. Vegetative ent on 20-40% of ufficient to prevent R 60-80% of the red by sediment. porary/transient in buting to instability. led channels have it on is present on >	rooting depth, r vertical/underr protection present banks, is not pr Obvious bank s Erosion/raw ban AND/OR Aggradir than 80% of strear deposition, contril	ed below average majority of banks cut. Vegetative on less than 20% of eventing erosion. loughing present. nks on 80-100%. ng channel. Greater n bed is covered by buting to instability. channels and/or	
					banks and depositi	ion on > 40% of the ional features which	deposition	and stable sediment is absent.		nean flow.	
Score	3	<u> </u>	2	.4		2	1	.6		1	3.0
. RIPARIAN	N BUFFERS: A		Con	ditional Cate	gory Mar	ginal Low Marginal: Non-maintained,		n may be accepta	NOTES>>		
RIPARIAN Riparian Buffers	Opti Tree stratum (dbh > with > 60% tree ca	imal - 3 inches) present, nopy cover and a lerstory. Wetlands	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree	ditional Cate	gory	ginal Low Marginal:	Po				
Riparian	Option Tree stratum (dbh > with > 60% tree canon-maintained uncompaintained u	imal - 3 inches) present, nopy cover and a lerstory. Wetlands	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory.	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation).	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover.	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh >3 inches) present, with <30% tree canopy cover with maintained understory.	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable condition.	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions.			
Riparian	Option Tree stratum (dbh > with > 60% tree canon-maintained uncompaintained u	3 inches) present, inopy cover and a derstory. Wetlands e riparian areas.	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh >3 inches) present, with <30% tree canopy cover with maintained	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable			
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Condition Scores Delineate ripa escriptors. Determine squelow. Enter the % F Right Bank Left Bank B. INSTREAR	Tree stratum (dbh > with > 60% tree canon-maintained unc located within the located withi	5 sach stream bank ach by measuring 100% 1.2 100% 1.2 aried substrate si	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 k into Condition C g or estimating ler parian category in	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Coungth and width. Coungth and width. Coungth and width. Coungth and depths; wodes.	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85 Indition Scores us calculators are production of the produc	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh > 3 inches) present, with < 30% tree canopy cover with maintained understory: Low 0.75 ing the evided for you	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F Blocks 6	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5 the sums Riparian equal 100 100%	NOTES>> CI= (Sum % RA** Rt Bank CI >		CI 1.20
Condition Scores Delineate ripalescriptors. Determine squelow. Enter the % Right Bank Left Bank INSTREAM Indercut banks;	Tree stratum (dbh > with > 60% tree ca non-maintained unc located within the located with	imal 3 inches) present, nopy cover and a lerstory. Wetlands e riparian areas. 5 each stream bank ach by measuring 100% 1.2 100% 1.2 aried substrate si ffle poole comple	Riph Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 Into Condition C g or estimating ler parian category in	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Coungth and width. Coungth and width. Coungth and width. Coungth and depths; wodes.	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <a>3 inches) present, with <a>3 inches) present, or a tree canopy cover. High 0.85 Indition Scores us calculators are production of the control of th	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh > 3 inches) present, with < 30% tree canopy cover with maintained understory: Low 0.75 ing the evided for you	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F Blocks 6	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5 the sums Riparian equal 100 100%	NOTES>> CI= (Sum % RA * : Rt Bank CI > Lt Bank CI >	1.20	
Condition Scores Delineate ripalescriptors. Determine squelow. Enter the % F. Right Bank Left Bank	Tree stratum (dbh > with > 60% tree ca non-maintained unc located within the located with	5 Score for each ri 100% 1.2 100% 1.2 100% 1.2 100% 1.2 100% 1.2 100% 1.2 100% 1.2 100% 1.2 100% 1.2 100% 1.2	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 Into Condition C g or estimating let parian category in Zes, water velocity ixes, stable featur Subo Stable habitat ele present in 30-50% are adequate fo	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Coungth and width. Coungth and width. Coungth and width. Coungth and depths; wores. Conditiona	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85 Indition Scores us calculators are production of the present in 10-30 are adequate for a seadequate for the present in 10-30 are adequate for the present in 10-30 are adeq	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh >3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75 ing the vided for you	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F Blocks 6	Low Poor: Impervious surfaces, mine pool lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5 the sums Riparian equal 100 100% 100%	NOTES>> CI= (Sum % RA * : Rt Bank CI > Lt Bank CI >	1.20	

	St	ream In	npact A	ssessm	ent Fo	rm Pag	e 2		
Project #	Applicant		Locality	Cowardin Class.	HUC	Date	Data Point	SAR length	Impact Factor
								500	1
	L ALTERATION: Stream cross spoil piles, constrictions, livestock	sings, riprap, conc		concrete blocks, s	traightening of ch	annel, channeliz	ation,	NOTES>>	
	Negligible	Mi	nor		erate		vere		
Channel Alteration	or hardening absent. Stream has an	Less than 20% of the stream reach is disrupted by any of the channel alterations listed in the parameter guidelines.	20-40% of the stream reach is disrupted by any of the channel alterations listed in the parameter guidelines.	is disrupted by any of the channel	of the channel	Greater than 80% by any of the char in the parameter 80% of banks si	of reach is disrupted annel alterations listed guidelines AND/OR hored with gabion, or cement.		
SCORE	1.5	1.3	1.1	0.9	0.7	(0.5		
	REACH C	ONDITION	NDEX and S	TREAM CO	NDITION UN	ITS FOR TH	IIS REACH		
NOTE: The Cls and F	RCI should be rounded to 2 decimal places.	The CR should be rou	nded to a whole numb	oer.			THE REACH (CONDITION IN	DEX (RCI) >>

CR = RCI X LF X IF

INSERT PHOTOS:

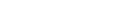


		Stre	Unit	fied Stream N	lethodology 1	Form	ginia	m 1)			
Project #		Project Name		Locality	nels classified a Cowardin Class.	HUC	perennial Date	SAR#	Impact/SAR	Impact Factor	
5337	ŀ	-64 Peninsul	a	New Kent	R2UB2	02080206	11/3/11		188		
Name	e(s) of Evalua	tor(s)	Stream Nam	e and Informa	ation						
	Aitkenhead / Nies		WUS 118M								
. Channel C	Condition: Asse	ess the cross-sec	ction of the stream		ondition (erosion, Conditional Catego						
	Opti	imal	Subo	ptimal		ginal	Po	oor	Se	vere	
Channel	Very little incision o	or active erosion; 80	erosion or unproted	ew areas of active cted banks. Majority table (60-80%).	Poor. Banks more	less than Severe or e stable than Severe ower bank slopes.	Vertically/laterally	ned/incised. unstable. Likely to jority of both banks	incision, flow co	nstability. Severe ontained within the bed below average	
Condition	100% state bar surface protection prominent (80-1 Stable point bars/bc present. Access floodplain or fully bankfull benches. and transverse ba sediment depositio 10% of l	00%). AND/OR ankfull benches are s to their original y developed wide Mid-channel bars, ars few. Transient on covers less than	Vegetative protect prominent (60- Depositional feat stability. The bar channels are well likely has access to or newly develope portions of the resediment covers 10	tion or natural rock -80%) AND/OR tures contribute to nkfull and low flow Il defined. Stream o bankfull benches, d floodplains along reach. Transient 0-40% of the stream tom.	both banks. Veget 40-60% of banks. bevertical or unde 60% of strean sediment. Se- temporary/tran instability. Depositi stability, may be AND/OR V-shap vegetative protect	resent on 40-60% of tative protection on Streambanks may ercut. AND/OR 40- n is covered by diment may be sisent, contribute to forming/present. eed channels have ion on > 40% of the ional features which	60-80% of bar protection press banks, and is insu erosion. AND/O stream is cover Sediment is temp nature, and contri AND/OR V-shap vegetative protect 40% of the banks a	ed channels have	rooting depth, vertical/under protection present banks, is not pr Obvious bank s Erosion/raw ba AND/OR Aggradi than 80% of strea deposition, contri Multiple threac	majority of banks rout. Vegetative a on less than 20% of reventing erosion. sloughing present. anks on 80-100% of general decisions and some source of the s	CI
Score	3	3	2	.4		2	-	.6		1	
NOTES>>					l .		I.				
2. RIPARIAN	N BUFFERS: A		Con	n areas along the	gory	ginal		n may be accepta	NOTES>>		
RIPARIAN Riparian Buffers	Opti	imal > 3 inches) present, anopy cover and a derstory. Wetlands	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy	gory	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh > 3 inches) present, with <30% tree canopy cover with maintained					
Riparian Buffers	Option Tree stratum (dbh > with > 60% tree canon-maintained und	imal > 3 inches) present, anopy cover and a derstory. Wetlands	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh > 3 inches) present, with <30% tree canopy cover with	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable			
Riparian	Tree stratum (dbh > with > 60% tree cc non-maintained und located within the	imal > 3 inches) present, anopy cover and a derstory. Wetlands	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory.	ditional Cate ptimal Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation).	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover.	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh >3 inches) present, with <30% tree canopy cover with maintained understory.	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, recently seeded and stabilized, or other comparable condition.	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions.			
Riparian Buffers Condition Scores Delineate ripa descriptors. Locate representation of the second	Tree stratum (dbh > with > 60% tree ca non-maintained unc located within the	imal > 3 inches) present, anopy cover and a derstory. Wetlands e riparian areas.	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 k into Condition C g or estimating let	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Congth and width. Congth and	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh > 3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5			
Riparian Buffers Condition Scores Delineate ripe escriptors. Determine squelow. Enter the % F	Tree stratum (dbh > with > 60% tree cc onon-maintained und located within the	imal 3 inches) present, anopy cover and a derstory. Wetlands e riparian areas. 5 each stream bank each by measurin.	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 k into Condition C g or estimating let	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Congth and width. Congth and	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh > 3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5			
Riparian Buffers Condition Scores Delineate ripaescriptors. Determine squelow.	Tree stratum (dbh > with > 60% tree conon-maintained und located within the located withi	imal > 3 inches) present, anopy cover and a derstory. Wetlands e riparian areas.	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 k into Condition C g or estimating ler	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Congth and width. Congth and	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh > 3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5	NOTES>>		
Riparian Buffers Condition Scores Delineate ripe escriptors. Determine squelow. Enter the % F	Tree stratum (dbh > with > 60% tree canon-maintained unc located within the located withi	imal 3 inches) present, anopy cover and a derstory. Wetlands e riparian areas. 5 each stream bank each by measurin Score for each ri 50% 1.1	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 k into Condition C g or estimating ler parian category in	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Congth and width. Congth and	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh > 3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5 the sums Riparian equal 100 100%	NOTES>>		Cl
Riparian Buffers Condition Scores Delineate ripe escriptors. Determine squelow. Enter the % F	Tree stratum (dbh > with > 60% tree conon-maintained und located within the located withi	imal 3 inches) present, anopy cover and a derstory. Wetlands e riparian areas. 5 each stream bank each by measurin. Score for each ri	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 k into Condition C g or estimating ler parian category in	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Congth and width. Congth and	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh > 3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5	NOTES>>	Scores*0.01)/2 0.85 1.10	CI 0.98
Condition Scores Delineate ripalescriptors. Determine squelow. Enter the % F. Right Bank Left Bank	Tree stratum (dbh > with > 60% tree canon-maintained unc located within the located withi	imal 3 inches) present, anopy cover and a derstory. Wetlands e riparian areas. 5 each stream bank each by measurin 50% 1.1 100% 1.1 arried substrate si	Com Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 k into Condition C g or estimating ler parian category in 50% 0.6	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Coungth and width. Coungth and width. Coungth and width. Coungth and depths; wodes.	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85 Indition Scores us alculators are production of the product	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh > 3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75 ing the povided for you	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F Blocks 6	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5 the sums Riparian equal 100 100%	NOTES>> CI= (Sum % RA * Rt Bank CI >	0.85	
Condition Scores Delineate ripalescriptors. Determine squelow. Right Bank Left Bank I. INSTREAM	Tree stratum (dbh > with > 60% tree ca non-maintained unc located within the located with	imal 3 inches) present, anopy cover and a derstory. Wetlands e riparian areas. 5 each stream bank each by measurin 50% 1.1 100% 1.1 arried substrate si	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 k into Condition C g or estimating ler parian category in 50% 0.6	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Coungth and width. Coungth and width. Coungth and width. Coungth and depths; wodes.	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85 Indition Scores us alculators are production of the producti	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh > 3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75 ing the povided for you	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F Blocks e	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5 the sums Riparian equal 100 100%	NOTES>> CI= (Sum % RA * Rt Bank CI > Lt Bank CI >	0.85	
Condition Scores Delineate ripa descriptors. Deltheate ripa descriptors. Right Bank Left Bank Left Bank January Condition	Tree stratum (dbh > with > 60% tree co conon-maintained und located within the located wi	imal 3 inches) present, anopy cover and a derstory. Wetlands e riparian areas. 5 each stream banked by measuring the stre	Com Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 k into Condition C g or estimating ler parian category in 50% 0.6 Zes, water velocity exes, stable featur Subo Stable habitat ele present in 30-509 are adequate fo	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Congth and width. Congth and width. Congth and width. Congth and width. Congth and depths; wordes. Conditional	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85 addulators are production of the control of the	Ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh >3 inches) present, with <a>30 % tree canopy cover with maintained understory. Low 0.75 ing the price of the product of the present of t	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F Blocks 6	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5 the sums Riparian equal 100 100% 100%	NOTES>> CI= (Sum % RA * Rt Bank CI > Lt Bank CI >	0.85	

	St	ream In	npact A	ssessm	ent Fo	rm Pag	e 2		
Project #	Applicant		Locality	Cowardin Class.	HUC	Date	Data Point	SAR length	Impact Factor
								500	1
	L ALTERATION: Stream cross poil piles, constrictions, livestock	sings, riprap, conc		concrete blocks, s	traightening of ch	annel, channeliz	ation,	NOTES>>	
	Negligible	Mi	nor		erate	Se	vere		
Channel Alteration	or hardening absent. Stream has an	Less than 20% of the stream reach is disrupted by any of the channel alterations listed in the parameter guidelines.	20-40% of the stream reach is disrupted by any of the channel alterations listed in the parameter guidelines.	is disrupted by any of the channel	of the channel	Greater than 80% by any of the char in the parameter 80% of banks s	of reach is disrupted nnel alterations listed guidelines AND/OR hored with gabion, or cement.		
SCORE	1.5	1.3	1.1	0.9	0.7	(0.5		
	REACH C	ONDITION	NDEX and S	TREAM CO	NDITION UN	ITS FOR TH	IIS REACH		
NOTE: The Cls and F	RCI should be rounded to 2 decimal places.	The CR should be rou	nded to a whole numb	er.			THE REACH	CONDITION IN	DEX (RCI) >>

- n

CR = RCI X LF X IF









DOWNSTREAM



ECCDIBE	DDODOSED	IMPACT.

		Stre	Unit	fied Stream N	lethodology 1	for use in Virg	-	m 1)			
Project #	ı	Project Name		Locality	cowardin Class.	HUC	Date Date	SAR#	Impact/SAR length	Impact Factor	
5337	Į.	-64 Peninsul	a	New Kent	R2UB2	02080206	11/3/11		265		
Name	e(s) of Evalua	tor(s)	Stream Nam	e and Informa	ation	<u>'</u>					1
	Aitkenhead / Nies		WUS 119M								
. Channel C	Condition: Asse	ess the cross-sec	tion of the stream		ondition (erosion, Conditional Catego						
	Opti	mal	Subo	ptimal	Mar	ginal	Po	oor	Se	vere	
Channel	Very little incision o	r active erosion; 80	erosion or unproted	ew areas of active cted banks. Majority table (60-80%).	Poor. Banks more	less than Severe or estable than Severe ower bank slopes.	Vertically/laterally	ned/incised. unstable. Likely to jority of both banks	incision, flow co	nstability. Severe	
Condition	100% stable bar surface protectior prominent (80-11 Stable point bars/ba present. Access floodplain or fully bankfull benches. and transverse ba sediment depositio 10% of I	n or natural rock, 00%). AND/OR ankfull benches are to their original developed wide Mid-channel bars, ars few. Transient n covers less than	Vegetative protect prominent (60- Depositional feat stability. The bar channels are well likely has access to rnewly develope portions of the rediment covers 10	itative (u0-90%). It in or natural rock-80%) AND/OR tures contribute to hisfull and low flow II defined. Stream o bankfull benches, in floodplains along reach. Transient 0-40% of the stream tom.	Erosion may be pr both banks. Veget 40-60% of banks. bevertical or unde 60% of strean sediment. Set temporary/tran instability. Depositi stability, may be AND/OR V-shap	resent on 40-60% of tative protection on Streambanks may percut. AND/OR 40- n is covered by diment may be sisent, contribute toon that contribute to be forming/present. ed channels have ion on > 40% of the	are near vertical. 60-80% of bar protection prese banks, and is inst erosion. AND/O stream is cover Sediment is temp nature, and contri AND/OR V-shap vegetative protect	Erosion present on kls. Vegetative ent on 20-40% of ifficient to prevent R 60-80% of the ed by sediment. oorary/transient in buting to instability. ed channels have ion is present on > and stable sediment	rooting depth, r vertical/underr protection present banks, is not pro Obvious bank s Erosion/raw ban AND/OR Aggradir than 80% of strear deposition, contril Multiple thread	ed below average majority of banks cut. Vegetative on less than 20% of eventing erosion. loughing present. nks on 80-100%. ng channel. Greater n bed is covered by buting to instability. channels and/or	r
0			2	.4	banks and depositi	ional features which	deposition	is absent.		nean flow.	0.0
Score	3)		4			I,	.6		1	3.0
. RIPARIAN	N BUFFERS: A		Con Subo	ditional Cate	gory Mar	ginal Low Marginal: Non-maintained,	Po	n may be accepta	NOTES>>		
RIPARIAN Riparian Buffers	Opti Tree stratum (dbh > with > 60% tree ca	imal - 3 inches) present, nopy cover and a lerstory. Wetlands	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree	nditional Cate	gory	ginal Low Marginal:	Po				
Riparian	Option Tree stratum (dbh > with > 60% tree canon-maintained unc	imal - 3 inches) present, nopy cover and a lerstory. Wetlands	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory.	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation).	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover.	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh >3 inches) present, with <30% tree canopy cover with maintained understory.	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable condition.	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions.			
Riparian Buffers	Option Tree stratum (dbh > with > 60% tree canon-maintained unc	3 inches) present, inopy cover and a derstory. Wetlands e riparian areas.	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained	Low Suboptimal Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh >3 inches) present, with <30% tree canopy cover with maintained	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable			
Riparian Buffers Condition Scores Delineate ripalescriptors. Determine squelow.	Tree stratum (dbh > with > 60% tree ca non-maintained unc located within the	imal 3 inches) present, incopy cover and a lerstory. Wetlands e riparian areas.	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 into Condition C	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Congth and width. Congth and width. Congth and congth and width. Congth areas	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh > 3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5			
Riparian Buffers Condition Scores Delineate ripaescriptors. Determine squelow. Enter the % F	Tree stratum (dbh > with > 60% tree ca non-maintained unc located within the	imal 3 inches) present, unopy cover and a ferstory. Wetlands e riparian areas.	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 into Condition C	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Congth and width. Congth and width. Congth and congth and width. Congth areas	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh > 3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5			
Riparian Buffers Condition Scores Delineate ripz escriptors. Determine squelow. Enter the % F	Tree stratum (dbh > with > 60% tree ca non-maintained unc located within the	imal 3 inches) present, incopy cover and a lerstory. Wetlands e riparian areas.	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 into Condition C	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Congth and width. Congth and width. Congth and congth and width. Congth areas	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh > 3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5	NOTES>>		
Riparian Buffers Condition Scores Delineate ripaescriptors. Determine squelow. Enter the % F	Tree stratum (dbh > with > 60% tree ca non-maintained unc located within the located with	imal 3 inches) present, unopy cover and a lerstory. Wetlands e riparian areas. 5 each stream bank ach by measuring 100% 1.5	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 into Condition C	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Congth and width. Congth and width. Congth and congth and width. Congth areas	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh > 3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5 the sums Riparian equal 100	NOTES>>		
Riparian Buffers Condition Scores Delineate ripaescriptors. Determine squelow. Enter the % F	Tree stratum (dbh > with > 60% tree ca non-maintained uncolocated within the located with	imal 3 inches) present, unopy cover and a lerstory. Wetlands e riparian areas. 5 ach stream bank ach by measuring 100% 1.5 100%	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 into Condition C	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Congth and width. Congth and width. Congth and congth and width. Congth areas	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh > 3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5	NOTES>>	1.50	CI 1.50
Condition Scores Delineate ripalescriptors. Determine squelow. Right Bank Left Bank B. INSTREAR	Tree stratum (dbh > with > 60% tree ca non-maintained unc located within the located with	5 sach stream bank ach by measuring 100% 1.5 100% 1.5 aried substrate si	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 k into Condition C g or estimating ler parian category in	ditional Cate ptimal Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Coungth and width. Coungth and width. Coungth and width. Coungth and depths; wodes.	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85 Indition Scores us calculators are production of the produc	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh > 3 inches) present, with < 30% tree canopy cover with maintained understory: Low 0.75 ing the povided for you	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F Blocks 6	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5 the sums Riparian equal 100 100%	NOTES>> CI= (Sum % RA** Rt Bank CI >		CI 1.50
Condition Scores Delineate ripalescriptors. Deltremine squelow. Enter the % Right Bank Left Bank Left Bank INSTREAM Indercut banks;	Tree stratum (dbh > with > 60% tree ca non-maintained unc located within the located with	imal 3 inches) present, nopy cover and a lerstory. Wetlands e riparian areas. 5 each stream bank ach by measuring 100% 1.5 100% 1.5 aried substrate significations if the poole complete in the stream in the stre	Riph Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 Into Condition C g or estimating ler parian category in	ditional Cate ptimal Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Coungth and width. Coungth and width. Coungth and width. Coungth and depths; wodes.	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <a>3 inches) present, with <a>3 inches) present, or a tree canopy cover. High 0.85 Indition Scores us calculators are production of the control of th	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh > 3 inches) present, with < 30% tree canopy cover with maintained understory: Low 0.75 ing the povided for you	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F Blocks 6	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5 the sums Riparian equal 100 100%	NOTES>> CI= (Sum % RA * S Rt Bank CI > Lt Bank CI >	1.50	
Condition Scores Delineate ripalescriptors. Determine squelow. Right Bank Left Bank B. INSTREAR	Tree stratum (dbh > with > 60% tree ca non-maintained unc located within the located with	5 Score for each ri 100% 1.5 100% 1.5 100% 1.5 100% 1.5 100% 1.5 100% 1.5 100% 1.5	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 Into Condition C g or estimating let parian category in Zes, water velocity ixes, stable featur Subo Stable habitat ele present in 30-50% are adequate fo	ditional Cate ptimal Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Co ongth and width. Co the blocks below y and depths; wodes. Conditional	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85 Indition Scores us calculators are production of the present in 10-30 are adequate for a seadequate for the present in 10-30 are adequate for the present in 10-30 are adeq	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh >3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75 ing the provided for you	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F Blocks 6	Low Poor: Impervious surfaces, mine pool lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5 the sums Riparian equal 100 100% 100%	NOTES>> CI= (Sum % RA * S Rt Bank CI > Lt Bank CI >	1.50	

	St	ream In	npact A	ssessm	nent Fo	rm Pag	e 2		
Project #	Applicant		Locality	Cowardin Class.	HUC	Date	Data Point	SAR length	Impact Factor
								500	1
	ALTERATION: Stream cross poil piles, constrictions, livestock	ings, riprap, conci		concrete blocks, s	traightening of ch	annel, channeliza	ation,	NOTES>>	
	Negligible	Mir	nor		erate	Se	vere		
Channel Alteration	Channelization, dredging, alteration, or hardening absent. Stream has an unaltered pattern or has naturalized.	Less than 20% of the stream reach is disrupted by any of the channel alterations listed in the parameter guidelines.	20-40% of the stream reach is disrupted by any of the channel	is disrupted by any of the channel	50 - 80% of reach is disrupted by any of the channel alterations listed in the parameter guidelines. If stream has been channelized, normal stable stream meander pattern has not	Greater than 80% by any of the chan in the parameter 80% of banks sh	of reach is disrupted integrated and the state of the guidelines AND/OR hored with gabion, or cement.		
SCORE	1.5	1.3	1.1	0.9	0.7	C	0.5		
	REACH CONDITION INDEX and STREAM CONDITION UNITS FOR THIS REACH								
VOTE: The Cls and R	CI should be rounded to 2 decimal places.	The CR should be rour	nded to a whole numb	er.			THE REACH	CONDITION IN	DEX (RCI) >>

RCI= (Sum of all Cl's)/5

COMPENSATION REQUIREMENT (CR) >> 0

CR = RCI X LF X IF

CR = RC

INSERT PHOTOS:

Upstream



	Stı		fied Stream N	lethodology 1	for use in Vir	ginia				
Project #	Project Na		n wadeable chan	Cowardin Class.	HUC	Date	SAR#	Impact/SAR length	Impact Factor	
5337	I-64 Penin	sula	New Kent	R2UB2	02080206	11/3/11		195		
Name	e(s) of Evaluator(s)		ne and Inform	ation						
	Aitkenhead / Nies	WUS 120M								
. Channel C	Condition: Assess the cross	section of the stream		ondition (erosion, Conditional Catego						
	Optimal	Subo	ptimal	Mar	ginal	Po	oor	Sev	vere	
Channel	Very little incision or active erosion 100% stable banks. Vegetativ	80 erosion or unprote of banks are s	few areas of active cted banks. Majority stable (60-80%).	Poor. Banks more or Poor due to lo	less than Severe or stable than Severe ower bank slopes. esent on 40-60% of	Vertically/laterally widen further. Ma	ned/incised. unstable. Likely to jority of both banks Erosion present on	incision, flow con banks. Streamb	nstability. Severe	
Condition	surface protection or natural roc prominent (80-100%). AND/OI Stable point bars/bankfull benches present. Access to their origin; floodplain or fully developed wid bankfull benches. Mid-channel b and transverse bars few. Transis sediment deposition covers less t 10% of bottom.	are prominent (60 Depositional fea stability. The ba channels are we likely has access to or newly develope portions of the sediment covers 1	0-80%) AND/OR turnes contribute to infull and low flow lid effect. Stream to bankfull benches, ed floodplains along reach. Transient 0-40% of the stream ttom.	both banks. Veget 40-60% of banks. bevertical or unde 60% of strean sediment. Se- temporary/tran instability. Depositi stability, may be AND/OR V-shap vegetative protect	tative protection on Streambanks may errut. AND/OR 40- in is covered by diment may be sisent, contribute on that contribute to erforming/present. eed channels have ion on > 40% of the ional features which	60-80% of bar protection press banks, and is insi erosion. AND/C stream is cover Sediment is tem nature, and contri AND/OR V-shap vegetative protect 40% of the banks a	ks. Vegetative int on 20-40% of difficient to prevent R 60-80% of the ed by sediment. orary/transient in outing to instability, ed channels have ion is present on > and stable sediment is absent.	vertical/underd protection present banks, is not pre Obvious bank si Erosion/raw bar AND/OR Aggradir than 80% of strear deposition, contrit Multiple thread	najority of banks cut. Vegetative on less than 20% of eventing erosion. loughing present. hks on 80-100%. Ig channel. Greater in bed is covered by juting to instability. channels and/or nean flow.	CI
Score	3	2	2.4		2	· · · · · · · · · · · · · · · · · · ·	.6		1	3.0
NOTES>>		•		•						
	N BUFFERS: Assess both t	Cor	an areas along the nditional Cate optimal	gory	ginal Low Marginal:	Pe	n may be accepta	NOTES>>		
		High Suboptimal Riparian areas with tree stratum (dbh > 3 inches) ent, present, with 30% to 60% tree dads canopy cover and	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy	gory	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh > 3 inches) present, with <30% tree canopy cover with maintained			NOTES>>		
2. RIPARIAN Riparian Buffers	Optimal Tree stratum (dbh > 3 inches) pres with > 60% tree canopy cover an non-maintained understory. Wetla	High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) to 60% tree canopy cover and containing both herbaceous and shrub layers or non-maintained	Low Suboptimal Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh >3 inches) present, with					

	St	ream In	npact A	ssessm	nent Fo	rm Pag	e 2		
Project #	Applicant		Locality	Cowardin Class.	HUC	Date	Data Point	SAR length	Impact Factor
								500	1
	L ALTERATION: Stream cross spoil piles, constrictions, livestock		Condition	al Category				NOTES>>	
	Negligible	Mi	nor		erate 60 - 80% of reach	Se	vere		
Channel Alteration	Channelization, dredging, alteration, or hardening absent. Stream has an unaltered pattern or has naturalized.	Less than 20% of the stream reach is disrupted by any of the channel alterations listed in the parameter guidelines.	20-40% of the stream reach is disrupted by any of the channel alterations listed in the parameter guidelines.	is disrupted by any of the channel	of the channel is disrupted by any of the channel alterations listed in the parameter guidelines. If stream has been channelized, normal stable stream meander pattern has not	Greater than 80% of by any of the chan in the parameter (80% of banks sh	of reach is disrupted nel alterations listed guidelines AND/OR nored with gabion, or cement.		
SCORE	1.5	1.3	1.1	0.9	0.7	0).5		
	REACH C	ONDITION I	NDEX and S	TREAM CO	NDITION UN	ITS FOR TH	IS REACH		
NOTE: The CIs and I	RCI should be rounded to 2 decimal places.	The CR should be rou	nded to a whole numb	er.			THE REACH (CONDITION IN	DEX (RCI) >>

RCI= (Sum of all Cl's)/5

.

COMPENSATION REQUIREMENT (CR) >>

SATION REQUIREMENT (CR) >> 0

CR = RCI X LF X IF

INSERT PHOTOS:

Upstream



ECCDIBE	DDODOSED	IMPACT.

		Stre		fied Stream N	lethodology 1	or use in Virg	ginia	m 1)			
Project #	I	Project Name		Locality	classified a Cowardin Class.	s intermittent or	perennial Date	SAR#	Impact/SAR length	Impact Factor	
5337	ŀ	-64 Peninsul	a	New Kent	R2UB2	02080206	11/3/11		365		
Name	e(s) of Evalua	tor(s)		e and Inform	ation						
	Aitkenhead / Nies		WUS 121M								
I. Channel C	Condition: Asse	ess the cross-sec	tion of the stream		ondition (erosion, Conditional Catego						
	Opti	mal	Subo	ptimal		ginal	Po	oor	Sev	ere	
Channel Condition	Very little incision or 100% stable bar surface protection prominent (80-1	nks. Vegetative n or natural rock,	erosion or unproted of banks are si Vegetative protec prominent (60-	ew areas of active sted banks. Majority table (60-80%). tion or natural rock -80%) AND/OR	Poor. Banks more or Poor due to lo Erosion may be pr both banks. Veget	less than Severe or stable than Severe wer bank slopes. seent on 40-60% of attive protection on	Vertically/laterally widen further. Ma are near vertical. 60-80% of bar	ned/incised. unstable. Likely to jority of both banks Erosion present on iks. Vegetative	vertical/lateral in incision, flow cor banks. Streambe rooting depth, m vertical/underc	tained within the od below average ajority of banks ut. Vegetative	
	Stable point bars/ba present. Access floodplain or fully bankfull benches. and transverse ba sediment depositio 10% of I	ankfull benches are to their original developed wide Mid-channel bars, irs few. Transient in covers less than pottom.	stability. The bar channels are well likely has access to or newly develope portions of the resediment covers 10 bott	ures contribute to likull and low flow I defined. Stream o bankfull benches, d floodplains along each. Transient 0-40% of the stream tom.	bevertical or unde 60% of stream sediment. Se temporary/tran instability. Depositi stability, may be AND/OR V-shap vegetative protect banks and depositi	Streambanks may rout. AND/OR 40- n is covered by diment may be sient, contribute on that contribute to forming/present. ed channels have on on > 40% of the onal features which	banks, and is insuerosion. AND/O stream is cover Sediment is temp nature, and contri AND/OR V-shap vegetative protect 40% of the banks a deposition	ent on 20-40% of ufficient to prevent IR 60-80% of the red by sediment. porary/transient in buting to instability. ed channels have tion is present on > and stable sediment is absent.	protection present of banks, is not pre Obvious bank sle Erosion/raw ban AND/OR Aggradin than 80% of stream deposition, contrib Multiple thread subterran	on less than 20% of venting erosion. bughing present. ks on 80-100%. It can be discovered by uting to instability. Channels and/or ean flow.	CI
Score	3	1	2	.4		2	1	.6	•		3.0
Riparian Buffers	Tree stratum (dbh > with > 60% tree ca non-maintained unc located within the	nopy cover and a lerstory. Wetlands	to 60% tree	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation).	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover.	Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh >3 inches) present, with <30% tree canopy cover with maintained understory.	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable condition.	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions.			
			High	Low	High	Low	High	Low			
Condition Scores	1.	5	1.2	1.1	0.85	0.75	0.6	0.5			
			1.1. 0		ndition Scores us						
Delineate ripa descriptors. Determine squelow.	uare footage for ea	ach by measurin	g or estimating ler	ngth and width. C	alculators are pro		of % F	the sums Riparian			
Delineate ripa descriptors. Determine squelow. Enter the % R	_	ach by measuring	g or estimating ler	ngth and width. C	alculators are pro		of % F	Riparian equal 100			
. Delineate ripa lescriptors. 2. Determine squelow.	uare footage for e	ach by measurin	g or estimating ler	ngth and width. C	alculators are pro		of % F	Riparian			
. Delineate ripa lescriptors. . Determine squelow. 3. Enter the % R	ware footage for exception of the control of the co	ach by measuring Score for each rip 100% 1.5	g or estimating ler	ngth and width. C	alculators are pro		of % F	Riparian equal 100 100%	CI= (Sum % RA * S		
. Delineate ripa lescriptors. . Determine squelow. 3. Enter the % R	ware footage for experience of the control of the c	Score for each right 100% 1.5	g or estimating ler	ngth and width. C	alculators are pro		of % F	Riparian equal 100	Rt Bank CI >	1.50	CI
. Delineate ripa lescriptors Determine squelow Enter the % R Right Bank	ware footage for exception of the second of	Score for each right 100% 1.5 100% 1.5	g or estimating ler	ngth and width. C	alculators are pro	vided for you	of % F Blocks e	Riparian equal 100 100% 100%	Rt Bank CI >		CI 1.50
Delineate ripa lescriptors. Determine squelow. Enter the % R Right Bank Left Bank B. INSTREAM	ware footage for exception of the control of the co	Score for each right 100% 1.5 100% 1.5 aried substrate si	g or estimating ler	the blocks below	alculators are pro	vided for you	of % F Blocks e	Riparian equal 100 100% 100%	Rt Bank CI >	1.50	
1. Delineate ripa descriptors. 2. Determine squelow. 3. Enter the % R Right Bank Left Bank	ware footage for example of the second of th	Score for each right 100% 1.5	g or estimating ler parian category in zes, water velocity xes, stable featur	the blocks below y and depths; woo es. Conditions	alculators are pro	vided for you	of % F Blocks 6	Riparian equal 100 100% 100% 100%	Rt Bank CI >	1.50	
1. Delineate ripa descriptors. 2. Determine squelow. 3. Enter the % R Right Bank Left Bank 3. INSTREAN undercut banks;	ware footage for exception of the control of the co	Score for each right 100% 1.5	g or estimating ler parian category in zes, water velocity xes, stable featur	the blocks below	alculators are pro	vided for you	of % F Blocks 6	Riparian equal 100 100% 100%	Rt Bank CI >	1.50	
1. Delineate ripa descriptors. 2. Determine squelow. 3. Enter the % R Right Bank Left Bank 3. INSTREAN undercut banks;	ware footage for example of the second of th	Score for each right 100% 1.5 100% 1.5 arried substrate siffle poole complete mal	g or estimating ler parian category in zes, water velocit; xes, stable featur Subo Stable habitat ele present in 30-450; are adequate fo	the blocks below y and depths; woo es. Conditions	alculators are pro	vided for you	of % F Blocks e Blocks e te; low embededr Habitat elements lacking or are u elements are typic	Riparian equal 100 100% 100% 100%	Rt Bank CI >	1.50	

Project # Applicant Learning Control Colors Learning Control Colors Learning Col		St	ream In	npact A	ssessn	nent Fo	rm Pag	je 2		
4. CHANNEL ALTERATION: Stream crossings, inprep, controlled increases, spell piles, spell	Project #			_					SAR length	Impact Factor
Channel Alteration Channel Channe									500	1
Channel Alteration Channel Alteration Channel Channe			sings, riprap, cond	crete, gabions, or	concrete blocks, s	straightening of ch	annel, channeliz	zation,	NOTES>>	
Channel Charmellation, designs, attention, unafficed pattern or has naturalized pattern or has natural		Magliaikis				lorato		OVOTO.		
Channel Alteration Channel Consideration (red sping), allerations or hardering states (red states) and unables or platform in his natural consideration (red sping), alteration or hardering states (red sping), and the channel of the channel or hardering sping), and the channel or hardering sping), and the channel of the channel or hardering sping), and the channel or hardering sping), and the channel or hardering sping), and the channel or hardering sping). The channel of the channel of the channel or hardering sping), and the channel or hardering sping), and the channel or hardering sping). The channel of the channel of the channel or hardering sping), and the channel or hardering sping), and the channel or hardering sping). The channel of the channel of the channel or hardering sping), and the channel or hardering sping), and the channel or hardering sping). The channel of the channel of the channel or hardering sping), and the channel or hardering sping), and the channel or hardering sping). The channel of the channel or hardering sping sping, and the channel or hardering sping), and the channel or hardering sping). The channel of the channel or hardering sping sping, and the channel or hardering sping sp		Negrigible	IVII		40 - 60% of reach	60 - 80% of reach		evere		
REACH CONDITION INDEX and STREAM CONDITION UNITS FOR THIS REACH NOTE: The Cis and RCI should be rounded to 2 decimal places. The Ciff should be rounded to a whole number: THE REACH CONDITION INDEX (RCI) >>		or hardening absent. Stream has an	the stream reach is disrupted by any of the channel alterations listed in the parameter	stream reach is disrupted by any of the channel alterations listed in the parameter	of the channel alterations listed in the parameter guidelines. If stream has been channelized, normal stable stream meander	of the channel alterations listed in the parameter guidelines. If stream has been channelized, normal stable stream meander	Greater than 80% by any of the cha in the parameter 80% of banks	annel alterations listed r guidelines AND/OR shored with gabion,		
NOTE: The Cits and RCI should be reunded to 2 decimal places. The CR should be reunded to a whole number. THE REACH CONDITION INDEX (RCI) >> RCI= (Sum of BI CITS)S COMPENSATION REQUIREMENT (CR) >> CR = RCI X LF X IF INSERT PHOTOS:	SCORE	1.5	1.3	1.1	0.9	0.7		0.5		
INSERT PHOTOS: RCI= (Sum of all Cris)/5 COMPENSATION REQUIREMENT (CR) >>		REACH C	CONDITION	NDEX and S	STREAM CO	NDITION UN	ITS FOR T	HIS REACH		
INSERT PHOTOS: CR = RCI X LF X IF INSERT PHOTOS:	NOTE: The Cls and F	RCI should be rounded to 2 decimal places.	The CR should be rou	inded to a whole numl	ber.			THE REACH (CONDITION IN	DEX (RCI) >>
INSERT PHOTOS: CR = RCI XLF XIF										
INSERT PHOTOS:										MENT (CR) >>
								CR = RC	I X LF X IF	
DESCRIBE PROPOSED IMPACT:										
DESCRIBE PROPOSED IMPACT:										
	DESCRIBE F	PROPOSED IMPACT:								

		Stre	Unit	fied Stream N	lethodology f	Form	ginia	m 1)			
Project #	ı	Project Name		Locality	Cowardin Class.	HUC	Date Date	SAR #	Impact/SAR length	Impact Factor	
5337	ŀ	-64 Peninsul	a	New Kent	R2UB2	02080206	November '11		1633		
Name	e(s) of Evalua	tor(s)		e and Informa	ation		•	•	<u>'</u>		
	Aitkenhead / Nies		WUS 122M								
. Channel C	Condition: Asse			C	Conditional Catego	ory					
	Opti	imal	Subo	ptimal	Mar	ginal	Po	oor	Ser	vere	
	Very little incision o	wasting greeting; 90	erosion or unproted	ew areas of active cted banks. Majority	Poor. Banks more	less than Severe or stable than Severe	Vertically/laterally	ned/incised. unstable. Likely to		istability. Severe	
Channel Condition	Very little incision o 100% stable bar surface protection prominent (80-1) Stable point bars/bz present. Access floodplain or fully bankfull benches. and transverse bz sediment depositio 10% of 1	nks. Vegetative n or natural rock, 00%). AND/OR ankfull benches are to their original v developed wide Mid-channel bars, ars few. Transient on covers less than	Vegetative protect prominent (60- Depositional feat stability. The bar channels are well likely has access to rnewly develope portions of the rediment covers 10	table (60-80%). tion or natural rock -80%) AND/OR tures contribute to nkfull and low flow ll defined. Stream o bankfull benches, d floodplains along reach. Transient 0-40% of the stream	Erosion may be pr both banks. Veget 40-60% of banks. bevertical or unde 60% of strean sediment. Sed temporary/tran instability. Depositi stability, may be	ower bank slopes. resent on 40-60% of tative protection on Streambanks may ercut. AND/OR 40- n is covered by diment may be isient, contribute to e forming/present. sed channels have	are near vertical. 60-80% of bar protection prese banks, and is inst erosion. AND/O stream is cover Sediment is temp nature, and contri AND/OR V-shap	jority of both banks Erosion present on iks. Vegetative ent on 20-40% of afficient to prevent R 60-80% of the red by sediment. corary/transient in buting to instability. ed channels have ion is present on >	banks. Streamb rooting depth, r vertical/under vertical/under protection present banks, is not pr Obvious bank s Erosion/raw ban AND/OR Aggradir than 80% of strear deposition, contril	ed below average najority of banks cut. Vegetative on less than 20% of eventing erosion. loughing present. nks on 80-100%. ng channel. Greater n bed is covered by outing to instability.	
			DOI	tom.	vegetative protecti	ion on > 40% of the	40% of the banks a	and stable sediment is absent.		channels and/or nean flow.	CI
Score	3	3	2	.4		2	1	.6		1	2.4
	N BUFFERS: #		Con	ditional Cate	gory	ginal Low Marginal:		n may be accepta	NOTES>>		
	Opti	imal > 3 inches) present, anopy cover and a derstory. Wetlands	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree	ditional Cate	gory	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh >3 inches) present, with 30% lockes) canopy cover with	Po		NOTES>>		
. RIPARIAN	Option Tree stratum (dbh > with > 60% tree canon-maintained uncommaintained u	imal > 3 inches) present, anopy cover and a derstory. Wetlands	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory.	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation).	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover.	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh >3 inches) present, with <30% tree canopy cover with maintained understory.	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable condition.	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions.	NOTES>>		
. RIPARIAN	Option Tree stratum (dbh > with > 60% tree canon-maintained uncommaintained u	imal 3 inches) present, anopy cover and a derstory. Wetlands e riparian areas.	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh >3 inches) present, with <30% tree canopy cover with maintained	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable	NOTES>>		
Riparian Buffers Condition Scores Delineate ripasescriptors. Determine squalow.	Tree stratum (dbh > with > 60% tree ca non-maintained unc located within the	imal 3 inches) present, anopy cover and a derstory. Wetlands e riparian areas. 5 each stream bank ach by measuring	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 into Condition C	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Coungth and width. Coungth	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh > 3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5	NOTES>>		
Riparian Buffers Condition Scores Delineate ripasecriptors. Determine square	Tree stratum (dbh > with > 60% tree ca non-maintained unc located within the	imal 3 inches) present, anopy cover and a derstory. Wetlands e riparian areas. 5 each stream bank ach by measuring.	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 into Condition C	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Coungth and width. Coungth	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh > 3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5	NOTES>>		
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Riparian Buffers Condition Scores Delineate ripa escriptors. Determine squelow. Enter the % F Right Bank Left Bank	Tree stratum (dbh > with > 60% tree canon-maintained unc located within the located withi	imal 3 inches) present, anopy cover and a derstory. Wetlands e riparian areas. 5 each stream bank ach by measuring 100% 1.5 20% 1.2 aried substrate si	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 into Condition C g or estimating ler parian category in 10% 0.6 zes, water velocities	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Coungth and width. Coungth and width. Coungth and width. Coungth and widths; workers.	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85 Indition Scores usional calculators are productions of the control of the con	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh > 3 inches) present, with < 30% tree canopy cover with maintained understory: Low 0.75 ing the povided for you	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F Blocks 6	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5 the sums Riparian equal 100 100%	NOTES>> CI= (Sum % RA** Rt Bank CI >		CI 1.08
Riparian Buffers Condition Scores Delineate ripa escriptors. Determine squelow. Enter the % F. Right Bank Left Bank I. INSTREAN Indercut banks;	Tree stratum (dbh > with > 60% tree ca non-maintained und located within the located with	imal 3 inches) present, anopy cover and a derstory. Wetlands e riparian areas. 5 each stream bank ach by measuring 100% 1.5 20% 1.2 aried substrate si	Riph Suboptimal: Riparian areas with tree stratum (dbh s 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 Into Condition C g or estimating length operation category in 10% 0.6 Zes, water velocity xes, stable feature.	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Coungth and width. Coungth and width. Coungth and width. Coungth and widths; workers.	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <a>30 tree tree canopy cover. High 0.85 Indition Scores using the calculators are producted to the calculators are producted t	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh > 3 inches) present, with < 30% tree canopy cover with maintained understory: Low 0.75 ing the povided for you	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F Blocks 6	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5 the sums Riparian equal 100 100%	NOTES>> Ci= (Sum % RA * : Rt Bank Ci > Lt Bank Ci >	1.50	
Condition Scores Delineate ripa escriptors. Determine squelow. Enter the % F Right Bank Left Bank B. INSTREAR	Tree stratum (dbh > with > 60% tree ca non-maintained und located within the located with	imal 3 inches) present, anopy cover and a derstory. Wetlands e riparian areas. 5 5 cach stream bank ach by measuring 100% 1.5 20% 1.2 aried substrate si iffle poole completimal re typically present	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 into Condition C g or estimating ler parian category in 10% 0.6 Zes, water velocity xes, stable featur Subo Stable habitat ele present in 30-50% are adequate fo	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Coungth and width. Coungth and width. Coungth and width. Coungth and widths; worders and coungth and widths; worders and coungth and widths; worders. 70% 0.5	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85 Indition Scores using the state of the state	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh >3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75 ing the provided for you	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F Blocks 6	Low Poor: Impervious surfaces, mine poil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5 the sums Riparian equal 100 100% 100%	CI= (Sum % RA * : Rt Bank CI > Lt Bank CI > NOTES>>	1.50	

Stream Impact Assessment Form Page 2 Project # Applicant Cowardin Class Data Point SAR length Impact Factor 4. CHANNEL ALTERATION: Stream crossings, riprap, concrete, gabions, or concrete blocks, straightening of channel, channelization, NOTES>> embankments, spoil piles, constrictions, livestock Conditional Category Moderate Minor Negligible Severe 40 - 60% of reach is disrupted by any of the channel 20-40% of the stream reach is Less than 20% of Channel Iterations listed in alterations listed in Greater than 80% of reach is disrupted the stream reach the parameter guidelines. If the parameter Channelization, dredging, alteration, or hardening absent. Stream has an unaltered pattern or has naturalized. by any of the channel alterations listed in the parameter guidelines AND/OR 80% of banks shored with gabion, s disrupted by any disrupted by any Alteration of the channel Iterations listed i of the channel lterations listed i guidelines. If tream has been channelized, stream has been channelized, the parameter the parameter riprap, or cement. guidelines. guidelines. normal stable normal stable stream meander stream meander pattern has not pattern has not SCORE 1.5 1.3 1.1 0.9 0.7 0.5 1.30 REACH CONDITION INDEX and STREAM CONDITION UNITS FOR THIS REACH NOTE: The CIs and RCI should be rounded to 2 decimal places. The CR should be rounded to a whole number.

THE REACH CONDITION INDEX (RCI) >>

1.26

RCI= (Sum of all CI's)/5

COMPENSATION REQUIREMENT (CR) >> 0

CR = RCI X LF X IF

INSERT PHOTOS:







DOWNSTREAM



FSCRIRE	PROPOSED	IMPACT.

		Stre	Unit	fied Stream N	lethodology 1	Form	ginia	m 1)			
Project #		Project Name		Locality	cowardin Class.	HUC	Date Date	SAR#	Impact/SAR length	Impact Factor	
5337	I	-64 Peninsul	a	New Kent	R2UB2	02080206	11/3/11		141		
Name	e(s) of Evalua	tor(s)	Stream Nam	e and Informa	ation						1
	Aitkenhead / Nies		WUS 123M								
. Channel C	Condition: Asse	ess the cross-sec	ction of the stream		ondition (erosion, conditional Catego						
	Opti	imal	Subo	ptimal	Mar	ginal	Po	oor	Se	vere	1
Channel	Very little incision o	r active erosion; 80	erosion or unproted	ew areas of active cted banks. Majority table (60-80%).	Poor. Banks more	less than Severe or e stable than Severe ower bank slopes.	Vertically/laterally	ned/incised. unstable. Likely to jority of both banks	incision, flow co	nstability. Severe	
Condition	100% stable bar surface protection prominent (80-11 Stable point bars/be present. Access floodplain or fully bankfull benches. and transverse be sediment depositio 10% of l	n or natural rock, 00%). AND/OR ankfull benches are to their original developed wide Mid-channel bars, ars few. Transient n covers less than	Vegetative protect prominent (60- Depositional feat stability. The bar channels are well likely has access to or newly develope portions of the rediment covers 10 to the redi	itable (b0-90%). Itable (b0-90%). AND/OR tures contribute to hkfull and low flow II defined. Stream o bankfull benches, dd floodplains along reach. Transient 0-40% of the stream tom.	Erosion may be pr both banks. Veget 40-60% of banks. bevertical or unde 60% of strean sediment. Set temporary/tran instability. Depositi stability, may be AND/OR V-shap	resent on 40-60% of tative protection on Streambanks may ercut. AND/OR 40- m is covered by diment may be usient, contribute ion that contribute to be forming/present.	are near vertical. 60-80% of bar protection press banks, and is insi erosion. AND/O stream is cover Sediment is tem nature, and contri AND/OR V-shap vegetative protect	Erosion present on iks. Vegetative ent on 20-40% of ufficient to prevent R 60-80% of the red by sediment. porary/transient in buting to instability. led channels have it on is present on >	rooting depth, r vertical/under protection present banks, is not pr Obvious bank s Erosion/raw ba AND/OR Aggradir than 80% of strear deposition, contril Multiple thread	ned below average majority of banks cut. Vegetative on less than 20% of eventing erosion. sloughing present. Inks on 80-100%. Ing channel. Greater m bed is covered by buting to instability. I channels and/or	r
					banks and depositi	ion on > 40% of the ional features which	deposition	and stable sediment is absent.	Subterra	nean flow.	
Score	3	5		2.4		2	1	.6		1	3.0
2. RIPARIAN	N BUFFERS: A		Con	nditional Cate	gory Mar	ginal Low Marginal: Non-maintained,	Po High Poor:	n may be accepta	NOTES>>		
2. RIPARIAN Riparian Buffers	Opti Tree stratum (dbh > with > 60% tree ca	mal 3 inches) present, unopy cover and a lerstory. Wetlands	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy	gory	ginal Low Marginal:	Pe		NOTES>>		
Riparian	Option Tree stratum (dbh > with > 60% tree canon-maintained uncompaintained u	mal 3 inches) present, unopy cover and a lerstory. Wetlands	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory.	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation).	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover.	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh >3 inches) present, with <30% tree canopy cover with maintained understory.	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable condition.	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions.	NOTES>>		
Riparian	Option Tree stratum (dbh > with > 60% tree canon-maintained uncompaintained u	3 inches) present, inopy cover and a derstory. Wetlands e riparian areas.	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained	Low Suboptimal Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh > 3 inches) present, with <30% tree canopy cover with maintained	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable	NOTES>>		
Riparian Buffers Condition Scores Delineate ripalescriptors.	Tree stratum (dbh > with > 60% tree ca non-maintained unc located within the	imal 3 inches) present, incopy cover and a lerstory. Wetlands e riparian areas.	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 into Condition C	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Coungth and width. Coungth	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh > 3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5	NOTES>>		
Riparian Buffers Condition Scores Delineate ripe escriptors. Determine sq elow.	Tree stratum (dbh > with > 60% tree ca non-maintained unc located within the located with	imal 3 inches) present, intopy cover and a ferstory. Wetlands e riparian areas.	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 into Condition C	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Coungth and width. Coungth	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh > 3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5	NOTES>>		
Riparian Buffers Condition Scores Delineate ripalescriptors.	Tree stratum (dbh > with > 60% tree ca non-maintained unc located within the	imal 3 inches) present, incopy cover and a lerstory. Wetlands e riparian areas.	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 into Condition C	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Coungth and width. Coungth	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh > 3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5	NOTES>>		
Riparian Buffers Condition Scores Delineate ripz escriptors. Determine squelow.	Tree stratum (dbh > with > 60% tree ca non-maintained unc located within the located with	imal 3 inches) present, unopy cover and a lerstory. Wetlands e riparian areas. 5 each stream bank ach by measurin Score for each ri 100% 1.5	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 into Condition C	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Coungth and width. Coungth	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh > 3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5 the sums Riparian equal 100	NOTES>>		
Riparian Buffers Condition Scores Delineate ripaescriptors. Determine squelow. Enter the % F	Tree stratum (dbh > with > 60% tree ca non-maintained unc located within the located with	imal 3 inches) present, intopy cover and a ferstory. Wetlands e riparian areas. 5 each stream bank ach by measurin. Score for each ri	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 into Condition C	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Coungth and width. Coungth	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh > 3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5	NOTES>>	Scores*0.01)/2 1.50 1.50	CI 1.50
Condition Scores 1. Delineate ripadescriptors. 2. Determine squelow. 3. Enter the % F. Right Bank Left Bank 3. INSTREAR	Tree stratum (dbh > with > 60% tree canon-maintained unc located within the located withi	5 sach stream bank ach by measurin 100% 1.5 100% 1.5 aried substrate si	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 Into Condition C g or estimating ler parian category in	Inditional Cate ptimal Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Coungth and width. Coungth and width. Coungth and width. Coungth and depths; woo res.	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85 Indition Scores us calculators are production of the produc	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh >3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75 ing the povided for you	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F Blocks 6	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5 the sums Riparian equal 100 100%	NOTES>> Cl= (Sum % RA*: Rt Bank Cl >	1.50	
Condition Scores Delineate ripalescriptors. Delta Bank Right Bank Left Bank Left Bank INSTREAM Left Banks;	Tree stratum (dbh > with > 60% tree ca non-maintained unc located within the located with	imal 3 inches) present, nopy cover and a lerstory. Wetlands e riparian areas. 5 each stream bank ach by measuring 100% 1.5 100% 1.5 aried substrate siffle poole comple	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 Into Condition C g or estimating ler parian category in zes, water velocity ixes, stable featur	Inditional Cate ptimal Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Coungth and width. Coungth and width. Coungth and width. Coungth and depths; woo res.	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <a>3 inches) present, with <a>3 inches) present, or a tree canopy cover. High 0.85 Indition Scores us calculators are production of the control of th	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh >3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75 ing the povided for you	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F Blocks 6	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5 the sums Riparian equal 100 100%	NOTES>> Ci= (Sum % RA *: Rt Bank Ci > Lt Bank Ci >	1.50	
Condition Scores 1. Delineate ripadescriptors. 2. Determine squelow. 3. Enter the % F. Right Bank Left Bank 3. INSTREAR	Tree stratum (dbh > with > 60% tree ca non-maintained unc located within the located with	5 Score for each ri 100% 1.5 100% 1.5 100% 1.5 100% 1.5 100% 1.5 100% 1.5 100% 1.5 100% 1.5	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 Into Condition C g or estimating let parian category in zes, water velocity exes, stable featur Subo Stable habitat ele present in 30-50% are adequate fo	Inditional Cate ptimal Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Congth and width. Congth and width. Congth and width. Congth and depths; wores. Conditional	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85 Indition Scores us calculators are production of the present in 10-30 are adequate for a seadequate for the present in 10-30 are adequate for the present in 10-30 are adeq	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh >3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75 ing the povided for you	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % f Blocks 6	Low Poor: Impervious surfaces, mine poil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5 the sums Riparian equal 100 100% 100%	CI= (Sum % RA *: Rt Bank CI > Lt Bank CI > NOTES>>	1.50	CI 1.50

	St	ream In	npact A	ssessm	ent Fo	rm Pag	e 2		
Project #	Applicant		Locality	Cowardin Class.	HUC	Date	Data Point	SAR length	Impact Factor
								500	1
	L ALTERATION: Stream cross spoil piles, constrictions, livestock	ings, riprap, conci		concrete blocks, s	traightening of ch	annel, channeliz	ation,	NOTES>>	
	Negligible	Mir	nor	Mod	erate	Se	evere		
Channel Alteration	Channelization, dredging, alteration, or hardening absent. Stream has an unaltered pattern or has naturalized.	Less than 20% of the stream reach is disrupted by any of the channel alterations listed in the parameter guidelines.	20-40% of the stream reach is disrupted by any of the channel alterations listed in the parameter guidelines.	is disrupted by any of the channel	60 - 80% of reach is disrupted by any of the channel alterations listed in the parameter guidelines. If stream has been channelized, normal stable stream meander pattern has not	Greater than 80% by any of the char in the parameter 80% of banks s	of reach is disrupted nnel alterations listed guidelines AND/OR hored with gabion, or cement.		
SCORE	1.5	1.3	1.1	0.9	0.7	(0.5		
	REACH C	ONDITION	NDEX and S	TREAM CO	NDITION UN	ITS FOR TH	IIS REACH		
NOTE: The Cls and R	RCI should be rounded to 2 decimal places.	The CR should be rour	nded to a whole numb	er.			THE REACH (CONDITION IN	DEX (RCI) >>

RCI= (Sum of all Cl's)/5

COMPENSATION REQUIREMENT (CR) >>

CR = RCI X LF X IF

INSERT PHOTOS:

UPSTREAM



DESCRIBE PROPOSED IMPACT:	
	<u> </u>

		Uni	SSESS fied Stream N	lethodology 1	for use in Vir	ginia	m 1)			
Project #	Project Nam		Locality	Cowardin Class.	HUC	Date	SAR #	Impact/SAR length	Impact Factor	
5337	I-64 Peninsu	la	New Kent	R2UB2	02080206	11/3/11		472		
Name	e(s) of Evaluator(s)		e and Inform	ation						
	Aitkenhead / Nies	WUS 124M								
I. Channel C	Condition: Assess the cross-se	ction of the stream		ondition (erosion,						
	Optimal	Subo	ptimal		ginal	Po	oor	Sev	vere	
Channel Condition	Very little incision or active erosion; 8 100% stable banks. Vegetative surface protection or natural rock, prominent (80-100%). AND/OR	of banks are s Vegetative protect prominent (60	ew areas of active cted banks. Majority table (60-80%). tion or natural rock -80%) AND/OR	Poor. Banks more or Poor due to k Erosion may be pr both banks. Veget	less than Severe or stable than Severe ower bank slopes. esent on 40-60% of lative protection on	Vertically/laterally widen further. Ma are near vertical. 60-80% of bar	ned/incised. unstable. Likely to jority of both banks Erosion present on iks. Vegetative	incision, flow cor banks. Streamber rooting depth, n	Istability. Severe ntained within the ed below average najority of banks sut. Vegetative	
	Stable point bars/bankfull benches an present. Access to their original floodplain or fully developed wide bankfull benches. Mid-channel bars, and transverse bars few. Transient sediment deposition covers less than 10% of bottom.	stability. The bar channels are we likely has access to or newly develope portions of the sediment covers 10	tures contribute to inkfull and low flow Il defined. Stream to bankfull benches, and floodplains along reach. Transient 0-40% of the stream tom.	bevertical or under 60% of stream sediment. Set temporary/tran instability. Depositi stability, may be AND/OR V-shap vegetative protect	Streambanks may prout. AND/OR 40- n is covered by diment may be sient, contribute on that contribute to forming/present. ed channels have ion on > 40% of the ional features which	banks, and is ins erosion. AND/C stream is cove Sediment is tem nature, and contri AND/OR V-shap vegetative protec 40% of the banks	ent on 20-40% of ufficient to prevent was 60-80% of the red by sediment. porary/transient in buting to instability. Head channels have tion is present on > and stable sediment it is absent.	protection present of banks, is not pre Obvious bank sl Erosion/raw bar AND/OR Aggradin than 80% of strean deposition, contrib Multiple thread	on less than 20% of eventing erosion. loughing present. nks on 80-100%. In channel. Greater m bed is covered by buting to instability. channels and/or nean flow.	CI
Score	3	2	2.4		2	1	.6		1	2.0
. NI ANAN	Optimal	Con	nditional Cate	gory	ginal		oor	NOTES>>		
Riparian Buffers	Tree stratum (dbh > 3 inches) present	High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches)	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches)	High Marginal: Non-maintained,	Low Marginal: Non-maintained, dense herbaceous vegetation,	High Poor: Lawns, mowed,				
	with > 60% tree canopy cover and a non-maintained understory. Wetland: located within the riparian areas.	to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory.	maintained understory. Recent cutover (dense vegetation).	dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover.	riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh > 3 inches) present, with < 30% tree canopy cover with maintained understory.	and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable condition.	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions.			
Condition Scores	non-maintained understory. Wetland	to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained	30% tree canopy cover and a maintained understory. Recent cutover (dense	vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree	riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh >3 inches) present, with <30% tree canopy cover with maintained	areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable	Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable			
Scores 1. Delineate ripa descriptors. 2. Determine squeelow.	non-maintained understory. Wetland: located within the riparian areas.	to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 Ik into Condition Cong or estimating length of the condition Con	30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Congth and width. Congth an	vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85	riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh >3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75	areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % I	Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions.	Cl= (Sum % RA * \$	Scores*0.01)/2	
Scores 1. Delineate ripa descriptors. 2. Determine squelow. 3. Enter the % R Right Bank	non-maintained understory. Wetlands located within the riparian areas. 1.5 arian areas along each stream bar quare footage for each by measuring Riparian Area and Score for each 100%	to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 Ik into Condition Cong or estimating length of the condition Con	30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Congth and width. Congth an	vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85	riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh >3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75	areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % I	Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5	CI= (Sum % RA * S Rt Bank CI >	Scores*0.01)/2	CI
Scores Delineate ripa lescriptors. Determine squelow. Before Reference Refe	1.5 arian areas along each stream bar quare footage for each by measuring Riparian Area and Score for each to Riparian Area and Score for each to Score > 1.5	to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 Ik into Condition Cong or estimating length of the condition Con	30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Congth and width. Congth an	vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85	riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh >3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75	areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % I	Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5 the sums Riparian equal 100 100%			CI 1.50
Scores Delineate ripa lescriptors. Determine squelow. Enter the % R Right Bank Left Bank INSTREAN	1.5 1.5 arian areas along each stream bar guare footage for each by measuring Riparian Area and Score for each 1% Riparian Area 100% Score > 1.5 W Riparian Area 100% Score > 1.5 W HABITAT: Varied substrate s	to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 Ik into Condition Cong or estimating let iparian category in iparian c	30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Congth and width. Conthe blocks below	vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85 addition Scores us calculators are process.	riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh > 3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75 ing the vided for you	areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % I Blocks 6	Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5 the sums Riparian equal 100 100%	Rt Bank CI >	1.50	
Scores 1. Delineate ripa Jescriptors. 2. Determine squ pelow. 3. Enter the % R Right Bank Left Bank 3. INSTREAN	1.5 1.5 arian areas along each stream bar quare footage for each by measuring Riparian Area and Score for each with the stream Area and Score for each the	to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 Ik into Condition Cong or estimating let iparian category in iparian c	30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Congth and width. Congth and width. Congth and width. Congth and depths; workers.	vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85 addition Scores us calculators are process.	riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh > 3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75 ing the vided for you	areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % I Blocks 6	Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5 the sums Riparian equal 100 100%	Rt Bank CI >	1.50	
Scores 1. Delineate ripa descriptors. 2. Determine squeelow. 3. Enter the % R Right Bank Left Bank 3. INSTREAN	1.5 1.5 arian areas along each stream bar guare footage for each by measuring Riparian Area and Score for each 1% Riparian Area 100% Score > 1.5 W Riparian Area 100% Score > 1.5 W HABITAT: Varied substrate s	to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 Ik into Condition Cong or estimating let iparian category in sizes, water velocit exes, stable featur Subo Stable habitat ele present in 30-50 are adequate fo are canopy contained and containe	30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Congth and width. Congth and width. Congth and width. Congth and depths; workers.	vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85 addulators are production of the condition of the condi	riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh > 3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75 ing the vided for you	areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % I Blocks of Habitat element lacking or are Lelements are typic	Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5 the sums Riparian equal 100 100%	Rt Bank CI >	1.50	

Stream Impact Assessment Form Page 2 Project # Applicant Cowardin Class Data Point SAR length Impact Factor 4. CHANNEL ALTERATION: Stream crossings, riprap, concrete, gabions, or concrete blocks, straightening of channel, channelization, NOTES>> embankments, spoil piles, constrictions, livestock Conditional Category Moderate Minor Negligible Severe 40 - 60% of reach is disrupted by any of the channel of the channel 20-40% of the stream reach is Less than 20% of Channel Iterations listed in alterations listed in Greater than 80% of reach is disrupted the stream reach the parameter guidelines. If the parameter Channelization, dredging, alteration, or hardening absent. Stream has an unaltered pattern or has naturalized. by any of the channel alterations listed in the parameter guidelines AND/OR 80% of banks shored with gabion, s disrupted by any disrupted by any Alteration of the channel Iterations listed i of the channel lterations listed i guidelines. If tream has been channelized, stream has been channelized, the parameter the parameter riprap, or cement. guidelines. guidelines. normal stable normal stable stream meander stream meander pattern has not pattern has not SCORE 1.5 1.3 1.1 0.9 0.7 0.5 1.30 REACH CONDITION INDEX and STREAM CONDITION UNITS FOR THIS REACH THE REACH CONDITION INDEX (RCI) >> NOTE: The CIs and RCI should be rounded to 2 decimal places. The CR should be rounded to a whole number. 1.14

RCI= (Sum of all CI's)/5

COMPENSATION REQUIREMENT (CR) >>

0 CR = RCI X LF X IF

INSERT PHOTOS:

UPSTREAM



DESCRIBE PROPOSED IMPACT.		

DESCRIBE BRODOSED IMPACT.

		Stre		fied Stream N	lethodology f	for use in Vir	ginia	,			
Project #	I	Project Name		Locality	Cowardin Class.	s intermittent or	perennial Date	SAR#	Impact/SAR length	Impact Factor	
5337	ŀ	-64 Peninsul	a	New Kent	R2UB2	02080206	11/3/11		443		
Name	e(s) of Evalua	tor(s)		e and Informa	ation						
	Aitkenhead / Nies		WUS 125M								
. Channel C	Condition: Asse	ess the cross-sec	ction of the stream								
	Opti	imal	Subo	ptimal	Conditional Catego Mar	ginal	Po	oor	Se	/ere	
Channel Condition	Very little incision or 100% stable ban surface protection prominent (80-11	nks. Vegetative n or natural rock, 00%). AND/OR	erosion or unprotei of banks are s Vegetative protec prominent (60	ew areas of active cted banks. Majority table (60-80%). tion or natural rock -80%) AND/OR tures contribute to	Poor. Banks more or Poor due to lo Erosion may be pr both banks. Veget	less than Severe or stable than Severe wer bank slopes. esent on 40-60% of tative protection on Streambanks may	Vertically/laterally widen further. Ma are near vertical. 60-80% of bar	ned/incised. unstable. Likely to jority of both banks Erosion present on ks. Vegetative nt on 20-40% of	incision, flow co banks. Streamb rooting depth, r vertical/under	stability. Severe tained within the ad below average nejority of banks urt. Vegetative	
	Stable point bars/ba present. Access floodplain or fully bankfull benches. and transverse ba sediment depositio 10% of I	s to their original of developed wide Mid-channel bars, ars few. Transient in covers less than bottom.	stability. The bar channels are we likely has access t or newly develope portions of the sediment covers 10 bot	nkfull and low flow Il defined. Stream o bankfull benches, de floodplains along reach. Transient 0-40% of the stream tom.	bevertical or unde 60% of stream sediment. Sed temporary/tran instability. Depositi stability, may be AND/OR V-shap vegetative protecti banks and depositi	ercut. AND/OR 40- n is covered by diment may be sient, contribute on that contribute to forming/present. ed channels have ion on > 40% of the ional features which	banks, and is insuerosion. AND/O stream is cover Sediment is temp nature, and contri AND/OR V-shap vegetative protect 40% of the banks a deposition	ufficient to prevent R 60-80% of the ed by sediment. or orary/transient in buting to instability. ed channels have ion is present on > and stable sediment is absent.	banks, is not pro Obvious bank s Erosion/raw ban AND/OR Aggradir than 80% of strear deposition, contril Multiple thread subterrar	on less than 20% of eventing erosion. oughing present. hks on 80-100%. It can be discovered by outing to instability. channels and/or lean flow.	CI
Score	3	3	2	2.4		2	1	.6		1	2.4
2. RIPARIAI	N BUFFERS: A		Con	n areas along the nditional Cate ptimal	gory	ginal Low Marginal:	Po	n may be accepta	NOTES>>		
Riparian Buffers		imal 3 inches) present, anopy cover and a derstory. Wetlands	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy	gory	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh > 3 inches) present, with <30% tree canopy cover with maintained			NOTES>>		
Riparian Buffers	Option Tree stratum (dbh > with > 60% tree canon-maintained unc	imal 3 inches) present, anopy cover and a derstory. Wetlands	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh >3 inches) present, with 30% inches) present, canopy cover with	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable	NOTES>>		
Riparian	Option Tree stratum (dbh > with > 60% tree canon-maintained unc	• 3 inches) present, anopy cover and a derstory. Wetlands e riparian areas.	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory.	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation).	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover.	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh >3 inches) present, with <a>30 % tree canopy cover with maintained understory.	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, recently seeded and stabilized, or other comparable condition.	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions.	NOTES>>		
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Riparian Buffers Condition Scores Delineate ripa escriptors. Determine squelow. Enter the % F	Tree stratum (dbh > with > 60% tree ca non-maintained unc located within the	imal 3 inches) present, anopy cover and a derstory. Wetlands e riparian areas. 5 ach stream banl ach by measurin.	Com Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 into Condition C	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Coungth and width. Coungth	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh > 3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5	NOTES>>		
Riparian Buffers Condition Scores Delineate ripa escriptors. Determine squelow. Enter the % F	Tree stratum (dbh > with > 60% tree ca non-maintained unc located within the	imal 3 inches) present, anopy cover and a derstory. Wetlands e riparian areas.	Com Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 into Condition C	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Coungth and width. Coungth	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh > 3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5	NOTES>>		
Riparian Buffers Condition Scores Delineate ripa escriptors. Determine squelow. Enter the % F	Tree stratum (dbh > with > 60% tree canon-maintained unc located within the located withi	imal 3 inches) present, anopy cover and a derstory. Wetlands e riparian areas. 5 ach stream bank ach by measurin. Score for each ri	Com Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 into Condition C	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Coungth and width. Coungth	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh > 3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5	NOTES>> Cl= (Sum % RA**	Scores*0.01)/2	
Riparian Buffers Condition Scores Delineate ripa escriptors. Determine squelow. Enter the % F	Tree stratum (dbh > with > 60% tree ca non-maintained unc located within the located with	imal 3 inches) present, anopy cover and a derstory. Wetlands e riparian areas. 5 ach stream banl ach by measurin Score for each ri 100% 1.5	Com Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 into Condition C	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Coungth and width. Coungth	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh > 3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5	NOTES>> Cl= (Sum % RA**) Rt Bank Cl >	1.50	CI
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Riparian Buffers Condition Scores Delineate ripa escriptors. Determine squelow. Enter the % R Right Bank Left Bank	Tree stratum (dbh > with > 60% tree ca non-maintained unc located within the located with	imal 3 inches) present, anopy cover and a derstory. Wetlands e riparian areas. 5 ach stream bank ach by measuring the stream bank	Com Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 Into Condition C g or estimating let parian category in	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Congth and width. Control with the blocks below yand depths; woo	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh > 3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75 ing the production of the product	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F Blocks 6	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5 the sums Riparian equal 100 100%	NOTES>> Cl= (Sum % RA**) Rt Bank Cl >	1.50	
Condition Scores Delineate ripa descriptors. Determine squelow. Right Bank Left Bank INSTREAM	Tree stratum (dbh > with > 60% tree ca non-maintained unc located within the located with	imal 3 inches) present, anopy cover and a derstory. Wetlands e riparian areas. 5 each stream band ach by measuring 100% 1.5 100% 1.5 arried substrate siffle poole complete.	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 s into Condition C g or estimating let parian category in zes, water velocit ixes, stable featur	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Co ngth and width. Co n the blocks below y and depths; wodes. Conditiona	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85 Indition Scores usional calculators are production of the control of the contr	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh >3 inches) present, with <a>30 % tree canopy cover with maintained understory. Low 0.75 Ing the production of the present	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F Blocks 6	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5 the sums Riparian riqual 100 100%	CI= (Sum % RA * ; Rt Bank CI > Lt Bank CI >	1.50	
Riparian Buffers Condition Scores Delineate ripa descriptors. Descriptors. Descriptors. Right Bank Left Bank Left Bank INSTREAM undercut banks;	Tree stratum (dbh > with > 60% tree ca non-maintained unc located within the located with	imal 3 inches) present, anopy cover and a derstory. Wetlands e riparian areas. 5 each stream band ach by measuring 100% 1.5 100% 1.5 arried substrate siffle poole complete.	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 s into Condition C g or estimating let parian category in zes, water velocit ixes, stable featur	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Coungth and width. Coungth and width. Coungth and width. Coungth and depths; woodes.	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85 Indition Scores usional calculators are production of the control of the contr	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh > 3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75 ing the production of the product	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F Blocks 6	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5 the sums Riparian equal 100 100%	CI= (Sum % RA * ; Rt Bank CI > Lt Bank CI >	1.50	
Condition Scores Delineate ripa descriptors. Deltremine squelow. Enter the % R Right Bank Left Bank Left Bank J. INSTREAN Andercut banks;	Tree stratum (dbh > with > 60% tree ca non-maintained unc located within the located with	imal 3 inches) present, anopy cover and a derstory. Wetlands e riparian areas. 5 each stream bani ach by measurin Score for each ri 100% 1.5 100% 1.5 ried substrate si ffle poole completimal	Com Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 Into Condition C g or estimating let parian category in zes, water velocit exes, stable featur Subo Stable habitat ele present in 30-509 are adequate fo	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Co ngth and width. Co n the blocks below y and depths; wodes. Conditiona	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85 Indition Scores usion all Category Mar Stable habitat ele present in 10-30% are adequate fo	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh >3 inches) present, with <a>30 % tree canopy cover with maintained understory. Low 0.75 Ing the production of the present	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F Blocks 6	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5 the sums Riparian riqual 100 100%	CI= (Sum % RA * : Rt Bank CI > Lt Bank CI > NOTES>>	1.50	

	St	ream In	npact A	ssessm	ent Fo	rm Pag	e 2		
Project #	Applicant		Locality	Cowardin Class.	HUC	Date	Data Point	SAR length	Impact Factor
								500	1
	L ALTERATION: Stream cross spoil piles, constrictions, livestock	sings, riprap, conc		concrete blocks, s	traightening of ch	annel, channeliz	ation,	NOTES>>	
	Negligible	Mi	nor		erate	Se	evere		
Channel Alteration	Channelization, dredging, alteration, or hardening absent. Stream has an unaltered pattern or has naturalized.	Less than 20% of the stream reach is disrupted by any of the channel alterations listed in the parameter guidelines.	20-40% of the stream reach is disrupted by any of the channel alterations listed in the parameter guidelines.	is disrupted by any of the channel	is disrupted by any of the channel	Greater than 80% by any of the char in the parameter 80% of banks s	of reach is disrupted nnel alterations listed guidelines AND/OR hored with gabion, or cement.		
SCORE	1.5	1.3	1.1	0.9	0.7	(0.5		
	REACH C	CONDITION	NDEX and S	TREAM CO	NDITION UN	ITS FOR TH	IIS REACH		
NOTE: The Cls and I	RCI should be rounded to 2 decimal places.	The CR should be rou	nded to a whole numb	oer.			THE REACH (CONDITION IN	DEX (RCI) >>

RCI= (Sum of all Cl's)/5

COMPENSATION REQUIREMENT (CR) >>

CR = RCI X LF X IF

INSERT PHOTOS:

DOWNSTREAM



		Stre	Uni	fied Stream N	lethodology 1	Form	ginia	m 1)			
Project #		Project Name		Locality	cowardin Class.	HUC	Date Date	SAR#	Impact/SAR length	Impact Factor	
5337	ŀ	-64 Peninsul	a	New Kent	R2UB2	02080206	11/8/11		118		
Name	e(s) of Evalua	tor(s)	Stream Nam	e and Informa	ation						
	Aitkenhead / Nies		WUS 126M								
. Channel C	Condition: Asse	ess the cross-sec	ction of the stream		ondition (erosion, conditional Catego						
	Opti	imal	Subo	ptimal	Mar	ginal	Po	oor	Se	vere	
Channal	Very little incision o	or active erosion; 80	erosion or unproted	ew areas of active cted banks. Majority table (60-80%).	Poor. Banks more	less than Severe or stable than Severe ower bank slopes.	Vertically/laterally	ied/incised. unstable. Likely to jority of both banks	incision, flow co	nstability. Severe	
Channel Condition	100% stable bar surface protection prominent (80-1) Stable point bars/be present. Access floodplain or fully bankfull benches. and transverse be sediment depositio 10% of l	n or natural rock, 00%). AND/OR ankfull benches are s to their original of developed wide, Mid-channel bars, ars few. Transient on covers less than	Vegetative protect prominent (60 Depositional feat stability. The ban channels are we likely has access to or newly develope portions of the to sediment covers 10	table (b0-90%). Italia (b0-90%). AND/OR tures contribute to hkfull and low flow Il defined. Stream o bankfull benches, ad floodplains along reach. Transient 0-40% of the stream tom.	Erosion may be pr both banks. Veget 40-60% of banks. bevertical or unde 60% of strean sediment. Set temporary/tran instability. Depositi stability, may be AND/OR V-shap	resent on 40-60% of tative protection on Streambanks may ercut. AND/OR 40- in is covered by diment may be sient, contribute on that contribute to forming/present.	are near vertical. 60-80% of bar protection press banks, and is insi erosion. AND/O stream is cover Sediment is tem nature, and contri AND/OR V-shap vegetative protect	Erosion present on ks. Vegetative ent on 20-40% of ufficient to prevent R 60-80% of the ed by sediment. porary/transient in buting to instability, ed channels have ion is present on >	rooting depth, r vertical/under protection present banks, is not pr Obvious bank s Erosion/raw ba AND/OR Aggradir than 80% of strear deposition, contril Multiple thread	ned below average majority of banks cut. Vegetative on less than 20% of eventing erosion. sloughing present. Inks on 80-100%. In gchannel. Greater m bed is covered by buting to instability. I channels and/or	CI
					banks and depositi	ion on > 40% of the ional features which	deposition	and stable sediment is absent.	subterra	nean flow.	
Score	3	3	2	2.4		2	1	.6		1	2.4
	N BUFFERS: A		Con	nditional Cate	gory Mar	ginal Low Marginal: Non-maintained,		n may be accepta	NOTES>>		
RIPARIAN Riparian Buffers	Opti	imal > 3 inches) present, anopy cover and a derstory. Wetlands	Cor Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy	gory	ginal Low Marginal:	Po High Poor:		NOTES>>		
. RIPARIAN	Option Tree stratum (dbh > with > 60% tree canon-maintained uncommaintained u	imal > 3 inches) present, anopy cover and a derstory. Wetlands	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory.	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation).	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover.	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh >3 inches) present, with <30% tree canopy cover with maintained understory.	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable condition.	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions.	NOTES>>		
2. RIPARIAN	Option Tree stratum (dbh > with > 60% tree canon-maintained uncommaintained u	imal 3 inches) present, anopy cover and a derstory. Wetlands e riparian areas.	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained	Low Suboptimal Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh > 3 inches) present, with <30% tree canopy cover with maintained	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable	NOTES>>		
Riparian Buffers Condition Scores Delineate ripalescriptors. Determine squelow.	Tree stratum (dbh > with > 60% tree ca non-maintained unc located within the	imal 3 inches) present, anopy cover and a derstory. Wetlands e riparian areas. 5 each stream bankach by measuring	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 into Condition C	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Coungth and width. Coungth	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh > 3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % I	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5	NOTES>>		
Riparian Buffers Condition Scores Delineate ripa escriptors. Determine squelow.	Tree stratum (dbh > with > 60% tree ca non-maintained unc located within the	imal 3 inches) present, anopy cover and a derstory. Wetlands e riparian areas. 5 each stream bank ach by measurin.	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 into Condition C	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Coungth and width. Coungth	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh > 3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % I	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5	NOTES>>		
Riparian Buffers Condition Scores Delineate rips escriptors. Determine squelow. Enter the % F	Tree stratum (dbh > with > 60% tree ca non-maintained unc located within the	imal 3 inches) present, anopy cover and a derstory. Wetlands e riparian areas. 5 each stream bankach by measuring	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 into Condition C	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Coungth and width. Coungth	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh > 3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % I	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5	NOTES>>		
Riparian Buffers Condition Scores Delineate rips escriptors. Determine squelow. Enter the % F	Tree stratum (dbh > with > 60% tree canon-maintained unc located within the located withi	imal 3 inches) present, anopy cover and a derstory. Wetlands e riparian areas. 5 each stream bank ach by measurin Score for each ri	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 into Condition C	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Coungth and width. Coungth	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh > 3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % I	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5	NOTES>>		
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Riparian Buffers Condition Scores Delineate ripalescriptors. Determine squelow. Enter the % F. Right Bank Left Bank I. Left Bank	Tree stratum (dbh > with > 60% tree canon-maintained unc located within the located withi	imal 3 inches) present, anopy cover and a derstory. Wetlands e riparian areas. 5 each stream bank ach by measurin 100% 1.5 100% 1.5 aried substrate si	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 into Condition C g or estimating let parian category in	Inditional Cate ptimal Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Congth and width. Congth and width. Congth and width. Congth and depths; workers.	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85 Indition Scores us calculators are production of the product	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh >3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75 ing the ovided for you	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F Blocks 6	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5 the sums Riparian equal 100 100%	NOTES>>		
Riparian Buffers Condition Scores Delineate ripalescriptors. Determine squelow. Enter the % F. Right Bank Left Bank INSTREAM Indercut banks;	Tree stratum (dbh > with > 60% tree ca non-maintained und located within the located with	imal 3 inches) present, anopy cover and a derstory. Wetlands e riparian areas. 5.5 Each stream bank ach by measuring the stream bank and by measuring the stream bank and the stream bank ach by measuring the stream bank ach by me	Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 Into Condition C g or estimating le	Inditional Cate ptimal Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Congth and width. Congth and width. Congth and width. Congth and depths; wores. Conditional	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <a>3 inches) present, with <a>3 inches) present, or a tree canopy cover. High 0.85 Indition Scores us calculators are production of the control of th	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh >3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75 ing the price of the production of the present of the	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F Blocks 6	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5 the sums Riparian equal 100 100%	NOTES>> Ci= (Sum % RA *: Rt Bank Ci > Lt Bank Ci >	1.50	
Riparian Buffers Condition Scores Delineate ripalescriptors. Determine squelow. Enter the % F. Right Bank Left Bank I. Left Bank	Tree stratum (dbh > with > 60% tree ca non-maintained und located within the located with	imal 3 inches) present, anopy cover and a derstory. Wetlands e riparian areas. 5 5 cach stream bank ach by measuring the stream	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 Into Condition C g or estimating let parian category in Zes, water velocit exes, stable featur Subo Stable habitat ele present in 30-509 are adequate fo	Inditional Cate ptimal Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Congth and width. Congth and width. Congth and width. Congth and depths; workers.	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85 Indition Scores us calculators are production of the present in 10-30 are adequate for a seadequate for the present in 10-30 are adequate for the present in 10-30 are adeq	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh >3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75 ing the ovided for you	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % f Blocks 6	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5 the sums Riparian equal 100 100% 100%	CI= (Sum % RA *: Rt Bank CI > Lt Bank CI > NOTES>>	1.50	CI 1.50

	St	ream In	npact A	ssessm	ent Fo	rm Pag	e 2		
Project #	Applicant		Locality	Cowardin Class.	HUC	Date	Data Point	SAR length	Impact Factor
								500	1
	ALTERATION: Stream cross poil piles, constrictions, livestock	sings, riprap, conci		concrete blocks, s	traightening of ch	annel, channeliza	ation,	NOTES>>	
	Negligible	Mii	nor		erate		vere		
Channel Alteration	or hardening absent. Stream has an	Less than 20% of the stream reach is disrupted by any of the channel alterations listed in the parameter guidelines.	20-40% of the stream reach is disrupted by any of the channel	is disrupted by any of the channel	of the channel	Greater than 80% by any of the char in the parameter 80% of banks sl	of reach is disrupted nnel alterations listed guidelines AND/OR hored with gabion, or cement.		
SCORE	1.5	1.3	1.1	0.9	0.7	(0.5		
	REACH C	ONDITION II	NDEX and S	TREAM CO	NDITION UN	ITS FOR TH	IIS REACH		
NOTE: The Cls and F	RCI should be rounded to 2 decimal places.	The CR should be rour	nded to a whole numb	oer.			THE REACH (CONDITION IN	DEX (RCI) >>

RCI= (Sum of all Cl's)/5

COMPENSATION REQUIREMENT (CR) >> CR = RCI X LF X IF



DESCRIBE PROPOSED INIFACT.	DESCRIBE PROPOSED IMPACT:	
	DESCRIBE PROPOSED IMPACT.	

		Stre	Uni	SSESS fied Stream N	lethodology 1	for use in Vir	ginia	m 1)			
Project #		Project Name		Locality	cowardin Class.	HUC	Date Date	SAR#	Impact/SAR length	Impact Factor	
5337	ŀ	-64 Peninsul	a	James City	R2UB2	02080206	11/3/11		294		
Name	e(s) of Evaluat	tor(s)	Stream Nam	e and Informa	ation						
	Aitkenhead / Nies		WUS 127M								
. Channel C	Condition: Asse	ess the cross-sec	ction of the stream		ondition (erosion, conditional Catego						
	Opti	imal	Subo	ptimal	Mar	ginal	Po	oor	Se	vere	
	Very little incision o	r active erosion: 80	erosion or unproted	ew areas of active cted banks. Majority	Poor. Banks more	less than Severe or stable than Severe	Vertically/laterally	ned/incised. unstable. Likely to		nstability. Severe	
Channel Condition	100% stable bar surface protection prominent (80-11 Stable point bars/ba present. Access floodplain or fully bankfull benches. and transverse ba sediment depositio 10% of I	nks. Vegetative n or natural rock, 00%). AND/OR ankfull benches are to their original developed wide Mid-channel bars, ars few. Transient n covers less than	Vegetative protect prominent (60 Depositional feat stability. The bar channels are we likely has access t or newly develope portions of the is sediment covers 11.	stable (60-80%). tion or natural rock -80%) AND/OR tures contribute to nkfull and low flow il defined. Stream to bankfull benches, and floodplains along reach. Transient 0-40% of the stream tom.	Erosion may be pr both banks. Veget 40-60% of banks. bevertical or unde 60% of stream sediment. Se- temporary/tran instability. Depositi stability, may be	ower bank slopes. esent on 40-60% of tative protection on Streambanks may ercut. AND/OR 40- n is covered by diment may be sient, contribute on that contribute to e forming/present. ed channels have	are near vertical. 60-80% of bar protection prese banks, and is inst erosion. AND/O stream is cover Sediment is temp nature, and contri AND/OR V-shap	jority of both banks Erosion present on iks. Vegetative ent on 20-40% of afficient to prevent R 60-80% of the red by sediment. corary/transient in buting to instability. ed channels have ion is present on >	rooting depth, r vertical/underr protection present banks, is not pr Obvious bank s Erosion/raw ban AND/OR Aggradir than 80% of strear deposition, contril	ed below average majority of banks cut. Vegetative on less than 20% of eventing erosion. loughing present. nks on 80-100%. ng channel. Greater n bed is covered by buting to instability. channels and/or	
					banks and depositi	ion on > 40% of the ional features which	deposition	and stable sediment is absent.	subterra	nean flow.	CI
Score	3	3	2	2.4		2	1	.6		1	2.0
. RIPARIAN	N BUFFERS: A		Con	nditional Cate	gory Mar	ginal Low Marginal: Non-maintained,		n may be accepta	NOTES>>		
RIPARIAN Riparian Buffers	Opti Tree stratum (dbh > with > 60% tree ca	mal 3 inches) present, unopy cover and a lerstory. Wetlands	Cor Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy	gory	ginal Low Marginal:	Po				
Riparian	Option Tree stratum (dbh > with > 60% tree canon-maintained unc	mal 3 inches) present, unopy cover and a lerstory. Wetlands	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory.	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation).	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover.	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh >3 inches) present, with <30% tree canopy cover with maintained understory.	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable condition.	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions.			
Riparian	Option Tree stratum (dbh > with > 60% tree canon-maintained unc	3 inches) present, inopy cover and a derstory. Wetlands e riparian areas.	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained	Low Suboptimal Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh > 3 inches) present, with <30% tree canopy cover with maintained	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable			
Riparian Buffers Condition Scores Delineate ripa escriptors. Determine sq elow.	Tree stratum (dbh > with > 60% tree ca non-maintained unc located within the	imal 3 inches) present, incopy cover and a lerstory. Wetlands e riparian areas.	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 into Condition C	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 Lategories and Coungth and width. Coungth and width. Coungth and width. Coungth and width. Coungth and coungth and width. Coungth and width. Coungth and width. Coungth areas with particular areas with the properties of the proper	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh > 3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5			
Riparian Buffers Condition Scores Delineate ripasscriptors. Determine square.	Tree stratum (dbh > with > 60% tree ca non-maintained unc located within the	imal 3 inches) present, intopy cover and a ferstory. Wetlands e riparian areas.	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 k into Condition C g or estimating ler parian category in	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 Lategories and Congth and width.	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh > 3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5			
Riparian Buffers Condition Scores Delineate ripaescriptors. Determine squelow. Enter the % F	Tree stratum (dbh > with > 60% tree ca non-maintained unc located within the	imal 3 inches) present, incopy cover and a lerstory. Wetlands e riparian areas.	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 into Condition C	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 Lategories and Coungth and width. Coungth and width. Coungth and width. Coungth and width. Coungth and coungth and width. Coungth and width. Coungth and width. Coungth areas with particular areas with the properties of the proper	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh > 3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5	NOTES>>		
Riparian Buffers Condition Scores Delineate ripaescriptors. Determine squelow. Enter the % F	Tree stratum (dbh > with > 60% tree canon-maintained unclocated within the located within	imal 3 inches) present, unopy cover and a lerstory. Wetlands e riparian areas. 5 each stream bank ach by measurin Score for each ri 40% 1.1	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 into Condition C g or estimating ler parian category in	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 Lategories and Coungth and width. Counth blocks below	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh > 3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5 the sums Riparian equal 100	NOTES>>		
Riparian Buffers Condition Scores Delineate ripascriptors. Determine squelow. Enter the % F	Tree stratum (dbh > with > 60% tree ca non-maintained unc located within the located with	imal 3 inches) present, unopy cover and a lerstory. Wetlands e riparian areas. 5 each stream bank ach by measuring the stream bank and by measuring the stream bank and the stream bank	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 k into Condition C g or estimating ler parian category in	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 Lategories and Coungth and width. Counth blocks below	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh > 3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5	NOTES>> CI= (Sum % RA** Rt Bank CI >	0.76	CI
Condition Scores Delineate ripa escriptors. Determine squelow. Enter the % F Right Bank Left Bank B. INSTREAR	Tree stratum (dbh > with > 60% tree canon-maintained unc located within the located withi	imal 3 inches) present, unopy cover and a lerstory. Wetlands e riparian areas. 5 ach stream bank ach by measuring the stream bank ach by	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 into Condition C g or estimating ler parian category in 20% 0.6	Inditional Cate potimal Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 Sategories and Coungth and width. Coungth and width. Coungth and width. Coungth and width. Coungth and depths; woores.	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85 Indition Scores us calculators are production of the produc	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh >3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75 ing the ovided for you	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F Blocks 6	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5 the sums Riparian equal 100 100%	NOTES>>		CI 0.93
Condition Scores Delineate ripa escriptors. Determine squelow. Enter the % R Right Bank Left Bank Instread	Tree stratum (dbh > with > 60% tree ca non-maintained unc located within the located with	imal 3 inches) present, nopy cover and a lerstory. Wetlands e riparian areas. 5 each stream bank ach by measuring the stream bank	Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 Into Condition C g or estimating length of the parian category in 20% 0.6	Inditional Cate potimal Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 Sategories and Co ngth and width. Co n the blocks below 40% 0.5	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <a>3 inches) present, with <a>3 inches) present, or a tree canopy cover. High 0.85 Indition Scores us calculators are production of the control of th	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh >3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75 ing the price of the production of the present of the	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F Blocks 6	Low Poor: Impervious surfaces, mine pool lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5 the sums Riparian equal 100 100% 100%	NOTES>> CI= (Sum % RA * S Rt Bank CI > Lt Bank CI >	0.76	
Condition Scores Delineate ripalescriptors. Determine squelow. Enter the % F. Right Bank Left Bank	Tree stratum (dbh > with > 60% tree canon-maintained unclocated within the located within	5 Score for each ri 40% 1.1 100% 1.1 reight substrate siffle poole completing the process of	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 into Condition C g or estimating let parian category in 20% 0.6 Stable habitat ele present in 30-509 are adequate fo	Inditional Cate potimal Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 Sategories and Coungth and width. Coungth and width. Coungth and width. Coungth and width. Coungth and depths; woores.	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85 Indition Scores us calculators are production of the present in 10-30 are adequate for a seadequate for the present in 10-30 are adequate for the present in 10-30 are adeq	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh >3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75 ing the ovided for you	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F Blocks 6	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5 the sums Riparian equal 100 100%	NOTES>> CI= (Sum % RA * S Rt Bank CI > Lt Bank CI >	0.76	

	St	ream In	npact A	ssessm	nent Fo	rm Pag	e 2		
Project #	Applicant		Locality	Cowardin Class.	HUC	Date	Data Point	SAR length	Impact Factor
								500	1
	L ALTERATION: Stream cross poil piles, constrictions, livestock	ings, riprap, conc		concrete blocks, s	traightening of ch	annel, channeliza	ation,	NOTES>>	
	Negligible	Mi	nor		erate		vere		
Channel Alteration	Channelization, dredging, alteration, or hardening absent. Stream has an unaltered pattern or has naturalized.	Less than 20% of the stream reach is disrupted by any of the channel alterations listed in the parameter guidelines.	20-40% of the stream reach is disrupted by any of the channel	is disrupted by any of the channel	of the channel	Greater than 80% by any of the chan in the parameter 80% of banks sh	of reach is disrupted nel alterations listed guidelines AND/OR nored with gabion, or cement.		
SCORE	1.5	1.3	1.1	0.9	0.7	0).5		
	REACH C	ONDITION I	NDEX and S	TREAM CO	NDITION UN	ITS FOR TH	IIS REACH		
NOTE: The Cls and F	RCI should be rounded to 2 decimal places.	The CR should be rou	nded to a whole numb	er.			THE REACH (CONDITION IN	DEX (RCI) >>

CR = RCI X LF X IF



DESCRIBE PROPOSED IMPACT:		

		Stre		fied Stream N	lethodology f	or use in Virg	ginia	,			
Project #		Project Name		Locality	Cowardin Class.	s intermittent or	perennial Date	SAR#	Impact/SAR length	Impact Factor	
5337	1	-64 Peninsul	a	James City	R2UB2	02080206	11/3/11		165		
Name	e(s) of Evalua	tor(s)	Stream Nam	e and Informa	ation						
	Aitkenhead / Nies		WUS 128M								
. Channel C	Condition: Ass	ess the cross-sec	tion of the stream								
	Opt	imal	Subo	ptimal	Conditional Catego Mar	_{ry} ginal	Po	oor	Sev	rere	
	Very little incision of	or active erosion; 80	erosion or unproted	ew areas of active cted banks. Majority	Poor. Banks more	less than Severe or stable than Severe	Vertically/laterally	ned/incised. unstable. Likely to	vertical/lateral in incision, flow cor		
Channel Condition	100% stable ba surface protectio prominent (80-1 Stable point bars/b present. Access floodplain or fully bankfull benches. and transverse ba	nks. Vegetative n or natural rock, 00%). AND/OR ankfull benches are s to their original y developed wide Mid-channel bars, ars few. Transient on covers less than	Vegetative protect prominent (60- Depositional feat stability. The bar channels are well likely has access to rnewly develope portions of the rediment covers 10	table (60-80%), titon or natural rock -80%) AND/OR tures contribute to nkfull and low flow Il defined. Stream o bankfull benches, and floodplains along reach. Transient 0-40% of the stream tom.	Erosion may be pri both banks. Veget 40-60% of banks. bevertical or unde 60% of stream sediment. Sed temporary/trans instability. Depositii stability, may be AND/OR V-shap	ower bank slopes. essent on 40-60% of attive protection on Streambanks may streat. AND/OR 40-n is covered by diment may be sient, contribute on that contribute to forming/present. ed channels have	are near vertical. 60-80% of bar protection prese banks, and is inst erosion. AND/O stream is cover Sediment is temp nature, and contri AND/OR V-shap vegetative protect	iority of both banks Erosion present on ks. Vegetative ent on 20-40% of ifficient to prevent R 60-80% of the ed by sediment. orary/transient in buting to instability. ed channels have ion is present on >	banks. Streamberooting depth, myertical/underceprotection present of banks, is not pre Obvious bank sle Erosion/raw ban AND/OR Aggradin than 80% of stream deposition, contrib Multiple thread.	ed below average najority of banks ut. Vegetative on less than 20% of eventing erosion. bughing present. iks on 80-100%. Greater in bed is covered by uting to instability.	CI
					banks and depositi	on on > 40% of the onal features which	deposition	and stable sediment is absent.	subterran	ean flow.	
Score	;	3	2	2.4] :	2	1	.6		ı	2.4
NOTES>> 2. RIPARIAN	N BUFFERS: /	Assess both bank	Con	nditional Cate ptimal	gory	ginal Low Marginal:		n may be accepta	NOTES>>		
	Opt Tree stratum (dbh : with > 60% tree c:	imal > 3 inches) present, anopy cover and a derstory. Wetlands	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy	gory	ginal	Po		NOTES>>		
2. RIPARIAN	Opt Tree stratum (dbh with > 60% tree cr	imal > 3 inches) present, anopy cover and a derstory. Wetlands	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory.	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation).	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover.	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh >3 inches) present, with <a>30 % tree canopy cover with maintained understory.	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable condition.	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions.	NOTES>>		
Riparian Buffers	Tree stratum (dbh: with > 60% tree conon-maintained un located within th	imal > 3 inches) present, anopy cover and a derstory. Wetlands	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained	Low Suboptimal Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh > 3 inches) present, with <30% tree canopy cover with maintained	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable	NOTES>>		
Riparian Buffers Condition Scores Delineate riparlescriptors. 2. Determine squelow.	Tree stratum (dbh with > 60% tree canon-maintained un located within the located within t	imal 3 inches) present, anopy cover and a derstory. Wetlands e riparian areas. 5 each stream bank each by measuring score for each ri	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 into Condition C	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Coungth and width. Coungth	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <a>30 % tree canopy cover. High 0.85	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh >3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions.	NOTES>>		
Riparian Buffers Condition Scores Delineate rips descriptors. Determine squelow. Enter the % F	Tree stratum (dbh: with > 60% tree c: non-maintained un located within th	imal 3 inches) present, anopy cover and a derstory. Wetlands e riparian areas. 5 each stream bank each by measuring.	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 into Condition C	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Coungth and width. Coungth	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <a>30 % tree canopy cover. High 0.85	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh >3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5	NOTES>>	scores*0.01)/2	
Riparian Buffers Condition Scores Delineate rips descriptors. Determine squelow. Below. Right Bank	Tree stratum (dbh with > 60% tree canon-maintained un located within the stratum areas along quare footage for e	imal 3 inches) present, anopy cover and a derstory. Wetlands e riparian areas. 5 each stream bank each by measuring score for each ri	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 into Condition C	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Coungth and width. Coungth	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <a>30 % tree canopy cover. High 0.85	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh >3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5	NOTES>>	Scores*0.01)/2 1.20	CI
Riparian Buffers Condition Scores Delineate ripa descriptors. Delemine squelow. Enter the % F. Right Bank Left Bank INSTREAM	Tree stratum (dbh with > 60% tree conon-maintained un located within the stratum areas along quare footage for e Riparian Area and % Riparian Area > Score >	imal 3 inches) present, anopy cover and a derstory. Wetlands e riparian areas. 5 each stream bank each by measuring 100% 1.2 100% 1.2 aried substrate si	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 into Condition C g or estimating ler parian category in	Inditional Cate ptimal Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Coungth and width. Coungth and width. Coungth and width. Coungth and width and width are considered to the blocks below y and depths; woo	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh > 3 inches) present, with <a>30 % tree canopy cover with maintained understory. Low 0.75 Ing the wided for you	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F Blocks 6	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5 the sums Riparian equal 100 100%	NOTES>>	_	C1 1.20
Riparian Buffers Condition Scores Delineate ripalescriptors. Determine squelow. B. Enter the % F. Right Bank Left Bank I. INSTREAM Indercut banks;	Tree stratum (dbh: with > 60% tree or non-maintained un located within th located within th arian areas along quare footage for exparian Area and % Riparian Area > Score > M HABITAT: V; root mats; SAV; r	imal 3 inches) present, anopy cover and a derstory. Wetlands e riparian areas. 5 each stream bank each by measuring 100% 1.2 100% 1.2 aried substrate si iffle poole comple	Riph Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 Into Condition C g or estimating ler parian category in	Inditional Cate ptimal Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Congth and width. Congth and width. Congth and width. Congth and depths; wores. Conditional	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <a>30 tree canopy cover. High 0.85 Indition Scores usional calculators are production of the canopy cover.	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh >3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75 Ing the wided for you	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F Blocks 6	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5 the sums Riparian squal 100 100%	NOTES>> Ci= (Sum % RA * S Rt Bank Ci > Lt Bank Ci >	1.20	
Riparian Buffers Condition Scores Delineate ripa descriptors. Delemine squelow. Enter the % F. Right Bank Left Bank INSTREAM	Tree stratum (dbh: with > 60% tree or non-maintained un located within th located within th located within th strain areas along quare footage for exparian Area and % Riparian Area > Score > % Riparian Area > Score > M HABITAT: V, root mats; SAV; r	imal 3 inches) present, anopy cover and a derstory. Wetlands e riparian areas. 5 each stream bankeach by measuring 100% 1.2 100% 1.2 aried substrate si iffle poole completimal	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 Into Condition C g or estimating let parian category in Zes, water velocity ixes, stable featur Subo Stable habitat ele present in 30-50% are adequate fo	Inditional Cate ptimal Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Congth and width. Congth and width. Congth and width. Congth and depths; workers.	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85 Indition Scores using a calculators are producted at Category Stable habitat ele present in 10-30% are adequate for a category and a category and a category are adequate for a category and a category are adequate for a category are adequate for a category and a category are adequate for a category are adequate for a category and a category are adequate for a category are adequate for a category and a category are adequate for a category and a category are a category and a category and a category are a category and a category and a category are a category and a category and a category are a category and a category a	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh > 3 inches) present, with <a>30 % tree canopy cover with maintained understory. Low 0.75 Ing the wided for you	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F Blocks 6	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5 the sums Riparian equal 100 100%	Ci= (Sum % RA * S Rt Bank Ci > Lt Bank Ci >	1.20	

	St	ream In	npact A	ssessm	nent Fo	rm Pag	e 2		
Project #	Applicant		Locality	Cowardin Class.	HUC	Date	Data Point	SAR length	Impact Factor
								500	1
	L ALTERATION: Stream cross poil piles, constrictions, livestock	ings, riprap, conc		concrete blocks, s	traightening of ch	annel, channeliza	ation,	NOTES>>	
	Negligible	Mi	nor		erate		vere		
Channel Alteration	Channelization, dredging, alteration, or hardening absent. Stream has an unaltered pattern or has naturalized.	Less than 20% of the stream reach is disrupted by any of the channel alterations listed in the parameter guidelines.	20-40% of the stream reach is disrupted by any of the channel	is disrupted by any of the channel	of the channel	Greater than 80% by any of the chan in the parameter 80% of banks sh	of reach is disrupted nel alterations listed guidelines AND/OR nored with gabion, or cement.		
SCORE	1.5	1.3	1.1	0.9	0.7	0).5		
	REACH C	ONDITION I	NDEX and S	TREAM CO	NDITION UN	ITS FOR TH	IIS REACH		
NOTE: The Cls and F	RCI should be rounded to 2 decimal places.	The CR should be rou	nded to a whole numb	er.			THE REACH (CONDITION IN	DEX (RCI) >>

CR = RCI X LF X IF



DESCRIBE PROPOSED IMPACT:		
	 ·	

		Stre	Uni	fied Stream N	lethodology 1	Form	ginia	m 1)			
Project #		Project Name		Locality	cowardin Class.	HUC	Date Date	SAR#	Impact/SAR length	Impact Factor	
5337	ŀ	-64 Peninsul	a	James City	R2UB2	02080206	11/3/11		91		
Name	e(s) of Evalua	tor(s)	Stream Nam	e and Informa	ation						
	Aitkenhead / Nies		WUS 129M								
. Channel C	Condition: Asse	ess the cross-sec	tion of the stream		ondition (erosion, conditional Catego						
	Opti	imal	Subo	ptimal	Mar	ginal	Po	oor	Se	vere	
	Very little incision o	r active erosion: 80	erosion or unproted	ew areas of active cted banks. Majority	Poor. Banks more	less than Severe or stable than Severe	Vertically/laterally	ned/incised. unstable. Likely to		nstability. Severe	
Channel Condition	100% stable bar surface protection prominent (80-1) Stable point bars/bs present. Access floodplain or fully bankfull benches. and transverse basediment deposition 10% of	nks. Vegetative n or natural rock, 00%). AND/OR ankfull benches are to their original developed wide Mid-channel bars, ars few. Transient n covers less than	Vegetative protect prominent (60 Depositional feat stability. The ball channels are we likely has access to or newly develope portions of the leading to the sediment covers 10	table (60-80%). tion or natural rock -80%) AND/OR tures contribute to nkfull and low flow Il defined. Stream o bankfull benches, d floodplains along reach. Transient 0-40% of the stream tom.	Erosion may be pr both banks. Veget 40-60% of banks. bevertical or unde 60% of stream sediment. Se- temporary/tran instability. Depositi stability, may be	ower bank slopes. resent on 40-60% of tative protection on Streambanks may ercut. AND/OR 40- n is covered by diment may be issent, contribute to e forming/present. sed channels have	are near vertical. 60-80% of bar protection prese banks, and is inst erosion. AND/O stream is cover Sediment is temp nature, and contri AND/OR V-shap	jority of both banks Erosion present on iks. Vegetative ent on 20-40% of afficient to prevent R 60-80% of the red by sediment. corary/transient in buting to instability. ed channels have ion is present on >	rooting depth, r vertical/under protection present banks, is not pr Obvious bank s Erosion/raw ba AND/OR Aggradir than 80% of streat deposition, contril	ed below average majority of banks cut. Vegetative on less than 20% of eventing erosion. loughing present. nks on 80-100%. ng channel. Greater n bed is covered by buting to instability. channels and/or	
					banks and depositi	ion on > 40% of the ional features which	deposition	and stable sediment is absent.	subterra	nean flow.	CI
Score	3	3	2	.4		2	1	.6		1	2.0
. RIPARIAN	N BUFFERS: A		Con	ditional Cate	gory Mar	ginal Low Marginal: Non-maintained,	Po	n may be accepta	NOTES>>		
RIPARIAN Riparian Buffers	Opti	imal - 3 inches) present, nopy cover and a lerstory. Wetlands	Corr Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree	ditional Cate	gory	ginal Low Marginal:	Po		,		
Riparian	Option Tree stratum (dbh > with > 60% tree canon-maintained unc	imal - 3 inches) present, nopy cover and a lerstory. Wetlands	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory.	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation).	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover.	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh >3 inches) present, with <30% tree canopy cover with maintained understory.	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable condition.	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions.	,		
Riparian	Option Tree stratum (dbh > with > 60% tree canon-maintained unc	3 inches) present, inopy cover and a derstory. Wetlands e riparian areas.	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh >3 inches) present, with <30% tree canopy cover with maintained	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable	,		
Riparian Buffers Condition Scores Delineate ripa escriptors. Determine squelow.	Tree stratum (dbh > with > 60% tree ca non-maintained unc located within the	imal 3 inches) present, inopy cover and a lerstory. Wetlands e riparian areas.	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 into Condition C	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Coungth and width. Co	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh > 3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5	,		
Riparian Buffers Condition Scores Delineate ripa secriptors. Determine sq	Tree stratum (dbh > with > 60% tree ca non-maintained unc located within the located with	imal 3 inches) present, unopy cover and a ferstory. Wetlands e riparian areas.	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 into Condition C	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Coungth and width. Co	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh > 3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5	,		
Riparian Buffers Condition Scores Delineate ripaescriptors. Determine squelow. Enter the % F	Tree stratum (dbh > with > 60% tree ca non-maintained unc located within the	imal 3 inches) present, inopy cover and a lerstory. Wetlands e riparian areas.	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 into Condition C	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Coungth and width. Co	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh > 3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5	NOTES>>		
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Condition Scores Delineate ripa escriptors. Determine squelow. Enter the % F Right Bank Left Bank B. INSTREAR	Tree stratum (dbh > with > 60% tree canon-maintained unc located within the located withi	5 sach stream bank ach by measuring 100% 1.2 100% 1.2 aried substrate si	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 k into Condition C g or estimating let parian category in	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Coungth and width. Coungth and width. Coungth and width. Coungth and depths; wodes.	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85 Indition Scores us calculators are production of the product	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh > 3 inches) present, with < 30% tree canopy cover with maintained understory: Low 0.75 ing the povided for you	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F Blocks 6	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5 the sums Riparian equal 100 100%	NOTES>>		C1 1.20
Condition Scores Delineate ripalescriptors. Determine squelow. Enter the % Right Bank Left Bank INSTREAM Indercut banks;	Tree stratum (dbh > with > 60% tree canon-maintained unc located within the located withi	imal 3 inches) present, nopy cover and a lerstory. Wetlands e riparian areas. 5 each stream bank ach by measuring 100% 1.2 100% 1.2 aried substrate si ffle poole comple	Riph Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 Into Condition C g or estimating let parian category in the containing let th	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Coungth and width. Coungth and width. Coungth and width. Coungth and depths; wodes.	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <a>3 inches) present, with <a>3 inches) present, or a tree canopy cover. High 0.85 Indition Scores us calculators are production of the control of th	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh > 3 inches) present, with < 30% tree canopy cover with maintained understory: Low 0.75 ing the povided for you	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F Blocks 6	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5 the sums Riparian equal 100 100%	NOTES>> CI= (Sum % RA *: Rt Bank CI > Lt Bank CI >	1.20	
Condition Scores Delineate ripalescriptors. Determine squelow. Enter the % F. Right Bank Left Bank	Tree stratum (dbh > with > 60% tree ca non-maintained unc located within the located with	5 Score for each ri 100% 1.2 100% 1.2 100% 1.2 100% 1.2 100% 1.2 100% 1.2 100% 1.2 100% 1.2 100% 1.2 100% 1.2	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 Into Condition C g or estimating let parian category in Zes, water velocit xes, stable featur Subo Stable habitat ele present in 30-509 are adequate fo	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Coungth and width. Coungth and width. Coungth and width. Coungth and depths; wores. Conditiona	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85 Indition Scores us calculators are production of the present in 10-30 are adequate for a seadequate for the present in 10-30 are adequate for the present in 10-30 are adeq	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh >3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75 ing the provided for you	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F Blocks 6	Low Poor: Impervious surfaces, mine pool lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5 the sums Riparian equal 100 100% 100%	NOTES>> CI= (Sum % RA *: Rt Bank CI > Lt Bank CI >	1.20	

	St	ream In	npact A	ssessm	nent Fo	rm Pag	e 2		
Project #	Applicant		Locality	Cowardin Class.	HUC	Date	Data Point	SAR length	Impact Factor
								500	1
	L ALTERATION: Stream cross poil piles, constrictions, livestock	ings, riprap, conc		concrete blocks, s	traightening of ch	annel, channeliza	ation,	NOTES>>	
	Negligible	Mi	nor		erate		vere		
Channel Alteration	Channelization, dredging, alteration, or hardening absent. Stream has an unaltered pattern or has naturalized.	Less than 20% of the stream reach is disrupted by any of the channel alterations listed in the parameter guidelines.	20-40% of the stream reach is disrupted by any of the channel	is disrupted by any of the channel	60 - 80% of reach is disrupted by any of the channel alterations listed in the parameter guidelines. If stream has been channelized, normal stable stream meander pattern has not	Greater than 80% by any of the chan in the parameter 80% of banks sh	of reach is disrupted nel alterations listed guidelines AND/OR nored with gabion, or cement.		
SCORE	1.5	1.3	1.1	0.9	0.7	0).5		
	REACH C	ONDITION I	NDEX and S	TREAM CO	NDITION UN	ITS FOR TH	IIS REACH		
NOTE: The Cls and F	RCI should be rounded to 2 decimal places.	The CR should be rou	nded to a whole numb	er.			THE REACH (CONDITION IN	DEX (RCI) >>

RCI= (Sum of all Cl's)/5

COMPENSATION REQUIREMENT (CR) >>

CR = RCI X LF X IF





		Stre	Unit	fied Stream N	lethodology 1	for use in Vir	-	m 1)			
Project #		Project Name		Locality	nels classified a Cowardin Class.	HUC	perennial Date	SAR#	Impact/SAR	Impact Factor	
5337	ı	-64 Peninsul	a	James City	R4UB2	02080206	11/3/11		142		
Name	e(s) of Evalua	tor(s)	Stream Nam	e and Informa	ation						
	Aitkenhead / Nies		WUS 130M								
. Channel C	Condition: Ass	ess the cross-sec	ction of the stream		ondition (erosion, Conditional Catego						
	Opt	imal	Subo	ptimal		ginal	Po	oor	Se	vere	
Channel	Very little incision o	r active erosion; 80	erosion or unproted	ew areas of active cted banks. Majority table (60-80%).	Poor. Banks more	less than Severe or a stable than Severe ower bank slopes.		ed/incised. unstable. Likely to ority of both banks	incision, flow co	nstability. Severe	
Condition	100% stable ban surface protectio prominent (80-1 Stable point bars/bi present. Access floodplain or fully bankfull benches. and transverse be sediment depositio 10% of	00%). AND/OR ankfull benches are to their original or developed wide Mid-channel bars, ars few. Transient on covers less than	Vegetative protect prominent (60- Depositional feat stability. The bar channels are well likely has access to or newly develope portions of the resediment covers 10	tition or natural rock- 80%) AND/OR tures contribute to nkfull and low flow Il defined. Stream o bankfull benches, af floodplains along reach. Transient 0-40% of the stream tom.	Erosion may be pr both banks. Vege! 40-60% of banks. bevertical or unde 60% of strean sediment. Se temporary/tran instability. Depositi stability, may be AND/OR V-shap vegetative protect	resent on 40-60% of tative protection on Streambanks may percut. AND/OR 40- n is covered by diment may be issient, contribute ton that contribute to forming/present. ed channels have ion on > 40% of the	are near vertical. 60-80% of bar protection press banks, and is inst erosion. AND/O stream is cover Sediment is tem nature, and contri AND/OR V-shap vegetative protect 40% of the banks a	Erosion present on ks. Vegetative int on 20-40% of ifficient to prevent R 60-80% of the ed by sediment. orary/transient in outing to instability. ed channels have ion is present on > and stable sediment.	rooting depth, vertical/under protection present banks, is not pr Obvious banks Erosion/raw ba AND/OR Aggradi than 80% of strea deposition, contri Multiple threac	ned below average majority of banks rout. Vegetative ton less than 20% of reventing erosion. Sloughing present. anks on 80-100%. ng channel. Greater m bed is covered by ibuting to instability. It channels and/or inean flow.	CI
Score	3	<u> </u>	2	2.4		ional features which	-	is absent.		1	2.4
NOTES>>	`	,	_							•	2.7
. RIPARIAN	N BUFFERS: A		Con	nditional Cate ptimal	gory	ginal Low Marginal:	Po	n may be accepta	NOTES>>		
RIPARIAN Riparian Buffers	Opti	imal - 3 inches) present, anopy cover and a derstory. Wetlands	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy	gory	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh > 3 inches) present, with <30% tree canopy cover with maintained					
Riparian	Option Tree stratum (dbh swith > 60% tree cr	imal - 3 inches) present, anopy cover and a derstory. Wetlands	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh > 3 inches) present, with https://doi.org/10.100/j.nc/s/	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable			
Riparian	Option Tree stratum (dbh swith > 60% tree cr	• 3 inches) present, anopy cover and a derstory. Wetlands e riparian areas.	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory.	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation).	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover.	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh >3 inches) present, with <30% tree canopy cover with maintained understory.	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, recently seeded and stabilized, or other comparable condition.	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions.			
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Riparian Buffers Condition Scores Delineate ripasecriptors. Determine squadow. Enter the % F	Tree stratum (dbh a with a 60% tree cc non-maintained una located within the	imal 3 inches) present, anopy cover and a derstory. Wetlands e riparian areas. 5 ach by measuring score for each right and score for each right	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 80% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 k into Condition C g or estimating ler	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 attegories and Congth and width. Congth and width	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh > 3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions.			
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Riparian Buffers Condition Scores Delineate ripasecriptors. Determine squadow. Enter the % F	Tree stratum (dbh > with > 60% tree conon-maintained und located within the located withi	imal 3 inches) present, anopy cover and a derstory. Wetlands e riparian areas. 5 ach stream bank ach by measuring 50% 1.2	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 Into Condition C g or estimating ler parian category in	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Co ongth and width. Co on the blocks below	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh > 3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5 the sums Riparian qual 100	NOTES>>		-
Riparian Buffers Condition Scores Delineate ripascriptors. Determine squelow. Enter the % F	Tree stratum (dbh > with > 60% tree connon-maintained und located within the located with	imal 3 inches) present, anopy cover and a derstory. Wetlands e riparian areas. 5 ach stream bank ach by measuring Score for each ripage.	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 Into Condition C g or estimating ler parian category in	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Co ongth and width. Co on the blocks below	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh > 3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5	NOTES>>	Scores*0.01)/2 0.87 1.20	C1 1.03
Condition Scores Delineate ripa escriptors. Determine sq elow. Enter the % F Right Bank Left Bank	Tree stratum (dbh > with > 60% tree conon-maintained und located within the located withi	imal 3 inches) present, anopy cover and a derstory. Wetlands e riparian areas. 5 ach stream bank ach by measuring 50% 1.2 100% 1.2 aried substrate si	Com Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 into Condition C g or estimating ler parian category in 15% 0.6	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Coungth and width. Coungth and depths; woo res.	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85 addition Scores us calculators are production of the produc	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh > 3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75 ing the povided for you	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F Blocks 6	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5 the sums stiparian qual 100 100%	NOTES>> CI= (Sum % RA * Rt Bank CI >	0.87	CI 1.03
Condition Scores Delineate ripalescriptors. Determine squelow. Enter the % F. Right Bank Left Bank	Tree stratum (dbh with > 60% tree canon-maintained und located within the located within	imal 3 inches) present, anopy cover and a derstory. Wetlands e riparian areas. 5 ach stream bank ach by measuring 50% 1.2 100% 1.2 aried substrate si	Com Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 s into Condition C g or estimating ler parian category in 15% 0.6	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Coungth and width. Coungth and depths; woo res.	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85 Indition Scores us calculators are production of the product	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh > 3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75 ing the povided for you	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F Blocks e	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5 the sums stiparian qual 100 100%	NOTES>> CI= (Sum % RA * Rt Bank CI > Lt Bank CI >	0.87	
Condition Scores Delineate ripalescriptors. Deltre the % F. Right Bank Left Bank B. INSTREAN Indercut banks;	Tree stratum (dbh > with > 60% tree cc non-maintained und located within th 1. arian areas along of quare footage for e Riparian Area and % Riparian Area> Score > % Riparian Area> Score > M HABITAT: Va ; root mats; SAV; ri	imal 3 inches) present, anopy cover and a derstory. Wetlands e riparian areas. 5 each stream bank ach by measuring 50% 1.2 100% 1.2 aried substrate si ffle poole comple imal re typically present	Com Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 into Condition C g or estimating ler parian category in 15% 0.6 Stable habitat ele present in 30-50% are adequate fo	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Coungth and width. Coungth and width. Coungth and width. Coungth and width. Coungth and c	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85 Indition Scores us calculators are processed of the control of	Ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh >3 inches) present, with <a>30 % tree canopy cover with maintained understory. Low 0.75 ing the price of the product of the present of t	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F Blocks 6	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5 the sums Riparian qual 100 100% 100% ess; shade;	NOTES>> CI= (Sum % RA * Rt Bank CI > Lt Bank CI >	0.87	

	St	ream In	npact A	ssessm	ent Fo	rm Pag	e 2		
Project #	Applicant		Locality	Cowardin Class.	HUC	Date	Data Point	SAR length	Impact Factor
								500	1
	L ALTERATION: Stream cross spoil piles, constrictions, livestock	sings, riprap, conc		concrete blocks, s	traightening of ch	annel, channeliz	ation,	NOTES>>	
	Negligible	Mi	nor		erate		evere		
Channel Alteration	or hardening absent. Stream has an	Less than 20% of the stream reach is disrupted by any of the channel alterations listed in the parameter guidelines.	20-40% of the stream reach is disrupted by any of the channel alterations listed in the parameter guidelines.	is disrupted by any of the channel	of the channel	Greater than 80% by any of the char in the parameter 80% of banks s	of reach is disrupted nnel alterations listed guidelines AND/OR hored with gabion, or cement.		
SCORE	1.5	1.3	1.1	0.9	0.7	(0.5		
	REACH C	ONDITION	NDEX and S	TREAM CO	NDITION UN	ITS FOR TH	IIS REACH		
NOTE: The Cls and F	RCI should be rounded to 2 decimal places.	The CR should be rou	nded to a whole numb	er.			THE REACH	CONDITION IN	DEX (RCI) >>

RCI= (Sum of all Cl's)/5

COMPENSATION REQUIREMENT (CR) >>

CR = RCI X LF X IF



DESCRIBE PROPOSED IMPACT:		

		Stre	Unit	fied Stream N	lethodology 1	for use in Vir	-	m 1)			
Project #		Project Name		wadeable chan	Cowardin	HUC	perennial Date	SAR#	Impact/SAR		
5337		-64 Peninsul	 а	James City	Class. R2UB2	02080206	11/3/11		length 143	Factor	
	le(s) of Evalua			e and Informa		02030203	11,3/11		140		
	Aitkenhead / Nies		WUS 131M								
. Channel (Condition: Ass	ess the cross-sec	ction of the stream								
	Opt	imal	Subo	ptimal	Conditional Catego Mar	ginal	Po	or	Se	vere	
Channel	Very little incision o	or active erosion; 80 nks. Vegetative	erosion or unproted of banks are s	ew areas of active cted banks. Majority table (60-80%).	Poor. Banks more or Poor due to lo	less than Severe or e stable than Severe ower bank slopes.	widen further. Ma	unstable. Likely to ority of both banks	incision, flow co	nstability. Severe sharined within the led below average	
Condition	nut/ac protectio prominent (80-1 Stable point bars/bi- present. Access floodplain or fully bankfull benches. and transverse ba- sediment depositio	n or natural rock, 00%). AND/OR ankfull benches are s to their original of developed wide, Mid-channel bars, ars few. Transient on covers less than	Vegetative protect prominent (60- Depositional feat stability. The bar channels are well likely has access to or newly develope portions of the resediment covers 10	tion or natural rock -80%) AND/OR -NOTE AND/OR -NOTE AND/OR -NOTE AND AND/OR -NOTE AND AND AND -NOTE AND AND -NOTE A	both banks. Vege 40-60% of banks. bevertical or unde 60% of strean sediment. Se- temporary/tran instability. Depositi stability, may be AND/OR V-shap vegetative protect	resent on 40-60% of tative protection on Streambanks may ercut. AND/OR 40- in is covered by diment may be sisent, contribute to forming/present. eed channels have ion on > 40% of the ional features which	60-80% of bar protection press banks, and is insu erosion. AND/O stream is cover Sediment is temp nature, and contri AND/OR V-shap vegetative protect 40% of the banks a	ed channels have	rooting depth, vertical/under protection present banks, is not pr Obvious banks Erosion/raw ba AND/OR Aggradi than 80% of strea deposition, contri Multiple threac	majority of banks cut. Vegetative on less than 20% o eventing erosion. sloughing present. inks on 80-100%. ng channel. Greate m bed is covered by buting to instability. I channels and/or nean flow.	r
Score	3	3	2	.4		2	-	.6		1	2.4
NOTES>>											
2. RIPARIAN	N BUFFERS: A		Con	n areas along the	gory	ugh measurement		n may be accepta	NOTES>>		
Riparian Buffers	Opti	imal > 3 inches) present, anopy cover and a derstory. Wetlands	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy	gory	Low Marginal: Non-maintained, dense herbaceous vegetation,			,		
Riparian Buffers	Tree stratum (dbh s with > 60% tree cc non-maintained und located within th	imal 3 inches) present, anopy cover and a derstory. Wetlands e riparian areas.	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High	ditional Cate ptimal Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation).	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover.	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh > 3 inches) present, with <30% tree canopy cover with maintained understory. Low	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, recently seeded and stabilized, or other comparable condition.	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions.	,		
Riparian	Option Tree stratum (dbh) with > 60% tree cr	imal 3 inches) present, anopy cover and a derstory. Wetlands e riparian areas.	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory.	ditional Cate ptimal Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation).	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover.	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh >3 inches) present, with <30% tree canopy cover with maintained understory.	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, recently seeded and stabilized, or other comparable condition.	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions.	,		
Riparian Buffers Condition Scores Delineate ripe descriptors.	Tree stratum (dbh with > 60% tree canon-maintained und located within the	imal 3 inches) present, anopy cover and a derstory. Wetlands e riparian areas. 5 each stream banl ach by measurin	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 into Condition C	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Congth and width. Congth and	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh > 3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5	,		
Riparian Buffers Condition Scores Delineate ripe escriptors. Determine seelow.	Tree stratum (dbh > with > 60% tree conon-maintained und located within the located withi	imal 3 inches) present, anopy cover and a derstory. Wetlands e riparian areas. 5 ach stream banl ach by measurin.	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 into Condition C	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Congth and width. Congth and	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh > 3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5	,		
Riparian Buffers Condition Scores Delineate ripaescriptors. Determine seelow.	Tree stratum (dbh with > 60% tree canon-maintained und located within the	imal 3 inches) present, anopy cover and a derstory. Wetlands e riparian areas. 5 each stream banl ach by measurin	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 into Condition C	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Congth and width. Congth and	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh > 3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5	,		
Riparian Buffers Condition Scores Delineate ripe escriptors. Determine so elow.	Tree stratum (dbh swith > 60% tree conon-maintained und located within the located within	imal 3 inches) present, anopy cover and a derstory. Wetlands e riparian areas. 5 each stream bank ach by measurin Score for each ri 100% 1.2	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 into Condition C	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Congth and width. Congth and	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh > 3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5 the sums Riparian qual 100	NOTES>>		
Riparian Buffers Condition Scores Delineate ripaescriptors. Determine seelow.	Tree stratum (dbh > with > 60% tree conon-maintained und located within the located withi	imal 3 inches) present, anopy cover and a derstory. Wetlands e riparian areas. 5 each stream bank ach by measuring the stream bank and by measuring the stream bank ach by measuring the stream ban	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 into Condition C	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Congth and width. Congth and	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh > 3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5	NOTES>> CI= (Sum % RA * Rt Bank CI >	1.20	CI 1 20
Condition Scores Delineate ripe lescriptors. Determine so les own. Right Bank Left Bank INSTREAL	Tree stratum (dbh swith > 60% tree canon-maintained und located within the located within	imal 3 inches) present, anopy cover and a derstory. Wetlands e riparian areas. 5 each stream bank ach by measuring the stream bank ach by measuring the stream bank ach by ach	Com Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 Into Condition C g or estimating ler parian category in	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Coungth and width. Coungth and width. Coungth and width. Coungth and depths; wodes.	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85 addition Scores us calculators are production of the produc	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh > 3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75 ing the povided for you	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F Blocks 6	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5 the sums stiparian qual 100 100%	NOTES>>		Ci 1.20
Condition Scores Delineate ripedescriptors. Deltermine scorelow. English Bank Left Bank Left Bank Line Riparian Ripa	Tree stratum (dbh with > 60% tree canon-maintained und located within the located within	imal 3 inches) present, anopy cover and a derstory. Wetlands e riparian areas. 5 each stream bank ach by measuring the stream bank ach by measuring the stream bank ach by ach	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 s into Condition C g or estimating ler parian category in zes, water velocity ixes, stable featur	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Coungth and width. Coungth and width. Coungth and width. Coungth and depths; wodes.	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85 Indition Scores us calculators are production of the product	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh > 3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75 ing the povided for you	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F Blocks e	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5 the sums stiparian qual 100 100%	NOTES>> CI= (Sum % RA * Rt Bank CI > Lt Bank CI >	1.20	
Condition Scores Delineate ripe descriptors. Deltheate ripe descriptors. Right Bank Left Bank Left Bank INSTREAI undercut banks;	Tree stratum (dbh > with > 60% tree cc non-maintained und located within the located with	imal 3 inches) present, anopy cover and a derstory. Wetlands e riparian areas. 5 beach stream bani ach by measurin 100% 1.2 100% 1.2 aried substrate si iffle poole completimal re typically present	Com Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 Into Condition C g or estimating ler parian category in zes, water velocity exes, stable featur Subo Stable habitat ele present in 30-50% are adequate fo	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Co ongth and width. Co the blocks below y and depths; wodes. Conditiona	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85 Indition Scores us calculators are processed of the control of	Ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh >3 inches) present, with <a>30 % tree canopy cover with maintained understory. Low 0.75 ing the price of the product of the present of t	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F Blocks 6	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5 the sums Riparian qual 100 100% 100% ess; shade;	NOTES>> CI= (Sum % RA * Rt Bank CI > Lt Bank CI >	1.20	

	St	ream In	npact A	ssessm	nent Fo	rm Pag	e 2		
Project #	Applicant		Locality	Cowardin Class.	HUC	Date	Data Point	SAR length	Impact Factor
								500	1
	L ALTERATION: Stream cross poil piles, constrictions, livestock	ings, riprap, conc		concrete blocks, s	traightening of ch	annel, channeliza	ation,	NOTES>>	
	Negligible	Mi	nor		erate		vere		
Channel Alteration	Channelization, dredging, alteration, or hardening absent. Stream has an unaltered pattern or has naturalized.	Less than 20% of the stream reach is disrupted by any of the channel alterations listed in the parameter guidelines.	20-40% of the stream reach is disrupted by any of the channel	is disrupted by any of the channel	of the channel	Greater than 80% by any of the chan in the parameter 80% of banks sh	of reach is disrupted nel alterations listed guidelines AND/OR nored with gabion, or cement.		
SCORE	1.5	1.3	1.1	0.9	0.7	0).5		
	REACH C	ONDITION I	NDEX and S	TREAM CO	NDITION UN	ITS FOR TH	IIS REACH		
NOTE: The Cls and F	RCI should be rounded to 2 decimal places.	The CR should be rou	nded to a whole numb	er.			THE REACH (CONDITION IN	DEX (RCI) >>

RCI= (Sum of all Cl's)/5

COMPENSATION REQUIREMENT (CR) >>

CR = RCI X LF X IF



DESCRIBE PROPOSED IMPACT:	

		Stre	Unit		lethodology 1	for use in Vir	ginia	m 1)			
Project #		Project Name		Locality	nels classified a Cowardin Class.	HUC	perennial Date	SAR#	Impact/SAR length	Impact Factor	
5337	1	-64 Peninsul	<u> </u>	James City	R2UB2	02080206	11/3/11		724	1 dotor	
Nam	e(s) of Evalua	tor(s)	Stream Nam	e and Informa	ation	l L					
	Aitkenhead / Nies		WUS 132M								
. Channel (Condition: Ass	ess the cross-sec	ction of the stream		ondition (erosion,						
	Opt	imal	Subo	ptimal	Mar	ginal	Po	or	Se	vere	
Channel	Very little incision o	or active erosion; 80 nks. Vegetative	erosion or unproted of banks are s	ew areas of active cted banks. Majority table (60-80%).	Poor. Banks more or Poor due to lo	less than Severe or stable than Severe over bank slopes.	widen further. Ma	unstable. Likely to ority of both banks	incision, flow co	nstability. Severe witained within the bed below average	
Condition	surface protection prominent (80-1) Stable point bars/bar present. Access floodplain or fully bankfull benches, and transverse basediment deposition 10% of	n or natural rock, 00%). AND/OR ankfull benches are s to their original of developed wide, Mid-channel bars, ars few. Transient on covers less than	prominent (60- Depositional feat stability. The bar channels are wel likely has access to or newly develope portions of the r sediment covers 10	tion or natural rock- -80%) AND/OR tures contribute to nkfull and low flow Il defined. Stream o bankfull benches, d floodplains along reach. Transient 0-40% of the stream tom.	both banks. Vege 40-60% of banks. bevertical or unde 60% of strean sediment. Se- temporary/tran instability. Depositi stability, may be AND/OR V-shap vegetative protect	esent on 40-60% of tative protection on Streambanks may ercut. AND/OR 40- in is covered by diment may be sisent, contribute on that contribute to forming/present. ed channels have ion on > 40% of the ional features which	60-80% of bar protection press banks, and is insu erosion. AND/O stream is cover Sediment is temp nature, and contri AND/OR V-shap vegetative protect 40% of the banks a	ed channels have	rooting depth, i vertical/under protection present banks, is not pr Obvious bank s Erosion/raw ba AND/OR Aggradi than 80% of streat deposition, contri Multiple thread	majority of banks cut. Vegetative on less than 20% or eventing erosion. sloughing present. Inks on 80-100%. ng channel. Greate m bed is covered by butter to instability. I channels and/or nean flow.	r
Score	3	3	2	.4		2	-	.6		1	2.4
NOTES>>			I				I				
. RIPARIAN	N BUFFERS: A		Con	n areas along the ditional Cate ptimal	gory	ginal		n may be accepta	NOTES>>		
Riparian Buffers	Opti	imal > 3 inches) present, anopy cover and a derstory. Wetlands	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy	gory	Ginal Low Marginal: Non-maintained, dense herbaceous vegetation,					
Riparian Buffers	Option Tree stratum (dbh swith > 60% tree cr	imal > 3 inches) present, anopy cover and a derstory. Wetlands	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained	continuation of the state of th	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh > 3 inches) present, with <30% tree canopy cover with maintained	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable			
Riparian	Tree stratum (dbh a with a 60% tree cc non-maintained und located within the	imal > 3 inches) present, anopy cover and a derstory. Wetlands	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory.	ditional Cate ptimal Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation).	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover.	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh >3 inches) present, with <30% tree canopy cover with maintained understory.	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, recently seeded and stabilized, or other comparable condition.	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions.			
Riparian Buffers Condition Scores Delineate ripe escriptors. Determine so	Tree stratum (dbh with > 60% tree canon-maintained una located within the	imal 3 inches) present, anopy cover and a derstory. Wetlands e riparian areas. 5 each stream bank ach by measurin	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 k into Condition C	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Coungth and width. Coungth	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh > 3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5			
Riparian Buffers Condition Scores Delineate ripaesecriptors. Determine so	Tree stratum (dbh > with > 60% tree conon-maintained und located within the located within the located strain areas along a quare footage for e	imal 3 inches) present, anopy cover and a derstory. Wetlands e riparian areas. 5 each stream bank ach by measurin.	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 80% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 Into Condition C g or estimating ler parian category in	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Co	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh > 3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5			
Riparian Buffers Condition Scores Delineate ripe escriptors. Determine so	Tree stratum (dbh > with > 60% tree or non-maintained und located within the located with	imal 3 inches) present, anopy cover and a derstory. Wetlands e riparian areas. 5 each stream bank ach by measurin	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 k into Condition C	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Coungth and width. Coungth	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh > 3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5	NOTES>>		
Riparian Buffers Condition Scores Delineate ripaescriptors. Determine seelow. Enter the % F	Tree stratum (dbh swith > 60% tree conon-maintained und located within the located within the located strain areas along of quare footage for e Riparian Area and % Riparian Area > Score >	imal 3 inches) present, anopy cover and a derstory. Wetlands e riparian areas. 5 ach stream bank ach by measuring the stream bank ach by measuring the stream bank ach by 1.2	Com Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 k into Condition C g or estimating ler parian category in 20% 0.6	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Co oright and width. Co or	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh > 3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5 the sums Riparian qual 100	NOTES>> CI= (Sum % RA*		
Riparian Buffers Condition Scores Delineate ripaescriptors. Determine seelow.	Tree stratum (dbh > with > 60% tree conon-maintained und located within the located within the located strain areas along of quare footage for e	imal 3 inches) present, anopy cover and a derstory. Wetlands e riparian areas. 5 ach stream bank ach by measurin. Score for each ri	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 Into Condition C g or estimating ler parian category in 20%	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 attegories and Co oright and width. Co or	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh > 3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5	NOTES>>	Scores*0.01)/2 0.87 0.87	CI 0.87
Condition Scores Delineate ripe lescriptors. Determine so les own. Right Bank Left Bank INSTREAL	Tree stratum (dbh swith > 60% tree conon-maintained und located within the located within	imal 3 inches) present, anopy cover and a derstory. Wetlands e riparian areas. 5 each stream bank ach by measuring the stream ban	Com Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 into Condition C g or estimating ler parian category in 20% 0.6	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Congth and width.	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85 addition Scores us calculators are production of the produc	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh > 3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75 ing the povided for you	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F Blocks 6	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5 the sums stiparian qual 100 100%	NOTES>> CI= (Sum % RA * Rt Bank CI >	0.87	CI 0.87
Condition Scores Delineate ripedescriptors. Deltermine scorelow. English Bank Left Bank Left Bank Line Riparian Ripa	Tree stratum (dbh with > 60% tree canon-maintained und located within the located within	imal 3 inches) present, anopy cover and a derstory. Wetlands e riparian areas. 5 each stream bank ach by measuring the stream ban	Com Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 sinto Condition C g or estimating let parian category in 20% 0.6 20% 0.6 zes, water velocity ixes, stable featur	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Congth and width.	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85 Indition Scores us calculators are production of the product	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh > 3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75 ing the povided for you	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F Blocks e	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5 the sums stiparian qual 100 100%	NOTES>> CI= (Sum % RA * Rt Bank CI > Lt Bank CI >	0.87	
Condition Scores Delineate ripe descriptors. Deltheate ripe descriptors. Right Bank Left Bank Left Bank INSTREAI undercut banks;	Tree stratum (dbh > with > 60% tree cc conon-maintained und located within the located wi	imal 3 inches) present, anopy cover and a derstory. Wetlands e riparian areas. 5.5 each stream bank ach by measuring the stream b	Com Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 into Condition C g or estimating ler parian category in 20% 0.6 20% 0.6 Stable habitat ele present in 30-50% are adequate fo	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Congth and width.	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85 Indition Scores us calculators are processed of the control of	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh >3 inches) present, with <a>30 % tree canopy cover with maintained understory. Low 0.75 ing the provided for you	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F Blocks 6	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5 the sums Riparian qual 100 100% 100% ess; shade;	NOTES>> CI= (Sum % RA * Rt Bank CI > Lt Bank CI >	0.87	

	St	ream In	npact A	ssessm	nent Fo	rm Pag	e 2		
Project #	Applicant		Locality	Cowardin Class.	HUC	Date	Data Point	SAR length	Impact Factor
								500	1
	L ALTERATION: Stream cross poil piles, constrictions, livestock	sings, riprap, conci		concrete blocks, s	traightening of ch	annel, channeliz	ation,	NOTES>>	
	Negligible	Mir	nor		erate	Se	evere		
Channel Alteration	Channelization, dredging, alteration, or hardening absent. Stream has an unaltered pattern or has naturalized.	Less than 20% of the stream reach is disrupted by any of the channel alterations listed in the parameter guidelines.	20-40% of the stream reach is disrupted by any of the channel	is disrupted by any of the channel	60 - 80% of reach is disrupted by any of the channel alterations listed in the parameter guidelines. If stream has been channelized, normal stable stream meander pattern has not	Greater than 80% by any of the char in the parameter 80% of banks s	of reach is disrupted nnel alterations listed guidelines AND/OR hored with gabion, or cement.		
SCORE	1.5	1.3	1.1	0.9	0.7	(0.5		
	REACH C	ONDITION II	NDEX and S	TREAM CO	NDITION UN	ITS FOR TH	IIS REACH		
VOTE: The Cls and R	RCI should be rounded to 2 decimal places.	The CR should be rour	nded to a whole numb	er.			THE REACH	CONDITION IN	DEX (RCI) >>

RCI= (Sum of all Cl's)/5

COMPENSATION REQUIREMENT (CR) >> CR = RCI X LF X IF



DESCRIBE PROPOSED IMPACT:		

			fied Stream N	lethodology 1	for use in Vir	ginia	m 1)			
Project #	Project Na		Locality	Cowardin Class.	s intermittent or	perennial Date	SAR#	Impact/SAR length	Impact Factor	
5337	I-64 Penins	ula	James City	R2UB2	02080206	Nov. '11		48		
Name	e(s) of Evaluator(s)	Stream Nam	e and Inform	ation						
	Aitkenhead / Nies	WUS 133M								
. Channel C	Condition: Assess the cross-	section of the stream	n and prevailing c	ondition (erosion,	aggradation)					
	Optimal	Subo	ptimal	Conditional Catego	ry ginal	Pr	oor	Sev	/ere	
	y y	- A	Maria de la constantia del constantia della constantia della constantia della constantia della constantia de		giniai	M		///	//	
	Very little incision or active erosion;	erosion or unprote	few areas of active cted banks. Majority	Poor. Banks more	less than Severe or stable than Severe	Vertically/laterally	ned/incised.	incision flow cor	istability. Severe	
Channel Condition	100% stable banks. Vegetative surface protection or natural rock prominent (80-100%). AND/OR Stable point bars/bankfull benches present. Access to their original floodplain or fully developed wid bankfull benches. Mid-channel ba and transverse bars few. Transier sediment deposition covers less the 10% of bottom.	Vegetative protect prominent (60 Depositional fea stability. The bachannels are we likely has access or newly developed portions of the	stable (60-80%), cition or natural rock tolon or natural rock 1-80%) AND/OR tures contribute to nkfull and low flow ill defined. Stream to bankfull benches, ad floodplains along reach. Transient 0-40% of the stream	Erosion may be pr both banks. Veget 40-60% of banks. bevertical or unde 60% of stream sediment. Se- temporary/tran instability. Depositi stability, may be	ower bank slopes. esent on 40-60% of tative protection on Streambanks may ercut. AND/OR 40- n is covered by diment may be sient, contribute on that contribute to e forming/present.	are near vertical. 60-80% of bar protection press banks, and is ins erosion. AND/C stream is cove Sediment is tem nature, and contri AND/OR V-shap	ijority of both banks Erosion present on hks. Vegetative ent on 20-40% of ufficient to prevent DR 60-80% of the red by sediment. porary/transient in ibuting to instability. bed channels have	rooting depth, n vertical/underc protection present banks, is not pre Obvious bank sl Erosion/raw bar AND/OR Aggradin than 80% of strean	ed below average najority of banks zut. Vegetative on less than 20% of eventing erosion. oughing present. hks on 80-100%. In bed is covered by putting to instability.	
	10% of bolloffi.	bo	ttom.	vegetative protect	ed channels have ion on > 40% of the ional features which	40% of the banks	tion is present on > and stable sediment n is absent.	Multiple thread	channels and/or nean flow.	CI
Score	3	2	2.4		2	1	.6		1	2.4
NOTES>>										
	Optimal	High Suboptimal	ptimal Low Suboptimal:		ginal Low Marginal:					
Riparian Buffers	Tree stratum (dbh > 3 inches) press with > 60% tree canopy cover and non-maintained understory. Wetlan located within the riparian areas.	to 60% tree	with tree stratum (dbh > 3 inches) present, with > 30% tree canopy	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover.	Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh >3 inches) present, with <a>30 % tree canopy cover with maintained understory.	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable condition.	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions.			
Buffers	with > 60% tree canopy cover and non-maintained understory. Wetlan located within the riparian areas.	with tree stratum (dbh > 3 inches) present, with 30% to 60% tree ds canopy cover and containing both herbaceous and shrub layers or a non-maintained understory.	Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation).	Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover.	Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh >3 inches) present, with <30% tree canopy cover with maintained understory.	Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, recently seeded and stabilized, or other comparable condition. High	Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions.			
•	with > 60% tree canopy cover and non-maintained understory. Wetlan	with tree stratum (dbh > 3 inches) present, with 30% to 60% tree dds canopy cover and containing both herbaceous and shrub layers or a non-maintained understory.	Kiparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation).	Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover.	Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh > 3 inches) present, with <a>30% tree canopy cover with maintained understory.	Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, recently seeded and stabilized, or other comparable condition.	Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions.			
Condition Scores 1. Delineate ripa descriptors. 2. Determine squelow.	with > 60% tree canopy cover and non-maintained understory. Wetlan located within the riparian areas. 1.5 arian areas along each stream b quare footage for each by measure.	with tree stratum (dbh > 3 inches) present, with 30% to 60% tree dds canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 ank into Condition Coring or estimating le	Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 Categories and Congth and width. Congth and width. Congth inches are sent and congth and width. Congth are strategories and congth and width. Congth inches are strategories and congth and width. Congth inches are strategories and congth and width. Congth and width. Congth inches are strategories and congth and width. Congth in the strategories and cong	Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85	Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh > 3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75	Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % I	Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions.			
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Condition Scores Delineate ripalescriptors. Determine squelow.	with > 60% tree canopy cover and non-maintained understory. Wetlan located within the riparian areas. 1.5 arian areas along each stream b quare footage for each by measu. Riparian Area and Score for each within the riparian areas. Riparian Area and Score for each stream b quare footage for each by measu. Riparian Area and Score for each stream b quare footage for each stream	with tree stratum (dbh > 3 inches) present, with 30% to 60% tree dds canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 ank into Condition Coring or estimating le	Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 Categories and Congth and width. Congth and width. Congth inches are sent and congth and width. Congth are strategories and congth and width. Congth inches are strategories and congth and width. Congth inches are strategories and congth and width. Congth and width. Congth inches are strategories and congth and width. Congth in the strategories and cong	Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85	Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh > 3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75	Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % I	Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5	Cl= (Sum % RA * S Rt Bank Cl >	1.20	CI
Condition Scores 1. Delineate ripa descriptors. 2. Determine squelow. 3. Enter the % R Right Bank Left Bank 3. INSTREAN	with > 60% tree canopy cover and non-maintained understory. Wetlan located within the riparian areas. 1.5 arian areas along each stream b quare footage for each by measu. Riparian Area and Score for each within the riparian areas along each stream b quare footage for each by measu. Riparian Area and Score for each stream b quare footage for each by measu.	with tree stratum (dbh > 3 inches) present, with 30% to 60% tree dds canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 ank into Condition Cring or estimating le	Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 Categories and Congth and width. Conthe blocks below	Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85 Addition Scores us Calculators are pro	Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh >3 inches) present, with About 100% Cover with maintained understory. Low 0.75 ing the evided for you	Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % I Blocks 6	Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5 the sums Riparian equal 100 100%	Cl= (Sum % RA * \$		CI 1.20
Condition Scores 1. Delineate ripa descriptors. 2. Determine squelow. 3. Enter the % R Right Bank Left Bank 3. INSTREAN	with > 60% tree canopy cover and non-maintained understory. Wetlan located within the riparian areas. 1.5 1.5 arian areas along each stream be guare footage for each by measure footage footage for each by measure footage for each by measure footage fo	with tree stratum (dbh > 3 inches) present, with 30% to 60% tree das concept, with 30% to 60% tree das concept, over and shrub layers or a non-maintained understory. High 1.2 ank into Condition Continuing or estimating left or inparian category in the properties of the properties	Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 Categories and Congth and width. Conthe blocks below	Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85 adiculators are production of the control of the canopy cover.	Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh > 3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75 ing the vided for you	Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % I Blocks 6	Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5 the sums Riparian equal 100 100% 100%	Cl= (Sum % RA * S Rt Bank Cl > Lt Bank Cl >	1.20	
Condition Scores 1. Delineate ripa descriptors. 2. Determine squelow. 3. Enter the % R Right Bank Left Bank 3. INSTREAN	with > 60% tree canopy cover and non-maintained understory. Wetlan located within the riparian areas. 1.5 arian areas along each stream b quare footage for each by measu. Riparian Area and Score for each stream b Score > 1.2 % Riparian Area 100% Score > 1.2 M HABITAT: Varied substrate	with tree stratum (dbh > 3 inches) present, with 30% to 60% tree das concept, with 30% to 60% tree das concept, over and shrub layers or a non-maintained understory. High 1.2 ank into Condition C tring or estimating let a riparian category in sizes, water velocity plexes, stable feature present in 30-50 are adequate feature present	Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 Categories and Congth and width. Congth and width. Congth and width. Congth and width. Congth and depths; wores.	Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85 Indition Scores us calculators are processed of the control of	Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh >3 inches) present, with About 100% Cover with maintained understory. Low 0.75 ing the evided for you	Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % I Blocks 6 Habitat element lacking or are Lelements are typic	Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5 the sums Riparian equal 100 100%	Cl= (Sum % RA * 8 Rt Bank Cl > Lt Bank Cl >	1.20	

1	St	tream In	npact A	ssessn	nent Fo	rm Pag	je 2		
Project #	Applicant		Locality	Cowardin Class.	HUC	Date	Data Point	SAR length	Impact Factor
								500	1
	L ALTERATION: Stream cross spoil piles, constrictions, livestock	sings, riprap, conc	rete, gabions, or o	concrete blocks, s	straightening of ch	nannel, channeli	zation,	NOTES>>	
embankments, s				al Category					
	Negligible	Mi	nor		lerate 60 - 80% of reach		evere		
Channel Alteration	Channelization, dredging, alteration, or hardening absent. Stream has an unaltered pattern or has naturalized.	of the channel	20-40% of the stream reach is disrupted by any of the channel alterations listed in the parameter guidelines.	is disrupted by any of the channel alterations listed in the parameter guidelines. If	is disrupted by any of the channel	Greater than 80% by any of the cha in the parameter 80% of banks:	6 of reach is disrupted innel alterations listed r guidelines AND/OR shored with gabion, or cement.		
SCORE	1.5	1.3	1.1	0.9	0.7		0.5	-	
		CONDITION I				ITS FOR T	HIS REACH		
NOTE: The Cls and F	RCI should be rounded to 2 decimal places.							CONDITION IN	DEX (RCI) >>
								I= (Sum of all C	
							COMPENSAT	ION REQUIRE	MENT (CR) >>
							CR = RC	I X LF X IF	

		Stre	Unit	fied Stream N	lethodology f	Form	ginia	m 1)			
Project #		Project Name		Locality	Cowardin Class.	HUC	Date Date	SAR#	Impact/SAR length	Impact Factor	
5337	ŀ	-64 Peninsul	a	James City	R4UB2	02080206	Nov. '11		39		
Name	e(s) of Evalua	tor(s)	Stream Nam	e and Informa	ation						
	Aitkenhead / Nies		WUS 134M								
. Channel C	Condition: Asse	ess the cross-sec	tion of the stream		ondition (erosion, Conditional Catego						
	Opti	mal	Subo	ptimal	Mar	ginal	Po	oor	Se	vere	
	Very little incision o	ractive erecion: 80	erosion or unproted	ew areas of active cted banks. Majority	Poor. Banks more	less than Severe or stable than Severe	Vertically/laterally	ned/incised. unstable. Likely to		nstability. Severe	
Channel Condition	100% stable bar surface protection prominent (80-1) Stable point bars/bar present. Access floodplain or fully bankfull benches. and transverse bar sediment deposition	nks. Vegetative n or natural rock, 00%). AND/OR ankfull benches are to their original developed wide Mid-channel bars, ars few. Transient n covers less than	Vegetative protect prominent (60- Depositional feat stability. The bar channels are well likely has access to rnewly develope portions of the rediment covers 10	table (60-80%). tion or natural rock -80%) AND/OR tures contribute to nkfull and low flow Il defined. Stream o bankfull benches, d floodplains along reach. Transient 0-40% of the stream tom.	Erosion may be pr both banks. Veget 40-60% of banks. bevertical or unde 60% of strean sediment. Sed temporary/tran instability. Depositi stability, may be	ower bank slopes. resent on 40-60% of tative protection on Streambanks may ercut. AND/OR 40- n is covered by diment may be isient, contribute to e forming/present. sed channels have	are near vertical. 60-80% of bar protection prese banks, and is inst erosion. AND/O stream is cover Sediment is temp nature, and contri AND/OR V-shap	jority of both banks Erosion present on iks. Vegetative ent on 20-40% of afficient to prevent R 60-80% of the red by sediment. corary/transient in buting to instability. ed channels have ion is present on >	banks. Streamb rooting depth, r vertical/under protection present banks, is not pr Obvious bank s Erosion/raw ba AND/OR Aggradir than 80% of streat deposition, contril	ed below average majority of banks cut. Vegetative on less than 20% of eventing erosion. loughing present. nks on 80-100%. ng channel. Greater bed is covered by buting to instability.	
					vegetative protecti banks and depositi	ion on > 40% of the ional features which	40% of the banks a	and stable sediment is absent.	subterra	channels and/or nean flow.	CI
Score	3	3	2	.4		2	1	.6		1	2.0
. RIPARIAN	N BUFFERS: A		Con	ditional Cate	gory	ginal Low Marginal:	Po High Poor:	n may be accepta	NOTES>>		
RIPARIAN Riparian Buffers	Opti Tree stratum (dbh > with > 60% tree ca	a inches) present, unopy cover and a derstory. Wetlands	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree	ditional Cate	gory	ginal	Po		,		
Riparian	Option Tree stratum (dbh > with > 60% tree canon-maintained unc	a inches) present, unopy cover and a derstory. Wetlands	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory.	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover.	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh >3 inches) present, with 30% lockes) canopy cover with	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable condition.	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable	,		
Riparian	Option Tree stratum (dbh > with > 60% tree canon-maintained unc	3 inches) present, inopy cover and a derstory. Wetlands e riparian areas.	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation).	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh >3 inches) present, with <30% tree canopy cover with maintained understory.	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions.	,		
Riparian Buffers Condition Scores Delineate ripa escriptors. Determine sq elow.	Tree stratum (dbh > with > 60% tree ca non-maintained unc located within the	imal 3 inches) present, inopy cover and a lerstory. Wetlands e riparian areas.	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 into Condition C	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Coungth and width. Co	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh > 3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5	,		
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Condition Scores Delineate ripa escriptors. Determine squelow. Enter the % F Right Bank Left Bank B. INSTREAR	Tree stratum (dbh > with > 60% tree canon-maintained unc located within the located withi	5 sach stream bank ach by measuring 100% 1.2 100% 1.2 aried substrate si	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 k into Condition C g or estimating ler parian category in	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Coungth and width. Coungth and width. Coungth and width. Coungth and depths; wodes.	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85 Indition Scores usional calculators are productions of the control of the con	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh > 3 inches) present, with < 30% tree canopy cover with maintained understory: Low 0.75 ing the povided for you	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F Blocks 6	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5 the sums Riparian equal 100 100%	NOTES>> CI= (Sum % RA*: Rt Bank CI >	1.20	CI 1.20
Condition Scores Delineate ripa escriptors. Determine squelow. Enter the % R Right Bank Left Bank Instread	Tree stratum (dbh > with > 60% tree ca non-maintained unc located within the located with	imal 3 inches) present, nopy cover and a lerstory. Wetlands e riparian areas. 5 each stream bank ach by measuring 100% 1.2 100% 1.2 aried substrate significations in the proofe complete in the proofe complete in the proofe in the proofe in the proofe complete in the proofe in t	Riph Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 Into Condition C g or estimating length operation category in parian category in the containing length of the containing length operation.	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Coungth and width. Coungth and width. Coungth and width. Coungth and depths; wodes.	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <a>30 tree canopy cover. High 0.85 Indition Scores usional calculators are production of the calculators are productional calculators.	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh > 3 inches) present, with < 30% tree canopy cover with maintained understory: Low 0.75 ing the povided for you	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F Blocks 6	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5 the sums Riparian equal 100 100%	NOTES>> CI= (Sum % RA *: Rt Bank CI > Lt Bank CI >	1.20	
Condition Scores Delineate ripalescriptors. Determine squelow. Enter the % F. Right Bank Left Bank	Tree stratum (dbh > with > 60% tree ca non-maintained unc located within the located with	5 Score for each ri 100% 1.2 100% 1.2 100% 1.2 100% 1.2 100% 1.2 100% 1.2 100% 1.2 100% 1.2 100% 1.2 100% 1.2	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 Into Condition C g or estimating let parian category in Zes, water velocity ixes, stable featur Subo Stable habitat ele present in 30-50% are adequate fo	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Coungth and width. Coungth and width. Coungth and width. Coungth and depths; wores. Conditiona	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85 Indition Scores using the state of the state	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh >3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75 ing the povided for you	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F Blocks 6	Low Poor: Impervious surfaces, mine pool lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5 the sums Riparian equal 100 100% 100%	NOTES>> CI= (Sum % RA *: Rt Bank CI > Lt Bank CI >	1.20	

	St	ream In	npact A	ssessn	nent Fo	rm Pag	je 2		
Project #	Applicant		Locality	Cowardin Class.	HUC	Date	Data Point	SAR length	Impact Factor
								500	1
	L ALTERATION: Stream cross	sings, riprap, cond	rete, gabions, or	concrete blocks, s	straightening of ch	annel, channeliz	zation,	NOTES>>	
embankments, s	spoil piles, constrictions, livestock		Condition	al Category					
	Negligible	Mi	inor	Mod	lerate		evere		
Channel Alteration	Channelization, dredging, alteration, or hardening absent. Stream has an unaltered pattern or has naturalized.	Less than 20% of the stream reach is disrupted by any of the channel alterations listed in the parameter guidelines.	of the channel	of the channel	60 - 80% of reach is disrupted by any of the channel alterations listed in the parameter guidelines. If stream has been channelized, normal stable stream meander pattern has not	Greater than 80% by any of the cha in the parameter 80% of banks	6 of reach is disrupted innel alterations listed r guidelines AND/OR shored with gabion, or cement.		
SCORE	1.5	1.3	1.1	0.9	0.7		0.5		
	REACH C	CONDITION	NDEX and S	STREAM CO	NDITION UN	ITS FOR T	HIS REACH		
NOTE: The Cls and F	RCI should be rounded to 2 decimal places.	The CR should be rou	inded to a whole numl	ber.			THE REACH (CONDITION IN	DEX (RCI) >>
								= (Sum of all C	
							COMPENSATI		MENT (CR) >>
INSERT PHO							CK = RC	IXLFXIF	
DESCRIBE F	PROPOSED IMPACT:								

		Stre	Unit	SSESS fied Stream M	lethodology f	or use in Virg	ginia	m 1)			
Project #		Project Name		Locality	Cowardin Class.	HUC	Date Date	SAR#	Impact/SAR length	Impact Factor	
5337	ı	-64 Peninsul	a	James City	R4UB2	02080206	Nov. '11		148		
Name	e(s) of Evalua	tor(s)	Stream Nam	e and Informa	ation						
	Aitkenhead / Nies		WUS 135M								
Channel C	Condition: Ass	ess the cross-sec	ction of the stream	n and prevailing co	ondition (erosion,	aggradation)					
	Ont	imal	Subo	ptimal	Conditional Catego	ry ginal	Po	oor	Sev	rere	
		W.		ew areas of active	Often incised, but	less than Severe or		ned/incised.	vertical/lateral in		
Channel Condition	100% stable bar surface protectio prominent (80-1 Stable point bars/br present. Access floodplain or fully bankfull benches. and transverse bar	00%). AND/OR ankfull benches are s to their original / developed wide Mid-channel bars, ars few. Transient on covers less than	of banks are si Vegetative protect prominent (60- Depositional feat stability. The bar channels are wel likely has access to or newly develope portions of the rediment covers 10	cted banks. Majority table (60-80%), table (60-80%), table (60-80%), AND/OR tures contribute to nkfull and low flow II defined. Stream o bankfull benches, at floodplains along reach. Transient 0-40% of the stream tom.	or Poor due to lo Erosion may be pri both banks. Veget 40-60% of banks. bevertical or unde 60% of stream sediment. Sec temporary/trans instability. Deposition stability, may be	stable than Severe wer bank slopes. sesent on 40-60% of ative protection on Streambanks may rout. AND/OR 40-1 is covered by diment may be sient, contribute on that contribute to forming/present. ad channels have	widen further. Ma are near vertical. 60-80% of bar protection prese banks, and is inst erosion. AND/O stream is cover Sediment is temp nature, and contri AND/OR V-shap	unstable. Likely to jority of both banks Erosion present on iks. Vegetative ent on 20-40% of ufficient to prevent IR 60-80% of the red by sediment. porary/transient in buting to instability. eed on is present on >	rooting depth, m vertical/underc protection present of banks, is not pre Obvious banks is Erosion/raw bar AND/OR Aggradin than 80% of stream deposition, contrib	ed below average najority of banks ut. Vegetative on less than 20% of eventing erosion. bughing present. iks on 80-100%. g channel. Greater in bed is covered by uting to instability.	
			DOU	tom.	vegetative protecti	on on > 40% of the onal features which	40% of the banks a	and stable sediment is absent.	Multiple thread subterran		CI
Score	3	3	2	2.4	:	2	1	.6	•	1	3.0
RIPARIAN	N BUFFERS: /	Assess both bank			<u> </u>	gh measurement	s of length & widtl	h may be accepta	,		
Riparian	Opt Tree stratum (dbh: with > 60% tree ca	Assess both bank imal > 3 inches) present, anderstory. Wetlands	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds,	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces,	NOTES>>		
RIPARIAN	Opt Tree stratum (dbh: with > 60% tree ca	imal > 3 inches) present, anopy cover and a derstory. Wetlands	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed	Low Poor: Impervious surfaces, mine spoil lands,	NOTES>>		
Riparian Buffers	Opt Tree stratum (dbh: with > 60% tree canon-maintained unalocated within the	imal > 3 inches) present, anopy cover and a derstory. Wetlands	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory.	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation).	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover.	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh >3 inches) present, with <30% tree canopy cover with maintained understory.	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable condition.	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions.	NOTES>>		
Riparian Buffers Condition Scores Delineate ripaescriptors. Determine squelow. Enter the % F	Opt Tree stratum (dbh: with > 60% tree canon-maintained unalocated within the	imal > 3 inches) present, anopy cover and a derstory. Wetlands e riparian areas.	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 into Condition C	Inditional Cate ptimal Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Coungth and width. Coungth and width. Coungth and coungth and width.	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <a>30 % tree canopy cover. High 0.85	Ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh >3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions.	NOTES>>		
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Condition Scores Delineate ripa Secriptors. Determine squalow. Enter the % F	Tree stratum (dbh : with > 60% tree canon-maintained un located within the located within	imal 3 inches) present, anopy cover and a derstory. Wetlands e riparian areas. 5 each stream bank each by measuring 100% 1.2 100% 1.2 aried substrate si	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 Into Condition C g or estimating ler parian category in	Inditional Cate ptimal Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Coungth and width. Coungth and width. Coungth and width. Coungth and depths; wodes.	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85 Indition Scores using the saleculators are producted to the saleculators ar	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh > 3 inches) present, with <a>ony word water. If present, tree canopy cover with maintained understory. Low 0.75 Ing the vided for you	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F Blocks 6	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5 the sums Riparian equal 100 100%	NOTES>>		CI 1.20
Riparian Buffers Condition Scores Delineate ripa secriptors. Determine squadow. Enter the % R Right Bank Left Bank INSTREAN dercut banks;	Tree stratum (dbh : with > 60% tree conon-maintained un located within the located within	imal 3 inches) present, anopy cover and a derstory. Wetlands e riparian areas. 5 each stream bank each by measuring 100% 1.2 100% 1.2 aried substrate si iffle poole comple	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 Into Condition C g or estimating ler parian category in zes, water velocity ixes, stable featur	Inditional Cate ptimal Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Coungth and width. Coungth and width. Coungth and width. Coungth and depths; wores. Conditional	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <a>30% tree canopy cover. High 0.85 Indition Scores usional calculators are production of the calculators are production of the calculators are productional Category	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh >3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75 Ing the vided for you	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F Blocks 6	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5 the sums Riparian equal 100 100%	NOTES>> Cl= (Sum % RA * S Rt Bank Cl > Lt Bank Cl >	1.20	
Condition Scores Delineate ripa secriptors. Determine squalow. Enter the % F	Tree stratum (dbh with > 60% tree canon-maintained un located within the located within t	imal 3 inches) present, anopy cover and a derstory. Wetlands e riparian areas. 5 each stream bankeach by measuring 100% 1.2 100% 1.2 aried substrate si iffle poole completimal	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 Into Condition C g or estimating let parian category in zes, water velocity exes, stable featur Subo Stable habitat ele present in 30-50% are adequate fo	Inditional Cate ptimal Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Coungth and width. Coungth and width. Coungth and width. Coungth and depths; wodes.	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85 Indition Scores using a calculators are producted by the canopy cover. Stable habitate lee present in 10-30% are adequate for a degree of the canopy cover.	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh > 3 inches) present, with <a>ony word water. If present, tree canopy cover with maintained understory. Low 0.75 Ing the vided for you	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F Blocks 6	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5 the sums Riparian equal 100 100%	CI= (Sum % RA * S Rt Bank CI > Lt Bank CI >	1.20	

Project Applicate Locating Consentin Class Hill Date Gran Point SAN length Impacts Feature Consenting Consent Cons		St	ream In	npact A	ssessn	nent Fo	rm Pag	e 2			
4. CHANNEL ALTERATION: Statem crossings, injusp, concrete, gobients, or concrete blooks, straightening of channel, channelization, channelization, spell piles, consistent on the channel of the channel	Project #			I						Impact Factor	
Negligible Minor Moderate Channel Alteration Characteric, design, description, and supplied of the common control of the common co			sings, riprap, conc	rete, gabions, or	concrete blocks, s	straightening of ch	annel, channeliz	zation,		1	
Negligible Minor Moderate Severe Less than 2014 of 1965 of the 19	embankments, s	poil piles, constrictions, livestock		Condition	al Category				1		
Channel Alteration Claverilation, designing, effection: Claverilation Claverilation, designing, effection: Claverilation, designing, effection: Claverilation Cl		Negligible	Mi		Mod			evere			
REACH CONDITION INDEX and STREAM CONDITION UNITS FOR THIS REACH NOTE: The Cis and RCI should be rounded to 2 decimal places. The CR should be rounded to a whole rounder. THE REACH CONDITION INDEX (RCI) >> RCI= (Sum of all Crisy): COMPENSATION REQUIREMENT (CR) >> CR = RCI X LF X IF INSERT PHOTOS:		or hardening absent. Stream has an	the stream reach is disrupted by any of the channel alterations listed in the parameter	stream reach is disrupted by any of the channel alterations listed in the parameter	is disrupted by any of the channel alterations listed in the parameter guidelines. If stream has been channelized, normal stable stream meander	of the channel alterations listed in the parameter guidelines. If stream has been channelized, normal stable stream meander	Greater than 80% by any of the cha in the parameter 80% of banks s	nnel alterations listed guidelines AND/OR shored with gabion,	1		
NOTE: The Cis and RCI should be rounded to 2 decimal places. The CR abouted be rounded to a whole number. THE REACH CONDITION INDEX (RCI) >> RCII= (Sum of all CI 51)/5 COMPENSATION REQUIREMENT (CR) >> CR = RCI X LF X IF INSERT PHOTOS:	SCORE	1.5	1.3	1.1	0.9	0.7		0.5			1.1
RCL= (Sum of all Crsy/s COMPENSATION REQUIREMENT (CR) >: CR = RCI X LF X IF INSERT PHOTOS:		REACH C	ONDITION I	NDEX and S	STREAM CO	NDITION UN	IITS FOR TH	IIS REACH			
INSERT PHOTOS: CR = RCI X LF X IF INSERT PHOTOS:	NOTE: The Cls and R	Cl should be rounded to 2 decimal places.	The CR should be rou	nded to a whole numb	ber.						1.1
INSERT PHOTOS: CR = RCIXLFXIF											
INSERT PHOTOS:										WIENI (CK) >>	0
	INSERT PHO	TOS:				_					
DESCRIBE PROPOSED IMPACT:											
DESCRIBE PROPOSED IMPACT:											
	DESCRIBE P	PROPOSED IMPACT:									

		Stre	Uni	SSESS fied Stream M	lethodology f	for use in Virg	ginia	m 1)			
Project #		Project Name		Locality	Cowardin Class.	HUC	Date Date	SAR#	Impact/SAR length	Impact Factor	
5337	ı	-64 Peninsul	a	James City	R2UB2	02080206	Nov. '11		744		
Name	e(s) of Evalua	tor(s)	Stream Nam	e and Informa	ation						
	Aitkenhead / Nies		WUS 136M								
. Channel C	Condition: Asse	ess the cross-sec	ction of the stream		ondition (erosion, Conditional Catego						
	Opt	imal	Subo	ptimal	Mar	ginal	Po	oor	Se	vere	
	Very little incision o	ur active erosion: 80	erosion or unproted	ew areas of active cted banks. Majority	Poor. Banks more	less than Severe or stable than Severe	Vertically/laterally	ned/incised. unstable. Likely to		nstability. Severe	
Channel Condition	100% stable bai surface protectio prominent (80-1 Stable point bars/ba present. Access floodplain or fully bankfull benches. and transverse ba sediment depositio 10% of	nks. Vegetative n or natural rock, 00%). AND/OR ankfull benches are to their original v developed wide Mid-channel bars, ars few. Transient on covers less than	Vegetative protect prominent (60 Depositional feat stability. The bar channels are we likely has access t or newly develope portions of the is sediment covers 11.	stable (60-80%). tion or natural rock- e80%) AND/OR tures contribute to nkfull and low flow ill obankfull benches, ed floodplains along reach. Transient 0-40% of the stream tom.	Erosion may be pr both banks. Veget 40-60% of banks. bevertical or unde 60% of strean sediment. Sed temporary/tran instability. Depositi stability, may be	ower bank slopes. esent on 40-60% of tative protection on Streambanks may ercut. AND/OR 40- n is covered by diment may be sient, contribute on that contribute to e forming/present. ed channels have	are near vertical. 60-80% of bar protection prese banks, and is inst erosion. AND/O stream is cover Sediment is temp nature, and contri AND/OR V-shap	jority of both banks Erosion present on iks. Vegetative ent on 20-40% of afficient to prevent R 60-80% of the red by sediment. corary/transient in buting to instability. ed channels have ion is present on >	banks. Streamb rooting depth, r vertical/under vertical/under protection present banks, is not pr Obvious bank s Erosion/raw ban AND/OR Aggradir than 80% of strear deposition, contril	ed below average majority of banks cut. Vegetative on less than 20% of eventing erosion. loughing present. nks on 80-100%. ng channel. Greater n bed is covered by buting to instability.	
			500	ion.	vegetative protecti	ion on > 40% of the ional features which	40% of the banks a	and stable sediment is absent.		channels and/or nean flow.	CI
Score	3	3	2	2.4		2	1	.6		1	2.0
. RIPARIAN	N BUFFERS: A		Con	an areas along the nditional Cate	gory	ginal	Po	n may be accepta	NOTES>>		
RIPARIAN Riparian Buffers	Opti	imal > 3 inches) present, anopy cover and a derstory. Wetlands	Cor Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy	gory	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh >3 inches) present, with 30% inches) present, word <a href<="" th=""><th></th><th></th><th>NOTES>></th><th></th><th></th>			NOTES>>		
Riparian	Option Tree stratum (dbh - with > 60% tree canon-maintained und	imal > 3 inches) present, anopy cover and a derstory. Wetlands	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory.	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation).	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover.	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh >3 inches) present, with <30% tree canopy cover with maintained understory.	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable condition.	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions.	NOTES>>		
Riparian	Option Tree stratum (dbh - with > 60% tree canon-maintained und	imal 3 inches) present, anopy cover and a derstory. Wetlands e riparian areas.	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained	Low Suboptimal Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh >3 inches) present, with <30% tree canopy cover with maintained	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable	NOTES>>		
Riparian Buffers Condition Scores Delineate ripa escriptors. Determine sq elow.	Tree stratum (dbh > with > 60% tree conon-maintained und located within the	imal 3 inches) present, anopy cover and a derstory. Wetlands e riparian areas. 5 each stream bankach by measuring	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 into Condition C	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 Lategories and Coungth and width. Coungth and width. Coungth and width. Coungth and width. Coungth and coungth and width. Coungth and width. Coungth and width. Coungth areas	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh > 3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions.	NOTES>>		
Riparian Buffers Condition Scores Delineate ripaescriptors. Determine squelow. Enter the % F	Tree stratum (dbh > with > 60% tree ca non-maintained und located within the	imal 3 inches) present, anopy cover and a derstory. Wetlands e riparian areas. 5 each stream bankach by measuring	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 into Condition C	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 Lategories and Coungth and width. Coungth and width. Coungth and width. Coungth and width. Coungth and coungth and width. Coungth and width. Coungth and width. Coungth areas	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh > 3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5	NOTES>>		
Riparian Buffers Condition Scores Delineate ripasecriptors. Determine squelow. Enter the % F	Tree stratum (dbh > with > 60% tree canon-maintained unc located within the	imal 3 inches) present, anopy cover and a derstory. Wetlands e riparian areas. 5 each stream bank ach by measurin.	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 into Condition C	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 Lategories and Coungth and width. Coungth and width. Coungth and width. Coungth and width. Coungth and coungth and width. Coungth and width. Coungth and width. Coungth areas	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh > 3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5	NOTES>>		
Riparian Buffers Condition Scores Delineate ripa secriptors. Determine squelow. Enter the % F	Tree stratum (dbh a with > 60% tree ca non-maintained und located within the located with	imal 3 inches) present, anopy cover and a derstory. Wetlands e riparian areas. 5 each stream bank ach by measurin Score for each ri	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 into Condition C g or estimating let parian category in	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 Lategories and Coungth and width. Countries are considered and countries are considered as a countries and countries are considered as a c	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh > 3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5 the sums Riparian equal 100	NOTES>>		CI
Riparian Buffers Condition Scores Delineate ripascriptors. Determine squelow. Enter the % F	Tree stratum (dbh > with > 60% tree canon-maintained une located within the	imal 3 inches) present, anopy cover and a derstory. Wetlands e riparian areas. 5 each stream bank ach by measurin. Score for each ri	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 into Condition C	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 Lategories and Coungth and width. Coungth and width. Coungth and width. Coungth and width. Coungth and coungth and width. Coungth and width. Coungth and width. Coungth areas	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh > 3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5	NOTES>>	Scores*0.01)/2 1.20 12.46	CI 6.83
Condition Scores Delineate ripa escriptors. Determine squelow. Enter the % F Right Bank Left Bank B. INSTREAR	Tree stratum (dbh a with > 60% tree ca non-maintained und located within the located with	imal 3 inches) present, anopy cover and a derstory. Wetlands e riparian areas. 5 each stream bank ach by measurin 100% 1.2 1000% 1.2 aried substrate si	Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 Into Condition C g or estimating let	Inditional Cate potimal Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 Lategories and Con ongth and width. Con the blocks below 80% 0.5 y and depths; wodes.	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85 Indition Scores usional calculators are productions of the control of the con	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh > 3 inches) present, with < 30% tree canopy cover with maintained understory: Low 0.75 ing the ovided for you	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F Blocks 6	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5 the sums Riparian equal 100 100%	NOTES>> CI= (Sum % RA** Rt Bank CI >	1.20	
Condition Scores Delineate ripa escriptors. Determine squelow. Enter the % R Right Bank Left Bank Instread	Tree stratum (dbh > with > 60% tree ca non-maintained und located within the located with	imal 3 inches) present, anopy cover and a derstory. Wetlands e riparian areas. 5 each stream bank ach by measurin 100% 1.2 1000% 1.2 aried substrate si	Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 Into Condition C g or estimating length of the parian category in 10% 0.6 Zes, water velocit ixes, stable features.	Inditional Cate potimal Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 Lategories and Con ongth and width. Con the blocks below 80% 0.5 y and depths; wodes.	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <a>30 tree canopy cover. High 0.85 Indition Scores usional calculators are production of the calculators are productional calculators.	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh > 3 inches) present, with < 30% tree canopy cover with maintained understory: Low 0.75 ing the ovided for you	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F Blocks 6	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5 the sums Riparian equal 100 100%	NOTES>> Ci= (Sum % RA * : Rt Bank Ci > Lt Bank Ci >	1.20	
Condition Scores Delineate ripalescriptors. Determine squelow. Enter the % F. Right Bank Left Bank	Tree stratum (dbh > with > 60% tree ca non-maintained und located within the located with	imal 3 inches) present, anopy cover and a derstory. Wetlands e riparian areas. 5 5 cach stream bank ach by measuring the stream	Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 Into Condition C g or estimating let parian category in 10% 0.6 Zes, water velocit exes, stable featur Subo Stable habitat ele present in 30-50% are adequate fo	Inditional Cate potimal Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 Sategories and Con ngth and width. Con the blocks below 80% 0.5 y and depths; woo res. Conditional	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85 Indition Scores using the state of the state	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh >3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75 ing the vided for you	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F Blocks 6	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5 the sums Riparian equal 100 100% 1090%	CI= (Sum % RA * : Rt Bank CI > Lt Bank CI > NOTES>>	1.20	

	St	ream In	npact A	ssessn	nent Fo	rm Pag	je 2			
Project #	Applicant		Locality	Cowardin Class.	HUC	Date	Data Point	SAR length	Impact Factor	
4. CHANNEI	L ALTERATION: Stream cross	sings riprap cond	rete gabions or	concrete blocks s	straightening of ch	annel channeli	zation	500 NOTES>>	1	
embankments, s	poil piles, constrictions, livestock	,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,		al Category	, and the state of					
	Negligible	Mi	nor		erate 60 - 80% of reach		evere			
Channel Alteration	Channelization, dredging, alteration, or hardening absent. Stream has an unaltered pattern or has naturalized.	Less than 20% of the stream reach is disrupted by any of the channel alterations listed in the parameter guidelines.	20-40% of the stream reach is disrupted by any of the channel alterations listed in the parameter guidelines.	10 - 00% of feath is disrupted by any of the channel alterations listed in the parameter guidelines. If stream has been channelized, normal stable stream meander pattern has not	is disrupted by any of the channel	Greater than 80% by any of the cha in the parameter 80% of banks	6 of reach is disrupted innel alterations listed r guidelines AND/OR shored with gabion, or cement.			
SCORE	1.5	1.3	1.1	0.9	0.7		0.5			0.9
	REACH C	ONDITION	NDEX and S	STREAM CO	NDITION UN	ITS FOR T	HIS REACH			
NOTE: The CIs and R	RCI should be rounded to 2 decimal places.	The CR should be rou	nded to a whole numb	ber.			THE REACH (2.1
							RCI COMPENSATI	= (Sum of all C		0
								XLFXIF		0
INSERT PHO	OTOS:									
DESCRIBE P	PROPOSED IMPACT:									

		Stre	Uni	fied Stream N	lethodology 1	Form	ginia	m 1)			
Project #		Project Name		Locality	nels classified a Cowardin Class.	HUC	perennial Date	SAR#	Impact/SAR length	Impact Factor	
5337	I	-64 Peninsul	a	James City	R2UB2	02080206	11/9/11		691		
Name	e(s) of Evalua	tor(s)	Stream Nam	e and Informa	ation	l					
	Aitkenhead / Nies		WUS 137M								
. Channel C	Condition: Asse	ess the cross-sec	ction of the stream		ondition (erosion, conditional Catego						
	Opti	imal	Subo	ptimal	Mar	ginal	Po	oor	Se	vere	4
	Very little incision o	ractive erosion: 80	erosion or unproted	ew areas of active cted banks. Majority	Poor. Banks more	less than Severe or stable than Severe	Vertically/laterally	ed/incised. unstable. Likely to	incision flow co	nstability. Severe	
Channel Condition	100% stable bar surface protection prominent (80-1) Stable point bars/bar present. Access floodplain or fully bankfull benches. and transverse bar sediment deposition	nks. Vegetative n or natural rock, 00%). AND/OR ankfull benches are to their original or developed wide Mid-channel bars, ars few. Transient in covers less than	Vegetative protect prominent (60 Depositional feat stability. The bar channels are we likely has access t or newly develope portions of the is sediment covers 11.	table (60-80%), tion or natural rock -80%) AND/OR tures contribute to nkfull and low flow ill obankfull benches, at floodplains along reach. Transient 0-40% of the stream tom.	Erosion may be pr both banks. Veget 40-60% of banks. bevertical or unde 60% of stream sediment. Se- temporary/tran instability. Depositi stability, may be	ower bank slopes. esent on 40-60% of tative protection on Streambanks may ercut. AND/OR 40- n is covered by diment may be sient, contribute on that contribute to e forming/present. ed channels have	are near vertical. 60-80% of bar protection prese banks, and is inst erosion. AND/O stream is cover Sediment is temp nature, and contri AND/OR V-shap	iority of both banks Erosion present on ks. Vegetative ent on 20-40% of ufficient to prevent R 60-80% of the ed by sediment. corary/transient in buting to instability. ed channels have ion is present on >	banks. Streamb rooting depth, r vertical/under protection present banks, is not pr Obvious bank s Erosion/raw ba AND/OR Aggradir than 80% of streat deposition, contril	ped below average majority of banks cut. Vegetative on less than 20% of eventing erosion. Bloughing present. Inks on 80-100%. Ing channel. Greater m bed is covered by buting to instability.	
					vegetative protect banks and deposit	ion on > 40% of the ional features which	40% of the banks a	and stable sediment is absent.		l channels and/or nean flow.	CI
Score	3	3	2	2.4		2	1	.6		1	1.6
. RIPARIAN	N BUFFERS: A		Con	nditional Cate ptimal	gory	ginal Low Marginal:	Po High Poor:	n may be accepta	NOTES>>		
RIPARIAN Riparian Buffers	Opti	imal - 3 inches) present, anopy cover and a derstory. Wetlands	Cor Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy	gory	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh >3 inches) present, with 30% inches) present, word <a href<="" th=""><th>Po</th><th></th><th>NOTES>></th><th></th><th></th>	Po		NOTES>>		
Riparian	Option Tree stratum (dbh > with > 60% tree canon-maintained unc	imal - 3 inches) present, anopy cover and a derstory. Wetlands	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory.	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation).	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover.	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh >3 inches) present, with <30% tree canopy cover with maintained understory.	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable condition.	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions.	NOTES>>		
Riparian	Option Tree stratum (dbh > with > 60% tree canon-maintained unc	imal 3 inches) present, anopy cover and a derstory. Wetlands e riparian areas.	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained	Low Suboptimal Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh >3 inches) present, with <30% tree canopy cover with maintained	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable	NOTES>>		
Riparian Buffers Condition Scores Delineate ripe escriptors. Determine sq elow.	Tree stratum (dbh > with > 60% tree ca non-maintained unc located within the	imal 3 inches) present, anopy cover and a derstory. Wetlands e riparian areas.	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 into Condition C	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Coungth and width. Coungth	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh > 3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5	NOTES>>		
Riparian Buffers Condition Scores Delineate ripa sescriptors. Determine sq	Tree stratum (dbh > with > 60% tree ca non-maintained unc located within the located with	imal 3 inches) present, anopy cover and a derstory. Wetlands e riparian areas. 5 ach stream bank ach by measuring.	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 k into Condition C g or estimating ler parian category in	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Co	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh > 3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5	NOTES>>		
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Riparian Buffers Condition Scores Delineate ripaescriptors. Determine squelow. Enter the % F	Tree stratum (dbh > with > 60% tree canon-maintained unc located within the located withi	imal 3 inches) present, anopy cover and a derstory. Wetlands e riparian areas. 5 each stream bank ach by measuring 50% 1.2	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 into Condition C g or estimating ler parian category in 20% 0.6	Low Low Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Co oright and width. Co oright and wi	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh > 3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5	NOTES>>		
Riparian Buffers Condition Scores Delineate ripasecriptors. Determine squelow. Enter the % F	Tree stratum (dbh > with > 60% tree ca non-maintained unc located within the located with	imal 3 inches) present, anopy cover and a derstory. Wetlands e riparian areas. 5 ach stream bank ach by measuring Score for each ripage.	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 Into Condition C g or estimating ler parian category in	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Co ongth and width. Co on the blocks below	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh > 3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5	NOTES>>	Scores*0.01)/2 0.87 0.87	CI 0.87
Condition Scores Delineate ripa escriptors. Determine squelow. Enter the % F Right Bank Left Bank B. INSTREAR	Tree stratum (dbh > with > 60% tree canon-maintained unc located within the located withi	imal 3 inches) present, anopy cover and a derstory. Wetlands e riparian areas. 5 ach stream bank ach by measuring 50% 1.2 50% 1.2 aried substrate si	Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 Into Condition C g or estimating ler	Inditional Cate ptimal Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Coungth and width. Coung	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85 Indition Scores us calculators are production of the product	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh > 3 inches) present, with < 30% tree canopy cover with maintained understory: Low 0.75 ing the ovided for you	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F Blocks 6	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5 the sums Riparian equal 100 100%	NOTES>> Cl= (Sum % RA*: Rt Bank Cl >	0.87	CI 0.87
Condition Scores Delineate ripalescriptors. Determine squelow. Enter the % Right Bank Left Bank INSTREAM Indercut banks;	Tree stratum (dbh > with > 60% tree canon-maintained unc located within the located withi	imal 3 inches) present, anopy cover and a derstory. Wetlands e riparian areas. 5 each stream bank ach by measuring 50% 1.2 50% 1.2 aried substrate significations in the poole complete.	Riphrian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 Into Condition C g or estimating let parian category in 20% 0.6 20% 0.6 zes, water velocit ixes, stable features.	Inditional Cate ptimal Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Coungth and width. Coung	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <a>3 inches) present, with <a>3 inches) present, or a tree canopy cover. High 0.85 Indition Scores us calculators are production of the control of th	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh > 3 inches) present, with < 30% tree canopy cover with maintained understory: Low 0.75 ing the ovided for you	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F Blocks 6	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5 the sums Riparian equal 100 100%	NOTES>> Ci= (Sum % RA *: Rt Bank Ci > Lt Bank Ci >	0.87	
Condition Scores Delineate ripalescriptors. Determine squelow. Enter the % F. Right Bank Left Bank	Tree stratum (dbh > with > 60% tree ca non-maintained unc located within the located with	imal 3 inches) present, anopy cover and a derstory. Wetlands e riparian areas. 5 5 cach stream bank ach by measuring 50% 1.2 50% 1.2 aried substrate si ffle poole completimal	Right Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 Into Condition C g or estimating let parian category in 20% 0.6 20% 0.6 Stable habitat ele present in 30-50% are adequate fo areas with 100 contains and 100 co	Inditional Cate ptimal Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Coungth and width. Coungth	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85 Indition Scores us calculators are production of the present in 10-30 are adequate for a seadequate for the present in 10-30 are adequate for the present in 10-30 are adeq	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh >3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75 ing the vided for you	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F Blocks 6	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5 the sums Riparian equal 100 100% 100%	CI= (Sum % RA *: Rt Bank CI > Lt Bank CI > NOTES>>	0.87	

		St	ream In	npact A	ssessn	nent Fo	rm Pag	je 2			
4. CHANNEL ALTERATION: disease crossings, (pray, concrete, gallorine, or concrete blacks, straightening of channel, channelization, models plate, consortations (peetlast. Channel Regigible Milnor	Project #			_						Impact Factor	
Negligible Minor Moderate Severe Lass than 20% of July Collection (1997), and the clearers of the drawn of the clearers of th	4. CHANNEI	L ALTERATION: Stream cross	sings, riprap, cond	crete, gabions, or	concrete blocks, s	straightening of ch	annel, channeli	zation,		1	
Channel Alteration Charnelisation, designing, differential in discounting of the charge of the charg	embankments, s										
Channel Alteration Charvalisation, designing shareds the control of the channel o		Negligible	Mi	inor	40 - 60% of reach	60 - 80% of reach		evere			
REACH CONDITION INDEX and STREAM CONDITION UNITS FOR THIS REACH NOTE: The Cis and RCI should be rounded to 2 declared pitcers. The CR should be rounded to 3 whole number. THE REACH CONDITION INDEX (R RCI= (Sum of all C1s)/5 COMPENSATION REGUIREMENT (C CR = RCI X LF X IF INSERT PHOTOS:		or hardening absent. Stream has an	the stream reach is disrupted by any of the channel alterations listed in the parameter	stream reach is disrupted by any of the channel alterations listed in the parameter	of the channel alterations listed in the parameter guidelines. If stream has been channelized, normal stable stream meander	of the channel alterations listed in the parameter guidelines. If stream has been channelized, normal stable stream meander	Greater than 80% by any of the cha in the paramete 80% of banks	annel alterations listed r guidelines AND/OR shored with gabion,	I I		
NOTE: The Cis and RCI should be rounded to 2 decimal places. The CR should be rounded to a whole number. THE REACH CONDITION INDEX (R RCI= (Sum of all C1s)/5 COMPENSATION REQUIREMENT (C RCI XLF X IF INSERT PHOTOS:	SCORE	1.5	1.3	1.1	0.9	0.7		0.5			0.5
RCI= (Sum of all Crsy/S COMPENSATION REQUIREMENT (C CR = RCI X LF X IF INSERT PHOTOS:		REACH C	CONDITION	NDEX and S	STREAM CO	NDITION UN	ITS FOR T				ı
INSERT PHOTOS: COMPENSATION REQUIREMENT (6 OR = RCI X LF X IF	NOTE: The CIs and F	RCI should be rounded to 2 decimal places.	The CR should be rou	inded to a whole numl	ber.						0.6
INSERT PHOTOS:									•		0
								CR = RC	I X LF X IF		
DESCRIBE PROPOSED IMPACT:											
DESCRIBE PROPOSED IMPACT:											
	DESCRIBE F	PROPOSED IMPACT:									

		Stre	Uni	fied Stream N	lethodology f	Form	ginia	m 1)			
Project #		Project Name		Locality	nels classified a Cowardin Class.	HUC	perennial Date	SAR#	Impact/SAR length	Impact Factor	
5337	I	-64 Peninsul	a	James City	R2UB2	02080206	11/9/11		126		
Name	e(s) of Evalua	tor(s)	Stream Nam	e and Informa	ation						1
	Aitkenhead / Nies		WUS 138M								
. Channel C	Condition: Asse	ess the cross-sec	ction of the stream		ondition (erosion, Conditional Catego						
	Opti	imal	Subo	ptimal	Mar	ginal	Po	oor	Se	vere	4
	Very little incision o	or active erosion: 80	erosion or unproted	ew areas of active cted banks. Majority	Poor. Banks more	less than Severe or stable than Severe	Vertically/laterally	ned/incised. unstable. Likely to		nstability. Severe	
Channel Condition	100% stable bar surface protection prominent (80-1) Stable point bars/ba present. Access floodplain or fully bankfull benches. and transverse basediment depositio sediment depositio	nks. Vegetative n or natural rock, 00%). AND/OR ankfull benches are to their original v developed wide Mid-channel bars, ars few. Transient on covers less than	Vegetative protect prominent (60 Depositional feat stability. The bar channels are we likely has access t or newly develope portions of the is sediment covers 11.	table (60-80%), titon or natural rock -80%) AND/OR tures contribute to nkfull and low flow II delined. Stream o bankfull benches, at floodplains along reach. Transient 0-40% of the stream tom.	Erosion may be pr both banks. Veget 40-60% of banks. bevertical or unde 60% of strean sediment. Sed temporary/tran instability. Depositi stability, may be	ower bank slopes. resent on 40-60% of tative protection on Streambanks may ercut. AND/OR 40- n is covered by diment may be isient, contribute to e forming/present. sed channels have	are near vertical. 60-80% of bar protection prese banks, and is inst erosion. AND/O stream is cover Sediment is temp nature, and contri AND/OR V-shap	jority of both banks Erosion present on iks. Vegetative ent on 20-40% of afficient to prevent R 60-80% of the red by sediment. corary/transient in buting to instability. ed channels have ion is present on >	rooting depth, r vertical/underr protection present banks, is not pr Obvious bank s Erosion/raw ban AND/OR Aggradir than 80% of strear deposition, contril	ed below average majority of banks cut. Vegetative on less than 20% of eventing erosion. loughing present. nks on 80-100%. ng channel. Greater n bed is covered by buting to instability. channels and/or	ī
					banks and depositi	ion on > 40% of the ional features which	deposition	and stable sediment is absent.	subterra	nean flow.	CI
Score	3	3	2	2.4		2	1	.6		1	3.0
. RIPARIAN	N BUFFERS: A		Con	nditional Cate	gory Mar	ginal Low Marginal: Non-maintained,	Po High Poor:	n may be accepta	NOTES>>		
RIPARIAN Riparian Buffers	Opti Tree stratum (dbh > with > 60% tree ca	imal > 3 inches) present, anopy cover and a derstory. Wetlands	Cor Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy	gory	ginal Low Marginal:	Po				
Riparian	Option Tree stratum (dbh > with > 60% tree canon-maintained uncompaintained u	imal > 3 inches) present, anopy cover and a derstory. Wetlands	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory.	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation).	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover.	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh >3 inches) present, with <30% tree canopy cover with maintained understory.	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable condition.	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions.			
Riparian Buffers	Option Tree stratum (dbh > with > 60% tree canon-maintained uncompaintained u	imal 3 inches) present, anopy cover and a derstory. Wetlands e riparian areas.	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh > 3 inches) present, with <30% tree canopy cover with maintained	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable			
Riparian Buffers Condition Scores Delineate ripa escriptors. Determine sq elow.	Tree stratum (dbh > with > 60% tree ca non-maintained unc located within the	imal 3 inches) present, anopy cover and a derstory. Wetlands e riparian areas. 5 each stream bank ach by measurin	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 k into Condition C	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Coungth and width. Coungth	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh >3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5			
Riparian Buffers Condition Scores Delineate ripa secriptors. Determine sq	Tree stratum (dbh > with > 60% tree ca non-maintained unc located within the	imal 3 inches) present, anopy cover and a derstory. Wetlands e riparian areas. 5 each stream bank ach by measurin.	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 k into Condition C	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Coungth and width. Coungth	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh >3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5			
Riparian Buffers Condition Scores Delineate ripa escriptors. Determine squelow. Enter the % F	Tree stratum (dbh > with > 60% tree ca non-maintained unc located within the	imal 3 inches) present, anopy cover and a derstory. Wetlands e riparian areas. 5 each stream bank ach by measurin	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 k into Condition C	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Coungth and width. Coungth	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh >3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5	NOTES>>		
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Condition Scores Delineate ripalescriptors. Determine squelow. Enter the % Right Bank Left Bank B. INSTREAN	Tree stratum (dbh > with > 60% tree canon-maintained unc located within the located withi	imal 3 inches) present, anopy cover and a derstory. Wetlands e riparian areas. 5 each stream bank ach by measurin 100% 1.2 100% 1.2 aried substrate si	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 into Condition C g or estimating let parian category in	Inditional Cate ptimal Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Coungth and width. Coungth and width. Coungth and width. Coungth and depths; wodes.	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85 Indition Scores usional calculators are productions of the control of the con	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh >3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75 ing the povided for you	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F Blocks 6	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5 the sums Riparian equal 100 100%	NOTES>>		CI 1.20
Condition Scores Delineate ripa escriptors. Determine sq elow. Enter the % R Right Bank Left Bank I. INSTREAN Indercut banks;	Tree stratum (dbh > with > 60% tree ca non-maintained unc located within the located with	imal 3 inches) present, anopy cover and a derstory. Wetlands e riparian areas. 5.5 each stream bank ach by measuring the stream bank and by measuring the stream bank and the stream bank ach by measuring the stream bank ach by mea	Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 Into Condition C g or estimating le	Inditional Cate ptimal Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Coungth and width. Coungth and width. Coungth and width. Coungth and depths; wores. Conditional	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <a>30 tree canopy cover. High 0.85 Indition Scores usional calculators are production of the calculators are productional calculators.	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh >3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75 ing the povided for you	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F Blocks 6	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5 the sums Riparian equal 100 100%	NOTES>> CI= (Sum % RA * S Rt Bank CI > Lt Bank CI >	1.20	
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	St	ream In	npact A	ssessn	nent Fo	rm Pag	je 2		
Project #	Applicant		Locality	Cowardin Class.	HUC	Date	Data Point	SAR length	Impact Factor
								500	1
CHANNEI embankments, s	L ALTERATION: Stream cross spoil piles, constrictions, livestock	sings, riprap, conc	rete, gabions, or	concrete blocks, s	straightening of ch	nannel, channeli	zation,	NOTES>>	
	Negligible	l Mi	Condition nor	al Category	lerate		evere		
	Negligible	IVII		40 - 60% of reach	60 - 80% of reach		evere		
Channel Alteration	Channelization, dredging, alteration, or hardening absent. Stream has an unaltered pattern or has naturalized.	Less than 20% of the stream reach is disrupted by any of the channel alterations listed in the parameter guidelines.	20-40% of the stream reach is disrupted by any of the channel alterations listed in the parameter guidelines.	is disrupted by any of the channel alterations listed in the parameter guidelines. If stream has been channelized, normal stable stream meander pattern has not	is disrupted by any of the channel alterations listed in the parameter guidelines. If stream has been channelized, normal stable stream meander pattern has not	Greater than 80% by any of the cha in the paramete 80% of banks	6 of reach is disrupted annel alterations listed r guidelines AND/OR shored with gabion, or cement.		
SCORE	1.5	1.3	1.1	0.9	0.7		0.5		
	REACH C	CONDITION	NDEX and S	STREAM CO	NDITION UN	IITS FOR T	HIS REACH		
NOTE: The Cls and F	RCI should be rounded to 2 decimal places.	The CR should be rou	nded to a whole numl	ber.			THE REACH	CONDITION IN	DEX (RCI) >>
								I= (Sum of all C	
								I X LF X IF	VIENT (CR) >>
INSERT PHO							ON = RU	I A EI A IF	
DESCRIBE F	PROPOSED IMPACT:								
1									

		Stre	Uni	fied Stream N	lethodology 1	Form	ginia	m 1)			
Project #		Project Name		Locality	cowardin Class.	HUC	Date Date	SAR#	Impact/SAR length	Impact Factor	
5337	ŀ	-64 Peninsul	a	James City	R2UB2	02080206	11/9/11		129		
Name	e(s) of Evalua	tor(s)	Stream Nam	e and Informa	ation						
	Aitkenhead / Nies		WUS 139M								
. Channel C	Condition: Asse	ess the cross-sec	ction of the stream		ondition (erosion, conditional Catego						
	Opti	imal	Subo	ptimal	Mar	ginal	Po	oor	Se	vere	
	Very little incision o	or active erosion: 80	erosion or unproted	ew areas of active cted banks. Majority	Poor. Banks more	less than Severe or stable than Severe	Vertically/laterally	ned/incised. unstable. Likely to		nstability. Severe	
Channel Condition	100% stable bar surface protection prominent (80-1) Stable point bars/bs present. Access floodplain or fully bankfull benches. and transverse basediment depositio sediment depositio	nks. Vegetative n or natural rock, 00%). AND/OR ankfull benches are to their original v developed wide Mid-channel bars, ars few. Transient on covers less than	Vegetative protect prominent (60 Depositional feat stability. The bar channels are we likely has access t or newly develope portions of the is sediment covers 11.	table (60-80%), tion or natural rock -80%) AND/OR tures contribute to nkfull and low flow observed to bankfull benches, and floodplains along reach. Transient 0-40% of the stream tom.	Erosion may be pr both banks. Veget 40-60% of banks. bevertical or unde 60% of stream sediment. Se- temporary/tran instability. Depositi stability, may be	ower bank slopes. resent on 40-60% of tative protection on Streambanks may ercut. AND/OR 40- m is covered by diment may be issent, contribute to e forming/present. sed channels have	are near vertical. 60-80% of bar protection prese banks, and is inst erosion. AND/O stream is cover Sediment is temp nature, and contri AND/OR V-shap	jority of both banks Erosion present on iks. Vegetative ent on 20-40% of afficient to prevent R 60-80% of the red by sediment. corary/transient in buting to instability. ed channels have ion is present on >	rooting depth, r vertical/underr protection present banks, is not pr Obvious bank s Erosion/raw ban AND/OR Aggradir than 80% of strear deposition, contril	ned below average majority of banks cut. Vegetative on less than 20% of eventing erosion. Idoughing present. nks on 80-100%. ng channel. Greater m bed is covered by buting to instability. channels and/or	
					banks and depositi	ion on > 40% of the ional features which	deposition	and stable sediment is absent.	subterra	nean flow.	CI
Score	3	3	2	2.4		2	1	.6		1	3.0
	N BUFFERS: A		Con	nditional Cate	gory Mar	ginal Low Marginal: Non-maintained,		n may be accepta	NOTES>>		
	Opti	imal > 3 inches) present, anopy cover and a derstory. Wetlands	Cor Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy	gory	ginal Low Marginal:	Po High Poor:				
. RIPARIAN	Option Tree stratum (dbh > with > 60% tree canon-maintained uncommaintained u	imal > 3 inches) present, anopy cover and a derstory. Wetlands	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory.	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation).	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover.	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh >3 inches) present, with <30% tree canopy cover with maintained understory.	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable condition.	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions.			
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Riparian Buffers Condition Scores Delineate ripa secriptors. Determine squelow. Enter the % F	Tree stratum (dbh > with > 60% tree ca non-maintained unc located within the located with	imal 3 inches) present, anopy cover and a derstory. Wetlands e riparian areas. 5 each stream bank ach by measurin Score for each ri 100% 1.2	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 k into Condition C	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Coungth and width. Coungth	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh > 3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5	NOTES>> CI= (Sum % RA** Rt Bank CI >	1.20	CI 1 20
Riparian Buffers Condition Scores Delineate ripa escriptors. Determine squelow. Enter the % F. Right Bank Left Bank B. INSTREAR	Tree stratum (dbh > with > 60% tree canon-maintained unc located within the located withi	imal 3 inches) present, anopy cover and a derstory. Wetlands e riparian areas. 5 each stream bank ach by measurin 100% 1.2 100% 1.2 aried substrate si	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 into Condition C g or estimating let parian category in	Inditional Cate ptimal Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Congth and width. Congth and width. Congth and width. Congth and depths; workers.	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85 Indition Scores us calculators are production of the product	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh > 3 inches) present, with < 30% tree canopy cover with maintained understory: Low 0.75 ing the povided for you	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F Blocks 6	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5 the sums Riparian equal 100 100%	NOTES>>		C1 1.20
Riparian Buffers Condition Scores Delineate ripalescriptors. Determine squescriptors. Enter the % F. Right Bank Left Bank INSTREAM Indercut banks;	Tree stratum (dbh > with > 60% tree ca non-maintained und located within the located with	imal 3 inches) present, anopy cover and a derstory. Wetlands e riparian areas. 5 each stream bank ach by measurin 100% 1.2 100% 1.2 aried substrate si	Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 Into Condition C g or estimating le	Inditional Cate ptimal Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Congth and width. Congth and width. Congth and width. Congth and depths; workers.	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <a>3 inches) present, with <a>3 inches) present, or a tree canopy cover. High 0.85 Indition Scores us calculators are production of the control of th	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh > 3 inches) present, with < 30% tree canopy cover with maintained understory: Low 0.75 ing the povided for you	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F Blocks 6	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5 the sums Riparian equal 100 100%	NOTES>> CI= (Sum % RA * S Rt Bank CI > Lt Bank CI >	1.20	
Riparian Buffers Condition Scores Delineate ripalescriptors. Determine squelow. Enter the % F. Right Bank Left Bank B. INSTREAR	Tree stratum (dbh > with > 60% tree ca non-maintained und located within the located with	imal 3 inches) present, anopy cover and a derstory. Wetlands e riparian areas. 5 5 cach stream bank ach by measuring the stream	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 Into Condition C g or estimating let parian category in Zes, water velocit exes, stable featur Subo Stable habitat ele present in 30-509 are adequate fo	Inditional Cate ptimal Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Congth and width. Congth and width. Congth and width. Congth and depths; wores. Conditional	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85 Indition Scores us calculators are production of the present in 10-30 are adequate for a seadequate for the present in 10-30 are adequate for the present in 10-30 are adeq	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh >3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75 ing the povided for you	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F Blocks 6	Low Poor: Impervious surfaces, mine pool lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5 the sums Riparian equal 100 100% 100%	NOTES>> CI= (Sum % RA * S Rt Bank CI > Lt Bank CI >	1.20	

	St	ream In	npact A	ssessn	nent Fo	rm Pag	je 2		
Project #	Applicant		Locality	Cowardin Class.	HUC	Date	Data Point	SAR length	Impact Factor
								500	1
	L ALTERATION: Stream cross	sings, riprap, conc	rete, gabions, or	concrete blocks, s	straightening of ch	nannel, channeli.	zation,	NOTES>>	
erribarikments, s				al Category					
	Negligible	Mi	nor		lerate 60 - 80% of reach		evere		
Channel Alteration	Channelization, dredging, alteration, or hardening absent. Stream has an unaltered pattern or has naturalized.	Less than 20% of the stream reach is disrupted by any of the channel alterations listed in the parameter guidelines.	20-40% of the stream reach is disrupted by any of the channel alterations listed in the parameter guidelines.	is disrupted by any of the channel alterations listed in the parameter guidelines. If	is disrupted by any of the channel	Greater than 80% by any of the cha in the paramete 80% of banks	6 of reach is disrupted innel alterations listed r guidelines AND/OR shored with gabion, or cement.		
SCORE	1.5	1.3	1.1	0.9	0.7		0.5	-	
		CONDITION				IITS FOR T	HIS REACH		
NOTE: The Cls and R	RCI should be rounded to 2 decimal places.							CONDITION IN	DEX (RCI) >>
30 and 1	pauss.							I= (Sum of all C	
							COMPENSAT	ION REQUIRE	
							CR = RC	I X LF X IF	
DE000000									
DESCRIBE F	PROPOSED IMPACT:								

	Stre		fied Stream N	lethodology f	for use in Vir	ginia	m 1)			
Project #	Project Nam		Locality	Cowardin Class.	HUC	Date	SAR#	Impact/SAR length	Impact Factor	
5337	I-64 Peninsu	la	James City	R4UB2	02080206	11/9/11		175		
Name	e(s) of Evaluator(s)		e and Informa	ation						
	Aitkenhead / Nies	WUS 140M								
I. Channel C	Condition: Assess the cross-se	ction of the stream		ondition (erosion, Conditional Catego						
	Optimal	Subo	ptimal		ginal	Po	oor	Sev	/ere	
Channel Condition	Very little incision or active erosion; 81 100% stable banks. Vegetative surface protection or natural rock, prominent (80-100%). ANID/OR Stable point bars/bankfull benches ar	erosion or unprotect of banks are si Vegetative protect prominent (60- Depositional feat	ew areas of active cted banks. Majority table (60-80%). tion or natural rock- 80%) AND/OR tures contribute to	Poor. Banks more or Poor due to lo Erosion may be pr both banks. Veget 40-60% of banks.	less than Severe or stable than Severe ower bank slopes. sesent on 40-60% of tative protection on Streambanks may greut. AND/OR 40-	Vertically/laterally widen further. Ma are near vertical. 60-80% of bar protection prese	ned/incised. unstable. Likely to jority of both banks Erosion present on lks. Vegetative ent on 20-40% of difficient to prevent	incision, flow con banks. Streamb rooting depth, n vertical/underd protection present	istability. Severe ntained within the ad below average najority of banks zut. Vegetative on less than 20% of	
	present. Access to their original floodplain or fully developed wide bankfull benches. Mid-channel bars, and transverse bars few. Transient sediment deposition covers less than 10% of bottom.	channels are wellikely has access to rewly develope portions of the resediment covers 10	nkfull and low flow Il defined. Stream o bankfull benches, d floodplains along reach. Transient 0-40% of the stream tom.	60% of strean sediment. Set temporary/tran instability. Depositi stability, may be AND/OR V-shap vegetative protecti	or is covered by diment may be sient, contribute on that contribute to the forming/present. ed channels have ion on > 40% of the ional features which	erosion. AND/O stream is cover Sediment is tem nature, and contri AND/OR V-shap vegetative protect 40% of the banks a	ufficient to prevent MR 60-80% of the red by sediment. porary/transient in buting to instability, sed channels have tion is present on > and stable sediment is absent.	Obvious bank sl Erosion/raw bar AND/OR Aggradir than 80% of strear deposition, contrib Multiple thread	eventing erosion. oughing present. hks on 80-100%. Ig channel. Greater n bed is covered by outing to instability. channels and/or nean flow.	CI
Score	3	2	2.4		2	1	.6		1	3.0
2. RIPARIAN	N BUFFERS: Assess both ban		n areas along the		ugh measurement	s of length & widt	h may be accepta	NOTES>>		
2. RIPARIAN Riparian Buffers	Optimal Tree stratum (dbh > 3 inches) present with > 60% tree canopy cover and a non-maintained understory. Wetlands located within the riparian areas.	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches), present, with 30% to 60% tree	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If		Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or	NOTES>>		
Riparian Buffers	Optimal Tree stratum (dbh > 3 inches) present with > 60% tree canopy cover and a non-maintained understory. Wetlands	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a	Mar High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds,	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active	NOTES>>		
Riparian	Optimal Tree stratum (dbh > 3 inches) present with > 60% tree canopy cover and a non-maintained understory. Wetlands	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory.	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation).	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover.	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh >3 inches) present, with <30% tree canopy cover with maintained understory.	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, recently seeded and stabilized, or other comparable condition.	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions.	NOTES>>		
Riparian Buffers Condition Scores 1. Delineate ripa descriptors. 2. Determine squelow.	Optimal Tree stratum (dbh > 3 inches) present with > 60% tree canopy cover and a non-maintained understory. Wetlands located within the riparian areas. 1.5 arian areas along each stream bar quare footage for each by measuring the provided of the country of t	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 k into Condition C	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Coungth and width. Co	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh > 3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions.	NOTES>>		
Riparian Buffers Condition Scores Delineate ripalescriptors. Determine squescriptors. Enter the % F	Optimal Tree stratum (dbh > 3 inches) present with > 60% tree canopy cover and a non-maintained understory. Wetlands located within the riparian areas. 1.5 arian areas along each stream bar quare footage for each by measuring the stream of the stream	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 k into Condition C	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Coungth and width. Co	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh > 3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5	NOTES>>	Scores*0.01)/2	
Riparian Buffers Condition Scores 1. Delineate ripa descriptors. 2. Determine squelow. 3. Enter the % R Right Bank	Optimal Tree stratum (dbh > 3 inches) present with > 60% tree canopy cover and a non-maintained understory. Wetlands located within the riparian areas. 1.5 arian areas along each stream bar quare footage for each by measuring the provided of the country of t	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 k into Condition C	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Coungth and width. Co	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh > 3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5	NOTES>>	Scores*0.01)/2 1.20	CI
Riparian Buffers Condition Scores Delineate ripelescriptors. Determine squelow. Enter the % F Right Bank	Optimal Tree stratum (dbh > 3 inches) present with > 60% tree canopy cover and a non-maintained understory. Wetlands located within the riparian areas. 1.5 arian areas along each stream bar quare footage for each by measuring the stream Area and Score for each result of the stream Area a	Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 It into Condition C are gor estimating ler	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 attegories and Cor ngth and width. C	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh > 3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75 ing the povided for you	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F Blocks 6	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5 the sums Riparian equal 100 100%	CI= (Sum % RA * S Rt Bank CI > Lt Bank CI >		CI 1.20
Condition Scores Delineate ripa descriptors. Determine squelow. Right Bank Left Bank INSTREAM	Optimal Tree stratum (dbh > 3 inches) present with > 60% tree canopy cover and a non-maintained understory. Wetlands located within the riparian areas. 1.5 arian areas along each stream barrauare footage for each by measuring the provided of the provi	Com Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 k into Condition C ag or estimating ler iparian category in	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Coungth and width. Country the blocks below	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh > 3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75 ing the povided for you	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F Blocks 6	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5 the sums Riparian equal 100 100%	NOTES>> Cl= (Sum % RA*S Rt Bank Cl>	1.20	
Condition Scores 1. Delineate ripadescriptors. 2. Determine squelow. 3. Enter the % Right Bank Left Bank 3. INSTREAN	Optimal Tree stratum (dbh > 3 inches) present with > 60% tree canopy cover and a non-maintained understory. Wetlands located within the riparian areas. 1.5 arian areas along each stream bar quare footage for each by measuring the stream Area and Score for each result of the stream Area a	Com Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 k into Condition C ag or estimating ler iparian category in	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Coungth and width. Coungth and width. Coungth and width. Coungth and depths; wodes.	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh > 3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75 ing the povided for you	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F Blocks 6	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5 the sums Riparian equal 100 100%	CI= (Sum % RA * S Rt Bank CI > Lt Bank CI >	1.20	
Condition Scores Delineate ripadescriptors. Deltermine squelow. Enter the % R Right Bank Left Bank INSTREAM	Optimal Tree stratum (dbh > 3 inches) present with > 60% tree canopy cover and a non-maintained understory. Wetlands located within the riparian areas. 1.5 arian areas along each stream barrauare footage for each by measuring the provided of the provi	Com Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 k into Condition C or or estimating ler iparian category in jugarian category in Subo Stable habitat ele present in 30-50% are adequate fo are adequate fo	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Coungth and width. Coungth and width. Coungth and width. Coungth and depths; wodes.	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85 Indition Scores using the state of the state	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh > 3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75 ing the povided for you	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F Blocks 6	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5 the sums Riparian equal 100 100%	CI= (Sum % RA * S Rt Bank CI > Lt Bank CI >	1.20	

Project Applicate Locating Consentin Class Hill Date Gran Point SAN length Impacts Feature Consenting Consent Cons		St	ream In	npact A	ssessn	nent Fo	rm Pag	e 2			
4. CHANNEL ALTERATION: Statem crossings, injusp, concrete, gobients, or concrete blooks, straightening of channel, channelization, channelization, spell piles, consistent on the channel of the channel	Project #			I						Impact Factor	
Negligible Minor Moderate Channel Alteration Characteric, design, description, and supplied of the common control of the common co			sings, riprap, conc	rete, gabions, or	concrete blocks, s	straightening of ch	annel, channeliz	zation,		1	
Negligible Minor Moderate Severe Less than 2014 of 1965 of the 19	embankments, s	poil piles, constrictions, livestock		Condition	al Category				-		
Channel Alteration Claverilation, designing, effection: Claverilation Claverilation, designing, effection: Claverilation, designing, effection: Claverilation Cl		Negligible	Mi		Mod			evere			
REACH CONDITION INDEX and STREAM CONDITION UNITS FOR THIS REACH NOTE: The Cis and RCI should be rounded to 2 decimal places. The CR should be rounded to a whole rounder. THE REACH CONDITION INDEX (RCI) >> RCI= (Sum of all Crisy): COMPENSATION REQUIREMENT (CR) >> CR = RCI X LF X IF INSERT PHOTOS:		or hardening absent. Stream has an	the stream reach is disrupted by any of the channel alterations listed in the parameter	stream reach is disrupted by any of the channel alterations listed in the parameter	is disrupted by any of the channel alterations listed in the parameter guidelines. If stream has been channelized, normal stable stream meander	of the channel alterations listed in the parameter guidelines. If stream has been channelized, normal stable stream meander	Greater than 80% by any of the cha in the parameter 80% of banks s	nnel alterations listed guidelines AND/OR shored with gabion,	1		
NOTE: The Cis and RCI should be rounded to 2 decimal places. The CR abouted be rounded to a whole number. THE REACH CONDITION INDEX (RCI) >> RCII= (Sum of all CI 51)/5 COMPENSATION REQUIREMENT (CR) >> CR = RCI X LF X IF INSERT PHOTOS:	SCORE	1.5	1.3	1.1	0.9	0.7		0.5			1.1
RCL= (Sum of all Crsy/s COMPENSATION REQUIREMENT (CR) >: CR = RCI X LF X IF INSERT PHOTOS:		REACH C	ONDITION I	NDEX and S	STREAM CO	NDITION UN	IITS FOR TH	IIS REACH			
INSERT PHOTOS: CR = RCI X LF X IF INSERT PHOTOS:	NOTE: The Cls and R	Cl should be rounded to 2 decimal places.	The CR should be rou	nded to a whole numb	ber.						1.1
INSERT PHOTOS: CR = RCIXLFXIF											
INSERT PHOTOS:										WIENI (CK) >>	0
	INSERT PHO	TOS:				_					
DESCRIBE PROPOSED IMPACT:											
DESCRIBE PROPOSED IMPACT:											
	DESCRIBE P	PROPOSED IMPACT:									

		Uni	SSESS fied Stream N	lethodology 1	for use in Vir	ginia	m 1)			
Project #	Project Nam		Locality	Cowardin Class.	HUC	Date	SAR #	Impact/SAR length	Impact Factor	
5337	I-64 Peninsu	la	James City	R2UB2	02080206	11/9/11		182		
Name	e(s) of Evaluator(s)		e and Informa	ation						
	Aitkenhead / Nies	WUS 141M								
I. Channel C	Condition: Assess the cross-se	ction of the stream		ondition (erosion, Conditional Catego						
	Optimal	Subo	ptimal		ginal	Po	oor	Sev	vere	
Channel Condition	Very little incision or active erosion; 8(100% stable banks. Vegetative surface protection or natural rock, prominent (80-100%). AND/OR	of banks are s Vegetative protect prominent (60	ew areas of active cted banks. Majority table (60-80%). tion or natural rock -80%). AND/OR urues contribute to	Poor. Banks more or Poor due to lo Erosion may be pr both banks. Veget	less than Severe or stable than Severe wer bank slopes. esent on 40-60% of tative protection on Streambanks may	Vertically/laterally widen further. Ma are near vertical. 60-80% of bar	ned/incised. unstable. Likely to jority of both banks Erosion present on iks. Vegetative ant on 20-40% of	incision, flow cor banks. Streambor rooting depth, n vertical/underd	istability. Severe ntained within the ed below average majority of banks cut. Vegetative	
	Stable point bars/bankfull benches are present. Access to their original floodplain or fully developed wide bankfull benches. Mid-channel bars, and transverse bars few. Transient sediment deposition covers less than 10% of bottom.	stability. The bar channels are we likely has access to or newly develope portions of the sediment covers 10	Inters contribute to haffull and low flow Il defined. Stream o bankfull benches, id floodplains along reach. Transient 0-40% of the stream tom.	bevertical or unde 60% of stream sediment. Se- temporary/tran instability. Depositi stability, may be AND/OR V-shap vegetative protect	orreut. AND/OR 40- n is covered by diment may be sient, contribute on that contribute to forming/present. ed channels have ion on > 40% of the ional features which	banks, and is ins erosion. AND/C stream is cove Sediment is tem nature, and contri AND/OR V-shap vegetative protec 40% of the banks	inficient to prevent IR 60-80% of the red by sediment. porary/transient in buting to instability. sed channels have tion is present on > and stable sediment is absent.	banks, is not pre Obvious bank sl Erosion/raw bar AND/OR Aggradin than 80% of strean deposition, contrib Multiple thread	on less than 20% of eventing erosion. loughing present. nks on 80-100%. In channel. Greater n bed is covered by buting to instability. channels and/or nean flow.	CI
Score	3	2	.4		2	1	.6		1	3.0
	Optimal		ptimal Cate		ginal Low Marginal:	Po High Poor:	oor	NOTES>>		
Riparian Buffers		High Suboptimal: Riparian areas with tree stratum	Low Suboptimal: Riparian areas with tree stratum	High Marginal:	Non-maintained,					
	Tree stratum (dbh > 3 inches) present with > 60% tree canopy cover and a non-maintained understory. Wetlands located within the riparian areas.	(dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory.	(dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation).	Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover.	dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh > 3 inches) present, with <30% tree canopy cover with maintained understory.	Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, recently seeded and stabilized, or other comparable condition.	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions.			
Condition	with > 60% tree canopy cover and a non-maintained understory. Wetlands	(dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained	(dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense	Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree	vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh > 3 inches) present, with					

	St	ream In	npact A	ssessn	nent Fo	rm Pag	e 2		
Project #	Applicant		Locality	Cowardin Class.	HUC	Date	Data Point	SAR length	Impact Factor
								500	1
	L ALTERATION: Stream cross	sings, riprap, cond	rete, gabions, or	concrete blocks, s	traightening of ch	annel, channeliz	ation,	NOTES>>	
embankments, s	spoil piles, constrictions, livestock		Condition	al Category					
	Negligible	Mi	nor	Mod	erate	S	evere		
Channel Alteration	Channelization, dredging, alteration, or hardening absent. Stream has an unaltered pattern or has naturalized.	Less than 20% of the stream reach is disrupted by any of the channel alterations listed in the parameter guidelines.	20-40% of the stream reach is disrupted by any of the channel alterations listed in the parameter guidelines.	of the channel	60 - 80% of reach is disrupted by any of the channel alterations listed in the parameter guidelines. If stream has been channelized, normal stable stream meander pattern has not	by any of the cha in the parameter 80% of banks	o of reach is disrupted nnel alterations listed guidelines AND/OR shored with gabion, or cement.		
SCORE	1.5	1.3	1.1	0.9	0.7		0.5		
	REACH C	ONDITION I	NDEX and S	TREAM CO	NDITION UN	ITS FOR TI	IIS REACH		
NOTE: The CIs and F	RCI should be rounded to 2 decimal places.	The CR should be rou	nded to a whole numb	oer.			THE REACH (CONDITION IN	DEX (RCI) >>
								= (Sum of all C	
							CR - RC	ON REQUIRE	WENT (CR) >>
INSERT PHO	700						GIV = KC	ALI AIF	
DESCRIBE F	PROPOSED IMPACT:								

		Stre	Uni	SSESS fied Stream N	lethodology 1	for use in Vir	ginia	m 1)			
Project #	ı	Project Name		Locality	classified a Cowardin Class.	HUC	Date Date	SAR#	Impact/SAR length	Impact Factor	
5337	Į.	-64 Peninsul	a	James City	R2UB2	02050107	11/9/11		326		
Name	e(s) of Evalua	tor(s)	Stream Nam	e and Informa	ation						
	Aitkenhead / Nies		WUS 142M								
. Channel C	Condition: Asse	ess the cross-sec	ction of the stream								
	Opti	mal	Subo	ptimal	Conditional Catego Mar	ginal	Po	oor	Sev	/ere	
Channel Condition	Very little incision or 100% stable bar surface protection	nks. Vegetative	erosion or unproted of banks are s Vegetative protec	ew areas of active cted banks. Majority table (60-80%). tion or natural rock	Poor. Banks more or Poor due to lo Erosion may be pr	less than Severe or stable than Severe ower bank slopes. esent on 40-60% of tative protection on	Vertically/laterally widen further. Ma are near vertical.	ned/incised. unstable. Likely to jority of both banks Erosion present on	incision, flow cor banks. Streamb rooting depth, n	istability. Severe ntained within the ed below average najority of banks	
	prominent (80-10 Stable point bars/bz present. Access floodplain or fully bankfull benches. and transverse ba sediment depositio 10% of I	00%). AND/OR ankfull benches are to their original developed wide Mid-channel bars, ars few. Transient n covers less than	Depositional feat stability. The bai channels are we likely has access t or newly develope portions of the sediment covers 10 bot	-80%) AND/OR tures contribute to nkfull and low flow II defined. Stream o bankfull benches, ad floodplains along reach. Transient 0-40% of the stream tom.	40-60% of banks. bevertical or unde 60% of strean sediment. See temporary/tran instability. Depositi stability, may be AND/OR V-shap vegetative protect banks and deposit	Streambanks may prout. AND/OR 40-n is covered by diment may be sient, contribute on that contribute to e forming/present. eed channels have ion on > 40% of the ional features which	protection prese banks, and is insi erosion. AND/C stream is cover Sediment is tem nature, and contri AND/OR V-shap vegetative protect 40% of the banks a	and table sediment in sabsent on 20-40% of ufficient to prevent R 60-80% of the red by sediment. progray/transient in buting to instability, ed channels have ion is present on > and stable sediment is absent.	protection present banks, is not pre Obvious bank sl Erosion/raw ban AND/OR Aggradir than 80% of strear deposition, contrik Multiple thread	zut. Vegetative on less than 20% of eventing erosion. oughing present. hks on 80-100%. go channel. Greater in bed is covered by buting to instability. channels and/or nean flow.	CI
Score	3	3	2	2.4		2	1	.6		1	2.4
	Opti	mal		nditional Cate ptimal	gory	ginal	Pe	n may be accepta	NOTES>>		
Riparian Buffers	Tree stratum (dbh > with > 60% tree ca	· 3 inches) present, inopy cover and a derstory. Wetlands	High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy	gory	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh > 3 inches) present, with <30% tree canopy cover with maintained			NOTES>>		
Buffers	Tree stratum (dbh > with > 60% tree ca	· 3 inches) present, inopy cover and a derstory. Wetlands	High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and substitution of the configuration of the containing the containing both herbaceous and substitution of the containin	Dtimal Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory, Recent cutover (dense	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh >3 inches) present, with					

	St	ream In	npact A	ssessn	nent Fo	rm Pag	je 2		
Project #	Applicant		Locality	Cowardin Class.	HUC	Date	Data Point	SAR length	Impact Factor
								500	1
	L ALTERATION: Stream cross	sings, riprap, conc	rete, gabions, or	concrete blocks, s	straightening of ch	nannel, channeli.	zation,	NOTES>>	
erribarikments, s				al Category					
	Negligible	Mi	nor		lerate 60 - 80% of reach		evere		
Channel Alteration	Channelization, dredging, alteration, or hardening absent. Stream has an unaltered pattern or has naturalized.	Less than 20% of the stream reach is disrupted by any of the channel alterations listed in the parameter guidelines.	20-40% of the stream reach is disrupted by any of the channel alterations listed in the parameter guidelines.	is disrupted by any of the channel alterations listed in the parameter guidelines. If	is disrupted by any of the channel	Greater than 80% by any of the cha in the paramete 80% of banks	6 of reach is disrupted innel alterations listed r guidelines AND/OR shored with gabion, or cement.		
SCORE	1.5	1.3	1.1	0.9	0.7		0.5	-	
		CONDITION				IITS FOR T	HIS REACH		
NOTE: The Cls and R	RCI should be rounded to 2 decimal places.							CONDITION IN	DEX (RCI) >>
30 and 1	pauss.							I= (Sum of all C	
							COMPENSAT	ION REQUIRE	
							CR = RC	I X LF X IF	
DE000000									
DESCRIBE F	PROPOSED IMPACT:								

		Stre	Uni	fied Stream N	lethodology f	for use in Vir	-	,			
Project #	ı	Project Name		Locality	Cowardin Class.	HUC	Date	SAR#	Impact/SAR length	Impact Factor	
5337	Į.	-64 Peninsul	a	James City	R2UB2	02080107	11/9/11		252		
Name	e(s) of Evaluat	tor(s)	Stream Nam	e and Informa	ation						
	Aitkenhead / Nies		WUS 143M								
. Channel C	Condition: Asse	ess the cross-sec	tion of the stream								
	Opti	mal	Subo	ptimal	Conditional Catego Mar	ginal	Po	oor	Sev	/ere	
Channel	Very little incision or 100% stable bar		erosion or unproted of banks are s	ew areas of active cted banks. Majority table (60-80%). tition or natural rock	Poor. Banks more or Poor due to lo	less than Severe or stable than Severe ower bank slopes. esent on 40-60% of	Vertically/laterally widen further. Ma	ned/incised. unstable. Likely to jority of both banks Erosion present on	incision, flow con banks. Streamb	(Stability. Severe ntained within the ed below average	
Condition	surface protection prominent (80-10 Stable point bars/be present. Access floodplain or full bankfull benches. and transverse ba sediment deposition 10% of the protection of t	00%). AND/OR ankfull benches are to their original developed wide Mid-channel bars, ars few. Transient n covers less than	prominent (60 Depositional feat stability. The bar channels are we likely has access t or newly develope portions of the sediment covers 10	80%) AND/OR tures contribute to nkfull and low flow II defined. Stream o bankfull benches, def loodplains along reach. Transient 0-40% of the stream tom.	both banks. Veget 40-60% of banks. bevertical or unde 60% of strean sediment. Set temporary/tran instability. Depositi stability, may be AND/OR V-shap vegetative protecti	tative protection on Streambanks may rorut. AND/OR 40- n is covered by diment may be sisent, contribute on that contribute to forming/present. ed channels have ion on > 40% of the ional features which	60-80% of bar protection press banks, and is insi erosion. AND/C stream is cover Sediment is temporature, and contri AND/OR V-shap vegetative protect 40% of the banks at the protect stream in the stream of the st	iks. Vegetative and on 20-40% of difficient to prevent R 60-80% of the red by sediment, ocorary/transient in butting to instability, ed channels have ion is present on > and stable sediment in is absent.	vertical/underd protection present banks, is not pre Obvious bank si Erosion/raw bar AND/OR Aggradir than 80% of strear deposition, contrit Multiple thread	najority of banks cut. Vegetative on less than 20% of eventing erosion. oughing present. iks on 80-100%. ig channel. Greater in bed is covered by buting to instability. channels and/or lean flow.	CI
Score	3	3	2	2.4		2	1	.6		1	2.4
. RIPARIAN	N BUFFERS: A		Con	nditional Cate	gory				NOTES>>		
RIPARIAN Riparian Buffers	Opti Tree stratum (dbh > with > 60% tree ca non-maintained und located within the	imal 3 inches) present, unopy cover and a lerstory. Wetlands	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy	gory	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh > 3 inches) present, with <30% tree canopy cover with maintained		Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions.	NOTES>>		
Riparian Buffers	Opti Tree stratum (dbh > with > 60% tree ca	imal 3 inches) present, unopy cover and a lerstory. Wetlands	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh >3 inches) present, with					

	St	ream In	npact A	ssessn	nent Fo	rm Pag	je 2			
Project #	Applicant		Locality	Cowardin Class.		Date	Data Point	SAR length	Impact Factor	
								500	1	
4. CHANNEI	L ALTERATION: Stream cross	sings, riprap, conc	rete, gabions, or	concrete blocks,	straightening of ch	nannel, channeli	zation,	NOTES>>		
embankments, s	spoil piles, constrictions, livestock		Condition	al Category				-		
	Negligible	Mi	nor	Mod	derate		evere			
Channel Alteration	Channelization, dredging, alteration, or hardening absent. Stream has an unaltered pattern or has naturalized.	Less than 20% of the stream reach is disrupted by any of the channel alterations listed in the parameter	of the channel alterations listed in the parameter	40 - 60% of reach is disrupted by any of the channel alterations listed in the parameter guidelines. If stream has been channelized, normal stable	y is disrupted by any of the channel alterations listed in the parameter guidelines. If	Greater than 80% by any of the chain the paramete 80% of banks	% of reach is disrupted annel alterations listed or guidelines AND/OR shored with gabion, or cement.	t		
		guidelines.	guidelines.	stream meander pattern has not						
SCORE	1.5	1.3	1.1	0.9	0.7		0.5	-		0.
JOURE					NDITION UN	IITS FOR T				- 0.
MOTE: The Cleand					NDITION ON	I		CONDITION IN	IDEX (PCI)	- 4
NOTE: THE CIS and I	RCI should be rounded to 2 decimal places.	THE CR SHOULD BE FOU	ilued to a whole numi	Jei.				I= (Sum of all (1.
									MENT (CR) >>	
								I X LF X IF		
DESCRIBE F	PROPOSED IMPACT:									

	Stre		fied Stream N	lethodology f	for use in Vir	ginia	,			
Project #	Project Nam		Locality	Cowardin Class.	s intermittent or	Date Date	SAR#	Impact/SAR length	Impact Factor	
5337	I-64 Peninsu	la	James City	R2UB2	02080107	11/9/11		206		
Name	e(s) of Evaluator(s)		e and Informa	ation						
	Aitkenhead / Nies	WUS 144M								
I. Channel C	Condition: Assess the cross-se	ction of the stream		ondition (erosion, Conditional Catego						
	Optimal	Subo	ptimal	Mar	ginal	Po	oor	Sev	vere	
Channel	Very little incision or active erosion; 8 100% stable banks. Vegetative	erosion or unproted of banks are s	rew areas of active cted banks. Majority stable (60-80%).	Poor. Banks more or Poor due to lo	less than Severe or stable than Severe ower bank slopes. esent on 40-60% of	Vertically/laterally widen further. Ma	ned/incised. unstable. Likely to jority of both banks Erosion present on	incision, flow con banks. Streamb	stability. Severe ntained within the ed below average	
Condition	surface protection or natural rock, prominent (80-100%). AND/OR Stable point bars/bankfull benches an present. Access to their original floodplain or fully developed wide bankfull benches. Mid-channel bars, and transverse bars few. Transient sediment deposition covers less than 10% of bottom.	prominent (60 Depositional feat stability. The bar channels are we likely has access t or newly develope portions of the sediment covers 10	selo%) AND/OR tures contribute to nkfull and low flow il defined. Stream to bankfull benches, ed floodplains along reach. Transient 0-40% of the stream tom.	both banks. Veget 40-60% of banks. bevertical or unde 60% of strean sediment. Set temporary/tran instability. Depositi stability, may be AND/OR V-shap vegetative protecti	tative protection on Streambanks may ercut. AND/OR 40-n is covered by diment may be sient, contribute on that contribute to the forming/present. ed channels have ion on > 40% of the	60-80% of bar protection press banks, and is ins erosion. AND/C stream is cove Sediment is tem nature, and contri AND/OR V-shap vegetative protec 40% of the banks	klas. Vegetative and on 20-40% of ufficient to prevent NR 60-80% of the red by sediment. porary/transient in buting to instability. leed channels have tion is present on > and stable sediment is absent.	vertical/underd protection present banks, is not pre Obvious bank si Erosion/raw bar AND/OR Aggradir than 80% of strear deposition, contrit Multiple thread	najority of banks cut. Vegetative on less than 20% of eventing erosion. loughing present. hks on 80-100%. In g channel. Greater or bed is covered by puting to instability. channels and/or lean flow.	CI
Score	3	2	2.4		ional features which	· · · · · ·	.6		1	2.4
NOTES>>								1		
2. RIPARIAN	N BUFFERS: Assess both ban	Con	an areas along the nditional Cate ptimal	gory	ginal Low Marginal:	Pe	h may be accepta	NOTES>>		
2. RIPARIAN Riparian Buffers		Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy	gory	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hong production, ponds, open water. If present, tree stratum (dbh > 3 inches) present, with <30% tree canopy cover with maintained			NOTES>>		
Riparian Buffers	Optimal Tree stratum (dbh > 3 inches) present with > 60% tree canopy cover and a non-maintained understory. Wetland:	Riparian areas with tree stratum (dbh > 3 inches), present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained	Low Suboptimal Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh > 3 inches) present, with <30% tree canopy cover with	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable	NOTES>>		
Riparian	Optimal Tree stratum (dbh > 3 inches) present with > 60% tree canopy cover and a non-maintained understory. Wetland:	High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory.	nditional Cate ptimal Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation).	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover.	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh >3 inches) present, with <30% tree canopy cover with maintained understory.	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable condition.	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions.	NOTES>>		
Riparian Buffers Condition Scores 1. Delineate ripa descriptors. 2. Determine squelow.	Optimal Tree stratum (dbh > 3 inches) present with > 60% tree canopy cover and a non-maintained understory. Wetland: located within the riparian areas. 1.5 arian areas along each stream bar quare footage for each by measuring the stream of the stream	High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 Lategories and Coungth and width. Coungth	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh > 3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % I	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5	NOTES>>		
Riparian Buffers Condition Scores Delineate ripa descriptors. Determine squelow.	Optimal Tree stratum (dbh > 3 inches) present with > 60% tree canopy cover and a non-maintained understory. Wetland: located within the riparian areas. 1.5 arian areas along each stream bar quare footage for each by measuring the provided of the provi	High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 Lategories and Coungth and width. Coungth	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh > 3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % I	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5	NOTES>>		
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Condition Scores 1. Delineate ripa descriptors. 2. Determine squelow. 3. Enter the % R Right Bank Left Bank 3. INSTREAN	Optimal Tree stratum (dbh > 3 inches) present with > 60% tree canopy cover and a non-maintained understory. Wetland: located within the riparian areas. 1.5 arian areas along each stream bar quare footage for each by measuring Riparian Area and Score for each 1% Riparian Area 100% Score > 1.5 % Riparian Area 100% Score > 1.5 M HABITAT: Varied substrate stroot mats; SAV; riffle poole complete.	High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree cacappy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 It into Condition C ag or estimating let iparian category in iizes, water velocit exes, stable featur	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 Lategories and Coungth and width. Coungth and width. Coungth and width. Coungth and depths; woores. Conditiona	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85 Indition Scores usional calculators are production of the control of the contr	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (6th > 3 inches) present, with <a>30 % tree canopy cover with maintained understory. Low 0.75 Ing the production of the present	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % I Blocks 6	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5 the sums Riparian equal 100 100%	CI= (Sum % RA * S Rt Bank CI > Lt Bank CI >	1.50	
Condition Scores 1. Delineate ripadescriptors. 2. Determine squelow. 3. Enter the % R Right Bank Left Bank 3. INSTREAN	Optimal Tree stratum (dbh > 3 inches) present with > 60% tree canopy cover and a non-maintained understory. Wetlandt located within the riparian areas. 1.5 arian areas along each stream bar quare footage for each by measuring Riparian Area and Score for each to score > 1.5 % Riparian Area 100% Score > 1.5 M HABITAT: Varied substrate s	High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 Isk into Condition C ag or estimating let iparian category in izes, water velocit exes, stable featur Subo Stable habitat ele present in 30-50 are adequate fo are adequate fo	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 Lategories and Coungth and width. Coungth and width. Coungth and depths; woores.	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85 Indition Scores usion all Category Mar. Stable habitat ele present in 10-30% are adequate fo are dequate fo	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh > 3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75 ing the price of the production of the present of the production of the present of t	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % I Blocks 6 Habitat element lacking or are Lelements are typic	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5 the sums Riparian equal 100 100%	CI= (Sum % RA * S Rt Bank CI > Lt Bank CI >	1.50	

	St	ream In	npact A	ssessn	nent Fo	rm Pag	e 2		
Project #	Applicant		Locality	Cowardin Class.	нис	Date	Data Point	SAR length	Impact Factor
								500	1
4. CHANNE	L ALTERATION: Stream cross	sings, riprap, cond	rete, gabions, or o	concrete blocks, s	straightening of ch	nannel, channeli	zation,	NOTES>>	
empankments, s	spoil piles, constrictions, livestock			al Category				-	
	Negligible	Mi	nor	Mod	lerate		evere		
Channel Alteration	Channelization, dredging, alteration, or hardening absent. Stream has an unaltered pattern or has naturalized.	Less than 20% of the stream reach is disrupted by any of the channel alterations listed in the parameter guidelines.	20-40% of the stream reach is disrupted by any of the channel alterations listed in the parameter guidelines.	40 - 60% of reach is disrupted by any of the channel alterations listed in the parameter guidelines. If stream has been channelized, normal stable stream meander pattern has not	is disrupted by any of the channel	Greater than 80% by any of the cha in the paramete 80% of banks	of reach is disrupted nnel alterations listed guidelines AND/OR shored with gabion, or cement.		
SCORE	1.5	1.3	1.1	0.9	0.7		0.5	-	
		CONDITION						<u> </u>	
NOTE: The Cle and I	RCI should be rounded to 2 decimal places.							CONDITION IN	DEX (RCI) >>
THE GIS all I	s suid pe rounded to 2 decimal places.	Or anound be fou	to a whole hullit					l= (Sum of all C	
							COMPENSATI		
							CR = RC	I X LF X IF	

		Stre	Unit	SSESS fied Stream N	lethodology f	or use in Virg	ginia	m 1)			
Project #		Project Name		Locality	Cowardin Class.	HUC	perennial Date	SAR#	Impact/SAR length	Impact Factor	
5337	ı	-64 Peninsul	a	James City	R2UB2	02080107	11/9/11		229		
Name	e(s) of Evalua	tor(s)	Stream Nam	e and Informa	ation						
	Aitkenhead / Nies		WUS 145M								
Channel C	Condition: Ass	ess the cross-sec	ction of the stream								
	Opt	imal	Subo	ptimal	Conditional Catego Mar	ginal	Po	oor	Sev	rere	
		W.		ew areas of active		ess than Severe or stable than Severe		ed/incised. unstable. Likely to	vertical/lateral in		
Channel Condition	100% stable bar surface protectio prominent (80-1 Stable point bars/br present. Access floodplain or fully bankfull benches. and transverse bar	00%). AND/OR ankfull benches are s to their original y developed wide Mid-channel bars, ars few. Transient on covers less than	of banks are si Vegetative protect prominent (60- Depositional feat stability. The bar channels are wel likely has access to or newly develope portions of the rediment covers 10	cted banks. Majority table (60-80%). Value (60-80%). AND/OR tures contribute to nkfull and low flow III defined. Stream o bankfull benches, ed floodplains allow greach. Transient 0-40% of the stream	or Poor due to lo Erosion may be pri both banks. Veget 40-60% of banks. bevertical or unde 60% of stream sediment. Sec temporary/trans instability. Deposition stability, may be	wer bank slopes. seent on 40-60% of attive protection on Streambanks may rout. AND/OR 40-1 is covered by liment may be sient, contribute to that contribute to forming/present.	widen further. Ma are near vertical. 60-80% of bar protection prese banks, and is inst erosion. AND/O stream is cover Sediment is temp nature, and contri AND/OR V-shap	iority of both banks Erosion present on ks. Vegetative int on 20-40% of ifficient to prevent R 60-80% of the ed by sediment. oorary/transient in buting to instability. ed channels have	banks, is not pre Obvious bank sle Erosion/raw ban AND/OR Aggradin	ed below average najority of banks ut. Vegetative on less than 20% of eventing erosion. Oughing present. Iks on 80-100%. g channel. Greater bed is covered by	
			boti	tom.	AND/OR V-shap vegetative protecti banks and depositi		40% of the banks a	ion is present on > and stable sediment i is absent.	Multiple thread subterran		CI
Score	3	3	2	2.4		2	1	.6	•	1	3.0
DIDADIAN	L DUEEEDC.										
. RIPARIAN	N BUFFERS: /	Assess both bank	Con	n areas along the nditional Cate	gory	ginal		n may be accepta	NOTES>>		
RIPARIAN Riparian Buffers	Opt Tree stratum (dbh: with > 60% tree ca	imal > 3 inches) present, anopy cover and a derstory. Wetlands	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory.	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation).	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover.	Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh > 3 inches) present, with <30% tree canopy cover with maintained understory.	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable condition.	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions.	NOTES>>		
Riparian Buffers	Opt Tree stratum (dbh: with > 60% tree canon-maintained unalocated within the	imal > 3 inches) present, anopy cover and a derstory. Wetlands	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained	Low Suboptimal Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree	Jinal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh >3 inches) present, with <30% tree canopy cover with maintained	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable	NOTES>>		
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Condition Scores Delineate ripa Secriptors. Determine squalow. Enter the % F	Tree stratum (dbh with > 60% tree canon-maintained un located within the located within t	imal 3 inches) present, anopy cover and a derstory. Wetlands e riparian areas. 5 each stream bank each by measuring 100% 1.5 100% 1.5 aried substrate si	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 Into Condition C g or estimating ler parian category in	Inditional Cate ptimal Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Congth and width. Congth and width. Congth and width. Congth and depths; workers.	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85 Indition Scores using the saleculators are producted to the saleculators ar	Jinal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh > 3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75 Ing the vided for you	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F Blocks 6	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5 the sums Riparian equal 100 100%	NOTES>>		CI 1.50
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Condition Scores Delineate ripa secriptors. Determine squalow. Enter the % F	Tree stratum (dbh with > 60% tree canon-maintained un located within the located within t	imal 3 inches) present, anopy cover and a derstory. Wetlands e riparian areas. 5 each stream bankeach by measuring 100% 1.5 100% 1.5 aried substrate si iffle poole completimal	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 Into Condition C g or estimating let parian category in zes, water velocity exes, stable featur Subo Stable habitat ele present in 30-50% are adequate fo	Inditional Cate ptimal Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Congth and width. Congth and width. Congth and width. Congth and depths; workers.	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85 Indition Scores usical culators are produced to the control of	Jinal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh -3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75 Ing the vided for you ginal ments are typically of the reach and maintenance of	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F Blocks 6	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5 the sums Riparian equal 100 100%	CI= (Sum % RA * S Rt Bank CI > Lt Bank CI >	1.50	

	St	ream In	npact A	ssessm	nent Fo	rm Pag	e 2		
Project #	Applicant		Locality	Cowardin Class.	HUC	Date	Data Point	SAR length	Impact Factor
								500	1
	L ALTERATION: Stream cross	sings, riprap, conc	rete, gabions, or	concrete blocks, s	straightening of ch	nannel, channeliz	ation,	NOTES>>	
embankments, s	spoil piles, constrictions, livestock		Condition	al Category					
	Negligible	Mi	nor	Mod	lerate		vere		
Channel Alteration	Channelization, dredging, alteration, or hardening absent. Stream has an unaltered pattern or has naturalized.	Less than 20% of the stream reach is disrupted by any of the channel alterations listed in the parameter guidelines.	20-40% of the stream reach is disrupted by any of the channel alterations listed in the parameter guidelines.	guidelines. If	is disrupted by any of the channel	Greater than 80% by any of the chai in the parameter 80% of banks s	of reach is disrupted nnel alterations listed hored with gabion, or cement.		
SCORE	1.5	1.3	1.1	0.9	0.7	(0.5		
	REACH C	CONDITION I	NDEX and S	TREAM CO	NDITION UN	IITS FOR TH	IIS REACH		
NOTE: The Cls and F	RCI should be rounded to 2 decimal places.							CONDITION IN	DEX (RCI) >>
	places.			-				l= (Sum of all C	
							COMPENSATI	ON REQUIRE	
							CR = RC	I X LF X IF	
	PROPOSED IMPACT:								

	Stre		fied Stream N	lethodology f	for use in Vir	ginia				
Project #	Project Nam		Locality	Cowardin Class.	HUC	Date	SAR#	Impact/SAR length	Impact Factor	
5337	I-64 Peninsu	la	James City	R2UB2	02080107	11/9/11		118		
Nam	e(s) of Evaluator(s)		am Name and Information							
	Aitkenhead / Nies	WUS 146M								
I. Channel (Condition: Assess the cross-se	ction of the stream		ondition (erosion, Conditional Catego						
	Optimal	Subo	ptimal		ginal	Po	oor	Se	vere	
Channel Condition	Very little incision or active erosion; 8i 100% stable banks. Vegetative surface protection or natural rock,	of banks are si Vegetative protect	ew areas of active cted banks. Majority table (60-80%). tion or natural rock	Poor. Banks more or Poor due to lo Erosion may be pr	less than Severe or stable than Severe ower bank slopes. resent on 40-60% of tative protection on	Vertically/laterally widen further. Ma are near vertical.	ned/incised. unstable. Likely to jority of both banks Erosion present on	incision, flow co banks. Streamb rooting depth, r	nstability. Severe ntained within the ed below average najority of banks	
	prominent (80-100%). AND/OR Stable point bars/bankfull benches arr present. Access to their original floodplain or fully developed wide bankfull benches. Mid-channel bars, and transverse bars few. Transient sediment deposition covers less than 10% of bottom.	Depositional feat stability. The bar channels are wel likely has access to or newly develope portions of the r sediment covers 10	-80%) AND/OR tures contribute to nkfull and low flow III defined. Stream o bankfull benches, defloodplains along reach. Transient 0-40% of the stream tom.	40-60% of banks. bevertical or unde 60% of strean sediment. See temporary/tran instability. Depositi stability, may be AND/OR V-shap vegetative protecti	Streambanks may ercut. AND/OR 40-n is covered by diment may be sient, contribute on that contribute to forming/present. ed channels have ion on > 40% of the ional features which	protection press banks, and is ins erosion. AND/C stream is cove Sediment is tem nature, and contri AND/OR V-shap vegetative protec 40% of the banks	into 20-40% of ufficient to prevent IR 60-80% of the porary/transient in buting to instability, led channels have tion is present on > and stable sediment is absent.	protection present banks, is not pro Obvious bank s Erosion/raw ban AND/OR Aggradir than 80% of strear deposition, contril Multiple thread	cut. Vegetative on less than 20% of eventing erosion. loughing present. nks on 80-100%. In gchannel. Greater m bed is covered by buting to instability. channels and/or nean flow.	CI
Score	3	2	2.4		2	1	.6		1	2.4
2. RIPARIAN	N BUFFERS: Assess both ban	Con	nditional Cate	gory				NOTES>>		
Riparian Buffers	Optimal Optimal Tree stratum (dbh > 3 inches) present with > 60% tree canopy cover and a non-maintained understory. Wetlands located within the riparian areas.	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory.	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation).	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover.	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh >3 inches) present, with <30% tree canopy cover with maintained understory.	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable condition.	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces row crops, active feed lots, trails, or other comparable conditions.	NOTES>>		
Riparian Buffers	Optimal Tree stratum (dbh > 3 inches) present with > 60% tree canopy cover and a non-maintained understory. Wetlands	High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh > 3 inches) present, with <30% tree canopy cover with maintained	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces row crops, active feed lots, trails, or other comparable	NOTES>>		
Riparian Buffers Condition Scores 1. Delineate ripe descriptors. 2. Determine scorelow.	Optimal Tree stratum (dbh > 3 inches) present with > 60% tree canopy cover and a non-maintained understory. Wetlands located within the riparian areas.	High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 k into Condition C	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Coungth and width. Co	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh > 3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % I	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces row crops, active feed lots, trails, or other comparable conditions.	NOTES>>	Scores*0.01)/2	
Riparian Buffers Condition Scores 1. Delineate ripalescriptors. 2. Determine squelow. 3. Enter the % F	Optimal Tree stratum (dbh > 3 inches) present with > 60% tree canopy cover and a non-maintained understory. Wetlands located within the riparian areas. 1.5 arian areas along each stream bar quare footage for each by measuring Riparian Area and Score for each of the score > 1.2	High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 k into Condition C	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Coungth and width. Co	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh > 3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % I	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces row crops, active feed lots, trails, or other comparable conditions. Low 0.5	NOTES>> Cl= (Sum % RA** Rt Bank Cl >	1.20	CI
Condition Scores Delineate ripe descriptors. Deltermine scoelow. English Bank Left Bank Left Bank INSTREA	Optimal Tree stratum (dbh > 3 inches) present with > 60% tree canopy cover and a non-maintained understory. Wetlands located within the riparian areas. 1.5 arian areas along each stream bar quare footage for each by measuring the provided of the control of t	Com Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 k into Condition C ag or estimating ler iparian category in	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Coungth and width. Country the blocks below	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh > 3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75 ing the povided for you	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % I Blocks 6	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces row crops, active feed lots, trails, or other comparable conditions. Low 0.5 the sums Riparian equal 100 100%	NOTES>>		CI 1.20
Condition Scores 1. Delineate ripalescriptors. 2. Determine sopelow. 3. Enter the % F Right Bank Left Bank 3. INSTREAI	Optimal Tree stratum (dbh > 3 inches) present with > 60% tree canopy cover and a non-maintained understory. Wetlands located within the riparian areas. 1.5 arian areas along each stream bar quare footage for each by measuring Riparian Area and Score for each result of the score in the sc	High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 k into Condition C	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Coungth and width. Coungth and width. Coungth and width. Coungth and depths; wores. Conditiona	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85 Indition Scores using alculators are production of the prod	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh >3 inches) present, with <a>30 % tree canopy cover with maintained understory. Low 0.75 ing the provided for you	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % I Blocks 6	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces row crops, active feed lots, trails, or other comparable conditions. Low 0.5 the sums Riparian equal 100 100%	NOTES>> Cl= (Sum % RA *: Rt Bank Cl > Lt Bank Cl >	1.20	
Condition Scores Delineate ripe descriptors. Deltermine scoelow. English Bank Left Bank Left Bank INSTREA	Optimal Tree stratum (dbh > 3 inches) present with > 60% tree canopy cover and a non-maintained understory. Wetlands located within the riparian areas. 1.5 arian areas along each stream barrauare footage for each by measuring the provided of the provi	Com Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 k into Condition C or or estimating ler iparian category in jugarian category in Subo Stable habitat ele present in 30-50% are adequate fo are adequate fo	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Coungth and width. Coungth and width. Coungth and width. Coungth and depths; wodes.	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85 Indition Scores using the state of the state	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh > 3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75 ing the povided for you	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % I Blocks 6 Habitat element lacking or are Lelements are typic	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces row crops, active feed lots, trails, or other comparable conditions. Low 0.5 the sums Riparian equal 100 100%	CI= (Sum % RA * : Rt Bank CI > Lt Bank CI > NOTES>>	1.20	

Project is Applicated Lacestry (Project Control Contro		St	ream In	npact A	ssessn	nent Fo	rm Pag	e 2			
4. CHANNEL ALTERATION: Steward colorating, ferration, contract framework, spell piles, constationistics, ferrations. Negligible Minor Moderate Channel Commission, decising, shorten, and the state for a state of the state of	Project #										
Negligible Minor Moderate Severe Lace than 20% of 20-40% of mode in the drawing interesting about 20 committees in unstreed position of the restance of the interesting about 20 committees in unstreed position of the restance of the interesting about 20 committees in unstreed position of the restance of the interesting about 20 committees in unstreed position of the restance of the interesting about 20 committees in unstreed position of the restance of the interesting about 20 committees in the interesting about 20 committees and 20 committees in the interesting about 20 committees and 2			sings, riprap, conc	rete, gabions, or o	concrete blocks, s	traightening of ch	annel, channeliz	ation,		1	
Channel Alteration Channel Alteration Channel Channe	embankments, s	poil piles, constrictions, livestock		Condition	al Category						
Channel Alteration Charcelization, designing, silectrons, or exclusive and the control of the resolutions of the control of th		Negligible	Mi		Mod		Se	evere			
REACH CONDITION INDEX and STREAM CONDITION UNITS FOR THIS REACH NOTE: The Cis and RCI should be rounded to 2 decimal pileose. The Ciff should be rounded to a whole rounder: THE REACH CONDITION INDEX (RCI) >> RCI= (Sum of all Cis)/5 COMPENSATION REQUIREMENT (CR) >> CR = RCI X LF X IF INSERT PHOTOS:		or hardening absent. Stream has an	the stream reach is disrupted by any of the channel alterations listed in the parameter	stream reach is disrupted by any of the channel alterations listed in the parameter	is disrupted by any of the channel alterations listed in the parameter guidelines. If stream has been channelized, normal stable stream meander	is disrupted by any of the channel alterations listed in the parameter guidelines. If stream has been channelized, normal stable stream meander	Greater than 80% by any of the char in the parameter 80% of banks s	nnel alterations listed guidelines AND/OR hored with gabion,			
NOTE: The Cls and RCl should be recorded to 2 decimal places. The CR should be recorded to a whole number. RCle (Sum of all Clsy)'S COMPENSATION RECURREMENT (CR) >> CR = RCl X LF X IF INSERT PHOTOS:	SCORE	1.5	1.3	1.1	0.9	0.7	(0.5	•		1.1
INSERT PHOTOS: RCI= (Sum of all Cris)/5 COMPENSATION REQUIREMENT (CR) >		REACH C	ONDITION I	NDEX and S	TREAM CO	NDITION UN	ITS FOR TH	IIS REACH			
INSERT PHOTOS: CR = RGI X LF X IF	NOTE: The Cls and R	RCI should be rounded to 2 decimal places.	The CR should be rou	nded to a whole numb	per.						1.1
INSERT PHOTOS:											
INSERT PHOTOS:										WIENI (CK) >>	0
	INSERT PHO	TOS:				-					
DESCRIBE PROPOSED IMPACT:											
DESCRIBE PROPOSED IMPACT:											
	DESCRIBE P	PROPOSED IMPACT:									

		Stre	Uni	fied Stream N	lethodology 1	Form	ginia	m 1)			
Project #		Project Name		Locality	nels classified a Cowardin Class.	HUC	perennial Date	SAR#	Impact/SAR length	Impact Factor	
5337	I	-64 Peninsul	a	James City	R2UB2	02080107	11/9/11		484	1 4010.	
Name	e(s) of Evalua	tor(s)	Stream Nam	e and Informa	ation						
	Aitkenhead / Nies		WUS 148M								
. Channel C	Condition: Asse	ess the cross-sec	ction of the stream		ondition (erosion, Conditional Catego						
	Opti	imal	Subo	ptimal	Mar	ginal	Po	oor	Se	vere	
	Very little incision o	or active erosion: 80	erosion or unproted	ew areas of active cted banks. Majority	Poor. Banks more	less than Severe or e stable than Severe ower bank slopes.	Vertically/laterally	ned/incised. unstable. Likely to jority of both banks		nstability. Severe	
Channel Condition	100% stable bar surface protection prominent (80-11 Stable point bars/bar present. Access floodplain or fully bankfull benches. and transverse bar sediment deposition 10% of	nks. Vegetative n or natural rock, 00%). AND/OR ankfull benches are to their original v developed wide Mid-channel bars, ars few. Transient on covers less than	Vegetative protect prominent (60 Depositional feat stability. The bar channels are we likely has access t or newly develope portions of the is sediment covers 11.	table (60-80%), tion or natural rock -80%) AND/OR tures contribute to nkfull and low flow ill obankfull benches, at floodplains along reach. Transient 0-40% of the stream tom.	Erosion may be pr both banks. Veget 40-60% of banks. bevertical or unde 60% of stream sediment. Se- temporary/tran instability. Depositi stability, may be	ower bank stopes. resent on 40-60% of tative protection on Streambanks may ercut. AND/OR 40- n is covered by diment may be usient, contribute ion that contribute to e forming/present. led channels have	are near vertical. 60-80% of bar protection prese banks, and is inst erosion. AND/O stream is cover Sediment is temp nature, and contri AND/OR V-shap	Erosion present on lks. Vegetative ent on 20-40% of ufficient to prevent R 60-80% of the ed by sediment. corary/transient in buting to instability. ed channels have ion is present on >	rooting depth, r vertical/under protection present banks, is not pr Obvious bank s Erosion/raw ba AND/OR Aggradir than 80% of streat deposition, contril	ed below average majority of banks cut. Vegetative on less than 20% of eventing erosion. loughing present. nks on 80-100%. ng channel. Greater n bed is covered by buting to instability. channels and/or	
					vegetative protect banks and deposit	ion on > 40% of the ional features which	40% of the banks a deposition	and stable sediment is absent.	subterra	nean flow.	CI
Score	3	3	2	2.4		2	1	.6		1	3.0
. RIPARIAN	N BUFFERS: A		Con	nditional Cate ptimal	gory	ginal Low Marginal:	Po High Poor:	n may be accepta	NOTES>>		
2. RIPARIAN Riparian Buffers	Opti	imal > 3 inches) present, anopy cover and a derstory. Wetlands	Cor Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy	gory	ginal	Po		,		
Riparian	Option Tree stratum (dbh > with > 60% tree canon-maintained unc	imal > 3 inches) present, anopy cover and a derstory. Wetlands	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory.	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation).	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover.	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh >3 inches) present, with <30% tree canopy cover with maintained understory.	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable condition.	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions.	,		
Riparian	Option Tree stratum (dbh > with > 60% tree canon-maintained unc	imal 3 inches) present, anopy cover and a derstory. Wetlands e riparian areas.	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained	Low Suboptimal Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh > 3 inches) present, with <30% tree canopy cover with maintained	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable	,		
Riparian Buffers Condition Scores Delineate ripalescriptors. Determine squelow.	Tree stratum (dbh > with > 60% tree ca non-maintained unc located within the	imal 3 inches) present, anopy cover and a derstory. Wetlands e riparian areas. 5 each stream bankach by measuring	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 into Condition C	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Coungth and width. Coungth	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh > 3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5	,		
Riparian Buffers Condition Scores Delineate ripa escriptors. Determine sq elow.	Tree stratum (dbh > with > 60% tree ca non-maintained unc located within the	imal 3 inches) present, anopy cover and a derstory. Wetlands e riparian areas. 5 each stream bank ach by measurin.	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 into Condition C	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Coungth and width. Coungth	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh > 3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5	,		
Riparian Buffers Condition Scores Delineate ripalescriptors. Determine squelow.	Tree stratum (dbh > with > 60% tree ca non-maintained unc located within the	imal 3 inches) present, anopy cover and a derstory. Wetlands e riparian areas. 5 each stream bankach by measuring	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 into Condition C	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Coungth and width. Coungth	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh > 3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5	NOTES>>		
Riparian Buffers Condition Scores Delineate ripz escriptors. Determine squelow.	Tree stratum (dbh > with > 60% tree canon-maintained unc located within the located withi	imal 3 inches) present, anopy cover and a derstory. Wetlands e riparian areas. 5 each stream bank ach by measurin Score for each ri	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 into Condition C	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Coungth and width. Coungth	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh > 3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5 the sums Riparian equal 100	NOTES>>		
Riparian Buffers Condition Scores Delineate ripaescriptors. Determine squelow. Enter the % F	Tree stratum (dbh > with > 60% tree ca non-maintained unc located within the located with	imal 3 inches) present, anopy cover and a derstory. Wetlands e riparian areas. 5 each stream bank ach by measurin. Score for each ri	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 into Condition C	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Coungth and width. Coungth	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh > 3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5	NOTES>>	Scores*0.01)/2 1.50 1.50	CI 1.50
Condition Scores 1. Delineate ripadescriptors. 2. Determine squelow. 3. Enter the % F. Right Bank Left Bank 3. INSTREAR	Tree stratum (dbh > with > 60% tree canon-maintained unc located within the located withi	imal 3 inches) present, anopy cover and a derstory. Wetlands e riparian areas. 5 each stream bank ach by measurin 100% 1.5 100% 1.5 aried substrate si	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 into Condition C g or estimating let parian category in	Inditional Cate ptimal Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Congth and width. Congth and width. Congth and width. Congth and depths; workers.	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85 Indition Scores us calculators are production of the product	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh >3 inches) present, with <30% tree canopy cover with maintained understory: Low 0.75 ing the povided for you	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F Blocks 6	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5 the sums Riparian equal 100 100%	NOTES>> CI= (Sum % RA*: Rt Bank CI >	1.50	CI 1.50
Condition Scores Delineate ripa elescriptors. Deltremine squelow. Enter the % F Right Bank Left Bank Left Bank Linter Bank Left Bank Left Bank	Tree stratum (dbh > with > 60% tree ca non-maintained und located within the located with	imal 3 inches) present, anopy cover and a derstory. Wetlands e riparian areas. 5 each stream bank ach by measurin 100% 1.5 100% 1.5 aried substrate si	Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 Into Condition C g or estimating le	Inditional Cate ptimal Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Congth and width. Congth and width. Congth and width. Congth and depths; workers.	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <a>3 inches) present, with <a>3 inches) present, or a tree canopy cover. High 0.85 Indition Scores us calculators are production of the control of th	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh >3 inches) present, with <30% tree canopy cover with maintained understory: Low 0.75 ing the povided for you	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F Blocks 6	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5 the sums Riparian equal 100 100%	NOTES>> CI= (Sum % RA *: Rt Bank CI > Lt Bank CI >	1.50	
Condition Scores 1. Delineate ripadescriptors. 2. Determine squelow. 3. Enter the % F. Right Bank Left Bank 3. INSTREAR	Tree stratum (dbh > with > 60% tree ca non-maintained und located within the located with	imal 3 inches) present, anopy cover and a derstory. Wetlands e riparian areas. 5 5 cach stream bank ach by measuring the stream	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 Into Condition C g or estimating let parian category in Zes, water velocit exes, stable featur Subo Stable habitat ele present in 30-509 are adequate fo	Inditional Cate ptimal Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Congth and width. Congth and width. Congth and width. Congth and depths; wores. Conditional	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85 Indition Scores us calculators are production of the present in 10-30 are adequate for a seadequate for the present in 10-30 are adequate for the present in 10-30 are adeq	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh >3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75 ing the povided for you	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F Blocks 6	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5 the sums Riparian equal 100 100%	NOTES>> CI= (Sum % RA *: Rt Bank CI > Lt Bank CI >	1.50	

	St	ream In	npact A	ssessn	ent Fo	rm Pag	e 2		
Project #	Applicant		Locality	Cowardin Class.	HUC	Date	Data Point	SAR length	Impact Factor
								500	1
	L ALTERATION: Stream cross	sings, riprap, cond	rete, gabions, or	concrete blocks, s	traightening of ch	annel, channeliz	ration,	NOTES>>	
embankments, s	spoil piles, constrictions, livestock		Condition	al Category					
	Negligible	Mi	nor	Mod	erate	S	evere		
Channel Alteration	Channelization, dredging, alteration, or hardening absent. Stream has an unaltered pattern or has naturalized.	Less than 20% of the stream reach is disrupted by any of the channel alterations listed in the parameter guidelines.	20-40% of the stream reach is disrupted by any of the channel alterations listed in the parameter guidelines.	of the channel	60 - 80% of reach is disrupted by any of the channel alterations listed in the parameter guidelines. If stream has been channelized, normal stable stream meander pattern has not	by any of the cha in the parameter 80% of banks	o of reach is disrupted nnel alterations listed guidelines AND/OR shored with gabion, or cement.		
SCORE	1.5	1.3	1.1	0.9	0.7		0.5		
	REACH C	ONDITION	NDEX and S	TREAM CO	NDITION UN	ITS FOR TI	HIS REACH		
NOTE: The Cls and F	RCI should be rounded to 2 decimal places.						THE REACH (CONDITION IN	DEX (RCI) >>
								= (Sum of all C	
							COMPENSATI	ON REQUIRE	MENT (CR) >>
							CR = RC	X LF X IF	
DESCRIBE F	PROPOSED IMPACT:								

	Stre		fied Stream N	lethodology f	for use in Vir	ginia				
Project #	Project Nam		Locality	Cowardin Class.	HUC	Date	SAR#	Impact/SAR length	Impact Factor	
5337	I-64 Peninsu	la	James City	R2UB2	02080107	11/9/11		97		
Name	e(s) of Evaluator(s)		e and Informa	ation						
	Aitkenhead / Nies	WUS 149M								
I. Channel C	Condition: Assess the cross-se	ction of the stream		ondition (erosion, Conditional Catego						
	Optimal	Subo	ptimal	Mar	ginal	Po	oor	Se	/ere	
Channel	Very little incision or active erosion; 8 100% stable banks. Vegetative	erosion or unproted of banks are s	ew areas of active cted banks. Majority table (60-80%). tion or natural rock	Poor. Banks more or Poor due to lo	less than Severe or stable than Severe ower bank slopes. esent on 40-60% of	Vertically/laterally widen further. Ma	ned/incised. unstable. Likely to jority of both banks Erosion present on	incision, flow co banks. Streamb	Istability. Severe ntained within the ed below average	
Condition	surface protection or natural rock, prominent (80-100%). AND/OR Stable point bars/bankfull benches ar present. Access to their original floodplain or fully developed wide bankfull benches. Mid-channel bars and transverse bars few. Transient sediment deposition covers less than 10% of bottom.	prominent (60 Depositional feat stability. The bar channels are we likely has access t or newly develope portions of the sediment covers 10	and or natural rock 8-6%) AND/OR tures contribute to nkfull and low flow II defined. Stream o bankfull benches, ed floodplains along reach. Transient 0-40% of the stream tom.	both banks. Veget 40-60% of banks. bevertical or unde 60% of strean sediment. Set temporary/tran instability. Depositi stability, may be AND/OR V-shap vegetative protecti	tative protection on Streambanks may ercut. AND/OR 40- n is covered by diment may be sient, contribute on that contribute to e forming/present. ed channels have ion on > 40% of the	60-80% of bar protection press banks, and is insi erosion. AND/C stream is cover Sediment is tem nature, and contri AND/OR V-shap vegetative protect 40% of the banks a	iks. Vegetative ent on 20-40% of fufficient to prevent R 60-80% of the ed by sediment. corary/transient in buting to instability. ed channels have ion is present on > and stable sediment	vertical/undern protection present banks, is not pro Obvious banks is Erosion/raw bank AND/OR Aggradir than 80% of strear deposition, contril Multiple thread	najority of banks cut. Vegetative on less than 20% of eventing erosion. oughing present. nks on 80-100%. Ig channel. Greater n bed is covered by puting to instability. channels and/or the source of the source of the source the so	CI
Score	3	2	2.4		ional features which	· · · · · · · · · · · · · · · · · · ·	is absent.		1	2.4
NOTES>>	-			l		I		ı		
	N BUFFERS: Assess both bar	Con	n areas along the nditional Cate ptimal	gory	ugh measurement	Pe	n may be accepta	NOTES>>		
		Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy	gory	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh > 3 inches) present, with <30% tree canopy cover with maintained			NOTES>>		
2. RIPARIAN Riparian Buffers	Optimal Tree stratum (dbh > 3 inches) presen with > 60% tree canopy cover and a non-maintained understory. Wetland	High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches), present, with 30% to 60% tree s canopy cover and containing both herbaceous and shrub layers or a non-maintained	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh >3 inches) present, with					

	St	ream In	npact A	ssessn	nent Fo	rm Pag	je 2		
Project #	Applicant		Locality	Cowardin Class.	HUC	Date	Data Point	SAR length	Impact Factor
								500	1
	L ALTERATION: Stream cross	sings, riprap, conc	rete, gabions, or	concrete blocks, s	straightening of ch	nannel, channeli.	zation,	NOTES>>	
erribarikments, s				al Category					
	Negligible	Mi	nor		lerate 60 - 80% of reach		evere		
Channel Alteration	Channelization, dredging, alteration, or hardening absent. Stream has an unaltered pattern or has naturalized.	Less than 20% of the stream reach is disrupted by any of the channel alterations listed in the parameter guidelines.	20-40% of the stream reach is disrupted by any of the channel alterations listed in the parameter guidelines.	is disrupted by any of the channel alterations listed in the parameter guidelines. If	is disrupted by any of the channel	Greater than 80% by any of the cha in the paramete 80% of banks	6 of reach is disrupted innel alterations listed r guidelines AND/OR shored with gabion, or cement.		
SCORE	1.5	1.3	1.1	0.9	0.7		0.5	-	
		CONDITION				IITS FOR T	HIS REACH		
NOTE: The Cls and R	RCI should be rounded to 2 decimal places.							CONDITION IN	DEX (RCI) >>
30 and 1	pauss.							I= (Sum of all C	
							COMPENSAT	ION REQUIRE	
							CR = RC	I X LF X IF	
DE000000									
DESCRIBE F	PROPOSED IMPACT:								

		Stre	Unit	fied Stream N	lethodology 1	Form	ginia	m 1)			
Project #		Project Name		Locality	cowardin Class.	HUC	Date Date	SAR#	Impact/SAR length	Impact Factor	
5337	I	-64 Peninsul	a	James City	R2UB2	02080107	11/9/11		118		
Name	e(s) of Evalua	tor(s)	Stream Nam	e and Informa	ation						
	Aitkenhead / Nies		WUS 150M								
. Channel C	Condition: Asse	ess the cross-sec	ction of the stream		ondition (erosion, conditional Catego						
	Opti	imal	Subo	ptimal	Mar	ginal	Po	oor	Se	vere	
Ol averal	Very little incision o	r active erosion; 80	erosion or unproted	ew areas of active cted banks. Majority	Poor. Banks more	less than Severe or stable than Severe ower bank slopes.	Vertically/laterally	ied/incised. unstable. Likely to jority of both banks	incision, flow co	nstability. Severe	
Channel Condition	100% stable bar surface protection prominent (80-1) Stable point bars/bc present. Access floodplain or fully bankfull benches. and transverse be sediment depositio 10% of	nks. Vegetative n or natural rock, 00%). AND/OR ankfull benches are to their original developed wide Mid-channel bars, ars few. Transient n covers less than	Vegetative protect prominent (60- Depositional feat stability. The bar channels are well likely has access to or newly develope portions of the resediment covers 10 to definite the covers of the resediment covers 10 to definite the covers of the resediment covers 10 to definite the covers of the resediment covers 10 to definite the covers 10 to definite	table (60-80%), titon or natural rock -80%) AND/OR tures contribute to nkfull and low flow Il defined. Stream o bankfull benches, and floodplains along reach. Transient 0-40% of the stream tom.	Erosion may be pr both banks. Veget 40-60% of banks. bevertical or unde 60% of strean sediment. Set temporary/tran instability. Depositi stability, may be AND/OR V-shap	resent on 40-60% of tative protection on Streambanks may ercut. AND/OR 40- in is covered by diment may be sient, contribute on that contribute to forming/present. ed channels have	are near vertical. 60-80% of bar protection prese banks, and is inst erosion. AND/O stream is cover Sediment is temp nature, and contri AND/OR V-shap vegetative protect	Erosion present on ks. Vegetative ent on 20-40% of ufficient to prevent R 60-80% of the ed by sediment. porary/transient in buting to instability, ed channels have ion is present on >	rooting depth, r vertical/under protection present banks, is not pr Obvious bank s Erosion/raw ba AND/OR Aggradir than 80% of strear deposition, contril Multiple thread	ned below average majority of banks cut. Vegetative on less than 20% of eventing erosion. sloughing present. Inks on 80-100%. In gchannel. Greater m bed is covered by buting to instability. I channels and/or	
					banks and depositi	ion on > 40% of the ional features which	deposition	and stable sediment is absent.	subterra	nean flow.	
Score	3	3	2	2.4		2	1	.6		1	2.4
	N BUFFERS: A		Con	nditional Cate	gory Mar	ginal Low Marginal: Non-maintained,	Po High Poor:	n may be accepta	NOTES>>		
	Opti Tree stratum (dbh > with > 60% tree ca	mal 3 inches) present, unopy cover and a lerstory. Wetlands	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy	gory	ginal Low Marginal:	Po		NOTES>>		
. RIPARIAN	Option Tree stratum (dbh > with > 60% tree canon-maintained uncompaintained u	mal 3 inches) present, unopy cover and a lerstory. Wetlands	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory.	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation).	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover.	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh >3 inches) present, with <30% tree canopy cover with maintained understory.	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable condition.	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions.	NOTES>>		
Riparian	Option Tree stratum (dbh > with > 60% tree canon-maintained uncompaintained u	3 inches) present, inopy cover and a derstory. Wetlands e riparian areas.	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained	Low Suboptimal Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh >3 inches) present, with <30% tree canopy cover with maintained	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable	NOTES>>		
Riparian Buffers Condition Scores Delineate ripa escriptors. Determine squelow.	Tree stratum (dbh > with > 60% tree ca non-maintained unc located within the	imal 3 inches) present, incopy cover and a lerstory. Wetlands e riparian areas.	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 k into Condition C	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Coungth and width. Coungth	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh > 3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5	NOTES>>		
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Riparian Buffers Condition Scores Delineate ripalescriptors. Determine squelow. Enter the % F. Right Bank Left Bank B. INSTREAN	Tree stratum (dbh > with > 60% tree ca non-maintained unc located within the located with	5 Score for each ri 100% 1.5 100% 1.5 100% 1.5 100% 1.5 100% 1.5 100% 1.5 100% 1.5 100% 1.5 100% 1.5	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 Into Condition C g or estimating let parian category in zes, water velocity exes, stable featur Subo Stable habitat ele present in 30-50% are adequate fo	Inditional Cate ptimal Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Congth and width. Congth and width. Congth and width. Congth and depths; wores. Conditional	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85 Indition Scores us calculators are production of the present in 10-30 are adequate for a seadequate for the present in 10-30 are adequate for the present in 10-30 are adeq	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh >3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75 ing the vided for you	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F Blocks 6	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5 the sums Riparian equal 100 100% 100%	CI= (Sum % RA *: Rt Bank CI > Lt Bank CI > NOTES>>	1.50	CI 1.50

	St	ream In	npact A	ssessn	nent Fo	rm Pag	e 2		
Project #	Applicant		Locality	Cowardin Class.	нис	Date	Data Point	SAR length	Impact Factor
								500	1
4. CHANNE	L ALTERATION: Stream cross	sings, riprap, cond	rete, gabions, or o	concrete blocks, s	straightening of ch	nannel, channeli	zation,	NOTES>>	
empankments, s	spoil piles, constrictions, livestock			al Category				-	
	Negligible	Mi	nor	Mod	lerate		evere		
Channel Alteration	Channelization, dredging, alteration, or hardening absent. Stream has an unaltered pattern or has naturalized.	Less than 20% of the stream reach is disrupted by any of the channel alterations listed in the parameter guidelines.	20-40% of the stream reach is disrupted by any of the channel alterations listed in the parameter guidelines.	40 - 60% of reach is disrupted by any of the channel alterations listed in the parameter guidelines. If stream has been channelized, normal stable stream meander pattern has not	is disrupted by any of the channel	Greater than 80% by any of the cha in the paramete 80% of banks	o of reach is disrupted nnel alterations listed guidelines AND/OR shored with gabion, or cement.		
SCORE	1.5	1.3	1.1	0.9	0.7		0.5	-	
		CONDITION						<u> </u>	
NOTE: The Cle and I	RCI should be rounded to 2 decimal places.							CONDITION IN	DEX (RCI) >>
THE GIS all I	s suid pe rounded to 2 decimal places.	Or anound be fou						l= (Sum of all C	
							COMPENSATI		
							CR = RC	I X LF X IF	

		Stre	Unit	fied Stream N	lethodology 1	Form	ginia	m 1)			
Project #		Project Name		Locality	cowardin Class.	HUC	Date Date	SAR#	Impact/SAR length	Impact Factor	i
5337	ŀ	-64 Peninsul	a	York	R2UB2	02080107	11/9/11		36		
Name	e(s) of Evalua	tor(s)	Stream Nam	e and Informa	ation						
	Aitkenhead / Nies		WUS 151M								
. Channel C	Condition: Asse	ess the cross-sec	ction of the stream		ondition (erosion, conditional Catego						
	Opti	imal	Subo	ptimal	Mar	ginal	Po	oor	Se	vere	-
	Very little incision o	or active erosion: 80	erosion or unproted	ew areas of active cted banks. Majority	Poor. Banks more	less than Severe or e stable than Severe	Vertically/laterally	ned/incised. unstable. Likely to		nstability. Severe	
Channel Condition	100% stable bar surface protection prominent (80-11 Stable point bars/bar present. Access floodplain or fully bankfull benches. and transverse bar sediment deposition 10% of 10%	nks. Vegetative n or natural rock, 00%). AND/OR ankfull benches are to their original v developed wide Mid-channel bars, ars few. Transient on covers less than	Vegetative protect prominent (60- Depositional feat stability. The bar channels are well likely has access to or newly develope portions of the resediment covers 10 to definite the covers of the resediment covers 10 to definite the covers of the resediment covers 10 to definite the covers of the resediment covers 10 to definite the covers 10 to definite	table (60-80%), titon or natural rock -80%) AND/OR tures contribute to nkfull and low flow II defined. Stream o bankfull benches, at floodplains along reach. Transient 0-40% of the stream tom.	Erosion may be pr both banks. Veget 40-60% of banks. bevertical or unde 60% of stream sediment. Se- temporary/tran instability. Depositi stability, may be	ower bank slopes. resent on 40-60% of tatiive protection on . Streambanks may ercut. AND/OR 40-m is covered by diment may be asient, contribute to e forming/present. sed channels have	are near vertical. 60-80% of bar protection prese banks, and is inst erosion. AND/O stream is cover Sediment is temp nature, and contri AND/OR V-shap	jority of both banks Erosion present on iks. Vegetative ent on 20-40% of afficient to prevent R 60-80% of the red by sediment. corary/transient in buting to instability. ed channels have ion is present on >	rooting depth, r vertical/under protection present banks, is not pr Obvious bank s Erosion/raw ba AND/OR Aggradir than 80% of streat deposition, contril	ned below average majority of banks cut. Vegetative on less than 20% of eventing erosion. loughing present. Inks on 80-100%. Ing channel. Greate on bed is covered by buting to instability.	r
			bot	tom.	vegetative protect	tion on > 40% of the	40% of the banks a	and stable sediment is absent.	subterra	channels and/or nean flow.	CI
Score	3	3	2	2.4		2	1	.6		1	2.0
. RIPARIAN	N BUFFERS: #		Con	nditional Cate ptimal	gory	ginal Low Marginal:	Po High Poor:	n may be accepta	NOTES>>		
RIPARIAN Riparian Buffers	Opti Tree stratum (dbh > with > 60% tree ca	imal > 3 inches) present, anopy cover and a derstory. Wetlands	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy	gory	Low Marginal: Non-maintained, dense herbaceous vegetation,	Po		,		
Riparian	Option Tree stratum (dbh > with > 60% tree canon-maintained uncompaintained u	imal > 3 inches) present, anopy cover and a derstory. Wetlands	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory.	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation).	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover.	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh >3 inches) present, with <30% tree canopy cover with maintained understory.	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable condition.	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions.	,		
Riparian	Option Tree stratum (dbh > with > 60% tree canon-maintained uncompaintained u	imal 3 inches) present, anopy cover and a derstory. Wetlands e riparian areas.	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, ir iparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh > 3 inches) present, with <30% tree canopy cover with maintained	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable	,		
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Riparian Buffers Condition Scores Delineate ripasecriptors. Determine squelow. Enter the % F	Tree stratum (dbh > with > 60% tree ca non-maintained unc located within the located with	imal 3 inches) present, anopy cover and a derstory. Wetlands e riparian areas. 5 each stream bank ach by measurin Score for each ri 100% 1.2	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 k into Condition C	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Coungth and width. Coungth	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85	Tginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh > 3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5	NOTES>> CI= (Sum % RA*: Rt Bank CI >	1.20	CI 1 20
Condition Scores Delineate ripalescriptors. Determine squelow. Enter the % F. Right Bank Left Bank	Tree stratum (dbh > with > 60% tree canon-maintained unc located within the located withi	imal 3 inches) present, anopy cover and a derstory. Wetlands e riparian areas. 5 each stream bank ach by measurin 100% 1.2 100% 1.2 aried substrate si	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 Into Condition C g or estimating ler parian category in	Inditional Cate ptimal Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Coungth and width. Coungth and width. Coungth and width. Coungth and depths; wodes.	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85 Indition Scores us calculators are production of the product	I Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh >3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75 sing the povided for you	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F Blocks 6	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5 the sums Riparian equal 100 100%	NOTES>>		
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Condition Scores Delineate ripalescriptors. Determine squelow. Enter the % F. Right Bank Left Bank	Tree stratum (dbh > with > 60% tree ca non-maintained unc located within the located with	imal 3 inches) present, anopy cover and a derstory. Wetlands e riparian areas. 5 5 cach stream bank ach by measuring the stream	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 Into Condition C g or estimating let parian category in zes, water velocity exes, stable featur Subo Stable habitat ele present in 30-50% are adequate fo	Inditional Cate ptimal Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Coungth and width. Coungth and width. Coungth and width. Coungth and depths; wores. Conditional	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85 Indition Scores us calculators are production of the present in 10-30 are adequate for a seadequate for the present in 10-30 are adequate for the present in 10-30 are adeq	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh >3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75 sing the povided for you	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F Blocks 6	Low Poor: Impervious surfaces, mine pool lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5 the sums Riparian equal 100 100% 100%	NOTES>> CI= (Sum % RA *: Rt Bank CI > Lt Bank CI >	1.20	CI 1.20

	St	ream In	npact A	ssessn	nent Fo	rm Pag	je 2		
Project #	Applicant		Locality	Cowardin Class.	HUC	Date	Data Point	SAR length	Impact Factor
								500	1
	L ALTERATION: Stream cross spoil piles, constrictions, livestock	sings, riprap, cond			straightening of ch	annel, channeliz	zation,	NOTES>>	
	Noglicible			al Category	lorato		OVOTO.		
	Negligible	IVII	nor	40 - 60% of reach			evere		
Channel Alteration	Channelization, dredging, alteration, or hardening absent. Stream has an unaltered pattern or has naturalized.	Less than 20% of the stream reach is disrupted by any of the channel alterations listed in the parameter guidelines.	of the channel	of the channel alterations listed in the parameter guidelines. If	is disrupted by any of the channel alterations listed in the parameter guidelines. If stream has been channelized, normal stable stream meander pattern has not	Greater than 80% by any of the cha in the parameter 80% of banks	6 of reach is disrupted annel alterations listed r guidelines AND/OR shored with gabion, or cement.		
SCORE	1.5	1.3	1.1	0.9	0.7		0.5		
	REACH C	CONDITION	NDEX and S	STREAM CO	NDITION UN	ITS FOR TI	HIS REACH		
NOTE: The Cls and F	RCI should be rounded to 2 decimal places.	The CR should be rou	nded to a whole numl	ber.			THE REACH (CONDITION IN	DEX (RCI) >>
								l= (Sum of all C	
							COMPENSATI		MENT (CR) >>
							CR = RC	I X LF X IF	
DESCRIBE F	PROPOSED IMPACT:								

		Stre	Unit	SSESS fied Stream M	lethodology f	for use in Virg	ginia	m 1)			
Project #	I	Project Name		Locality	Cowardin Class.	HUC	Date	SAR #	Impact/SAR length	Impact Factor	
5337	I	-64 Peninsul	а	York	R2UB2	02080107	11/9/11		123		
Name	e(s) of Evalua	tor(s)		e and Informa	ation		•	•		•	
	Aitkenhead / Nies		WUS 152M								
. Channel C	Condition: Asse			C	Conditional Catego	ory					
	Opti	imal	Subo	ptimal	Mar	ginal	Po	oor	Se	vere	-
	***************************************	AND THE REAL PROPERTY OF THE PARTY OF THE PA	erecion or uppreted	ew areas of active cted banks. Majority	Poor. Banks more	less than Severe or stable than Severe	Vertically/laterally	ned/incised. unstable. Likely to		nstability. Severe	
Channel Condition	Very little incision o 100% stable bar surface protection prominent (80-1) Stable point bars/bs present. Access floodplain or fully bankfull benches. and transverse bs sediment depositio 10% of 1	nks. Vegetative n or natural rock, 00%). AND/OR ankfull benches are to their original or developed wide Mid-channel bars, ars few. Transient or covers less than	Vegetative protect prominent (60- Depositional feat stability. The bar channels are well likely has access to or newly develope portions of the resediment covers 10 to definite the covers of the resediment covers 10 to definite the covers of the resediment covers 10 to definite the covers of the resediment covers 10 to definite the covers 10 to definite	table (60-80%). tion or natural rock -80%) AND/OR tures contribute to nkfull and low flow II defined. Stream o bankfull benches, ed floodplains along reach. Transient 0-40% of the stream	Erosion may be pr both banks. Veget 40-60% of banks. bevertical or unde 60% of strean sediment. Sed temporary/tran instability. Depositi stability, may be	ower bank slopes. resent on 40-60% of tative protection on Streambanks may ercut. AND/OR 40- n is covered by diment may be usient, contribute ton that contribute to e forming/present.	are near vertical. 60-80% of bar protection prese banks, and is inst erosion. AND/O stream is cover Sediment is temp nature, and contri AND/OR V-shap	jority of both banks Erosion present on iks. Vegetative ent on 20-40% of ufficient to prevent IR 60-80% of the ed by sediment. porary/transient in buting to instability. ed channels have	banks. Streamb rooting depth, r vertical/under protection present banks, is not pr Obvious bank s Erosion/raw ban AND/OR Aggradir than 80% of strear	ed below average majority of banks cut. Vegetative on less than 20% of eventing erosion. loughing present. nks on 80-100%. ng channel. Greate m bed is covered by buting to instability.	
	10,70 0.11		boti	tom.	vegetative protecti	ed channels have ion on > 40% of the ional features which	40% of the banks a	tion is present on > and stable sediment is absent.		channels and/or nean flow.	CI
Score	3	3	2	2.4		2	1	.6		1	1.6
. RIPARIAN	N BUFFERS: A		Con	n areas along the nditional Cate ptimal	gory	ginal	Po	n may be accepta	NOTES>>		
RIPARIAN Riparian Buffers	Opti	imal - 3 inches) present, anopy cover and a derstory. Wetlands	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy	gory	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh >3 inches) present, with 30% lockes) canopy cover with					
Riparian	Option Tree stratum (dbh > with > 60% tree canon-maintained unc	imal - 3 inches) present, anopy cover and a derstory. Wetlands	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory.	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation).	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover.	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh >3 inches) present, with <30% tree canopy cover with maintained understory.	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable condition.	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions.			
Riparian Buffers	Option Tree stratum (dbh > with > 60% tree canon-maintained unc	imal 3 inches) present, anopy cover and a derstory. Wetlands e riparian areas.	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh >3 inches) present, with <30% tree canopy cover with maintained	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable			
Riparian Buffers Condition Scores Delineate ripa escriptors. Determine squelow.	Tree stratum (dbh > with > 60% tree ca non-maintained unc located within the	imal 3 inches) present, anopy cover and a derstory. Wetlands e riparian areas.	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 k into Condition C	Inditional Cate ptimal Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Coungth and width. Coungth and width. Coungth and coungth and width.	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh > 3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5			
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Riparian Buffers Condition Scores Delineate ripasecriptors. Determine squelow. Enter the % F	Tree stratum (dbh > with > 60% tree ca non-maintained unc located within the located with	imal 3 inches) present, anopy cover and a derstory. Wetlands e riparian areas.	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 k into Condition C	Inditional Cate ptimal Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Coungth and width. Coungth and width. Coungth and coungth and width.	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh > 3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5	NOTES>>		
Riparian Buffers Condition Scores Delineate ripasecriptors. Determine squelow. Enter the % F	Tree stratum (dbh > with > 60% tree canon-maintained unc located within the located withi	imal 3 inches) present, anopy cover and a derstory. Wetlands e riparian areas. 5 each stream bank ach by measuring 50% 1.1	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 into Condition C g or estimating ler parian category in 10% 0.5	Low Low Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Coungth and width. Counter the blocks below 40% 0.6	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh > 3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5 the sums Riparian equal 100	NOTES>>	,	CI
Riparian Buffers Condition Scores Delineate ripasscriptors. Determine squees. Enter the % F	Tree stratum (dbh > with > 60% tree ca non-maintained unc located within the located with	imal 3 inches) present, anopy cover and a derstory. Wetlands e riparian areas. 5 ach stream bank ach by measuring Score for each ripage.	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 Into Condition C g or estimating ler parian category in	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Coungth and width. Counter the blocks below	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh > 3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5	NOTES>>	Scores*0.01)/2 0.84 0.84	CI 0.84
Riparian Buffers Condition Scores Delineate ripa escriptors. Determine squelow. Enter the % F Right Bank Left Bank	Tree stratum (dbh > with > 60% tree canon-maintained unc located within the located withi	imal 3 inches) present, anopy cover and a derstory. Wetlands e riparian areas. 5 ach stream bank ach by measuring 50% 1.1 50% 1.1 aried substrate si	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 into Condition C g or estimating ler parian category in 10% 0.5 40% 0.6 Zes, water velociti	Inditional Cate ptimal Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Coungth and width. Coungth	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85 Indition Scores usional calculators are productions of the control of the con	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh > 3 inches) present, with < 30% tree canopy cover with maintained understory: Low 0.75 ing the povided for you	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F Blocks 6	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5 the sums Riparian equal 100 100%	NOTES>> CI= (Sum % RA** Rt Bank CI >	0.84	
Condition Scores Delineate ripa escriptors. Determine squelow. Enter the % F Right Bank Left Bank I. INSTREAN ndercut banks;	Tree stratum (dbh > with > 60% tree canon-maintained unc located within the located withi	imal 3 inches) present, anopy cover and a derstory. Wetlands e riparian areas. 5 each stream bank ach by measuring 50% 1.1 50% 1.1 aried substrate significations in the poole complete.	Right Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 Into Condition C g or estimating ler parian category in 10% 0.5 40% 0.6 zes, water velocity xess, stable features.	Inditional Cate ptimal Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Coungth and width. Coungth	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <a>30 tree canopy cover. High 0.85 Indition Scores usional calculators are production of the calculators are productional calculators.	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh > 3 inches) present, with < 30% tree canopy cover with maintained understory: Low 0.75 ing the povided for you	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F Blocks 6	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5 the sums Riparian equal 100 100%	NOTES>> CI= (Sum % RA * S Rt Bank CI > Lt Bank CI >	0.84	
Condition Scores Delineate ripalescriptors. Determine squelow. Enter the % F. Right Bank Left Bank	Tree stratum (dbh > with > 60% tree ca non-maintained unc located within the located with	imal 3 inches) present, anopy cover and a derstory. Wetlands e riparian areas. 5 5 cach stream bank ach by measuring 50% 1.1 50% 1.1 aried substrate si ffle poole completimal	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 into Condition C g or estimating ler parian category in 10% 0.5 40% 0.6 zes, water velocity exes, stable featur Subo Stable habitat ele present in 30-50% are adequate fo	Inditional Cate ptimal Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Con ngth and width. Con the blocks below 40% 0.6 10% 0.5 y and depths; wodes. Conditional	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85 Indition Scores using the state of the state	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh >3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75 ing the povided for you	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F Blocks 6	Low Poor: Impervious surfaces, mine pool lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5 the sums Riparian equal 100 100% 100%	NOTES>> CI= (Sum % RA * S Rt Bank CI > Lt Bank CI >	0.84	

	St	ream In	npact A	ssessn	nent Fo	rm Pag	je 2			
Project #	Applicant		Locality	Cowardin Class.	HUC	Date	Data Point	SAR length	Impact Factor	
4. CHANNEI	L ALTERATION: Stream cross	sings, riprap, conc	rete, gabions, or	concrete blocks, s	traightening of ch	annel, channeli	zation,	NOTES>>	1	
embankments, s	poil piles, constrictions, livestock		Condition	al Category						
Channel Alteration	Negligible Channelization, dredging, alteration, or hardening absent. Stream has an unaltered pattern or has naturalized.	Less than 20% of the stream reach is disrupted by any of the channel alterations listed in the parameter	of the channel	40 - 60% of reach is disrupted by any of the channel alterations listed in the parameter guidelines. If	erate 60 - 80% of reach is disrupted by any of the channel alterations listed in the parameter guidelines. If stream has been channelized,	Greater than 80% by any of the cha in the paramete 80% of banks	6 of reach is disrupted annel alterations listed r guidelines AND/OR shored with gabion, or cement.	I I		
		guidelines.	guidelines.	normal stable stream meander pattern has not	normal stable stream meander pattern has not	пртар,	or cement.			
SCORE	1.5	1.3	1.1	0.9	0.7		0.5			0.9
	REACH C	CONDITION	NDEX and S	STREAM CO	NDITION UN	ITS FOR T	HIS REACH			
NOTE: The CIs and F	RCI should be rounded to 2 decimal places.	The CR should be rou	nded to a whole numb	ber.				CONDITION IN		0.7
								I= (Sum of all C	MENT (CR) >>	0
								IXLFXIF	(51.711	
DESCRIPT OF	DDODGOED IMPACT									
DESCRIBE F	PROPOSED IMPACT:									

		Stre		fied Stream N	lethodology f	or use in Virg	ginia				
Project #	ı	Project Name		Locality	Cowardin Class.	HUC	Date	SAR#	Impact/SAR length	Impact Factor	
5337	Į.	-64 Peninsul	a	York	R2UB2	02080107	11/9/11		19		
Name	e(s) of Evaluat	tor(s)		e and Informa	ation						
	Aitkenhead / Nies		WUS 153M								
. Channel C	Condition: Asse	ess the cross-sec	tion of the stream								
	Opti	mal	Subo	ptimal	Conditional Catego Mar	ginal	Po	oor	Se	vere	
Channel Condition	Very little incision or 100% stable bar surface protection	nks. Vegetative n or natural rock,	erosion or unproted of banks are s Vegetative protec	ew areas of active cted banks. Majority table (60-80%), tion or natural rock -80%) AND/OR	Poor. Banks more or Poor due to lo Erosion may be pr	less than Severe or stable than Severe ower bank slopes. sesent on 40-60% of fative protection on	Vertically/laterally widen further. Ma are near vertical.	red/incised. unstable. Likely to jority of both banks Erosion present on	incision, flow co banks. Streamb rooting depth, r	stability. Severe nationed within the ed below average najority of banks	
	prominent (80-10 Stable point bars/ba present. Access floodplain or fully bankfull benches. and transverse ba sediment deposition 10% of t	ankfull benches are to their original developed wide Mid-channel bars, ars few. Transient n covers less than	Depositional feat stability. The bai channels are we likely has access to or newly develope portions of the sediment covers 10 bot	tures contribute to nkfull and low flow Il defined. Stream to bankfull benches, and floodplains along reach. Transient 0-40% of the stream tom.	40-60% of banks. bevertical or unde 60% of strean sediment. See temporary/tran instability. Depositi stability, may be AND/OR V-shap vegetative protect banks and depositi	Streambanks may streambanks may streambanks may forcut. AND/OR 40-in is covered by diment may be sient, contribute to on that contribute to forming/present. ed channels have ion on > 40% of the onal features which	protection prese banks, and is inst erosion. AND/O stream is cover Sediment is temp nature, and contri AND/OR V-shap vegetative protect 40% of the banks a	ent on 20-40% of ufficient to prevent R 60-80% of the ed by sediment. porary/transient in	protection present banks, is not pro Obvious bank s Erosion/raw ban AND/OR Aggradir than 80% of strear deposition, contril Multiple thread	cut. Vegetative on less than 20% of eventing erosion. loughing present. nks on 80-100%. ng channel. Greater in bed is covered by buting to instability. channels and/or nean flow.	CI
Score	3	3	2	2.4		2	1	.6		1	2.4
. RIPARIAN	N BUFFERS: A		Con	n areas along the nditional Cate ptimal	gory	ginal	Po	n may be accepta	notes>>		
RIPARIAN Riparian Buffers		imal 3 inches) present, unopy cover and a lerstory. Wetlands	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy	gory	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh >3 inches) present, with <30% tree canopy cover with maintained			NOTES>>		
Riparian Buffers	Opti Tree stratum (dbh > with > 60% tree ca non-maintained und	imal 3 inches) present, unopy cover and a lerstory. Wetlands	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh >3 inches) present, with ~30% tree canopy cover with	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable	NOTES>>		
Riparian	Opti Tree stratum (dbh > with > 60% tree ca non-maintained und	3 inches) present, anopy cover and a derstory. Wetlands e riparian areas.	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory.	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation).	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover.	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh > 3 inches) present, with <a>30 % tree canopy cover with maintained understory.	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, recently seeded and stabilized, or other comparable condition.	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions.	NOTES>>		
Riparian Buffers Condition Scores Delineate ripa electriptors.	Tree stratum (dbh > with > 60% tree ca non-maintained und located within the	imal 3 inches) present, intopy cover and a ferstory. Wetlands e riparian areas.	Com Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 into Condition C	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Coungth and width. Coungth	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh >3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5	NOTES>>		
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Riparian Buffers Condition Scores Delineate ripe escriptors. Determine squelow. Enter the % F Right Bank Left Bank	Tree stratum (dbh > with > 60% tree ca a non-maintained und located within the located wi	5 Score for each ri 100% 0.85	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 Cinto Condition C g or estimating ler parian category in	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 attegories and Co ongth and width. Co	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh > 3 inches) present, with <a>only wow of with maintained understory. Low 0.75	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F Blocks 6	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5 the sums Riparian equal 100 100%	NOTES>> Cl= (Sum % RA *: Rt Bank Cl > Lt Bank Cl >		CI 0.85
Riparian Buffers Condition Scores Delineate ripaescriptors. Determine squelow. Enter the % F	Tree stratum (dbh > with > 60% tree canon-maintained und located within the located withi	imal 3 inches) present, intopy cover and a derstory. Wetlands e riparian areas. 5 ach stream bank ach by measuring the stream ban	Com Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 Into Condition C g or estimating let parian category in	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Congth and width. Control with the blocks below yand depths; woo	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh > 3 inches) present, with <a>only wow of with maintained understory. Low 0.75	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F Blocks 6	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5 the sums Riparian equal 100 100%	NOTES>> Cl= (Sum % RA** Rt Bank Cl >	0.85	
Condition Scores Delineate ripalescriptors. Determine squelow. Enter the % Right Bank Left Bank INSTREAM Indercut banks;	Tree stratum (dbh > with > 60% tree ca non-maintained und located within the located with	imal 3 inches) present, inopy cover and a lerstory. Wetlands e riparian areas. 5 each stream bank ach by measuring the stream bank	Com Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 sinto Condition C g or estimating let parian category in zes, water velocit xes, stable featur	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Co ngth and width. Co n the blocks below y and depths; wodes. Conditiona	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85 Indition Scores usional calculators are production of the control of the contr	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh -3 inches) present, with +30% tree canopy cover with maintained understory. Low 0.75	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F Blocks 6	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5 the sums Riparian riqual 100 100%	NOTES>> Cl= (Sum % RA *: Rt Bank Cl > Lt Bank Cl >	0.85	
Riparian Buffers Condition Scores Delineate ripa lescriptors. Determine squelow. Below. Right Bank Left Bank Left Bank INSTREAI undercut banks;	Tree stratum (dbh > with > 60% tree ca non-maintained und located within the located with	imal 3 inches) present, inopy cover and a lerstory. Wetlands e riparian areas. 5 each stream bank ach by measuring the stream bank	Com Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 sinto Condition C g or estimating let parian category in zes, water velocit xes, stable featur	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Coungth and width. Coungth and width. Coungth and width. Coungth and depths; woodes.	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85 Indition Scores usional calculators are production of the control of the contr	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh > 3 inches) present, with <a>only wow of with maintained understory. Low 0.75	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F Blocks 6	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5 the sums Riparian equal 100 100%	NOTES>> Cl= (Sum % RA *: Rt Bank Cl > Lt Bank Cl >	0.85	
Condition Scores Delineate ripa elescriptors. Deltre the % F Right Bank Left Bank Left Bank Lindercut banks;	Tree stratum (dbh > with > 60% tree ca non-maintained und located within the located with	5 Score for each ri 100% 0.85 100% 0.85 rifle poole comple	Com Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 Into Condition C g or estimating let parian category in Zes, water velocit ixes, stable featur Subo Stable habitat ele present in 30-50% are adequate fo	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Co ngth and width. Co n the blocks below y and depths; wodes. Conditiona	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85 Indition Scores usion all Category Mar Stable habitat ele present in 10-30% are adequate fo	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh -3 inches) present, with +30% tree canopy cover with maintained understory. Low 0.75	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F Blocks 6	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5 the sums Riparian riqual 100 100%	CI= (Sum % RA * : Rt Bank CI > Lt Bank CI > NOTES>>	0.85	

	St	ream In	npact A	ssessn	nent Fo	rm Pag	je 2			
Project #	Applicant		Locality	Cowardin Class.	HUC	Date	Data Point	SAR length	Impact Factor	
4 CHANNE	L ALTERATION: Stream cross	cingo riprop cono	roto gabione or	concrete blocks	traightening of ch	annol channoli	zation	500 NOTES>>	1	
embankments, s	spoil piles, constrictions, livestock	sings, riprap, conc		al Category	straigntening of cri	anner, chamien.	zauori,	NOTES		
	Negligible	Mi	nor	Mod	erate	S	evere			
Channel Alteration	Channelization, dredging, alteration, or hardening absent. Stream has an unaltered pattern or has naturalized.	Less than 20% of the stream reach is disrupted by any of the channel alterations listed in the parameter guidelines.	20-40% of the stream reach is disrupted by any of the channel alterations listed in the parameter guidelines.	of the channel alterations listed in the parameter guidelines. If	is disrupted by any of the channel	by any of the cha in the paramete 80% of banks	6 of reach is disrupted annel alterations listed r guidelines AND/OR shored with gabion, or cement.			
SCORE	1.5	1.3	1.1	0.9	0.7		0.5			0.7
	REACH C	ONDITION	NDEX and S	STREAM CO	NDITION UN	ITS FOR T				
NOTE: The CIs and I	RCI should be rounded to 2 decimal places.	The CR should be rou	nded to a whole num	ber.				CONDITION IN		0.9
							COMPENSAT	l= (Sum of all C		0
								I X LF X IF	. ,	
DESCRIBE F	PROPOSED IMPACT:									

		Stre	Unit	SSESS fied Stream M	lethodology f	for use in Virg	ginia	m 1)			
Project #		Project Name		Locality	cowardin Class.	HUC	perennial Date	SAR#	Impact/SAR length	Impact Factor	
5337	I-64	Peninsula S	tudy	New Kent	R2UB3	02080206	July '11		161		
Name	e(s) of Evalua	tor(s)	Stream Nam	e and Informa	ation					'	l
	Aitkenhead		WUS 10S								
. Channel C	Condition: Asse			C	Conditional Catego	ry					
	Opti	mal	Subo	ptimal	Mar	ginal	Po	oor	Se	vere	1
	1	ALLANDON OF THE PARTY OF THE PA		ew areas of active cted banks. Majority	Poor. Banks more	less than Severe or stable than Severe	Vertically/laterally	ed/incised. unstable. Likely to	incision flow co	nstability. Severe	
Channel Condition	Very little incision on 100% stable bar surface protection prominent (80-10 Stable point barrs/ba present. Access floodplain or fully bankfull benches. and transverse ba sediment depositio 10% of 1	nks. Vegetative n or natural rock, 00%). AND/OR ankfull benches are to their original developed wide Mid-channel bars, ars few. Transient n covers less than	Vegetative protect prominent (60- Depositional feat stability. The bar channels are well likely has access to rnewly develope portions of the rediment covers 10	table (60-80%). tion or natural rock -80%) AND/OR tures contribute to nkfull and low flow ll defined. Stream o bankfull benches, defloodplains along reach. Transient 0-40% of the stream	Erosion may be pr both banks. Veget 40-60% of banks. bevertical or unde 60% of strean sediment. Sed temporary/tran instability. Depositi stability, may be	ower bank slopes. esent on 40-60% of tative protection on Streambanks may ercut. AND/OR 40- n is covered by diment may be sient, contribute on that contribute to to forming/present. ed channels have	are near vertical. 60-80% of bar protection prese banks, and is insi erosion. AND/O stream is cover Sediment is temp nature, and contri AND/OR V-shap	iority of both banks Erosion present on ks. Vegetative ent on 20-40% of ufficient to prevent R 60-80% of the ed by sediment. corary/transient in buting to instability. ed channels have ion is present on >	banks. Streamb rooting depth, r vertical/under protection present banks, is not pr Obvious bank s Erosion/raw ba AND/OR Aggradir than 80% of streat deposition, contril	ped below average majority of banks cut. Vegetative on less than 20% of eventing erosion. sloughing present. Inks on 80-100%. Ing channel. Greater m bed is covered by buting to instability.	
			DOI	tom.	vegetative protecti	ion on > 40% of the	40% of the banks a	and stable sediment is absent.	subterra	l channels and/or nean flow.	CI
Score	3	3	2	2.4]	2	1	.6		1	1.0
. RIPARIAN	N BUFFERS: A		Con	nditional Cate ptimal	gory	ginal Low Marginal:		n may be accepta	NOTES>>		
Riparian Buffers	Opti Tree stratum (dbh > with > 60% tree ca	mal 3 inches) present, unopy cover and a lerstory. Wetlands	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy	gory	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh >3 inches) present, with 30% loches) present, with <a href<="" th=""><th>Po</th><th></th><th>NOTES>></th><th></th><th></th>	Po		NOTES>>		
Riparian	Option Tree stratum (dbh > with > 60% tree canon-maintained unc	mal 3 inches) present, unopy cover and a lerstory. Wetlands	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory.	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation).	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover.	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh >3 inches) present, with <30% tree canopy cover with maintained understory.	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable condition.	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions.	NOTES>>		
Riparian Buffers	Option Tree stratum (dbh > with > 60% tree canon-maintained unc	3 inches) present, inopy cover and a derstory. Wetlands e riparian areas.	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh >3 inches) present, with <30% tree canopy cover with maintained	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable	NOTES>>		
Riparian Buffers Condition Scores Delineate ripa escriptors. Determine squelow.	Tree stratum (dbh > with > 60% tree ca non-maintained unc located within the	imal 3 inches) present, incopy cover and a lerstory. Wetlands e riparian areas.	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 into Condition C	Inditional Cate ptimal Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Coungth and width. Coungth and width. Coungth and coungth and width.	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh > 3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5	NOTES>>		
Riparian Buffers Condition Scores Delineate ripasecriptors. Determine squelow. Enter the % F	Tree stratum (dbh > with > 60% tree ca non-maintained unclocated within the	imal 3 inches) present, intopy cover and a ferstory. Wetlands e riparian areas.	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 into Condition C	Inditional Cate ptimal Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Coungth and width. Coungth and width. Coungth and coungth and width.	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh > 3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5	NOTES>>		
Riparian Buffers Condition Scores Delineate ripaescriptors. Determine squelow. Enter the % F	Tree stratum (dbh > with > 60% tree ca non-maintained unc located within the	imal 3 inches) present, incopy cover and a lerstory. Wetlands e riparian areas.	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 into Condition C g or estimating ler	Inditional Cate ptimal Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Coungth and width. Coungth and width. Coungth and coungth and width.	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh > 3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5	NOTES>>		
Riparian Buffers Condition Scores Delineate ripaescriptors. Determine squelow. Enter the % F	Tree stratum (dbh > with > 60% tree canon-maintained unclocated within the located within	imal 3 inches) present, unopy cover and a lerstory. Wetlands e riparian areas. 5 each stream bank ach by measurin Score for each ri 40% 1.2	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 Into Condition C g or estimating ler parian category in 60%	Inditional Cate ptimal Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Coungth and width. Coungth and width. Coungth and coungth and width.	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh > 3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5	NOTES>>		CI
Riparian Buffers Condition Scores Delineate ripascriptors. Determine squelow. Enter the % F	Tree stratum (dbh > with > 60% tree ca non-maintained unc located within the located with	imal 3 inches) present, unopy cover and a ferstory. Wetlands e riparian areas. 5 each stream bank ach by measurin. Score for each ri	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 Into Condition C g or estimating ler parian category in 60%	Inditional Cate ptimal Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Coungth and width. Coungth and width. Coungth and coungth and width.	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh > 3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5	NOTES>>	Scores*0.01)/2 0.84 1.20	CI 1.02
Condition Scores Delineate ripa escriptors. Determine squelow. Enter the % F Right Bank Left Bank B. INSTREAR	Tree stratum (dbh > with > 60% tree canon-maintained unc located within the located withi	imal 3 inches) present, unopy cover and a lerstory. Wetlands e riparian areas. 5 ach stream bank ach by measuring the stream bank	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 into Condition C g or estimating ler parian category in 60% 0.6	Inditional Cate ptimal Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Coungth and width. Coungth and width. Coungth and width. Coungth and depths; wodes.	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85 Indition Scores usion all calculators are production of the production of the calculators are production.	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh -3 inches) present, with <a>30 % tree canopy cover with maintained understory. Low 0.75 ing the evided for you	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F Blocks 6	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5 the sums Riparian equal 100 100%	NOTES>> Cl= (Sum % RA*: Rt Bank Cl >	0.84	CI 1.02
Condition Scores Delineate ripa escriptors. Determine squelow. Enter the % R Right Bank Left Bank Instread	Tree stratum (dbh > with > 60% tree ca non-maintained unc located within the located with	imal 3 inches) present, nopy cover and a lerstory. Wetlands e riparian areas. 5 each stream bank ach by measuring the stream bank	Riph Suboptimal: Riparian areas with tree stratum (dbh s 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 Into Condition C g or estimating ler parian category in 60% 0.6	Inditional Cate ptimal Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Coungth and width. Coungth and width. Coungth and depths; wores. Conditional	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <a>30 tree canopy cover. High 0.85 Indition Scores usional calculators are production of the calculators are productional calculators.	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh >3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75 ing the vided for you	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F Blocks 6	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5 the sums Riparian equal 100 100%	NOTES>> Ci= (Sum % RA *: Rt Bank Ci > Lt Bank Ci >	0.84	
Condition Scores Delineate ripalescriptors. Determine squelow. Enter the % F. Right Bank Left Bank	Tree stratum (dbh > with > 60% tree canon-maintained unclocated within the located within	5 Score for each ri 40% 1.2 100% 1.2 ried substrate siffle poole comple	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 into Condition C g or estimating ler parian category in 60% 0.6 Stable habitat ele present in 30-50% are adequate fo	Inditional Cate ptimal Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Coungth and width. Coungth and width. Coungth and width. Coungth and depths; wodes.	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85 Indition Scores using the state of the state	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh -3 inches) present, with <a>30 % tree canopy cover with maintained understory. Low 0.75 ing the evided for you	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F Blocks 6	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5 the sums Riparian equal 100 100% 100%	CI= (Sum % RA *: Rt Bank CI > Lt Bank CI > NOTES>>	0.84	_

Stream Impact Assessment Form Page 2 Project # Applicant Cowardin Class Data Point SAR length Impact Factor 4. CHANNEL ALTERATION: Stream crossings, riprap, concrete, gabions, or concrete blocks, straightening of channel, channelization, NOTES>> embankments, spoil piles, constrictions, livestock Conditional Category Moderate Minor Negligible Severe 40 - 60% of reach is disrupted by any of the channel 20-40% of the stream reach is Less than 20% of Channel Iterations listed in alterations listed in Greater than 80% of reach is disrupted the stream reach the parameter guidelines. If the parameter Channelization, dredging, alteration, or hardening absent. Stream has an unaltered pattern or has naturalized. by any of the channel alterations listed in the parameter guidelines AND/OR 80% of banks shored with gabion, s disrupted by any disrupted by any Alteration of the channel Iterations listed i of the channel lterations listed i guidelines. If tream has been channelized, stream has been channelized, the parameter the parameter riprap, or cement. guidelines. guidelines. normal stable normal stable stream meander stream meander pattern has not pattern has not SCORE 1.5 1.3 1.1 0.9 0.7 0.5 0.50 REACH CONDITION INDEX and STREAM CONDITION UNITS FOR THIS REACH THE REACH CONDITION INDEX (RCI) >> NOTE: The CIs and RCI should be rounded to 2 decimal places. The CR should be rounded to a whole number.

0.60

RCI= (Sum of all CI's)/5 COMPENSATION REQUIREMENT (CR) >>

0

CR = RCI X LF X IF

INSERT PHOTOS:







		Stre		fied Stream N	lethodology 1	for use in Vir	ginia	m 1)			
Project #		Project Name		Locality	cowardin Class.	HUC	Date Date	SAR #	Impact/SAR length	Impact Factor	
5337	I-64	Peninsula S	tudy	New Kent	R2UB2	02080206	July '11		35		
Nam	e(s) of Evaluat	tor(s)	Stream Nam	e and Informa	ation					1	
	Aitkenhead		WUS 11S								
l. Channel (Condition: Asse			(Conditional Catego	ory					
	Opti	mal	Subo	ptimal	Mar	ginal	Po	oor	Se	vere	
	Very little incision o	ractive eresion: 80	erosion or unproted	ew areas of active cted banks. Majority	Poor. Banks more	less than Severe or stable than Severe	Vertically/laterally	ned/incised. unstable. Likely to		nstability. Severe	
Channel Condition	100% stable bar surface protection prominent (80-10 Stable point bars/be present. Access floodplain or fully bankfull benches. and transverse ba sediment depositio 10% of 1	nks. Vegetative n or natural rock, 00%). AND/OR ankfull benches are to their original developed wide Mid-channel bars, ars few. Transient n covers less than	Vegetative protect prominent (60- Depositional feat stability. The bar channels are well likely has access to or newly develope portions of the resediment covers 10 to definite the covers of the resediment covers 10 to definite the covers of the resediment covers 10 to definite the covers of the resediment covers 10 to definite the covers 10 to definite	stable (60-80%). tion or natural rock -80%) AND/OR tures contribute to nkfull and low flow ill defined. Stream to bankfull benches, ad floodplains along reach. Transient 0-40% of the stream	Erosion may be pr both banks. Veget 40-60% of banks. bevertical or unde 60% of stream sediment. Se- temporary/tran instability. Depositi stability, may be	ower bank slopes. resent on 40-60% of tative protection on Streambanks may ercut. AND/OR 40- n is covered by diment may be usient, contribute too that contribute to e forming/present.	are near vertical. 60-80% of bar protection prese banks, and is insi erosion. AND/C stream is cover Sediment is tem nature, and contri AND/OR V-shap	iority of both banks Erosion present on ks. Vegetative int on 20-40% of ifficient to prevent R 60-80% of the ed by sediment. porary/transient in buting to instability. ed channels have	banks. Streamb rooting depth, r vertical/under protection present banks, is not pr Obvious bank s Erosion/raw ba AND/OR Aggradir than 80% of streat deposition, contril	ped below average majority of banks cut. Vegetative on less than 20% of eventing erosion. sloughing present. Inks on 80-100%. ng channel. Greater m bed is covered by buting to instability.	
			boti	ttom.	vegetative protect	ed channels have ion on > 40% of the ional features which	40% of the banks a	ion is present on > and stable sediment i is absent.		l channels and/or nean flow.	CI
Score	3	3	2	2.4		2	1	.6		1	2.4
. RIPARIAI	N BUFFERS: A		Con	an areas along the nditional Cate	gory	ugh measurement		n may be accepta	NOTES>>		
2. RIPARIAN Riparian Buffers	Option Tree stratum (dbh > with > 60% tree canon-maintained unc	mal 3 inches) present, unopy cover and a lerstory. Wetlands	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy	gory		High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active	NOTES>>		
Riparian	Opti Tree stratum (dbh > with > 60% tree ca	mal 3 inches) present, unopy cover and a lerstory. Wetlands	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory.	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation).	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover.	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh >3 inches) present, with <30% tree canopy cover with maintained understory.	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable condition.	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions.	NOTES>>		
Riparian	Option Tree stratum (dbh > with > 60% tree canon-maintained unc	3 inches) present, inopy cover and a derstory. Wetlands e riparian areas.	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained	Low Suboptimal Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh > 3 inches) present, with <30% tree canopy cover with maintained	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable	NOTES>>		
Riparian Buffers Condition Scores Delineate ripelescriptors.	Tree stratum (dbh > with > 60% tree ca non-maintained unc located within the	imal 3 inches) present, incopy cover and a lerstory. Wetlands e riparian areas.	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 into Condition C	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 Lategories and Coungth and width. Coungth and width. Coungth and width. Coungth and width. Coungth and coungth and width. Coungth and width. Coungth and width. Coungth areas with particular areas with the properties of the proper	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh > 3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5	NOTES>>		
Riparian Buffers Condition Scores Delineate ripelescriptors. Determine so	Tree stratum (dbh > with > 60% tree ca non-maintained unc located within the	imal 3 inches) present, intopy cover and a ferstory. Wetlands e riparian areas.	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 into Condition C	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 Lategories and Coungth and width. Coungth and width. Coungth and width. Coungth and width. Coungth and coungth and width. Coungth and width. Coungth and width. Coungth areas with particular areas with the properties of the proper	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh > 3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5	NOTES>>		
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Riparian Buffers Condition Scores Delineate riptescriptors. Determine squelow.	Tree stratum (dbh > with > 60% tree ca non-maintained unc located within the located with	imal 3 inches) present, unopy cover and a lerstory. Wetlands e riparian areas. 5 each stream bank ach by measurin Score for each ri 100% 1.5	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 into Condition C	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 Lategories and Coungth and width. Coungth and width. Coungth and width. Coungth and width. Coungth and coungth and width. Coungth and width. Coungth and width. Coungth areas with particular areas with the properties of the proper	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh > 3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5	NOTES>>		
Riparian Buffers Condition Scores Delineate ripescriptors. Determine seelow.	Tree stratum (dbh > with > 60% tree ca non-maintained unc located within the located with	imal 3 inches) present, unopy cover and a lerstory. Wetlands e riparian areas. 5 ach stream bank ach by measurin 100% 1.5 100%	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 into Condition C	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 Lategories and Coungth and width. Coungth and width. Coungth and width. Coungth and width. Coungth and coungth and width. Coungth and width. Coungth and width. Coungth areas with particular areas with the properties of the proper	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh > 3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5	NOTES>> Cl= (Sum % RA*: Rt Bank Cl >	1.50	CI
Condition Scores Delineate ripe lescriptors. Determine so les own. Right Bank Left Bank I. INSTREAL	Tree stratum (dbh > with > 60% tree ca non-maintained unc located within the located with	imal 3 inches) present, unopy cover and a lerstory. Wetlands e riparian areas. 5 ach stream bank ach by measuring 100% 1.5 100% 1.5 aried substrate si	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 Into Condition C g or estimating ler parian category in	Inditional Cate potimal Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 Lategories and Coungth and width. Coungth and width. Coungth and width. Coungth and depths; woo y and depths; woo res.	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85 Indition Scores us calculators are production of the product	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh >3 inches) present, with <30% tree canopy cover with maintained understory: Low 0.75 ing the povided for you	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F Blocks 6	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5 the sums Riparian equal 100 100%	NOTES>> CI= (Sum % RA*: Rt Bank CI> Lt Bank CI> NOTES>> S	1.50 1.50	
Condition Scores Delineate ripe descriptors. Determine so selow. Right Bank Left Bank INSTREAL	Tree stratum (dbh > with > 60% tree ca non-maintained unc located within the located with	imal 3 inches) present, nopy cover and a lerstory. Wetlands e riparian areas. 5 each stream bank ach by measuring 100% 1.5 100% 1.5 aried substrate siffle poole comple	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 Into Condition C g or estimating ler parian category in zes, water velocity ixes, stable featur	Inditional Cate potimal Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 Lategories and Coungth and width. Coungth and width. Coungth and width. Coungth and depths; woo y and depths; woo res.	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <a>3 inches) present, with <a>3 inches) present, or a tree canopy cover. High 0.85 Indition Scores us calculators are production of the control of th	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh >3 inches) present, with <30% tree canopy cover with maintained understory: Low 0.75 ing the povided for you	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F Blocks 6	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5 the sums Riparian equal 100 100%	NOTES>> CI= (Sum % RA*: Rt Bank CI> Lt Bank CI> NOTES>> S	1.50 1.50 hallow,	
Condition Scores Delineate ripolescriptors. Delta Bank Right Bank Left Bank Left Bank Lindercut banks;	Tree stratum (dbh > with > 60% tree ca non-maintained unc located within the located with	5 Score for each ri 100% 1.5 100% 1.5 100% 1.5 100% 1.5 100% 1.5 100% 1.5 100% 1.5 100% 1.5 100% 1.5	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 Into Condition C g or estimating let parian category in zes, water velocity exes, stable featur Subo Stable habitat ele present in 30-50% are adequate fo	Inditional Cate potimal Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 Sategories and Co ngth and width. Co in the blocks below y and depths; woo res. Conditional	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85 Indition Scores us calculators are production of the present in 10-30 are adequate for a seadequate for the present in 10-30 are adequate for the present in 10-30 are adeq	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh >3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75 ing the povided for you	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % f Blocks 6	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5 the sums Riparian equal 100 100% 100%	CI= (Sum % RA *: Rt Bank CI > Lt Bank CI > Substrate is	1.50 1.50 hallow,	CI 1.50

	St	ream In	npact A	ssessm	nent Fo	rm Pag	e 2		
Project #	Applicant		Locality	Cowardin Class.	HUC	Date	Data Point	SAR length	Impact Factor
								500	1
	L ALTERATION: Stream cross poil piles, constrictions, livestock		Conditiona	al Category				NOTES>>	
	Negligible	Mir	nor		erate	Se	vere		
Channel Alteration	Channelization, dredging, alteration, or hardening absent. Stream has an unaltered pattern or has naturalized.	Less than 20% of the stream reach is disrupted by any of the channel alterations listed in the parameter guidelines.	20-40% of the stream reach is disrupted by any of the channel alterations listed in the parameter guidelines.	is disrupted by any of the channel	60 - 80% of reach is disrupted by any of the channel alterations listed in the parameter guidelines. If stream has been channelized, normal stable stream meander pattern has not	Greater than 80% by any of the chan in the parameter 80% of banks sh	of reach is disrupted nel alterations listed guidelines AND/OR nored with gabion, or cement.		
SCORE	1.5	1.3	1.1	0.9	0.7	C).5		
	REACH C	ONDITION II	NDEX and S	TREAM CO	NDITION UN	ITS FOR TH	IIS REACH		
NOTE: The Cle and E	RCI should be rounded to 2 decimal places.	The CR should be rour	nded to a whole numb	er.			THE REACH O	CONDITION IN	DEX (RCI) >>

RCI= (Sum of all Cl's)/5

COMPENSATION REQUIREMENT (CR) >> (

CR = RCI X LF X IF

INSERT PHOTOS:



		Stre		fied Stream N	lethodology f	or use in Virg	ginia	m 1)			
Project #	I	Project Name		Locality	Cowardin Class.	s intermittent or	Date Date	SAR#	Impact/SAR length	Impact Factor	
5337	I-64	Peninsula S	tudy	New Kent	R2UB3	02080206	July '11		65		
Name	e(s) of Evaluat	tor(s)		e and Inform	ation						
	Aitkenhead		WUS 12S								
1. Channel C	Condition: Asse	ess the cross-sec	tion of the stream		ondition (erosion,						
	Opti	mal	Subo	ptimal		ginal	Po	oor	Sev	rere	
Channel	Very little incision or 100% stable bar		erosion or unproted of banks are s	ew areas of active sted banks. Majority table (60-80%).	Poor. Banks more or Poor due to lo	less than Severe or stable than Severe ower bank slopes.	Vertically/laterally widen further. Ma	ed/incised. unstable. Likely to jority of both banks	vertical/lateral in incision, flow cor banks. Streambe	tained within the	
Condition	surface protection prominent (80-1) Stable point bars/bs present. Access floodplain or fully bankfull benches. and transverse ba sediment depositio 10% of I	n or natural rock, 20%). AND/OR unkfull benches are to their original developed wide Mid-channel bars, urs few. Transient n covers less than	prominent (60- Depositional feat stability. The bar channels are wel likely has access to or newly develope portions of the r sediment covers 10	tion or natural rock 80%) AND/OR ures contribute to hdfull and low flow I defined. Stream to bankfull benches, d floodplains along reach. Transient 0-40% of the stream tom.	both banks. Veget 40-60% of banks. bevertical or unde 60% of strean sediment. Set temporary/tran instability. Depositi stability, may be AND/OR V-shap vegetative protecti	esent on 40-60% of attive protection on Streambanks may rout. AND/OR 40- h is covered by diment may be sient, contribute on that contribute to forming/present. ed channels have on on > 40% of the onal features which	60-80% of bar protection press banks, and is insu erosion. AND/O stream is cover Sediment is temp nature, and contri AND/OR V-shap vegetative protect 40% of the banks a	Erosion present on ks. Vegetative int on 20-40% of ifficient to prevent R 60-80% of the ed by sediment. porary/transient in buting to instability, ed channels have ion is present on > and stable sediment i is absent.	rooting depth, m vertical/underc	najority of banks ut. Vegetative on less than 20% of eventing erosion. oughing present. els on 80-100%. g channel. Greater n bed is covered by uting to instability. channels and/or	CI
Score	3	1	2	.4		2	1	.6	•	1	3.0
Riparian Buffers	Opti	3 inches) present, inopy cover and a lerstory. Wetlands	High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory, Recent cutover (dense vegetation).	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover.	Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh >3 inches) present, with <30% tree canopy cover with maintained understory.	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable condition.	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions.			
Candition			High	Low	High	Low	High	Low			
Condition Scores	1.	5	1.2	1.1	0.85	0.75	0.6	0.5			
			into Condition C		- dition Coorse						
Delineate ripa descriptors. Determine squelow.	arian areas along e	ach by measurin	g or estimating ler	ngth and width. C	alculators are pro		of % F	the sums Riparian			
. Delineate ripa lescriptors. . Determine squelow. 3. Enter the % R		ach by measuring	g or estimating ler	ngth and width. C	alculators are pro		of % F	Riparian equal 100			
. Delineate ripa lescriptors. 2. Determine squelow.	uare footage for e	ach by measurin	g or estimating ler	ngth and width. C	alculators are pro		of % F	Riparian			
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. Delineate ripa lescriptors. . Determine squelow. 3. Enter the % R	ware footage for exception of the control of the co	ach by measuring Score for each rig 100% 1.5	g or estimating ler	ngth and width. C	alculators are pro		of % F	Riparian equal 100	Rt Bank CI >	1.50	CI
Delineate ripa lescriptors. Determine squ selow. Enter the % R Right Bank	ware footage for example of the second secon	Score for each right 100% 1.5 100% 1.5	g or estimating ler	ngth and width. C	alculators are pro	vided for you	of % F Blocks e	100%	Rt Bank CI >		CI 1.50
Delineate ripa lescriptors. Determine squelow. Enter the % R Right Bank Left Bank INSTREAM	ware footage for exception of the control of the co	Score for each right 100% 1.5 100% 1.5 aried substrate si	g or estimating ler	the blocks below	alculators are pro	vided for you	of % F Blocks e	100%	Rt Bank CI >	1.50	
1. Delineate ripa Jescriptors. 2. Determine squ pelow. 3. Enter the % R Right Bank Left Bank 3. INSTREAN	ware footage for extended and a score > % Riparian Area and a score > % Riparian Area > Score > % Riparian Area > Score >	Score for each right 100% 1.5	g or estimating ler parian category in zes, water velocity xes, stable featur	the blocks below y and depths; woo es. Conditions	alculators are pro	vided for you	of % F Blocks 6	Riparian regual 100 100% 100% 100%	Rt Bank CI >	1.50	
1. Delineate ripa descriptors. 2. Determine squelow. 3. Enter the % R Right Bank Left Bank 3. INSTREAN undercut banks;	ware footage for exception of the control of the co	Score for each right 100% 1.5	g or estimating ler parian category in zes, water velocity xes, stable featur	the blocks below	alculators are pro	vided for you	of % F Blocks 6	100%	Rt Bank CI >	1.50	
1. Delineate ripa descriptors. 2. Determine squ below. 3. Enter the % R Right Bank Left Bank 3. INSTREAN undercut banks;	ware footage for extended and a score > % Riparian Area and a score > % Riparian Area > Score > % Riparian Area > Score >	Score for each right 100% 1.5 100% 1.5 arried substrate siffle poole complete mal	g or estimating ler parian category in zes, water velocit; xes, stable featur Subo Stable habitat ele present in 30-450; are adequate fo	the blocks below y and depths; woo es. Conditions	alculators are pro	vided for you	of % F Blocks e Blocks e te; low embededr Habitat elements lacking or are u elements are typic	Riparian regual 100 100% 100% 100%	Rt Bank CI >	1.50	

Stream Impact Assessment Form Page 2 Applicant Project # Cowardin Class Data Point SAR length Impact Factor 4. CHANNEL ALTERATION: Stream crossings, riprap, concrete, gabions, or concrete blocks, straightening of channel, channelization, NOTES>> embankments, spoil piles, constrictions, livestock Conditional Category Moderate Minor Negligible Severe 40 - 60% of reach is disrupted by any of the channel 20-40% of the stream reach is Less than 20% of Channel Iterations listed in alterations listed in Greater than 80% of reach is disrupted the stream reach the parameter guidelines. If the parameter Channelization, dredging, alteration, or hardening absent. Stream has an unaltered pattern or has naturalized. by any of the channel alterations listed in the parameter guidelines AND/OR 80% of banks shored with gabion, s disrupted by any disrupted by any Alteration of the channel Iterations listed i of the channel Iterations listed i guidelines. If tream has been channelized, stream has been channelized, the parameter the parameter riprap, or cement. guidelines. guidelines. normal stable normal stable stream meander stream meander pattern has not pattern has not SCORE 1.5 1.3 1.1 0.9 0.7 0.5 1.30 REACH CONDITION INDEX and STREAM CONDITION UNITS FOR THIS REACH THE REACH CONDITION INDEX (RCI) >> NOTE: The CIs and RCI should be rounded to 2 decimal places. The CR should be rounded to a whole number. 1.46

RCI= (Sum of all CI's)/5 COMPENSATION REQUIREMENT (CR) >>

0

CR = RCI X LF X IF

INSERT PHOTOS:



Upstream



		Stre		fied Stream N	lethodology f	•	ginia				
Project #	F	Project Name		Locality	nels classified a Cowardin Class.	HUC	perennial Date	SAR#	Impact/SAR length	Impact Factor	
5337	I-64	Peninsula S	tudy	New Kent	R2UB2	02080206	July '11		599		
Name	e(s) of Evaluat	tor(s)	Stream Nam	e and Informa	ation					•	
	Aitkenhead		WUS 13S								
. Channel C	Condition: Asse	ess the cross-sec	tion of the stream								
	Opti	imal	Subo	ptimal	Conditional Catego Mar	ginal	Po	oor	Se	vere	
Channel	Very little incision or 100% stable bar		erosion or unproted of banks are s	ew areas of active cted banks. Majority table (60-80%).	Poor. Banks more or Poor due to lo	less than Severe or stable than Severe wer bank slopes.	Vertically/laterally widen further. Mag	ed/incised. unstable. Likely to jority of both banks Erosion present on	incision, flow co	nstability. Severe ntained within the ed below average	
Condition	surface protection prominent (80-1 Stable point bars/ba present. Access floodplain or fully bankfull benches. and transverse ba sediment depositio 10% of t	00%). AND/OR ankfull benches are to their original developed wide Mid-channel bars, ars few. Transient n covers less than	prominent (60- Depositional feat stability. The bar channels are wel likely has access to or newly develope portions of the r sediment covers 10	tion or natural rock 80%) AND/OR tures contribute to nkfull and low flow Il defined. Stream o bankfull benches, d floodplains along reach. Transient 0-40% of the stream tom.	both banks. Veget 40-60% of banks. bevertical or unde 60% of stream sediment. Sec temporary/trans instability. Depositi- stability, may be AND/OR V-shap- vegetative protecti	asent on 40-60% of a tive protection on Streambanks may rout. AND/OR 40- is covered by diment may be sient, contribute on that contribute to forming/present. ed channels have on on > 40% of the onal features which	60-80% of ban protection prese banks, and is insuerosion. AND/O stream is cover Sediment is tempnature, and contril AND/OR V-shap vegetative protect 40% of the banks a	ks. Vegetative ent on 20-40% of ufficient to prevent R 60-80% of the ed by sediment. porary/transient in butting to instability. ed channels have ion is present on >	vertical/under protection present banks, is not pr Obvious bank s Erosion/raw ba AND/OR Aggradir than 80% of strear deposition, contril Multiple thread	majority of banks cut. Vegetative on less than 20% of eventing erosion. loughing present. nks on 80-100%. ng channel. Greater n bed is covered by buting to instability. channels and/or nean flow.	CI
Score	3	3	2	.4		2	1	.6		1	2.4
. RIPARIAN	N BUFFERS: A		Con	n areas along the ditional Cate ptimal	gory	gh measurement		n may be accepta	notes>>		
Riparian Buffers		imal 3 inches) present, unopy cover and a lerstory. Wetlands	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree	ditional Cate	gory	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh >3 inches) present, with <30% tree canopy cover with maintained			NOTES>>		
Riparian Buffers	Opti Tree stratum (dbh > with > 60% tree ca non-maintained und	imal 3 inches) present, unopy cover and a lerstory. Wetlands	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh >3 inches) present, with <30% tree canopy cover with	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces row crops, active feed lots, trails, or other comparable	NOTES>>		
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Condition Scores Delineate ripalescriptors. Determine squelow. Right Bank Left Bank I. INSTREAM	Tree stratum (dbh > with > 60% tree canon-maintained und located within the located withi	5 sach stream bank ach by measurin 100% 1.2 100% 1.2 aried substrate si	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 Into Condition C g or estimating ler parian category in	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Coungth and width. Coungth and width. Coungth and width. Coungth and depths; wodes.	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85 Indition Scores usional calculators are production of the control of the cont	Jinal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh > 3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75 Ing the vided for you	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F Blocks 6	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces row crops, active feed lots, trails, or other comparable conditions. Low 0.5 the sums Riparian equal 100 100%	NOTES>> Cl= (Sum % RA *: Rt Bank Cl >	1.20 1.20	
Condition Scores Delineate ripa descriptors. Determine squelow. Right Bank Left Bank INSTREAL	Tree stratum (dbh > with > 60% tree ca non-maintained und located within the located with	imal 3 inches) present, inopy cover and a lerstory. Wetlands e riparian areas. 5 each stream bank ach by measuring 100% 1.2 100% 1.2 aried substrate siffle poole complete.	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 sinto Condition C g or estimating ler parian category in category i	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Coungth and width. Coungth and width. Coungth and width. Coungth and depths; wodes.	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85 Indition Scores using the saleulators are producted to the sale	Jinal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh > 3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75 Ing the vided for you	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F Blocks e	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces row crops, active feed lots, trails, or other comparable conditions. Low 0.5 the sums Riparian equal 100 100%	CI= (Sum % RA *: Rt Bank CI > Lt Bank CI > NOTES>> N	1.20 1.20	
Condition Scores Delineate ripa elescriptors. Deltre the % F Right Bank Left Bank Left Bank Lindercut banks;	Tree stratum (dbh > with > 60% tree ca non-maintained und located within the located with	5 Score for each ri 100% 1.2 100% 1.2 100% 1.2 100% 1.2 100% 1.2 100% 1.2 100% 1.2 100% 1.2	Com Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 Into Condition C g or estimating ler parian category in Zes, water velocity xes, stable featur Subo Stable habitat ele present in 30-50% are adequate fo	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Co ongth and width. Co the blocks below y and depths; wodes. Conditiona	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85 Indition Scores using the state of the state	Ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh -3 inches) present, with +30% tree canopy cover with maintained understory. Low 0.75 Ing the vided for you	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure 1 of % F Blocks e	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces row crops, active feed lots, trails, or other comparable conditions. Low 0.5 the sums Riparian riqual 100 100%	CI= (Sum % RA *: Rt Bank CI > Lt Bank CI > NOTES>> Nflow.	1.20 1.20	

Stream Impact Assessment Form Page 2 Applicant Project # Cowardin Class Data Point SAR length Impact Factor 4. CHANNEL ALTERATION: Stream crossings, riprap, concrete, gabions, or concrete blocks, straightening of channel, channelization, NOTES>> embankments, spoil piles, constrictions, livestock Conditional Category Moderate Minor Negligible Severe 40 - 60% of reach is disrupted by any of the channel 20-40% of the stream reach is Less than 20% of Channel Iterations listed in Iterations listed in Greater than 80% of reach is disrupted the stream reach the parameter guidelines. If the parameter Channelization, dredging, alteration, or hardening absent. Stream has an unaltered pattern or has naturalized. by any of the channel alterations listed in the parameter guidelines AND/OR 80% of banks shored with gabion, s disrupted by any disrupted by any Alteration of the channel Iterations listed i of the channel Iterations listed i guidelines. If stream has been channelized, normal stable stream has been channelized, the parameter the parameter riprap, or cement. guidelines. guidelines. normal stable stream meander stream meander pattern has not pattern has not SCORE 1.5 1.3 1.1 0.9 0.7 0.5 1.30 REACH CONDITION INDEX and STREAM CONDITION UNITS FOR THIS REACH THE REACH CONDITION INDEX (RCI) >> NOTE: The CIs and RCI should be rounded to 2 decimal places. The CR should be rounded to a whole number. 1.08

RCI= (Sum of all CI's)/5

COMPENSATION REQUIREMENT (CR) >> 0

CR = RCI X LF X IF

INSERT PHOTOS:

Upstream



Downstream



		Stre	Uni	fied Stream N		•	-				1
Project #	ı	Project Name		Locality	Cowardin Class.	HUC	Date Date	SAR#	Impact/SAR length	Impact Factor	
5337	I-64	Peninsula S	tudy	New Kent	R2UB2	02080206	July '11		36		
Nam	e(s) of Evaluat	tor(s)		e and Informa	ation						1
	Aitkenhead		WUS 14S								
. Channel C	Condition: Asse	ess the cross-sec	ction of the stream								
	Opti	imal	Subo	ptimal	Conditional Catego Mar	_{ry} ginal	Po	oor	Se	vere	
Channel	Very little incision or 100% stable bar		erosion or unproted of banks are s	ew areas of active cted banks. Majority table (60-80%).	Poor. Banks more or Poor due to lo	less than Severe or stable than Severe over bank slopes.	Vertically/laterally widen further. Mag	led/incised. unstable. Likely to jority of both banks	incision, flow co	stability. Severe ntained within the ed below average	
Condition	surface protection prominent (80-11 Stable point bars/ba present. Access floodplain or fully bankfull benches. and transverse ba sediment deposition 10% of t	n or natural rock, 00%). AND/OR ankfull benches are to their original developed wide Mid-channel bars, ars few. Transient n covers less than	prominent (60 Depositional feat stability. The bar channels are we likely has access t or newly develope portions of the sediment covers 10	tion or natural rock -80%) AND/OR tures contribute to nkfull and low flow II defined. Stream o bankfull benches, ad floodplains along reach. Transient 0-40% of the stream tom.	both banks. Veget 40-60% of banks. bevertical or unde 60% of stream sediment. Sec temporary/trans instability. Depositi- stability, may be AND/OR V-shap- vegetative protecti	esent on 40-60% of attive protection on Streambanks may rcut. AND/OR 40- his covered by diment may be sient, contribute on that contribute to forming/present. ed channels have on on > 40% of the onal features which	60-80% of ban protection prese banks, and is insuerosion. AND/O stream is cover Sediment is tempnature, and contril AND/OR V-shap vegetative protect 40% of the banks a	Erosion present on ks. Vegetative int on 20-40% of ifficient to prevent R 60-80% of the ed by sediment. pourling to instability, ed channels have ion is present on > and stable sediment is absent.	rooting depth, i vertical/under protection present banks, is not pr Obvious bank s Erosion/raw ba AND/OR Aggradii than 80% of streat deposition, contri Multiple thread	majority of banks cut. Vegetative on less than 20% of eventing erosion. loughing present. hks on 80-100%. ng channel. Greater n bed is covered by buting to instability. channels and/or nean flow.	
Score	3	3	2	2.4	:	2	1	.6		1	3.0
2. RIPARIAN	N BUFFERS: A		Con	n areas along the	gory	ginal		n may be accepta	NOTES>>		
Riparian Buffers		imal 3 inches) present, unopy cover and a lerstory. Wetlands	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy	gory	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh >3 inches) present, with <30% tree canopy cover with maintained			NOTES>>		
Riparian Buffers	Opti Tree stratum (dbh > with > 60% tree ca	imal 3 inches) present, unopy cover and a lerstory. Wetlands	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh >3 inches) present, with ~30% tree canopy cover with	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable	NOTES>>		
Riparian	Opti Tree stratum (dbh > with > 60% tree ca	3 inches) present, anopy cover and a derstory. Wetlands e riparian areas.	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory.	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation).	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover.	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh > 3 inches) present, with <a>30 % tree canopy cover with maintained understory.	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, recently seeded and stabilized, or other comparable condition.	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions.	NOTES>>		
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Riparian Buffers Condition Scores Delineate riptescriptors. Determine squelow.	Tree stratum (dbh > with > 60% tree ca a non-maintained und located within the	imal 3 inches) present, unopy cover and a derstory. Wetlands e riparian areas. 5 ach by measurin.	Com Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 into Condition C	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Coungth and width. Coungth	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh >3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure 1 of % F	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5	NOTES>>		
Riparian Buffers Condition Scores Delineate ripe escriptors. Determine so	Tree stratum (dbh > with > 60% tree canon-maintained und located within the	imal 3 inches) present, intopy cover and a ferstory. Wetlands e riparian areas.	Com Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 into Condition C	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Coungth and width. Coungth	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh >3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure 1 of % F	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5	NOTES>>		
Riparian Buffers Condition Scores Delineate ripaescriptors. Determine squelow. Enter the % F	Tree stratum (dbh > with > 60% tree ca a non-maintained und located within the	imal 3 inches) present, unopy cover and a derstory. Wetlands e riparian areas. 5 ach stream bank ach by measurin. Score for each ri	Com Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 into Condition C	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Coungth and width. Coungth	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh >3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure 1 of % F	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5	NOTES>>	Scores*0.01)/2	
Riparian Buffers Condition Scores Delineate ripaescriptors. Determine squelow. Enter the % F	Tree stratum (dbh > with > 60% tree canon-maintained und located within the located within the strain areas along equare footage for experience of the strain area and strain area.	imal 3 inches) present, unopy cover and a derstory. Wetlands e riparian areas. 5 bach stream bank ach by measurin Score for each ri 100% 1.5	Com Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 into Condition C	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Coungth and width. Coungth	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh >3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure 1 of % F	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5	NOTES>> Cl= (Sum % RA * Rt Bank Cl >	1.50	CI
Riparian Buffers Condition Scores Delineate ripescriptors. Determine seelow. Enter the % F Right Bank	Tree stratum (dbh > with > 60% tree ca a non-maintained und located within the located wi	5 Score for each ri 100% 1.5	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 Into Condition C g or estimating ler parian category in	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 attegories and Co ongth and width. Co	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh > 3 inches) present, with <a>only wow of with maintained understory. Low 0.75	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F Blocks 6	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5 the sums Riparian equal 100 100%	NOTES>> CI= (Sum % RA * Rt Bank CI > Lt Bank CI >	1.50 1.50	CI 1.50
Condition Scores Delineate ripedescriptors. Deltermine scorelow. English Bank Left Bank Left Bank Line Riparian Ripa	Tree stratum (dbh > with > 60% tree canon-maintained und located within the located within the strain areas along equare footage for experience of the strain area and strain area.	imal 3 inches) present, intopy cover and a derstory. Wetlands e riparian areas. 5 bach stream bank arch by measuring the stream bank arch b	Com Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 Into Condition C g or estimating let parian category in	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Coungth and width. Coungth and width. Coungth and width. Coungth and depths; woodes.	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85 Indition Scores usional calculators are production of the control of the cont	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh > 3 inches) present, with <a>only wow of with maintained understory. Low 0.75	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F Blocks 6	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5 the sums Riparian equal 100 100%	NOTES>> Cl= (Sum % RA * Rt Bank Cl >	1.50 1.50	
Condition Scores Delineate rips descriptors. Delto Bank Right Bank Left Bank Left Bank Left Banks;	Tree stratum (dbh > with > 60% tree ca non-maintained und located within the located within the strain areas along equare footage for exception of the strain area and strain	imal 3 inches) present, inopy cover and a lerstory. Wetlands e riparian areas. 5 each stream bank ach by measuring 100% 1.5 100% 1.5 aried substrate siffle poole complete.	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 s into Condition C g or estimating let parian category in zes, water velocit ixes, stable featur	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Coungth and width. Coungth and width. Coungth and width. Coungth and depths; woodes.	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <a>20 % tree canopy cover. High 0.85 Indition Scores using tracking a laculators are producted to the control of the contro	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh > 3 inches) present, with <a>only wow of with maintained understory. Low 0.75	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure 1 of % F Blocks e	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5 the sums Riparian equal 100 100%	NOTES>> Cl= (Sum % RA * Rt Bank Cl > Lt Bank Cl > NOTES>> N	1.50 1.50	
Condition Scores Delineate ripedescriptors. Deltermine scorelow. English Bank Left Bank Left Bank Line Riparian Ripa	Tree stratum (dbh > with > 60% tree ca non-maintained und located within the located with	5 Score for each ri 100% 1.5 100% 1.5 100% 1.5 100% 1.5 100% 1.5 100% 1.5 100% 1.5	Com Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 Into Condition C g or estimating let parian category in zes, water velocit exes, stable featur Subo Stable habitat ele present in 30-509 are adequate fo	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Co ngth and width. Co n the blocks below y and depths; wodes. Conditiona	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85 Indition Scores using the state of the state	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh -3 inches) present, with +30% tree canopy cover with maintained understory. Low 0.75	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure 1 of % F Blocks e	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5 the sums Riparian riqual 100 100%	CI= (Sum % RA * Rt Bank CI > Lt Bank CI > NOTES>> N flow.	1.50 1.50	

	St	ream In	າpact A	ssessm	nent Fo	rm Pag	e 2		
Project #	Applicant		Locality	Cowardin Class.	HUC	Date	Data Point	SAR length	Impact Factor
								500	1
	L ALTERATION: Stream cross	sings, riprap, conci	rete, gabions, or o	concrete blocks, s	traightening of ch	annel, channeliz	ation,	NOTES>>	
			Conditiona	al Category					
	Negligible	Mir	nor	Mod	erate	Se	evere		
Channel Alteration	Channelization, dredging, alteration, or hardening absent. Stream has an unaltered pattern or has naturalized.	Less than 20% of the stream reach is disrupted by any of the channel alterations listed in the parameter guidelines.	20-40% of the stream reach is disrupted by any of the channel alterations listed in the parameter guidelines.	of the channel	60 - 80% of reach is disrupted by any of the channel alterations listed in the parameter guidelines. If stream has been channelized, normal stable stream meander pattern has not	Greater than 80% by any of the char in the parameter 80% of banks s	of reach is disrupted nnel alterations listed guidelines AND/OR shored with gabion, or cement.		
SCORE	1.5	1.3	1.1	0.9	0.7	(0.5		
	REACH C	ONDITION II	NDEX and S	TREAM CO	NDITION UN	ITS FOR TH	IIS REACH		
NOTE: The Cls and R	RCI should be rounded to 2 decimal places.	The CR should be rour	nded to a whole numb	er.			THE REACH (CONDITION IN	DEX (RCI) >>
							RCI	= (Sum of all C	l's)/5

COMPENSATION REQUIREMENT (CR) >>

CR = RCI X LF X IF

INSERT PHOTOS:





Downstream



		Stre		fied Stream N	lethodology f	or use in Virg	ginia				
Project #	ı	Project Name		Locality	Cowardin Class.	HUC	Date Date	SAR#	Impact/SAR length	Impact Factor	
5337	I-64	Peninsula S	tudy	New Kent	R2UB2	02080206	July '11		54		
Nam	e(s) of Evalua	tor(s)		e and Inform	ation						
	Aitkenhead		WUS 15S								
I. Channel (Condition: Asse	ess the cross-sec	ction of the stream								
	Opti	imal	Subo	ptimal	Conditional Catego Mar	ginal	Po	or	Se	vere	
	" Lucia			ew areas of active cted banks. Majority		less than Severe or stable than Severe	Overwider Vertically/laterally			estability. Severe	
Channel Condition	Very little incision on 100% stable bar surface protection prominent (80-11 Stable point bars/bs present. Access floodplain or fully bankfull benches. and transverse ba sediment depositio 10% of l	nks. Vegetative n or natural rock, 00%). AND/OR ankfull benches are to their original or developed wide Mid-channel bars, ars few. Transient in covers less than	of banks are s Vegetative protect prominent (60 Depositional feat stability. The ban channels are we likely has access t or newly develope portions of the sediment covers 10	table (60-80%), titolo for natural rock -80%) AND/OR tures contribute to nkfull and low flow Il defined. Stream o bankfull benches, ad floodplains along reach. Transient 0-40% of the stream tom.	or Poor due to Ic Erosion may be pr both banks. Vegel 40-60% of banks. bevertical or unde 60% of strean sediment. See temporary/tran instability. Depositi stability, may be AND/OR V-shap		widen further. Ma are near vertical. I 60-80% of ban protection prese banks, and is insu erosion. AND/O stream is cover Sediment is temp nature, and contril	ority of both banks Frosion present on ks. Vegetative nt on 20-40% of ffficient to prevent R 60-80% of the ed by sediment. orary/transient in puting to instability. d channels have on is present on >	banks. Streamb rooting depth, r, vertical/undern protection present banks, is not pro Obvious bank s Erosion/raw ban AND/OR Aggradir than 80% of strear deposition, contril Multiple thread	ntained within the ed below average najority of banks put. Vegetative on less than 20% of eventing erosion. loughing present. loughing present. loughing present. By discovered by buting to instability. channels and/or nean flow.	CI
		•	,	2.4		onal features which	·	is absent.		1	2.0
Score	3	3		4		2	Į.	.0		<u>I</u>	3.0
2. RIPARIAN	N BUFFERS: A		Con	n areas along the	gory	ginal		n may be accepta	NOTES>>		
2. RIPARIAN Riparian Buffers		imal 3 inches) present, anopy cover and a derstory. Wetlands	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy	gory						
Riparian Buffers	Tree stratum (dbh > with > 60% tree ca non-maintained unc located within the	• 3 inches) present, anopy cover and a derstory. Wetlands e riparian areas.	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation).	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover.	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh >3 inches) present, with <30% tree canopy cover with maintained understory. Low	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable condition.	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable			
Riparian	Opti Tree stratum (dbh > with > 60% tree ca	• 3 inches) present, anopy cover and a derstory. Wetlands e riparian areas.	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory.	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation).	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover.	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh > 3 inches) present, with < 30% tree canopy cover with maintained understory.	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, recently seeded and stabilized, or other comparable condition.	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions.			
Riparian Buffers Condition Scores 1. Delineate ripadescriptors. 2. Determine squeedow.	Tree stratum (dbh > with > 60% tree ca non-maintained unc located within the	imal 3 inches) present, anopy cover and a derstory. Wetlands e riparian areas.	Com Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 k into Condition C	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Co	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh >3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure 1 of % F	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5			
Riparian Buffers Condition Scores Delineate ripalescriptors. 2. Determine squelow.	Tree stratum (dbh > with > 60% tree ca non-maintained unch located within the located wit	imal 3 inches) present, anopy cover and a derstory. Wetlands e riparian areas. 5 ach stream banl ach by measurin	Com Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 k into Condition C	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Co	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh >3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure 1 of % F	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5 he sums tiparian qual 100			
Riparian Buffers Condition Scores Delineate ripe escriptors. Determine so	Tree stratum (dbh > with > 60% tree ca non-maintained unc located within the	imal 3 inches) present, anopy cover and a derstory. Wetlands e riparian areas.	Com Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 k into Condition C	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Co	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh >3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure 1 of % F	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5			
Riparian Buffers Condition Scores Delineate ripaescriptors. Determine seelow.	Tree stratum (dbh > with > 60% tree canon-maintained unchocated within the located within	imal 3 inches) present, anopy cover and a derstory. Wetlands e riparian areas. 5 ach stream bank ach by measurin Score for each ri	Com Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 k into Condition C	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Co	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh >3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure 1 of % F	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5 he sums tiparian qual 100		Scores*0.01)/2	
Riparian Buffers Condition Scores Delineate ripalescriptors. Determine squelow.	Tree stratum (dbh > with > 60% tree ca non-maintained unc located within the located with	imal 3 inches) present, anopy cover and a derstory. Wetlands e riparian areas. 5 ach stream bank ach by measurin Score for each ri 100% 1.5	Com Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 k into Condition C	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Co	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh >3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure 1 of % F	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5 he sums tiparian qual 100	NOTES>> CI= (Sum % RA** Rt Bank CI >	1.50	CI
Riparian Buffers Condition Scores Delineate ripescriptors. Determine seelow. Enter the % F Right Bank	Tree stratum (dbh > with > 60% tree canon-maintained unclocated within the located within	imal 3 inches) present, anopy cover and a derstory. Wetlands e riparian areas. 5 each stream bani ach by measurin Score for each ri 100% 1.5	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 Into Condition C g or estimating ler parian category in	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory, Recent cutover (dense vegetation). Low 1.1 attegories and Co ongth and width. Co	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85	Jinal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh > 3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75 Ing the vided for you	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F Blocks of	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5 he sums tiparian qual 100 100%	NOTES>>		C1 1.50
Condition Scores 1. Delineate ripadescriptors. 2. Determine sopelow. 3. Enter the % F	Tree stratum (dbh > with > 60% tree ca non-maintained unc located within the located with	imal 3 inches) present, anopy cover and a derstory. Wetlands e riparian areas. 5 Bach stream band ach by measurin 100% 1.5 100% 1.5 aried substrate si	Com Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 Into Condition C g or estimating let parian category in	ditional Cate ptimal Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Co ongth and width. Co on the blocks below y and depths; wodes.	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85	Jinal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh > 3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75 Ing the vided for you	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F Blocks of	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5 he sums tiparian qual 100 100%	NOTES>> CI= (Sum % RA** Rt Bank CI >	1.50 1.50 ot a lot of	
Riparian Buffers Condition Scores 1. Delineate ripartescriptors. 2. Determine scorelow. 3. Enter the % F Right Bank Left Bank Left Bank Instream	Tree stratum (dbh > with > 60% tree ca non-maintained unc located within the located with	imal 3 inches) present, anopy cover and a derstory. Wetlands e riparian areas. 5 Bach stream band ach by measurin 100% 1.5 100% 1.5 aried substrate si	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 s into Condition C g or estimating let parian category in zes, water velocit ixes, stable featur	ditional Cate ptimal Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Co ongth and width. Co on the blocks below y and depths; wodes.	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85 Indition Scores usional calculators are production of the control of the contr	Jinal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh > 3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75 Ing the vided for you	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure 1 of % F Blocks 6	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5 he sums tiparian qual 100 100%	CI= (Sum % RA**; Rt Bank CI > Lt Bank CI > NOTES>> Noflow. Sand of	1.50 1.50 ot a lot of	
Condition Scores 1. Delineate ripe descriptors. 2. Determine so pelow. 3. Enter the % F Right Bank Left Bank 3. INSTREAT	Tree stratum (dbh > with > 60% tree ca non-maintained und located within the located with	imal 3 inches) present, anopy cover and a derstory. Wetlands e riparian areas. 5 each stream bani ach by measurin 100% 1.5 100% 1.5 aried substrate si ffle poole completimal	Com Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 Into Condition C g or estimating let parian category in zes, water velocit exes, stable featur Subo Stable habitat ele present in 30-509 are adequate fo	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Co ngth and width. Co n the blocks below y and depths; wodes. Conditions	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85 Indition Scores usion all Category Mar Stable habitat ele present in 10-30% are adequate fo	Ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh -3 inches) present, with +30% tree canopy cover with maintained understory. Low 0.75 Ing the vided for you	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure 1 of % F Blocks e	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5 he sums tiparian qual 100 100% 100%	CI= (Sum % RA**; Rt Bank CI > Lt Bank CI > NOTES>> Noflow. Sand of	1.50 1.50 ot a lot of	

	St	ream In	npact A	ssessm	ent Fo	rm Pag	e 2		
Project #	Applicant		Locality	Cowardin Class.	HUC	Date	Data Point	SAR length	Impact Factor
								500	1
	L ALTERATION: Stream cross spoil piles, constrictions, livestock	ings, riprap, conci	rete, gabions, or o	concrete blocks, s	traightening of ch	annel, channeliz	ation,	NOTES>>	
			Condition	al Category					
	Negligible	Mi	nor		erate	Se	evere		
Channel Alteration	or hardening absent. Stream has an	Less than 20% of the stream reach is disrupted by any of the channel alterations listed in the parameter guidelines.	20-40% of the stream reach is disrupted by any of the channel alterations listed in the parameter guidelines.	is disrupted by any of the channel	of the channel	Greater than 80% by any of the char in the parameter 80% of banks s	of reach is disrupted nnel alterations listed guidelines AND/OR hored with gabion, or cement.		
SCORE	1.5	1.3	1.1	0.9	0.7		0.5		
	REACH C	ONDITION I	NDEX and S	TREAM CO	NDITION UN	ITS FOR TH	IIS REACH		
NOTE: The CIs and F	RCI should be rounded to 2 decimal places.	The CR should be rour	nded to a whole numb	er.			THE REACH (CONDITION IN	DEX (RCI) >>
							RC	= (Sum of all C	l's)/5

COMPENSATION REQUIREMENT (CR) >>

CR = RCI X LF X IF

INSERT PHOTOS:





		Stre		fied Stream N	lethodology 1	for use in Vir	ginia	m 1)			
Project #		Project Name		Locality	nels classified a Cowardin Class.	HUC	perennial Date	SAR#	Impact/SAR	Impact Factor	
5337	I-64	Peninsula S	tudy	New Kent	R2UB2	02080206	July '11		91	1 dotor	
Name	e(s) of Evalua	tor(s)	Stream Nam	e and Informa	ation						
	Aitkenhead		WUS 16S								
l. Channel C	Condition: Asse	ess the cross-sec	ction of the stream		ondition (erosion, Conditional Catego						
	Opti	imal	Subo	ptimal	Mar	ginal	Po	oor	Se	vere	
Channel	Very little incision o	r active erosion; 80	erosion or unproted	ew areas of active cted banks. Majority table (60-80%).	Poor. Banks more	less than Severe or stable than Severe ower bank slopes.		ed/incised. unstable. Likely to ority of both banks	incision, flow co	nstability. Severe	
Condition	100% stable bar surface protection prominent (80-11 Stable point bars/ba present. Access floodplain or fully bankfull benches. and transverse ba sediment depositio 10% of	n or natural rock, 00%). AND/OR ankfull benches are to their original of developed wide Mid-channel bars, ars few. Transient in covers less than	Vegetative protect prominent (60- Depositional feat stability. The bar channels are well likely has access to or newly develope portions of the resediment covers 10	ition or natural rock- 80%) AND/OR tures contribute to nkfull and low flow II defined. Stream o bankfull benches, ad floodplains along reach. Transient 0-40% of the stream tom.	Erosion may be pr both banks. Veget 40-60% of banks. bevertical or unde 60% of strean sediment. Set temporary/tran instability. Depositi stability, may be AND/OR V-shap	esent on 40-60% of tative protection on Streambanks may ercut. AND/OR 40- n is covered by diment may be sisent, contribute on that contribute to forming/present. ed channels have ion on > 40% of the	are near vertical. 60-80% of bar protection prese banks, and is inst erosion. AND/O stream is cover Sediment is temp nature, and contri AND/OR V-shap vegetative protect	Erosion present on ks. Vegetative on 20-40% of officient to prevent R 60-80% of the ed by sediment. orary/transient in buting to instability. ed channels have	rooting depth, vertical/unde protection present banks, is not p Obvious bank s Erosion/raw ba AND/OR Aggradi than 80% of strea deposition, contr Multiple threac	ped below average majority of banks crut. Vegetative to no less than 20% or reventing erosion. Sloughing present. anks on 80-100%. ng channel. Greate m bed is covered by bibuting to instability. I channels and/or	r
0				2.4	banks and depositi	ional features which	deposition	is absent.	subterra	nean flow.	
Score	3	3		3.4			1	.6		1	1.6
2. RIPARIAN	N BUFFERS: A		Con Subo	nditional Cate ptimal	gory	ginal Low Marginal:	Po High Poor:	n may be accepta	NOTES>>		
Riparian Buffers	Opti	imal 3 inches) present, anopy cover and a derstory. Wetlands	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy	gory	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh > 3 inches) present, with <30% tree canopy cover with maintained	Po				
Riparian	Option Tree stratum (dbh > with > 60% tree canon-maintained und	imal 3 inches) present, anopy cover and a derstory. Wetlands	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh >3 inches) present, with					

Stream Impact Assessment Form Page 2 Project # Applicant Cowardin Class Data Point SAR length Impact Factor 4. CHANNEL ALTERATION: Stream crossings, riprap, concrete, gabions, or concrete blocks, straightening of channel, channelization, NOTES>> embankments, spoil piles, constrictions, livestock Conditional Category Moderate Minor Negligible Severe 40 - 60% of reach is disrupted by any of the channel 20-40% of the stream reach is Less than 20% of Channel Iterations listed in alterations listed in Greater than 80% of reach is disrupted the stream reach the parameter guidelines. If the parameter Channelization, dredging, alteration, or hardening absent. Stream has an unaltered pattern or has naturalized. by any of the channel alterations listed in the parameter guidelines AND/OR 80% of banks shored with gabion, s disrupted by any disrupted by any Alteration of the channel Iterations listed i of the channel Iterations listed i guidelines. If tream has been channelized, stream has been channelized, the parameter the parameter riprap, or cement. guidelines. guidelines. normal stable normal stable stream meander stream meander pattern has not pattern has not SCORE 1.5 1.3 1.1 0.9 0.7 0.5 0.90 REACH CONDITION INDEX and STREAM CONDITION UNITS FOR THIS REACH THE REACH CONDITION INDEX (RCI) >> NOTE: The CIs and RCI should be rounded to 2 decimal places. The CR should be rounded to a whole number. 0.84

RCI= (Sum of all CI's)/5

COMPENSATION REQUIREMENT (CR) >> 0

CR = RCI X LF X IF

INSERT PHOTOS:





		Stre		fied Stream N	lethodology f	or use in Virg	ginia				l
Project #	I	Project Name		Locality	nels classified a Cowardin Class.	s intermittent or HUC	Date Date	SAR#	Impact/SAR length	Impact Factor	
5337	I-64	Peninsula S	tudy	New Kent	R2UB2	02080206	July '11		108		
Nam	e(s) of Evalua	tor(s)	Stream Nam	e and Inform	ation				'		
	Aitkenhead		WUS 17S								
. Channel (Condition: Asse	ess the cross-sec	ction of the stream								
	Opti	imal	Subo	ptimal	Conditional Catego Mar	_{ry} ginal	Po	oor	Sev	vere	l
	The same of the sa	NA.		ew areas of active		less than Severe or		ed/incised.	vertical/lateral ir	istability. Severe	
Channel Condition	Very little incision or 100% stable bar surface protection prominent (80-10 Stable point bars/be present. Access floodplain or fully bankfull benches, and transverse ba sediment depositio 10% of 1	nks. Vegetative n or natural rock, 00%). AND/OR ankfull benches are to their original or developed wide Mid-channel bars, ars few. Transient in covers less than	of banks are s Vegetative protect prominent (60 Depositional feat stability. The ban channels are we likely has access t or newly develope portions of the sediment covers 10	cted banks. Majority table (60-80%). titon or natural rock -80%) AND/OR tures contribute to nkfull and low flow III defined. Stream o bankfull benches, ad floodplains along reach. Transient 0-40% of the stream tom.	or Poor due to Ic Erosion may be pr both banks. Vegel 40-60% of banks. bevertical or unde 60% of strean sediment. See temporary/tran instability. Depositi stability, may be AND/OR V-shap	stable than Severe wer bank slopes. esent on 40-60% of ative protection on Streambanks may rout. AND/OR 40-n is covered by diment may be sient, contribute on that contribute to forming/present. ed channels have on on > 40% of the	widen further. Ma are near vertical. I. 60-80% of ban protection prese banks, and is inst erosion. AND/O stream is cover Sediment is temp nature, and contril AND/OR V-shap vegetative protect	unstable. Likely to ority of both banks Erosion present on ks. Vegetative int on 20-40% of difficient to prevent R 60-80% of the ed by sediment. occary/transient in buting to instability. ed channels have ion is present on > and stable sediment	banks. Streamb rooting depth, n vertical/undere protection present banks, is not pre Obvious bank sl Erosion/raw ban AND/OR Aggradir than 80% of strear deposition, contril Multiple thread	ntained within the ed below average majority of banks cut. Vegetative on less than 20% of eventing erosion. loughing present. hks on 80-100%. Ig channel. Greater n bed is covered by puting to instability. channels and/or	CI
	ļ				banks and depositi	onal features which	deposition	is absent.		nean flow.	
Score	3	3	2	2.4		2	1	.6		1	2.4
2. RIPARIAI	N BUFFERS: A		Con	n areas along the	gory	gh measurement		n may be accepta	NOTES>>		
2. RIPARIAI Riparian Buffers		imal 3 inches) present, anopy cover and a derstory. Wetlands	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory.	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation).	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover.	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh > 3 inches) present, with < 30% tree canopy cover with maintained understory.	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, recently seeded and stabilized, or other comparable condition.	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions.			
Riparian Buffers	Tree stratum (dbh > with > 60% tree ca non-maintained unclocated within the	• 3 inches) present, anopy cover and a derstory. Wetlands e riparian areas.	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh >3 inches) present, with <30% tree canopy cover with maintained	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable			
Riparian	Opti Tree stratum (dbh > with > 60% tree ca	• 3 inches) present, anopy cover and a derstory. Wetlands e riparian areas.	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory.	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation).	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover.	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh > 3 inches) present, with < 30% tree canopy cover with maintained understory.	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, recently seeded and stabilized, or other comparable condition.	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions.			
Riparian Buffers Condition Scores Delineate ripidescriptors. 2. Determine scorelow.	Tree stratum (dbh > with > 60% tree ca non-maintained unc located within the	imal 3 inches) present, anopy cover and a derstory. Wetlands e riparian areas.	Com Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 k into Condition C	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Co	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh >3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure 1 of % F	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5			
Riparian Buffers Condition Scores Delineate ripiescriptors. Determine scielow.	Tree stratum (dbh > with > 60% tree canon-maintained within the located within the locate	imal 3 inches) present, anopy cover and a derstory. Wetlands e riparian areas. 5 ach stream banl ach by measurin	Com Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 k into Condition C	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Co	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh >3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure 1 of % F	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5			
Riparian Buffers Condition Scores Delineate ripe escriptors. Determine scelow.	Tree stratum (dbh > with > 60% tree ca non-maintained unc located within the	imal 3 inches) present, anopy cover and a derstory. Wetlands e riparian areas.	Com Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 k into Condition C	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Co	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh >3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure 1 of % F	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5			
Riparian Buffers Condition Scores Delineate riprescriptors. Determine scelow.	Tree stratum (dbh > with > 60% tree canon-maintained mid not located within the located w	imal 3 inches) present, anopy cover and a derstory. Wetlands e riparian areas. 5 ach stream bank ach by measurin Score for each ri	Com Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 k into Condition C	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Co	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh >3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure 1 of % F	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5		Scores*0.01)/2	
Riparian Buffers Condition Scores Delineate ripiescriptors. Determine scelelow.	Tree stratum (dbh > with > 60% tree canon-maintained unclocated within the located within	imal 3 inches) present, anopy cover and a derstory. Wetlands e riparian areas. 5 ach stream bank ach by measurin Score for each ri 100% 1.2	Com Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 Into Condition C g or estimating let parian category in	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Co	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh >3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure 1 of % F	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5	NOTES>> CI= (Sum % RA*S Rt Bank CI >	1.20	СІ
Riparian Buffers Condition Scores Delineate ripescriptors. Determine scelow. Enter the % F	Tree stratum (dbh > with > 60% tree canon-maintained unclocated within the located within	imal 3 inches) present, anopy cover and a derstory. Wetlands e riparian areas. 5 cach stream bani ach by measurin Score for each ri 100% 1.2 30% 1.2	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 Into Condition C g or estimating ler parian category in 70% 0.6	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory, Recent cutover (dense vegetation). Low 1.1 attegories and Co ongth and width. Co	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85	Jinal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh > 3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75 Ing the vided for you	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F Blocks 6	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5 the sums Riparian equal 100 100%	NOTES>> Cl= (Sum % RA * S Rt Bank Cl > Lt Bank Cl >	1.20 0.78	CI 0.99
Condition Scores Delineate ripidescriptors. Deltermine scorelow. Believe the Web. Right Bank Left Bank Left Bank INSTREAL	Tree stratum (dbh > with > 60% tree canon-maintained unclocated within the located within	imal 3 inches) present, anopy cover and a derstory. Wetlands e riparian areas. 5 ach stream bank ach by measurin Score for each ri 100% 1.2 30% 1.2 aried substrate si	Com Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 Into Condition C g or estimating let parian category in 70% 0.6	ditional Cate ptimal Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Co ongth and width. Co on the blocks below y and depths; wodes.	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85	Jinal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh > 3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75 Ing the vided for you	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F Blocks 6	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5 the sums Riparian equal 100 100%	NOTES>> CI= (Sum % RA*S Rt Bank CI >	1.20 0.78 ud channel, retland	
Riparian Buffers Condition Scores 1. Delineate ripidescriptors. 2. Determine scoelow. 3. Enter the % fi Right Bank Left Bank Left Bank Instream	Tree stratum (dbh > with > 60% tree ca non-maintained unc located within the located with	imal 3 inches) present, anopy cover and a derstory. Wetlands e riparian areas. 5 ach stream bank ach by measurin Score for each ri 100% 1.2 30% 1.2 aried substrate si	Com Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 sinto Condition C g or estimating let parian category in 70% 0.6 zes, water velocit ixes, stable featur	ditional Cate ptimal Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Co ongth and width. Co on the blocks below y and depths; wodes.	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85 Indition Scores usional calculators are production of the control of the contr	Jinal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh > 3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75 Ing the vided for you	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F Blocks e	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5 the sums Riparian equal 100 100%	CI= (Sum % RA*S Rt Bank CI > Lt Bank CI > NOTES>> M but drains w	1.20 0.78 ud channel, retland	
Condition Scores Delineate ripidescriptors. 2. Determine scorelow. 3. Enter the % f Right Bank Left Bank 3. INSTREAL	Tree stratum (dbh > with > 60% tree ca non-maintained und located within the located with	imal 3 inches) present, anopy cover and a derstory. Wetlands e riparian areas. 5 each stream bani ach by measurin 100% 1.2 30% 1.2 aried substrate si ffle poole completimal	Com Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 Into Condition C g or estimating let parian category in 70% 0.6 Zes, water velocit exes, stable featur Subo Stable habitat ele present in 30-509 are adequate fo	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Co ngth and width. Co n the blocks below y and depths; wodes. Conditions	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85 Indition Scores usion all Category Mar Stable habitat ele present in 10-30% are adequate fo	Ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh -3 inches) present, with +30% tree canopy cover with maintained understory. Low 0.75 Ing the vided for you	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure 1 of % F Blocks e	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5 the sums Riparian equal 100 100% 100%	CI= (Sum % RA*S Rt Bank CI > Lt Bank CI > NOTES>> M but drains w	1.20 0.78 ud channel, retland	

	St	ream In	npact A	ssessm	ent Fo	rm Pag	e 2		
Project #	Applicant		Locality	Cowardin Class.	HUC	Date	Data Point	SAR length	Impact Factor
								500	1
	L ALTERATION: Stream cross spoil piles, constrictions, livestock	ings, riprap, conc		concrete blocks, s	traightening of ch	annel, channeliza	ation,	NOTES>>	
	Negligible	Mi	nor	Mod	erate	Se	vere		
Channel Alteration	Channelization, dredging, alteration, or hardening absent. Stream has an unaltered pattern or has naturalized.	Less than 20% of the stream reach is disrupted by any of the channel alterations listed in the parameter guidelines.	20-40% of the stream reach is disrupted by any of the channel alterations listed in the parameter guidelines.	is disrupted by any of the channel	60 - 80% of reach is disrupted by any of the channel alterations listed in the parameter guidelines. If stream has been channelized, normal stable stream meander pattern has not	Greater than 80% by any of the chan in the parameter 80% of banks sh	of reach is disrupted nel alterations listed guidelines AND/OR nored with gabion, or cement.		
SCORE	1.5	1.3	1.1	0.9	0.7	C).5		
	REACH C	ONDITION I	NDEX and S	TREAM CO	NDITION UN	ITS FOR TH	IS REACH		
IOTE: The Cls and	RCI should be rounded to 2 decimal places.	The CR should be rou	nded to a whole numb	er.			THE REACH (CONDITION IN	DEX (RCI) >>

RCI= (Sum of all CI's)/5

COMPENSATION REQUIREMENT (CR) >>

CR = RCI X LF X IF

INSERT PHOTOS:





		Stre		fied Stream N	lethodology 1	for use in Vir	ginia	m 1)			
Project #		Project Name		Locality	nels classified a Cowardin Class.	HUC	perennial Date	SAR#	Impact/SAR length	Impact Factor	
5337	I-64	Peninsula S	tudy	New Kent	R2UB2	02080206	July '11		75		
Name	e(s) of Evalua	tor(s)	Stream Nam	e and Informa	ation					1	
	Aitkenhead		WUS 18S								
I. Channel C	Condition: Asse			C	Conditional Catego	ry					
	Opti	imal	Subo	ptimal	Mar	ginal	Po	oor	Se	vere	
	Van little insision o	wasting gradien; 90	erosion or unproted	ew areas of active cted banks. Majority	Poor. Banks more	less than Severe or stable than Severe	Vertically/laterally	ned/incised. unstable. Likely to		nstability. Severe	
Channel Condition	Very little incision o 100% stable bar surface protection prominent (80-1) Stable point bars/bc present. Access floodplain or fully bankfull benches. and transverse bc sediment depositio 10% of 1	nks. Vegetative n or natural rock, 00%). AND/OR ankfull benches are to their original v developed wide Mid-channel bars, ars few. Transient on covers less than	Vegetative protect prominent (60- Depositional feat stability. The bar channels are well likely has access to rnewly develope portions of the rediment covers 10	table (60-80%). tion or natural rock -80%) AND/OR tures contribute to hkfull and low flow ll defined. Stream o bankfull benches, d floodplains along reach. Transient 0-40% of the stream	Erosion may be pr both banks. Veget 40-60% of banks. bevertical or unde 60% of stream sediment. Se- temporary/tran instability. Depositi stability, may be	ower bank slopes. esent on 40-60% of tative protection on Streambanks may ercut. AND/OR 40- n is covered by diment may be sient, contribute on that contribute to e forming/present. ed channels have	are near vertical. 60-80% of bar protection prese banks, and is insi erosion. AND/C stream is cover Sediment is tem nature, and contri AND/OR V-shap	jority of both banks Erosion present on iks. Vegetative ent on 20-40% of afficient to prevent R 60-80% of the red by sediment. corary/transient in buting to instability. ed channels have ion is present on >	banks. Streamb rooting depth, r vertical/under protection present banks, is not pr Obvious bank s Erosion/raw ba AND/OR Aggradir than 80% of streat deposition, contril	ped below average majority of banks cut. Vegetative on less than 20% of eventing erosion. Bloughing present. Inks on 80-100%. Ing channel. Greater m bed is covered by buting to instability.	
			DOT	tom.	vegetative protect	ion on > 40% of the	40% of the banks a	and stable sediment is absent.		l channels and/or nean flow.	CI
Score	3	3	2	.4		2	1	.6		1	2.4
. RIPARIAN	N BUFFERS: A		Con	n areas along the ditional Cate ptimal	gory	ginal		n may be accepta	NOTES>>		
2. RIPARIAN Riparian Buffers	Opti Tree stratum (dbh > with > 60% tree ca	imal > 3 inches) present, anopy cover and a derstory. Wetlands	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh > 3	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded		NOTES>>		
Riparian	Option Tree stratum (dbh > with > 60% tree canon-maintained uncompaintained u	imal > 3 inches) present, anopy cover and a derstory. Wetlands	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory.	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation).	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover.	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh >3 inches) present, with <30% tree canopy cover with maintained understory.	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable condition.	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions.	NOTES>>		
Riparian	Option Tree stratum (dbh > with > 60% tree canon-maintained uncompaintained u	imal 3 inches) present, anopy cover and a derstory. Wetlands e riparian areas.	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh > 3 inches) present, with <30% tree canopy cover with maintained	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable	NOTES>>		
Riparian Buffers Condition Scores Delineate ripalescriptors. 2. Determine squelow.	Tree stratum (dbh > with > 60% tree ca non-maintained unc located within the	imal 3 inches) present, anopy cover and a derstory. Wetlands e riparian areas. 5 each stream bank ach by measurin	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 into Condition C	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Coungth and width. Co	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh > 3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5	NOTES>>		
Riparian Buffers Condition Scores Delineate ripa escriptors. Determine sq elow.	Tree stratum (dbh > with > 60% tree ca non-maintained unc located within the	imal 3 inches) present, anopy cover and a derstory. Wetlands e riparian areas. 5 each stream bank ach by measurin.	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 into Condition C	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Coungth and width. Co	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh > 3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5	NOTES>>		
Riparian Buffers Condition Scores Delineate ripalescriptors. 2. Determine squelow.	Tree stratum (dbh > with > 60% tree ca non-maintained unc located within the	imal 3 inches) present, anopy cover and a derstory. Wetlands e riparian areas. 5 each stream bank ach by measurin	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 into Condition C	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Coungth and width. Co	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh > 3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5	NOTES>>		
Riparian Buffers Condition Scores Delineate ripa escriptors. Determine squelow. Enter the % F	Tree stratum (dbh > with > 60% tree ca non-maintained unc located within the located with	imal 3 inches) present, anopy cover and a derstory. Wetlands e riparian areas. 5 each stream bank ach by measurin Score for each ri	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 into Condition C	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Coungth and width. Co	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh > 3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5 the sums Riparian equal 100	NOTES>>		
Riparian Buffers Condition Scores Delineate ripa escriptors. Determine squelow. Enter the % F	Tree stratum (dbh > with > 60% tree ca non-maintained unc located within the located with	imal 3 inches) present, anopy cover and a derstory. Wetlands e riparian areas. 5 each stream bank ach by measurin Score for each ri 100% 1.2	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 into Condition C	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Coungth and width. Co	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh > 3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5	NOTES>>	1.20	CI 1.20
Condition Scores 1. Delineate ripa descriptors. 2. Determine squelow. 3. Enter the % R Right Bank Left Bank 3. INSTREAN	Tree stratum (dbh > with > 60% tree canon-maintained unc located within the located withi	imal 3 inches) present, anopy cover and a derstory. Wetlands e riparian areas. 5 each stream bank ach by measurin 100% 1.2 100% 1.2 aried substrate si	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 Into Condition C g or estimating ler parian category in parian category in	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Coungth and width. Coungth and width. Coungth and width. Coungth and depths; wodes.	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85 Indition Scores us calculators are production of the produc	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh > 3 inches) present, with < 30% tree canopy cover with maintained understory. Low 0.75 ing the ovided for you	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F Blocks 6	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5 the sums Riparian equal 100 100%	NOTES>> Cl= (Sum % RA*: Rt Bank Cl >		CI 1.20
Condition Scores Delineate ripa elescriptors. Deltre the % R Right Bank Left Bank B. INSTREAN undercut banks;	Tree stratum (dbh > with > 60% tree ca non-maintained unc located within the located with	imal 3 inches) present, anopy cover and a derstory. Wetlands e riparian areas. 5 each stream bank ach by measurin 100% 1.2 100% 1.2 aried substrate si	Riph Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 Into Condition C g or estimating ler parian category in	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Coungth and width. Coungth and width. Coungth and width. Coungth and depths; wodes.	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <a>3 inches) present, with <a>3 inches) present, or a tree canopy cover. High 0.85 Indition Scores us calculators are production of the control of th	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh > 3 inches) present, with < 30% tree canopy cover with maintained understory. Low 0.75 ing the ovided for you	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F Blocks 6	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5 the sums Riparian equal 100 100%	NOTES>> Ci= (Sum % RA *: Rt Bank Ci > Lt Bank Ci >	1.20	
Condition Scores 1. Delineate ripa descriptors. 2. Determine squelow. 3. Enter the % R Right Bank Left Bank 3. INSTREAN	Tree stratum (dbh > with > 60% tree ca non-maintained unc located within the located with	imal 3 inches) present, anopy cover and a derstory. Wetlands e riparian areas. 5 5 cach stream bank ach by measuring the stream	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 Into Condition C g or estimating let parian category in Zes, water velocity ixes, stable featur Subo Stable habitat ele present in 30-50% are adequate fo	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Coungth and width. Coungth and width. Coungth and width. Coungth and depths; wores. Conditiona	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85 Indition Scores us calculators are production of the present in 10-30 are adequate for a seadequate for the present in 10-30 are adequate for the present in 10-30 are adeq	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh >3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75 ing the price of the production of the present of the	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % f Blocks 6	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5 the sums Riparian equal 100 100%	CI= (Sum % RA *: Rt Bank CI > Lt Bank CI > NOTES>>	1.20	

	St	ream In	npact A	ssessm	nent Fo	rm Pag	e 2		
Project #	Applicant		Locality	Cowardin Class.	HUC	Date	Data Point	SAR length	Impact Factor
								500	1
	ALTERATION: Stream cross poil piles, constrictions, livestock		Conditiona	al Category			,	NOTES>>	
	Negligible	Mir	nor		erate		evere		
Channel Alteration	Channelization, dredging, alteration, or hardening absent. Stream has an unaltered pattern or has naturalized.	Less than 20% of the stream reach is disrupted by any of the channel alterations listed in the parameter guidelines.	20-40% of the stream reach is disrupted by any of the channel alterations listed in the parameter guidelines.	is disrupted by any of the channel	60 - 80% of reach is disrupted by any of the channel alterations listed in the parameter guidelines. If stream has been channelized, normal stable stream meander pattern has not	Greater than 80% by any of the char in the parameter 80% of banks sl riprap, c	of reach is disrupted nnel alterations listed guidelines AND/OR hored with gabion, or cement.		
SCORE	1.5	1.3	1.1	0.9	0.7	(0.5		
	REACH C	ONDITION II	NDEX and S	TREAM CO	NDITION UN	ITS FOR TH	IIS REACH		
IOTE: The Cls and F	RCI should be rounded to 2 decimal places.	The CR should be rour	nded to a whole numb	er.			THE REACH O	CONDITION IN	DEX (RCI) >>

RCI= (Sum of all Cl's)/5

COMPENSATION REQUIREMENT (CR) >>

CR = RCI X LF X IF

INSERT PHOTOS:





		otre		fied Stream N	lethodology f	for use in Vir	ginia	m 1)			
Project #	Proje	ct Name		Locality	nels classified a Cowardin Class.	s intermittent or	perennial Date	SAR#	Impact/SAR length	Impact Factor	
5337	I-64 Peni	nsula Si	łudy	James City	R2UB2	02080206	July '11		122		
Name	e(s) of Evaluator(s))		e and Informa	ation						
	Aitkenhead		WUS 19S								
. Channel C	Condition: Assess the	e cross-sec	tion of the stream								
	Optimal		Subo	ptimal	Conditional Catego Mar	ginal	Po	oor	Sev	/ere	
Channel Condition	Very little incision or active 100% stable banks. Ve	egetative	erosion or unproted of banks are st Vegetative protect	ew areas of active cted banks. Majority table (60-80%), tion or natural rock	Poor. Banks more or Poor due to lo Erosion may be pr	less than Severe or stable than Severe ower bank slopes. esent on 40-60% of	Vertically/laterally widen further. Ma are near vertical.	ned/incised. unstable. Likely to jority of both banks Erosion present on	incision, flow cor banks. Streambe	stability. Severe tained within the de below average aportly of banks	
Condition	prominent (80-100%). A Stable point bars/bankfull b present. Access to their floodplain or fully develobankfull benches. Mid-cha and transverse bars few. sediment deposition cover 10% of bottom.	AND/OR benches are r original oped wide annel bars, Transient rs less than	Depositional feat stability. The bar channels are wel likely has access to or newly develope portions of the r sediment covers 10 bott		40-60% of banks. bevertical or unde 60% of strean sediment. See temporary/tran instability. Depositi stability, may be AND/OR V-shap vegetative protecti banks and depositi	tative protection on Streambanks may secut. AND/OR 40-n is covered by diment may be sient, contribute on that contribute to forming/present. ed channels have ion on > 40% of the ional features which	protection prese banks, and is insi ersoion. AND/O stream is cover Sediment is tem nature, and contri AND/OR V-shap vegetative protect 40% of the banks a	kis. Vegetative ent on 20-40% of officient to prevent R 60-80% of the ed by sediment. oorary/transient in buting to instability. ed channels have ion is present on > and stable sediment is absent.	vertical/underc protection present of banks, is not pre Obvious bank sli Erosion/raw ban AND/OR Aggradin than 80% of stream	cut. Vegetative on less than 20% of eventing erosion. oughing present. lks on 80-100%. g channel. Greater hed is covered by jutting to instability. channels and/or	CI
Score	3		2	.4		2	1	.6	•	1	1.6
Riparian Buffers	Tree stratum (dbh > 3 inche with > 60% tree canopy or non-maintained understory. located within the riparia	over and a v. Wetlands	to 60% tree	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory.	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present,	Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces,			
			shrub layers or a non-maintained understory.	Recent cutover (dense vegetation).	with <30% tree canopy cover.	stratum (dbh >3 inches) present, with <30% tree canopy cover with maintained	maintained area, recently seeded and stabilized, or other comparable condition.	row crops, active feed lots, trails, or other comparable conditions.			
			non-maintained	(dense		stratum (dbh >3 inches) present, with <30% tree canopy cover with	recently seeded and stabilized, or other comparable	row crops, active feed lots, trails, or other comparable			
Condition Scores	1.5		non-maintained understory.	(dense vegetation).	canopy cover.	stratum (dbh >3 inches) present, with <30% tree canopy cover with maintained understory.	recently seeded and stabilized, or other comparable condition.	row crops, active feed lots, trails, or other comparable conditions.			
Scores Delineate ripalescriptors. Determine squelow.	I arian areas along each st uare footage for each by	/ measuring	non-maintained understory. High 1.2 k into Condition Cong or estimating len	(dense vegetation). Low 1.1 ategories and Congth and width. Cong	High 0.85 Indition Scores using alculators are pro-	stratum (dbh >3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75	recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F	row crops, active feed lots, trails, or other comparable conditions. Low 0.5			
Scores Delineate ripa escriptors. Determine squelow.	arian areas along each st juare footage for each by Riparian Area and Score t	measuring	non-maintained understory. High 1.2 k into Condition Cong or estimating len	(dense vegetation). Low 1.1 ategories and Congth and width. Cong	High 0.85 Indition Scores using alculators are pro-	stratum (dbh >3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75	recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F	row crops, active feed lots, trails, or other comparable conditions. Low 0.5 the sums Riparian			
Scores Delineate ripa escriptors. Determine squelow. Enter the % R	arian areas along each st uare footage for each by Riparian Area and Score t % Riparian Area> 1	/ measuring	non-maintained understory. High 1.2 k into Condition Cong or estimating len	(dense vegetation). Low 1.1 ategories and Congth and width. Cong	High 0.85 Indition Scores using alculators are pro-	stratum (dbh >3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75	recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F	row crops, active feed lots, trails, or other comparable conditions. Low 0.5			
Scores Delineate ripa escriptors. Determine squelow. Enter the % R	arian areas along each st uare footage for each by Riparian Area and Score t % Riparian Area> 1	r measuring for each rip	non-maintained understory. High 1.2 k into Condition Cong or estimating len	(dense vegetation). Low 1.1 ategories and Congth and width. Cong	High 0.85 Indition Scores using alculators are pro-	stratum (dbh >3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75	recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F	row crops, active feed lots, trails, or other comparable conditions. Low 0.5 the sums Riparian	CI= (Sum % RA * S	Scores*0.01)/2	
Scores Delineate ripa escriptors. Determine squelow. Enter the % R	arian areas along each st uare footage for each by Riparian Area and Score 1 % Riparian Area> 1 Score > 1 % Riparian Area> 1	for each rip 00% 1.2	non-maintained understory. High 1.2 k into Condition Cong or estimating len	(dense vegetation). Low 1.1 ategories and Congth and width. Cong	High 0.85 Indition Scores using alculators are pro-	stratum (dbh >3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75	recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F	row crops, active feed lots, trails, or other comparable conditions. Low 0.5 the sums Riparian	Rt Bank CI >	1.20	CI
Scores Delineate ripa secriptors. Determine sq elow. Enter the % R Right Bank Left Bank	arian areas along each struare footage for each by Riparian Area and Score to the score of the	for each rip 00% 1.2 00%	non-maintained understory. High 1.2 In into Condition	Low 1.1 ategories and Congth and width. Congth blocks below	High 0.85 Indition Scores using alculators are production.	stratum (dbh >3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75 ing the voided for you	recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F	row crops, active feed lots, trails, or other comparable conditions. Low 0.5 the sums Riparian equal 100 100%	Rt Bank CI >		CI 1.20
Scores Delineate ripa escriptors. Determine squelow. Enter the % R Right Bank Left Bank INSTREAN	arian areas along each st uare footage for each by Riparian Area and Score t % Riparian Area> 1 Score > 1 % Riparian Area> 1 Score > 1 WHABITAT: Varied st	for each rip 00% 1.2 00% 1.2 ubstrate size	non-maintained understory. High 1.2 k into Condition C	Low 1.1 ategories and Congth and width. Country the blocks below	High 0.85 Indition Scores using alculators are production.	stratum (dbh >3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75 ing the voided for you	recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F	row crops, active feed lots, trails, or other comparable conditions. Low 0.5 the sums Riparian equal 100 100%	Rt Bank CI >	1.20	
Scores Delineate ripa escriptors. Determine sq elow. Enter the % R Right Bank Left Bank Left Bank	arian areas along each struare footage for each by Riparian Area and Score to the score of the	for each rip 00% 1.2 00% 1.2 ubstrate size	non-maintained understory. High 1.2 k into Condition C	Low 1.1 ategories and Congth and width. Congth and width. Congth and depths; woo es.	High 0.85 Indition Scores using alculators are production.	stratum (dbh >3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75 ing the voided for you	recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F	row crops, active feed lots, trails, or other comparable conditions. Low 0.5 the sums Riparian equal 100 100%	Rt Bank CI >	1.20	
Scores Delineate ripa descriptors. Determine squelow. Enter the % R Right Bank Left Bank Left Bank Instream	arian areas along each st uare footage for each by Riparian Area and Score t % Riparian Area> 1 Score > 1 % Riparian Area> 1 Score > 1 WHABITAT: Varied st	for each rip 00% 1.2 00% 1.2 ubstrate size	non-maintained understory. High 1.2 k into Condition C	Low 1.1 ategories and Congth and width. Congth and width. Congth and depths; woo es.	High 0.85 Indition Scores using alculators are production state of the state of th	stratum (dbh >3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75 ing the voided for you	recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F Blocks 6	row crops, active feed lots, trails, or other comparable conditions. Low 0.5 the sums Riparian equal 100 100%	Rt Bank CI >	1.20	
Scores Delineate ripa descriptors. Determine sq descriptors. Determine sq delow. Better the % R Right Bank Left Bank Left Bank June 100 June 10	arian areas along each st uare footage for each by Riparian Area and Score t % Riparian Area> 1 Score > 1 % Riparian Area> 1 Score > 1 WHABITAT: Varied st root mats; SAV; riffle poor	r measuring for each rip 00% 1.2 00% 1.2 ubstrate si. ole comple	non-maintained understory. High 1.2 k into Condition C. g or estimating ler parian category in zes, water velocity exes, stable featur Subo Stable habitat eler present in 30-509 are adequate for	Low 1.1 ategories and Congth and width. Congth and depths; wodes. Conditions	High 0.85 Indition Scores using alculators are production and leafy debt al Category Stable habitatele present in 10-30 are adequate for a sedequate for a	stratum (dbh >3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75 ing the evided for you	recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F Blocks 6 Habitat element lacking or are u elements are typic	row crops, active feed lots, trails, or other comparable conditions. Low 0.5 the sums Riparian equal 100 100% 100%	Rt Bank CI >	1.20	

	St	ream In	npact A	ssessm	ent Fo	rm Pag	e 2		
Project #	Applicant		Locality	Cowardin Class.	HUC	Date	Data Point	SAR length	Impact Factor
								500	1
	_ ALTERATION: Stream cross poil piles, constrictions, livestock Negligible			al Category	erate		evere	NOTES>>	
Channel Alteration	Channelization, dredging, alteration, or hardening absent. Stream has an unaltered pattern or has naturalized.	Less than 20% of the stream reach is disrupted by any of the channel	20-40% of the stream reach is disrupted by any of the channel alterations listed in the parameter guidelines.	is disrupted by any of the channel	of the channel alterations listed in	Greater than 80% by any of the cha in the parameter 80% of banks s	o of reach is disrupted nnel alterations listed guidelines AND/OR shored with gabion, or cement.		
SCORE	1.5	1.3	1.1	0.9	0.7		0.5		
	REACH C	ONDITION I	NDEX and S	TREAM CO	NDITION UN	ITS FOR TH	HIS REACH		
IOTE: The Cls and R	CI should be rounded to 2 decimal places.	The CR should be rour	nded to a whole numb	er.			THE REACH O	CONDITION IN	DEX (RCI) >>

RCI= (Sum of all CI's)/5

COMPENSATION REQUIREMENT (CR) >> 0

CR = RCI X LF X IF

INSERT PHOTOS:





		Stre	Uni	fied Stream N	lethodology 1	Form	ginia	m 1)			
Project #		Project Name		Locality	nels classified a Cowardin Class.	HUC	perennial Date	SAR#	Impact/SAR length	Impact Factor	
5337	I	-64 Peninsul	a	Richmond	R2UB1	02080206	6/27/11		1388		
Name	e(s) of Evalua	tor(s)	Stream Nam	e and Informa	ation						
	Aitkenhead		WUS 1S								
. Channel C	Condition: Asse			C	Conditional Catego	ory			Con		
	Opti	imal	Subo	ptimal	Mar	ginal	The state of the s	oor	Se	vere	
	" Land	WA AND THE REAL PROPERTY OF THE PARTY OF THE		ew areas of active		less than Severe or		ned/incised. unstable. Likely to		nstability. Severe	
Channel Condition	Very little incision o 100% stable bar surface protection prominent (80-11 Stable point bars/bar present. Access floodplain or fully bankfull benches. and transverse bar	nks. Vegetative n or natural rock, 00%). AND/OR ankfull benches are s to their original r developed wide Mid-channel bars,	of banks are s Vegetative protec prominent (60 Depositional feal stability. The ban channels are we likely has access t or newly develope	psion or unprotected banks. Majority of banks are stable (60-80%), egetative protection or natural rock prominent (60-80%) AND/OR Depositional features contribute to tatability. The bankfull and low flow channels are well defined. Stream ely has access to bankfull benches, newly developed floodplains along temporary/transient, contribute temporary/		ower bank slopes. resent on 40-60% of tative protection on Streambanks may ercut. AND/OR 40- n is covered by diment may be	widen further. Ma are near vertical. 60-80% of bar protection press banks, and is insu erosion. AND/O stream is cover Sediment is tem	jority of both banks Erosion present on iks. Vegetative ent on 20-40% of difficient to prevent IR 60-80% of the red by sediment. botting to instability.	banks. Streamb rooting depth, r vertical/underr protection present banks, is not pro Obvious bank s Erosion/raw ban AND/OR Aggradir	ntained within the ed below average najority of banks cut. Vegetative on less than 20% of eventing erosion. loughing present. hks on 80-100%. In channel. Greater	
	10% of	and transverse bars few. Transient sediment deposition covers less than 10% of bottom. The sediment covers 10-40% of the bottom.		0-40% of the stream tom.	stability, may be AND/OR V-shap vegetative protect banks and depositi	e forming/present. bed channels have ion on > 40% of the ional features which	AND/OR V-shap vegetative protect 40% of the banks a deposition	ed channels have tion is present on > and stable sediment is absent.	deposition, contrit Multiple thread subterrar	n bed is covered by outing to instability. channels and/or nean flow.	CI
Score	3	3	2	2.4		2	1	.6		1	1.6
	Riparia with tree (dbh > 3 inches) present, with > 60% tree canopy cover and a non-maintained understory. Wetlands located within the riparian areas.		Cor	an areas along the nditional Cate optimal	gory	ginal Low Marginal:	Po	n may be accepta	NOTES>> Bapresent.	amboo	
Riparian Buffers	Option Tree stratum (dbh > with > 60% tree canon-maintained unc	imal > 3 inches) present, anopy cover and a derstory. Wetlands	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy	gory	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh > 3 inches) present, with <30% tree canopy cover with maintained			NOTES>> B	amboo	
Riparian	Option Tree stratum (dbh > with > 60% tree canon-maintained unc	imal > 3 inches) present, anopy cover and a derstory. Wetlands	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory.	nditional Cate ptimal Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation).	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover.	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh >3 inches) present, with <30% tree canopy cover with maintained understory.	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, recently seeded and stabilized, or other comparable condition.	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions.	NOTES>> B	amboo	
Riparian	Option Tree stratum (dbh > with > 60% tree canon-maintained unc	imal 3 inches) present, anopy cover and a derstory. Wetlands e riparian areas.	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained	Low Suboptimal Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh > 3 inches) present, with <30% tree canopy cover with maintained	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable	Low Poor: Impervious surfaces, mine spoil lands, fenuded surfaces, row crops, active feed lots, trails, or other comparable	NOTES>> B	amboo	
Riparian Buffers Condition Scores Delineate ripaescriptors.	Tree stratum (dbh > with > 60% tree cc non-maintained und located within the	imal 3 inches) present, anopy cover and a derstory. Wetlands e riparian areas.	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2	Inditional Cate ptimal Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh > 3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable condition. High 0.6	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions.	NOTES>> B	amboo	
Riparian Buffers Condition Scores Delineate ripaescriptors. Determine squelow.	Tree stratum (dbh > with > 60% tree conon-maintained und located within the located withi	imal 3 inches) present, anopy cover and a derstory. Wetlands e riparian areas. 5 each stream bank ach by measurin.	Com Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 k into Condition C g or estimating ler parian category in	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 Lategories and Coungth and width. Counthe blocks below	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh > 3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5	NOTES>> B	amboo	
Riparian Buffers Condition Scores Delineate ripa escriptors. Determine squelow. Enter the % F	Tree stratum (dbh > with > 60% tree ca non-maintained unc located within the	imal 3 inches) present, anopy cover and a derstory. Wetlands e riparian areas. 5 each stream banl ach by measurin	Com Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 into Condition C	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 Lategories and Coungth and width. Coungth	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh > 3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5	NOTES>> B	amboo	
Riparian Buffers Condition Scores Delineate ripa escriptors. Determine sq elow. Enter the % F	Tree stratum (dbh > with > 60% tree canon-maintained unc located within the located withi	imal 3 inches) present, anopy cover and a derstory. Wetlands e riparian areas. 5 each stream bank ach by measurin Score for each ri 30% 0.85	Com Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 k into Condition C g or estimating ler parian category in 20% 0.6	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 tategories and Coungth and width. Counthe blocks below 50%	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh > 3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5 the sums Riparian equal 100	NOTES>> Bapresent.	Scores*0.01)/2	
Riparian Buffers Condition Scores Delineate ripa escriptors. Determine squelow. Enter the % F	Tree stratum (dbh > with > 60% tree canon-maintained unc located within the located withi	imal 3 inches) present, anopy cover and a derstory. Wetlands e riparian areas. 5 each stream bank ach by measuring 30% 0.85	Com Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 Into Condition C g or estimating ler parian category in 20% 0.6	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 tategories and Coungth and width. Counthe blocks below 50%	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh > 3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5	NOTES>> Bapresent. CI= (Sum % RA**) Rt Bank CI >	Scores*0.01)/2 0.63	CI
Condition Scores Delineate ripalescriptors. Determine squelow. Enter the % R Right Bank Left Bank B. INSTREAN	Tree stratum (dbh > with > 60% tree canon-maintained unc located within the located withi	imal 3 inches) present, anopy cover and a derstory. Wetlands e riparian areas. 5 each stream bank ach by measuring 30% 0.85 70% 0.85 aried substrate si	Com Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 Into Condition C g or estimating ler parian category in 20% 0.6 30% 0.6	Inditional Cate ptimal Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 Tategories and Coungth and width. Counthe blocks below 50% 0.5	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh > 3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75 ing the povided for you	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F Blocks 6	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5 the sums Riparian equal 100 100%	NOTES>> Bapresent.	Scores*0.01)/2	C1 0.70
Condition Scores Delineate ripalescriptors. Deltre the % Right Bank Left Bank INSTREAM	Tree stratum (dbh > with > 60% tree ca non-maintained unc located within the located with	imal 3 inches) present, anopy cover and a derstory. Wetlands e riparian areas. 5.5 each stream bank ach by measuring 30% 0.85 70% 0.85 aried substrate si iffle poole comple	High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 sinto Condition C g or estimating let parian category in 20% 0.6 30% 0.6 zes, water velocit ixxes, stable featur	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 Lategories and Coungth and width. Coungth and width. Coungth and width. Coungth and width. Coungth and c	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85 Indition Scores us alculators are production of the producti	Ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh >3 inches) present, with <a>30 % tree canopy cover with maintained understory. Low 0.75 ing the price of the product of the present of t	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F Blocks 6	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5 the sums Riparian equal 100 100% 100%	NOTES>> Barresent. Cl= (Sum % RA * Set Bank Cl > Lt Bank Cl >	Scores*0.01)/2 0.63	
Condition Scores 1. Delineate ripadescriptors. 2. Determine squelow. 3. Enter the % Right Bank Left Bank 3. INSTREAN	Tree stratum (dbh > with > 60% tree cc non-maintained und located within the located with	imal 3 inches) present, anopy cover and a derstory. Wetlands e riparian areas. 5 each stream bani ach by measurin 30% 0.85 70% 0.85 aried substrate si iffle poole completimal	Com Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 Into Condition C g or estimating let parian category in 20% 0.6 30% 0.6 Zes, water velocit exes, stable featur Subo Stable habitat ele present in 30-50- are adequate fo	Low 1.1 Low 1.1 Low 2.1 Low 3.0 Low 2.0 Low 2.0 Low 3.0 Low 4.1 Low 4.1 Low 4.1 Low 5.0 Low 6.0 Low 6.0 Low 6.0 Low 6.0 Low 7.0 Low	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85 addulators are production of the control of the	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh > 3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75 ing the povided for you	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F Blocks 6	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5 the sums Riparian equal 100 100%	NOTES>> Barresent. Cl= (Sum % RA * Set Bank Cl > Lt Bank Cl >	Scores*0.01)/2 0.63	

	St	ream In	npact A	ssessm	ent Fo	rm Pag	e 2		
Project #	Applicant		Locality	Cowardin Class.	HUC	Date	Data Point	SAR length	Impact Factor
								500	1
	L ALTERATION: Stream cross spoil piles, constrictions, livestock		Conditiona	al Category				NOTES>>	
	Negligible	Mi	nor		erate	Se	vere		
Channel Alteration	Channelization, dredging, alteration, or hardening absent. Stream has an unaltered pattern or has naturalized.	Less than 20% of the stream reach is disrupted by any of the channel alterations listed in the parameter guidelines.	20-40% of the stream reach is disrupted by any of the channel alterations listed in the parameter guidelines.	is disrupted by any of the channel	60 - 80% of reach is disrupted by any of the channel alterations listed in the parameter guidelines. If stream has been channelized, normal stable stream meander pattern has not	Greater than 80% by any of the chan in the parameter g 80% of banks sh riprap, o	of reach is disrupted nel alterations listed guidelines AND/OR nored with gabion, or cement.		
SCORE	1.5	1.3	1.1	0.9	0.7	0).5		
	REACH C	ONDITION I	NDEX and S	TREAM CO	NDITION UN	ITS FOR TH	IS REACH		
NOTE: The Cls and I	RCI should be rounded to 2 decimal places.	The CR should be rou	nded to a whole numb	er.			THE REACH (CONDITION IN	DEX (RCI) >>

RCI= (Sum of all Cl's)/5

COMPENSATION REQUIREMENT (CR) >>

CR = RCI X LF X IF

INSERT PHOTOS:



DESCRIBE PROPOSED IMPACT:				
_	•	•	•	

		Stre	Unit	fied Stream N	lethodology f	Form	ginia	m 1)			
Project #		Project Name		Locality	nels classified a Cowardin Class.	HUC	perennial Date	SAR#	Impact/SAR length	Impact Factor	
5337	I-64	Peninsula S	tudy	James City	R2UB2	02080206	July '11		43		
Name	e(s) of Evalua	tor(s)	Stream Nam	e and Informa	ation	<u>'</u>					
	Aitkenhead		WUS 20S								
. Channel C	Condition: Asse	ess the cross-sec	tion of the stream		ondition (erosion, Conditional Catego						
	Opti	mal	Subo	ptimal	Mar	ginal	Po	oor	Se	vere	
	Very little incision o	ractive erecion: 80	erosion or unproted	ew areas of active cted banks. Majority	Poor. Banks more	less than Severe or stable than Severe	Vertically/laterally	ned/incised. unstable. Likely to		nstability. Severe	
Channel Condition	100% stable bar surface protection prominent (80-1) Stable point bars/bar present. Access floodplain or fully bankfull benches. and transverse bar sediment deposition	nks. Vegetative n or natural rock, 00%). AND/OR ankfull benches are to their original developed wide Mid-channel bars, ars few. Transient n covers less than	Vegetative protect prominent (60- Depositional feat stability. The bar channels are well likely has access to rnewly develope portions of the rediment covers 10	table (60-80%), titon or natural rock -80%) AND/OR tures contribute to nkfull and low flow II defined. Stream o bankfull benches, at floodplains along reach. Transient 0-40% of the stream tom.	Erosion may be pr both banks. Veget 40-60% of banks. bevertical or unde 60% of strean sediment. Sed temporary/tran instability. Depositi stability, may be	ower bank slopes. resent on 40-60% of tative protection on Streambanks may ercut. AND/OR 40- n is covered by diment may be isient, contribute to e forming/present. sed channels have	are near vertical. 60-80% of bar protection prese banks, and is insi erosion. AND/O stream is cover Sediment is temp nature, and contri AND/OR V-shap	jority of both banks Erosion present on iks. Vegetative ent on 20-40% of afficient to prevent R 60-80% of the red by sediment. borary/transient in buting to instability. ed channels have ion is present on >	banks. Streamb rooting depth, r vertical/under vertical/under protection present banks, is not pr Obvious bank s Erosion/raw ban AND/OR Aggradir than 80% of strear deposition, contril	ed below average majority of banks cut. Vegetative on less than 20% of eventing erosion. loughing present. nks on 80-100%. ng channel. Greater bed is covered by buting to instability.	
			DOI	tom.	vegetative protecti	ion on > 40% of the ional features which	40% of the banks a	and stable sediment is absent.		channels and/or nean flow.	CI
Score	3	3	2	2.4		2	1	.6		1	2.0
. RIPARIAN	N BUFFERS: A		Con	nditional Cate ptimal	gory	ginal Low Marginal:	Po High Poor:	n may be accepta	NOTES>>		
Riparian Buffers	Opti	imal - 3 inches) present, nopy cover and a lerstory. Wetlands	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy	gory	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh >3 inches) present, with 30% lockes) canopy cover with	Po				
Riparian	Option Tree stratum (dbh > with > 60% tree canon-maintained unc	imal - 3 inches) present, nopy cover and a lerstory. Wetlands	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory.	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation).	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover.	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh >3 inches) present, with <30% tree canopy cover with maintained understory.	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable condition.	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions.			
Riparian Buffers	Option Tree stratum (dbh > with > 60% tree canon-maintained unc	3 inches) present, inopy cover and a derstory. Wetlands e riparian areas.	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh >3 inches) present, with <30% tree canopy cover with maintained	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable			
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Condition Scores Delineate ripa escriptors. Determine sq elow. Enter the % F Right Bank Left Bank B. INSTREAN	Tree stratum (dbh > with > 60% tree canon-maintained unc located within the located withi	5 sach stream bank ach by measuring 100% 1.2 100% 1.2 aried substrate si	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 Into Condition C g or estimating ler parian category in parian category in	Inditional Cate ptimal Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Coungth and width. Coungth and width. Coungth and width. Coungth and depths; wodes.	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85 Indition Scores usional calculators are productions of the control of the con	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh > 3 inches) present, with < 30% tree canopy cover with maintained understory: Low 0.75 ing the povided for you	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F Blocks 6	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5 the sums Riparian equal 100 100%	NOTES>> CI= (Sum % RA** Rt Bank CI >	1.20	CI 1.20
Condition Scores Delineate ripa escriptors. Determine sq elow. Enter the % R Right Bank Left Bank I. INSTREAN Indercut banks;	Tree stratum (dbh > with > 60% tree ca non-maintained unc located within the located with	imal 3 inches) present, nopy cover and a lerstory. Wetlands e riparian areas. 5 each stream bank ach by measuring 100% 1.2 100% 1.2 aried substrate si ffle poole comple	Riph Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 Into Condition C g or estimating ler parian category in	Inditional Cate ptimal Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Coungth and width. Coungth and width. Coungth and width. Coungth and depths; wores. Conditional	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <a>30 tree canopy cover. High 0.85 Indition Scores usional calculators are production of the calculators are productional calculators.	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh >3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75 ing the povided for you	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F Blocks 6	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5 the sums Riparian equal 100 100%	NOTES>> CI= (Sum % RA * S Rt Bank CI > Lt Bank CI >	1.20	
Condition Scores Delineate ripalescriptors. Determine squelow. Enter the % Right Bank Left Bank B. INSTREAN	Tree stratum (dbh > with > 60% tree canon-maintained unc located within the located withi	5 Score for each ri 100% 1.2 100% 1.2 100% 1.2 100% 1.2 100% 1.2 100% 1.2 100% 1.2 100% 1.2	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 Into Condition C g or estimating let parian category in Zes, water velocity ixes, stable featur Subo Stable habitat ele present in 30-50% are adequate fo	Inditional Cate ptimal Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Coungth and width. Coungth and width. Coungth and width. Coungth and depths; wodes.	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85 Indition Scores using the state of the state	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh > 3 inches) present, with < 30% tree canopy cover with maintained understory: Low 0.75 ing the povided for you	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F Blocks 6	Low Poor: Impervious surfaces, mine pool lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5 the sums Riparian equal 100 100% 100%	NOTES>> CI= (Sum % RA * S Rt Bank CI > Lt Bank CI >	1.20	

	St	ream In	npact A	ssessm	nent Fo	rm Pag	e 2			
Project #	Applicant		Locality	Cowardin Class.	HUC	Date	Data Point	SAR length	Impact Factor	
								500	1	
	L ALTERATION: Stream cross poil piles, constrictions, livestock	ings, riprap, conci		concrete blocks, s	traightening of ch	annel, channeliz	zation,	NOTES>>		
	Negligible	Mir	nor	Mod	erate	Se	evere			
Channel Alteration	Channelization, dredging, alteration, or hardening absent. Stream has an unaltered pattern or has naturalized.	Less than 20% of the stream reach is disrupted by any of the channel alterations listed in the parameter guidelines.	20-40% of the stream reach is disrupted by any of the channel alterations listed in the parameter guidelines.	is disrupted by any of the channel		Greater than 80% by any of the cha in the parameter 80% of banks s	o of reach is disrupted nnel alterations listed guidelines AND/OR shored with gabion, or cement.			
SCORE	1.5	1.3	1.1	0.9	0.7	(0.5			1.30
	REACH C	ONDITION I	NDEX and S	TREAM CO	NDITION UN	ITS FOR TH	HIS REACH			
OTE: The Cls and F	RCI should be rounded to 2 decimal places.	The CR should be rour	nded to a whole numb	er.			THE REACH O	CONDITION IN	DEX (RCI) >>	1.08

RCI= (Sum of all Cl's)/5
COMPENSATION REQUIREMENT (CR) >>

CR = RCI X LF X IF

INSERT PHOTOS:





		Stre	Unit	fied Stream N	lethodology 1	Form	ginia	m 1)			
Project #		Project Name		Locality	nels classified a Cowardin Class.	HUC	perennial Date	SAR#	Impact/SAR length	Impact Factor	
5337	I-64	Peninsula S	tudy	James City	R2UB2	02080107	July '11		69		
Name	e(s) of Evalua	tor(s)	Stream Nam	e and Informa	ation	<u>'</u>					
	Aitkenhead		WUS 21S								
. Channel C	Condition: Asse			C	Conditional Catego	ory					
	Opti	imal	Subo	ptimal	Mar	ginal	Po	oor	Se	vere	
	Very little incision o	wasting gradien; 90	erosion or unproted	ew areas of active cted banks. Majority	Poor. Banks more	less than Severe or stable than Severe	Vertically/laterally	ned/incised. unstable. Likely to		nstability. Severe	
Channel Condition	100% stable bar surface protection prominent (80-1) Stable point bars/bo present. Access floodplain or fully bankfull benches. and transverse basediment depositio sediment depositio	nks. Vegetative n or natural rock, 00%). AND/OR ankfull benches are to their original v developed wide Mid-channel bars, ars few. Transient on covers less than	Vegetative protect prominent (60- Depositional feat stability. The bar channels are well likely has access to rnewly develope portions of the rediment covers 10	table (60-80%). tion or natural rock -80%) AND/OR tures contribute to hkfull and low flow ll defined. Stream o bankfull benches, d floodplains along reach. Transient 0-40% of the stream	Erosion may be pr both banks. Veget 40-60% of banks. bevertical or unde 60% of stream sediment. Se- temporary/tran instability. Depositi stability, may be	ower bank slopes. resent on 40-60% of tative protection on Streambanks may ercut. AND/OR 40- n is covered by diment may be isient, contribute to e forming/present. sed channels have	are near vertical. 60-80% of bar protection prese banks, and is insi erosion. AND/O stream is cover Sediment is temp nature, and contri AND/OR V-shap	jority of both banks Erosion present on iks. Vegetative ent on 20-40% of afficient to prevent R 60-80% of the red by sediment. corary/transient in buting to instability. ed channels have ion is present on >	banks. Streamb rooting depth, r vertical/under protection present banks, is not pr Obvious bank s Erosion/raw ba AND/OR Aggradir than 80% of streat deposition, contril	ned below average majority of banks cut. Vegetative on less than 20% of eventing erosion. Houghing present. Inks on 80-100%. Ing channel. Greate med bed is covered by buting to instability.	
			DOT	tom.	vegetative protect	ion on > 40% of the	40% of the banks a	and stable sediment is absent.		channels and/or nean flow.	CI
Score	3	3	2	.4		2	1	.6		1	2.0
. RIPARIAN	N BUFFERS: A		Con	n areas along the ditional Cate	gory	ugh measurement		n may be accepta	NOTES>>		
RIPARIAN Riparian Buffers	Opti Tree stratum (dbh > with > 60% tree ca	imal > 3 inches) present, anopy cover and a derstory. Wetlands	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If			,		
Riparian	Option Tree stratum (dbh > with > 60% tree canon-maintained uncompaintained u	imal > 3 inches) present, anopy cover and a derstory. Wetlands	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory.	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation).	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover.	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, popen water. If present, tree stratum (dbh >3 inches) present, with <30% tree canopy cover with maintained understory.	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable condition.	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions.	,		
Riparian	Option Tree stratum (dbh > with > 60% tree canon-maintained uncompaintained u	imal 3 inches) present, anopy cover and a derstory. Wetlands e riparian areas.	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh > 3 inches) present, with <30% tree canopy cover with maintained	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable	,		
Riparian Buffers Condition Scores Delineate ripalescriptors. Determine squelow.	Tree stratum (dbh > with > 60% tree ca non-maintained unc located within the	imal 3 inches) present, anopy cover and a derstory. Wetlands e riparian areas. 5 each stream bank ach by measurin	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 into Condition C	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Coungth and width. Co	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh >3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5	,		
Riparian Buffers Condition Scores Delineate ripa secriptors. Determine squalow.	Tree stratum (dbh > with > 60% tree ca non-maintained unc located within the	imal 3 inches) present, anopy cover and a derstory. Wetlands e riparian areas. 5 each stream bank ach by measurin.	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 into Condition C	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Coungth and width. Co	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh >3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5	,		
Riparian Buffers Condition Scores Delineate ripaescriptors. Determine squelow. Enter the % F	Tree stratum (dbh > with > 60% tree ca non-maintained unc located within the	imal 3 inches) present, anopy cover and a derstory. Wetlands e riparian areas. 5 each stream bank ach by measurin	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 into Condition C	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Coungth and width. Co	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh >3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5	NOTES>>		
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Condition Scores Delineate ripalescriptors. Determine squelow. Right Bank Left Bank B. INSTREAR	Tree stratum (dbh > with > 60% tree canon-maintained unc located within the located withi	imal 3 inches) present, anopy cover and a derstory. Wetlands e riparian areas. 5 each stream bank ach by measurin 100% 1.2 100% 1.2 aried substrate si	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 Into Condition C g or estimating ler parian category in parian category in	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Coungth and width. Coungth and width. Coungth and width. Coungth and depths; wodes.	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85 Indition Scores us calculators are production of the produc	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh >3 inches) present, with <30% tree canopy cover with maintained understory: Low 0.75 ing the povided for you	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F Blocks 6	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5 the sums Riparian equal 100 100%	NOTES>>		CI 1.20
Condition Scores Delineate ripalescriptors. Deltremine squelow. Enter the % Right Bank Left Bank Left Bank INSTREAM Indercut banks;	Tree stratum (dbh > with > 60% tree ca non-maintained unc located within the located with	imal 3 inches) present, anopy cover and a derstory. Wetlands e riparian areas. 5 each stream bank ach by measurin 100% 1.2 100% 1.2 aried substrate si	Riph Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 Into Condition C g or estimating ler parian category in	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Coungth and width. Coungth and width. Coungth and width. Coungth and depths; wodes.	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <a>3 inches) present, with <a>3 inches) present, or a tree canopy cover. High 0.85 Indition Scores us calculators are production of the control of th	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh >3 inches) present, with <30% tree canopy cover with maintained understory: Low 0.75 ing the povided for you	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F Blocks 6	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5 the sums Riparian equal 100 100%	NOTES>> CI= (Sum % RA *: Rt Bank CI > Lt Bank CI >	1.20	
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	St	ream In	npact A	ssessm	nent Fo	rm Pag	e 2		
Project #	Applicant		Locality	Cowardin Class.	HUC	Date	Data Point	SAR length	Impact Factor
								500	1
	L ALTERATION: Stream cross poil piles, constrictions, livestock	ings, riprap, conc		concrete blocks, s	traightening of ch	annel, channeliza	ation,	NOTES>>	
	Negligible	Mi	nor		erate		vere		
Channel Alteration	Channelization, dredging, alteration, or hardening absent. Stream has an unaltered pattern or has naturalized.	Less than 20% of the stream reach is disrupted by any of the channel alterations listed in the parameter guidelines.	20-40% of the stream reach is disrupted by any of the channel	is disrupted by any of the channel	60 - 80% of reach is disrupted by any of the channel alterations listed in the parameter guidelines. If stream has been channelized, normal stable stream meander pattern has not	Greater than 80% by any of the chan in the parameter 80% of banks sh	of reach is disrupted nel alterations listed guidelines AND/OR nored with gabion, or cement.		
SCORE	1.5	1.3	1.1	0.9	0.7	0).5		
	REACH C	ONDITION I	NDEX and S	TREAM CO	NDITION UN	ITS FOR TH	IIS REACH		
NOTE: The Cls and F	RCI should be rounded to 2 decimal places.	The CR should be rou	nded to a whole numb	er.			THE REACH (CONDITION IN	DEX (RCI) >>

CR = RCI X LF X IF

INSERT PHOTOS:





		Stre	Unit	fied Stream N	lethodology 1	for use in Virg	-	m 1)			
Project #		Project Name		Locality	nels classified a Cowardin Class.	HUC	perennial Date	SAR#	Impact/SAR length	Impact Factor	
5337	I-64	Peninsula S	tudy	James City	R2UB2	02080107	July '11		129		
Name	e(s) of Evalua	tor(s)	Stream Nam	e and Informa	ation	<u>'</u>					
	Aitkenhead		WUS 22S								
. Channel C	Condition: Asse	ess the cross-sec	tion of the stream		ondition (erosion, Conditional Catego						
	Opti	imal	Subo	ptimal	Mar	ginal	Po	oor	Se	vere	
	Very little incision o	r active erosion: 80	erosion or unproted	ew areas of active cted banks. Majority	Poor. Banks more	less than Severe or stable than Severe	Vertically/laterally	ned/incised. unstable. Likely to	incision flow co	nstability. Severe	
Channel Condition	100% stable bar surface protection prominent (80-10 Stable point bars/be present. Access floodplain or fully bankfull benches. and transverse ba sediment depositio 10% of I	nks. Vegetative n or natural rock, 00%). AND/OR ankfull benches are to their original or developed wide Mid-channel bars, ars few. Transient in covers less than	Vegetative protect prominent (60- Depositional feat stability. The bar channels are well likely has access to rnewly develope portions of the rediment covers 10	table (60-80%), tion or natural rock 80%) AND/OR tures contribute to kfull and low flow Il defined. Stream o bankfull benches, id floodplains along reach. Transient 0-40% of the stream tom.	Erosion may be pr both banks. Veget 40-60% of banks. bevertical or unde 60% of strean sediment. Set temporary/tran instability. Depositi stability, may be AND/OR V-shap	ower bank slopes. esent on 40-60% of tative protection on Streambanks may ercut. AND/OR 40- n is covered by diment may be sisent, contribute on that contribute to forming/present. ed channels have	are near vertical. 60-80% of bar protection prese banks, and is inst erosion. AND/O stream is cover Sediment is temp nature, and contri AND/OR V-shap vegetative protect	jority of both banks Erosion present on ks. Vegetative ent on 20-40% of ifficient to prevent R 60-80% of the ed by sediment. porary/transient in corary/transient in to the banks ion is present on >	rooting depth, r vertical/under protection present banks, is not pr Obvious bank s Erosion/raw ba AND/OR Aggradir than 80% of strear deposition, contril Multiple thread	ned below average majority of banks cut. Vegetative on less than 20% of eventing erosion. loughing present. nks on 80-100%. ng channel. Greater m bed is covered by buting to instability. channels and/or	CI
					banks and depositi	ion on > 40% of the ional features which	deposition	and stable sediment is absent.	subterra	nean flow.	
Score	3	3	2	.4		2	1	.6		1	2.4
. RIPARIAN	N BUFFERS: A		Con	ditional Cate	gory Mar	ginal Low Marginal: Non-maintained,	Po High Poor:	n may be accepta	NOTES>>		
RIPARIAN Riparian Buffers	Opti Tree stratum (dbh > with > 60% tree ca	imal - 3 inches) present, anopy cover and a derstory. Wetlands	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree	nditional Cate	gory	ginal Low Marginal:	Po		NOTES>>		
Riparian	Option Tree stratum (dbh > with > 60% tree canon-maintained unc	imal - 3 inches) present, anopy cover and a derstory. Wetlands	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory.	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation).	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover.	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh >3 inches) present, with <30% tree canopy cover with maintained understory.	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable condition.	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions.	NOTES>>		
Riparian Buffers	Option Tree stratum (dbh > with > 60% tree canon-maintained unc	imal 3 inches) present, anopy cover and a derstory. Wetlands e riparian areas.	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained	Low Suboptimal Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present with <30% tree	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh >3 inches) present, with <30% tree canopy cover with maintained	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable	NOTES>>		
Riparian Buffers Condition Scores Delineate ripalescriptors. Determine squelow.	Tree stratum (dbh > with > 60% tree ca non-maintained unc located within the	imal 3 inches) present, anopy cover and a derstory. Wetlands e riparian areas.	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 into Condition C	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Congth and width. Congth and width. Congth and congth and width. Congth areas	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh > 3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5	NOTES>>		
Riparian Buffers Condition Scores Delineate ripaescriptors. Determine squelow. Enter the % F	Tree stratum (dbh > with > 60% tree ca non-maintained unc located within the	imal 3 inches) present, anopy cover and a derstory. Wetlands e riparian areas. 5 ach stream bank ach by measuring.	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 into Condition C	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Congth and width. Congth and width. Congth and congth and width. Congth areas	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh > 3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5	NOTES>>		
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Riparian Buffers Condition Scores Delineate ripaescriptors. Determine squelow. Enter the % F	Tree stratum (dbh > with > 60% tree ca non-maintained uncolocated within the located with	imal 3 inches) present, anopy cover and a derstory. Wetlands e riparian areas. 5 each stream bank ach by measuring 100% 1.5 100%	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 into Condition C	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Congth and width. Congth and width. Congth and congth and width. Congth areas	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh > 3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5	NOTES>>	1.50	CI 1.50
Condition Scores Delineate ripalescriptors. Determine squelow. Right Bank Left Bank B. INSTREAR	Tree stratum (dbh > with > 60% tree ca non-maintained unc located within the located with	imal 3 inches) present, anopy cover and a derstory. Wetlands e riparian areas. 5 ach stream bank ach by measuring 100% 1.5 100% 1.5 aried substrate si	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 k into Condition C g or estimating ler parian category in	ditional Cate ptimal Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Coungth and width. Coungth and width. Coungth and width. Coungth and depths; wodes.	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85 Indition Scores us calculators are production of the produc	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh > 3 inches) present, with < 30% tree canopy cover with maintained understory: Low 0.75 ing the evided for you	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F Blocks 6	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5 the sums Riparian equal 100 100%	NOTES>> Cl= (Sum % RA*: Rt Bank Cl >		_
Condition Scores Delineate ripalescriptors. Deltremine squelow. Enter the % Right Bank Left Bank Left Bank INSTREAM Indercut banks;	Tree stratum (dbh > with > 60% tree ca non-maintained unc located within the located with	imal 3 inches) present, anopy cover and a derstory. Wetlands e riparian areas. 5 each stream bank ach by measuring 100% 1.5 100% 1.5 aried substrate significations in the poole complete.	Riph Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 Into Condition C g or estimating ler parian category in	ditional Cate ptimal Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Coungth and width. Coungth and width. Coungth and width. Coungth and depths; wodes.	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <a>3 inches) present, with <a>3 inches) present, or a tree canopy cover. High 0.85 Indition Scores us calculators are production of the control of th	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh > 3 inches) present, with < 30% tree canopy cover with maintained understory: Low 0.75 ing the evided for you	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F Blocks 6	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5 the sums Riparian equal 100 100%	NOTES>> Ci= (Sum % RA *: Rt Bank Ci > Lt Bank Ci >	1.50	
Condition Scores 1. Delineate ripadescriptors. 2. Determine squelow. 3. Enter the % F. Right Bank Left Bank 3. INSTREAR	Tree stratum (dbh > with > 60% tree ca non-maintained unc located within the located with	imal 3 inches) present, anopy cover and a derstory. Wetlands e riparian areas. 5 ach stream bank ach by measuring 100% 1.5 100% 1.5 aried substrate si ffle poole completimal	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 Into Condition C g or estimating let parian category in Zes, water velocity ixes, stable featur Subo Stable habitat ele present in 30-50% are adequate fo	ditional Cate ptimal Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Co ongth and width. Co the blocks below y and depths; wodes. Conditional	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85 Indition Scores us calculators are production of the present in 10-30 are adequate for a seadequate for the present in 10-30 are adequate for the present in 10-30 are adeq	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh >3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75 ing the vided for you	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F Blocks 6	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5 the sums Riparian equal 100 100% 100%	CI= (Sum % RA *: Rt Bank CI > Lt Bank CI > NOTES>>	1.50	CI 1.50

	St	ream In	npact A	ssessm	ent Fo	rm Pag	e 2		
Project #	Applicant		Locality	Cowardin Class.	HUC	Date	Data Point	SAR length	Impact Factor
								500	1
	L ALTERATION: Stream cross spoil piles, constrictions, livestock	sings, riprap, conc		concrete blocks, s	traightening of ch	annel, channeliza	ation,	NOTES>>	
	Negligible	Mi	nor		erate	Se	vere		
Channel Alteration	Channelization, dredging, alteration, or hardening absent. Stream has an unaltered pattern or has naturalized.	Less than 20% of the stream reach is disrupted by any of the channel alterations listed in the parameter guidelines.	20-40% of the stream reach is disrupted by any of the channel alterations listed in the parameter guidelines.	is disrupted by any of the channel	60 - 80% of reach is disrupted by any of the channel alterations listed in the parameter guidelines. If stream has been channelized, normal stable stream meander pattern has not	Greater than 80% of by any of the chan in the parameter (80% of banks sh	of reach is disrupted nel alterations listed guidelines AND/OR lored with gabion, or cement.		
SCORE	1.5	1.3	1.1	0.9	0.7	0).5		
	REACH C	ONDITION	NDEX and S	TREAM CO	NDITION UN	ITS FOR TH	IS REACH		
NOTE: The Cls and I	PCI should be rounded to 2 decimal places	The CR should be rou	nded to a whole numb	or			THE REACH (CONDITION IN	DEX (RCI) >>

THE REACH CONDITION INDEX (RCI) >> 1.14

RCI= (Sum of all Cl's)/5

COMPENSATION REQUIREMENT (CR) >>

CR = RCI X LF X IF

INSERT PHOTOS:





		Stre	Uni	fied Stream N	lethodology 1	Form for use in Virg	ginia	m 1)			
Project #	I	Project Name		Locality	classified a Cowardin Class.	s intermittent or	perennial Date	SAR#	Impact/SAR length	Impact Factor	
5337	I-64	Peninsula S	tudy	James City	R2UB2	020800107	July '11		115		
Name	e(s) of Evaluat	tor(s)		e and Informa	ation						
	Aitkenhead		WUS 23S								
I. Channel C	Condition: Asse	ess the cross-sec	tion of the stream		ondition (erosion, Conditional Catego						
	Opti	mal	Subo	ptimal		ginal	Po	or	Sev	rere	
Channel Condition	Very little incision or 100% stable bar surface protectior prominent (80-10 Stable point bars/ba	nks. Vegetative n or natural rock, 00%). AND/OR ankfull benches are	erosion or unproter of banks are s Vegetative protect prominent (60 Depositional feat stability. The bar	ew areas of active cted banks. Majority table (60-80%). tion or natural rock -80%) AND/OR ures contribute to ktfull and low flow	Poor. Banks more or Poor due to k Erosion may be pr both banks. Vege 40-60% of banks. bevertical or unde	less than Severe or stable than Severe wer bank slopes. esent on 40-60% of attive protection on Streambanks may rrout. AND/OR 40-	Vertically/laterally widen further. Ma are near vertical. 60-80% of bar protection prese banks, and is insu	ed/incised. unstable. Likely to ority of both banks Erosion present on ks. Vegetative int on 20-40% of ffficient to prevent	vertical/lateral in incision, flow cor banks. Streambe rooting depth, rr vertical/underc protection present to banks. is not ore	atained within the ed below average najority of banks out. Vegetative on less than 20% of	
	present. Access floodplain or fully bankfull benches. and transverse ba sediment deposition 10% of t	developed wide Mid-channel bars, ars few. Transient n covers less than bottom.	channels are we likely has access t or newly develope portions of the sediment covers 11 bot	Il defined. Stream o bankfull benches, of floodplains along reach. Transient 0-40% of the stream tom.	sediment. Se temporary/tran instability. Depositi stability, may be AND/OR V-shap vegetative protect banks and depositi	n is covered by diment may be sient, contribute on that contribute to forming/present. ed channels have ion on > 40% of the onal features which	stream is cover Sediment is temp nature, and contri AND/OR V-shap vegetative protect 40% of the banks a deposition	ed channels have ion is present on > and stable sediment is absent.	Obvious bank sli Erosion/raw ban AND/OR Aggradin than 80% of stream deposition, contrib Multiple thread subterran	oughing present. Iks on 80-100%. Iks channel. Greater Iks bed is covered by uting to instability. Iks channels and/or Iks channels and/or Iks channels and/or	CI
Score	3	5	2	.4		2	1	.6	1		2.4
Riparian Buffers	Tree stratum (dbh > with > 60% tree ca	nopy cover and a derstory. Wetlands	to 60% tree	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation).	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover.	Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh >3 inches) present, with 230% tree canopy cover with maintained understory.	Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, recently seeded and stabilized, or other comparable condition.	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions.			
			High	Low	مامانا						
				LOW	High	Low	High	Low			
Condition Scores	1.	5	1.2	1.1	0.85	0.75	High 0.6	Low 0.5			
Scores 1. Delineate ripa descriptors. 2. Determine squeelow.	arian areas along e	each stream bank	c into Condition C	1.1 ategories and Co	0.85 Indition Scores us	0.75	0.6 Ensure of % F	0.5 the sums			
Scores 1. Delineate ripa descriptors. 2. Determine squelow.	arian areas along e quare footage for ea Riparian Area and	each stream bank ach by measurin Score for each ri	c into Condition C	1.1 ategories and Co	0.85 Indition Scores us	0.75	0.6 Ensure of % F	0.5 the sums tiparian qual 100			
Scores Delineate ripa lescriptors. Determine squelow.	arian areas along e	each stream bank	c into Condition C	1.1 ategories and Co	0.85 Indition Scores us	0.75	0.6 Ensure of % F	0.5 the sums			
Scores Delineate ripa escriptors. Determine squelow. Enter the % R	arian areas along e uare footage for ea Riparian Area and s % Riparian Area Score >	each stream bank ach by measuring Score for each rig 100% 1.2	c into Condition C	1.1 ategories and Co	0.85 Indition Scores us	0.75	0.6 Ensure of % F	0.5 the sums Riparian qual 100 100%	CI= (Sum % RA * S		
Scores Delineate ripa escriptors. Determine squelow. Enter the % R	arian areas along e uare footage for ea Riparian Area and 3 % Riparian Area> Score >	each stream bank ach by measuring Score for each rig 100% 1.2	c into Condition C	1.1 ategories and Co	0.85 Indition Scores us	0.75	0.6 Ensure of % F	0.5 the sums tiparian qual 100	Rt Bank CI >	1.20	CI
Scores Delineate ripa escriptors. Determine squelow. Enter the % R Right Bank	arian areas along e uare footage for ea Riparian Area and 3 % Riparian Area> Score > % Riparian Area> Score >	seach stream bank ach by measuring Score for each right 100% 1.2 100% 1.2	x into Condition C g or estimating ler parian category in	1.1 ategories and Congth and width. C	0.85 Indition Scores us alculators are pro	0.75 ing the vided for you	0.6 Ensure of % F Blocks 6	0.5 the sums tiparian qual 100 100%	Rt Bank CI >		CI 1.20
Scores Delineate ripa escriptors. Determine squelow. Enter the % R Right Bank Left Bank Linstream	arian areas along e uare footage for ex Riparian Area and 3 % Riparian Area> Score > % Riparian Area> Score > W HABITAT: Va	each stream bank ach by measuring Score for each rig 100% 1.2 100% 1.2 aried substrate si	s into Condition C g or estimating let parian category in	ategories and Congth and width. Con the blocks below	0.85 Indition Scores us alculators are pro	0.75 ing the vided for you	0.6 Ensure of % F Blocks 6	0.5 the sums tiparian qual 100 100%	Rt Bank CI >	1.20	
Scores 1. Delineate ripa descriptors. 2. Determine squelow. 3. Enter the % R Right Bank Left Bank 3. INSTREAN	arian areas along e uare footage for ea Riparian Area and 3 % Riparian Area> Score > % Riparian Area> Score > W Riparian Area> Score > W HABITAT: Varont mats; SAV; rife	each stream bank ach by measuring Score for each rig 100% 1.2 100% 1.2 aried substrate si	s into Condition C g or estimating lei parian category in zes, water velocit xes, stable featur	ategories and Congth and width. Control the blocks below	0.85 Indition Scores us Indicated are processed at Category	0.75 ing the vided for you	O.6 Ensure of % F Blocks e	0.5 the sums Riparian qual 100 100% 100%	Rt Bank CI >	1.20	
Scores 1. Delineate ripa descriptors. 2. Determine squelow. 3. Enter the % R Right Bank Left Bank 3. INSTREAN undercut banks;	arian areas along e uare footage for ex Riparian Area and 3 % Riparian Area> Score > % Riparian Area> Score > W HABITAT: Va	each stream bank ach by measuring Score for each rig 100% 1.2 100% 1.2 aried substrate si	s into Condition C g or estimating lei parian category in zes, water velocit xes, stable featur	1.1 ategories and Congth and width. Congth and width. Congth and width. Congth and width. Congth and depths; worders.	0.85 Indition Scores us Indicated are processed at Category	0.75 ing the vided for you	O.6 Ensure of % F Blocks e	0.5 the sums tiparian qual 100 100%	Rt Bank CI >	1.20	
Scores 1. Delineate ripa descriptors. 2. Determine squelow. 3. Enter the % R Right Bank Left Bank 3. INSTREAN undercut banks;	arian areas along e uare footage for ea Riparian Area and 3 % Riparian Area> Score > % Riparian Area> Score > W Riparian Area> Score > W HABITAT: Varont mats; SAV; rife	seach stream bank ach by measuring Score for each rig 100% 1.2 100% 1.2 aried substrate si ffle poole comple	zes, water velocit xes, stable habitat ele present in 30-50 are adequate fo	ategories and Congth and width. Control the blocks below	ody and leafy deb al Category Stable habitat ele present in 10-30 are adequate for a readequate for a reade	0.75 ing the vided for you	e; low embededr Habitat elements lacking or are u elements are typic	0.5 the sums Riparian qual 100 100% 100%	Rt Bank CI >	1.20	

	St	ream In	npact A	ssessm	nent Fo	rm Pag	e 2		
Project #	Applicant		Locality	Cowardin Class.	HUC	Date	Data Point	SAR length	Impact Factor
								500	1
	ALTERATION: Stream cross poil piles, constrictions, livestock	ings, riprap, conc		concrete blocks, s	traightening of ch	annel, channeliza	ation,	NOTES>>	
	Negligible	Mi	nor		erate	Se	vere		
Channel Alteration	Channelization, dredging, alteration, or hardening absent. Stream has an unaltered pattern or has naturalized.	Less than 20% of the stream reach is disrupted by any of the channel alterations listed in the parameter guidelines.	20-40% of the stream reach is disrupted by any of the channel alterations listed in the parameter guidelines.	is disrupted by any of the channel	60 - 80% of reach is disrupted by any of the channel alterations listed in the parameter guidelines. If stream has been channelized, normal stable stream meander pattern has not	by any of the char in the parameter 80% of banks sl	of reach is disrupted nnel alterations listed guidelines AND/OR hored with gabion, or cement.	1	
SCORE	1.5	1.3	1.1	0.9	0.7	(0.5		
	REACH C	ONDITION I	NDEX and S	TREAM CO	NDITION UN	ITS FOR TH	IIS REACH		
IOTE: The Cls and F	RCI should be rounded to 2 decimal places.	The CR should be rou	nded to a whole numb	er.			THE REACH	CONDITION IN	DEX (RCI) >>
							DC	. (0 11.0	U_\/F

COMPENSATION REQUIREMENT (CR) >> 0

CR = RCI X LF X IF

INSERT PHOTOS:





		Stre	Unit	SSESS fied Stream M	lethodology f	for use in Vir	ginia	m 1)			
Project #		Project Name		Locality	cowardin Class.	HUC	perennial Date	SAR#	Impact/SAR length	Impact Factor	
5337	I-64	Peninsula S	tudy	James City	R2UB2	02080107	July '11		86		
Name	e(s) of Evalua	tor(s)	Stream Nam	e and Informa	ation	<u>'</u>					
	Aitkenhead		WUS 24S								
. Channel C	Condition: Asse			C	Conditional Catego	ory					
	Opti	imal	Subo	ptimal	Mar	ginal	Po	oor	Se	vere	
		AND THE REAL PROPERTY OF THE PARTY OF THE PA	erecion or uppreted	few areas of active cted banks. Majority	Poor. Banks more	less than Severe or stable than Severe	Vertically/laterally	ned/incised. unstable. Likely to		nstability. Severe	
Channel Condition	Very little incision o 100% stable bar surface protection prominent (80-1) Stable point bars/bz present. Access floodplain or fully bankfull benches. and transverse bz sediment depositio 10% of 1	nks. Vegetative n or natural rock, 00%). AND/OR ankfull benches are to their original or developed wide Mid-channel bars, ars few. Transient in covers less than	Vegetative protect prominent (60- Depositional feat stability. The bar channels are well likely has access to or newly develope portions of the resediment covers 10 to definite the covers of the resediment covers 10 to definite the covers of the resediment covers 10 to definite the covers of the resediment covers 10 to definite the covers 10 to definite	stable (60-80%). tion or natural rock -80%) AND/OR tures contribute to nkfull and low flow all defined. Stream to bankfull benches, ad floodplains along reach. Transient 0-40% of the stream	Erosion may be pr both banks. Veget 40-60% of banks. bevertical or unde 60% of strean sediment. Sed temporary/tran instability. Depositi stability, may be	ower bank slopes. resent on 40-60% of tative protection on Streambanks may ercut. AND/OR 40- n is covered by diment may be isient, contribute to e forming/present. sed channels have	are near vertical. 60-80% of bar protection prese banks, and is insi erosion. AND/O stream is cover Sediment is temp nature, and contri AND/OR V-shap	jority of both banks Erosion present on iks. Vegetative ent on 20-40% of afficient to prevent R 60-80% of the red by sediment. corary/transient in buting to instability. ed channels have ion is present on >	banks. Streamb rooting depth, r vertical/under protection present banks, is not pr Obvious bank s Erosion/raw ba AND/OR Aggradir than 80% of streat deposition, contril	ed below average majority of banks cut. Vegetative on less than 20% o eventing erosion. loughing present. nks on 80-100%. ng channel. Greate m bed is covered by buting to instability.	r
			DOI	ttom.	vegetative protecti	ion on > 40% of the	40% of the banks a	and stable sediment is absent.		channels and/or nean flow.	CI
Score	3	3	2	2.4		2	1	.6		1	2.0
. RIPARIAN	N BUFFERS: A		Con	an areas along the nditional Cate optimal	gory	ginal		n may be accepta	NOTES>>		
Riparian Buffers	Opti	imal - 3 inches) present, anopy cover and a derstory. Wetlands	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory.	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present,	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable	,		
Riparian	Option Tree stratum (dbh > with > 60% tree canon-maintained uncommaintained u	imal - 3 inches) present, anopy cover and a derstory. Wetlands	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory.	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation).	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover.	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh >3 inches) present, with <30% tree canopy cover with maintained understory.	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable condition.	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions.	,		
Riparian	Option Tree stratum (dbh > with > 60% tree canon-maintained uncommaintained u	imal 3 inches) present, anopy cover and a derstory. Wetlands e riparian areas.	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained	Low Suboptimal Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh > 3 inches) present, with <30% tree canopy cover with maintained	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable	,		
Riparian Buffers Condition Scores Delineate ripa escriptors. Determine squelow.	Tree stratum (dbh > with > 60% tree ca non-maintained unc located within the	imal 3 inches) present, anopy cover and a derstory. Wetlands e riparian areas.	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 k into Condition C g or estimating let	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 Lategories and Coungth and width. Coungth and width. Coungth and width. Coungth and coungth and width. Coungth and coungth and width. Coungth and width. Coungth areas	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh >3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5	,		
Riparian Buffers Condition Scores Delineate ripa escriptors. Determine sq elow.	Tree stratum (dbh > with > 60% tree ca non-maintained unc located within the	imal 3 inches) present, anopy cover and a derstory. Wetlands e riparian areas. 5 ach stream bank ach by measuring.	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 k into Condition C g or estimating let	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 Lategories and Coungth and width. Coungth and width. Coungth and width. Coungth and coungth and width. Coungth and coungth and width. Coungth and width. Coungth areas	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh >3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5	,		
Riparian Buffers Condition Scores Delineate ripa escriptors. Determine squelow.	Tree stratum (dbh > with > 60% tree ca non-maintained unc located within the	imal 3 inches) present, anopy cover and a derstory. Wetlands e riparian areas.	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 k into Condition C	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 Lategories and Coungth and width. Coungth and width. Coungth and width. Coungth and coungth and width. Coungth and coungth and width. Coungth and width. Coungth areas	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh >3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5	NOTES>>		
Riparian Buffers Condition Scores Delineate ripz escriptors. Determine squelow. Enter the % F	Tree stratum (dbh > with > 60% tree canon-maintained unc located within the located withi	imal 3 inches) present, anopy cover and a derstory. Wetlands e riparian areas. 5 each stream bank ach by measuring 100% 1.2	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 k into Condition C	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 Lategories and Coungth and width. Coungth and width. Coungth and width. Coungth and coungth and width. Coungth and coungth and width. Coungth and width. Coungth areas	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh >3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5 the sums Riparian equal 100	NOTES>>		
Riparian Buffers Condition Scores Delineate ripz escriptors. Determine squelow. Enter the % F	Tree stratum (dbh > with > 60% tree ca non-maintained unc located within the located with	imal 3 inches) present, anopy cover and a derstory. Wetlands e riparian areas. 5 each stream bank ach by measuring 100% 1.2 100%	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 k into Condition C	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 Lategories and Coungth and width. Coungth and width. Coungth and width. Coungth and coungth and width. Coungth and coungth and width. Coungth and width. Coungth areas	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh >3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5	NOTES>> CI= (Sum % RA*: Rt Bank CI >	1.20	CI 1 20
Condition Scores Delineate ripalescriptors. Determine squelow. Right Bank Left Bank B. INSTREAR	Tree stratum (dbh > with > 60% tree canon-maintained unc located within the located withi	imal 3 inches) present, anopy cover and a derstory. Wetlands e riparian areas. 5 ach stream bank ach by measuring 100% 1.2 100% 1.2 aried substrate si	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 Into Condition C g or estimating ler parian category in	Inditional Cate potimal Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 Sategories and Con ingth and width. Con in the blocks below y and depths; wodes.	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85 Indition Scores using the shrub and the shr	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh >3 inches) present, with <30% tree canopy cover with maintained understory: Low 0.75 ing the povided for you	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F Blocks 6	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5 the sums Riparian equal 100 100%	NOTES>>		
Condition Scores Delineate ripalescriptors. Deltremine squelow. Enter the % Right Bank Left Bank Left Bank INSTREAM Indercut banks;	Tree stratum (dbh > with > 60% tree ca non-maintained und located within the located with	imal 3 inches) present, anopy cover and a derstory. Wetlands e riparian areas. 5 ach stream bank ach by measuring 100% 1.2 100% 1.2 aried substrate si	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 Into Condition C g or estimating ler parian category in zes, water velocity ixes, stable featur	Inditional Cate potimal Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 Sategories and Con ingth and width. Con in the blocks below y and depths; wodes.	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <a>30 tree tree canopy cover. High 0.85 Indition Scores using the calculators are producted to the calculators are producted t	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh > 3 inches) present, with <a>30 % tree canopy cover with maintained understory: Low 0.75 ing the povided for you	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F Blocks 6	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5 the sums Riparian equal 100 100%	NOTES>> Cl= (Sum % RA *: Rt Bank Cl > Lt Bank Cl >	1.20	
Condition Scores Delineate ripalescriptors. Determine squelow. Right Bank Left Bank B. INSTREAR	Tree stratum (dbh > with > 60% tree ca non-maintained und located within the located with	imal 3 inches) present, anopy cover and a derstory. Wetlands e riparian areas. 5 5 cach stream bank ach by measuring 100% 1.2 100% 1.2 aried substrate si ffle poole completimal	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 Into Condition C g or estimating let parian category in Zes, water velocity exes, stable featur Subo Stable habitat ele present in 30-50% are adequate fo	Inditional Cate potimal Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 Sategories and Con ingth and width. Con in the blocks below y and depths; woo res. Conditional	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85 Indition Scores using the state of the state	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh >3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75 ing the povided for you	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F Blocks 6	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5 the sums Riparian equal 100 100%	NOTES>> Cl= (Sum % RA *: Rt Bank Cl > Lt Bank Cl >	1.20	CI 1.20

	St	ream In	npact A	ssessm	ent Fo	rm Page	e 2		
Project #	Applicant		Locality	Cowardin Class.	HUC	Date	Data Point	SAR length	Impact Factor
								500	1
	L ALTERATION: Stream cross spoil piles, constrictions, livestock		Condition	al Category				NOTES>>	
	Negligible	Mi	nor		erate 60 - 80% of reach	Se	vere		
Channel Alteration	Channelization, dredging, alteration, or hardening absent. Stream has an unaltered pattern or has naturalized.	Less than 20% of the stream reach is disrupted by any of the channel alterations listed in the parameter guidelines.	20-40% of the stream reach is disrupted by any of the channel alterations listed in the parameter guidelines.	is disrupted by any of the channel	of the channel is disrupted by any of the channel alterations listed in the parameter guidelines. If stream has been channelized, normal stable stream meander pattern has not	Greater than 80% of by any of the chan in the parameter (80% of banks sh	of reach is disrupted nel alterations listed guidelines AND/OR nored with gabion, or cement.		
SCORE	1.5	1.3	1.1	0.9	0.7	0).5		
	REACH C	ONDITION I	NDEX and S	TREAM CO	NDITION UN	ITS FOR TH	IS REACH		
VOTE: The Cls and I	RCI should be rounded to 2 decimal places.	The CR should be rou	nded to a whole numb	er.			THE REACH (CONDITION IN	DEX (RCI) >>

CR = RCI X LF X IF

INSERT PHOTOS:



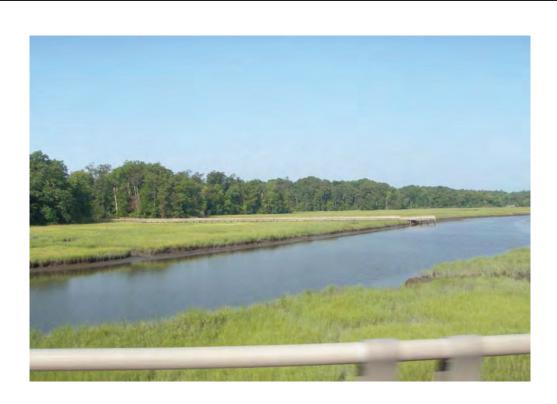


		Stre	Unit	fied Stream N	lethodology f	Form	ginia	m 1)			
Project #	ı	Project Name		Locality	Cowardin Class.	HUC	Date Date	SAR#	Impact/SAR length	Impact Factor	
5337	I-64	Peninsula S	tudy	York	R1UB2	02080107	July'11		120		
Namo	e(s) of Evaluat	tor(s)	Stream Nam	e and Informa	ation						
	Aitkenhead		WUS 25S								
. Channel C	Condition: Asse			C	Conditional Catego	ory]
	Opti	mal	Subo	ptimal	Mar	ginal	Po	oor	Se	vere	
	***************************************		erecion or uppreted	ew areas of active cted banks. Majority	Poor. Banks more	less than Severe or stable than Severe	Vertically/laterally	ned/incised. unstable. Likely to		nstability. Severe	
Channel Condition	Very little incision or 100% stable bar surface protection prominent (80-10 Stable point bars/ba present. Access floodplain or fully bankfull benches. and transverse ba sediment deposition 10% of t	lks. Vegetative or natural rock, 00%). AND/OR inkfull benches are to their original developed wide Mid-channel bars, rs few. Transient overs less than	Vegetative protect prominent (60- Depositional feat stability. The bar channels are well likely has access to or newly develope portions of the resediment covers 10 to definite the covers of the resediment covers 10 to definite the covers of the resediment covers 10 to definite the covers of the resediment covers 10 to definite the covers 10 to definite	table (60-80%). tion or natural rock -80%) AND/OR tures contribute to nkfull and low flow II defined. Stream o bankfull benches, id floodplains along reach. Transient 0-40% of the stream	Erosion may be pr both banks. Veget 40-60% of banks. bevertical or unde 60% of strean sediment. Sed temporary/tran instability. Depositi stability, may be	ower bank slopes. resent on 40-60% of tative protection on Streambanks may ercut. AND/OR 40- n is covered by diment may be usient, contribute ton that contribute to e forming/present.	are near vertical. 60-80% of bar protection prese banks, and is inst erosion. AND/O stream is cover Sediment is temp nature, and contri AND/OR V-shap	jority of both banks Erosion present on iks. Vegetative ent on 20-40% of ufficient to prevent IR 60-80% of the ed by sediment. porary/transient in buting to instability. ed channels have	banks. Streamb rooting depth, r vertical/under protection present banks, is not pr Obvious bank s Erosion/raw ba AND/OR Aggradir than 80% of strear	ed below average majority of banks cut. Vegetative on less than 20% of eventing erosion. loughing present. nks on 80-100%. g channel. Greater m bed is covered by buting to instability.	
	1070 01.1	,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,	boti	tom.	vegetative protecti	ed channels have ion on > 40% of the ional features which	40% of the banks a	tion is present on > and stable sediment is absent.		channels and/or nean flow.	CI
Score	3		2	.4	:	2	1	.6		1	3.0
. RIPARIAN	N BUFFERS: A		Con	n areas along the	gory	ugh measurement		n may be accepta	NOTES>>		
Riparian Buffers		mal 3 inches) present, nopy cover and a erstory. Wetlands	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory.	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present,	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area,	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or	,		
Riparian	Opti Tree stratum (dbh > with > 60% tree ca non-maintained und	mal 3 inches) present, nopy cover and a erstory. Wetlands	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory.	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation).	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover.	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh >3 inches) present, with <30% tree canopy cover with maintained understory.	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable condition.	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions.	,		
Riparian	Opti Tree stratum (dbh > with > 60% tree ca non-maintained und	mal 3 inches) present, nopy cover and a terstory. Wetlands riparian areas.	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh >3 inches) present, with <30% tree canopy cover with maintained	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable	,		
Riparian Buffers Condition Scores Delineate ripa escriptors. Determine sq elow.	Tree stratum (dbh > with > 60% tree ca non-maintained und located within the	mal 3 inches) present, nopy cover and a erestory. Wetlands riparian areas.	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 into Condition C	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Coungth and width. Coungth	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh > 3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5	,		
Riparian Buffers Condition Scores Delineate ripasscriptors. Determine square	Tree stratum (dbh > with > 60% tree ca non-maintained und located within the	mal 3 inches) present, nopy cover and a erestory. Wetlands riparian areas.	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 into Condition C	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Coungth and width. Coungth	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh > 3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5	,		
Riparian Buffers Condition Scores Delineate ripaescriptors. Determine squelow. Enter the % R	Tree stratum (dbh > with > 60% tree ca non-maintained und located within the	mal 3 inches) present, nopy cover and a erestory. Wetlands riparian areas.	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 into Condition C	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Coungth and width. Coungth	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh > 3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5	,		
Riparian Buffers Condition Scores Delineate ripascriptors. Determine squelow. Enter the % R	Tree stratum (dbh > with > 60% tree canon-maintained und located within the	3 inches) present, nopy cover and a eristory. Wetlands riparian areas. 5 ach stream bank ach by measuring 100% 1.5	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 into Condition C	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Coungth and width. Coungth	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh > 3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5 the sums Riparian equal 100	NOTES>>		
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Condition Scores Delineate ripa escriptors. Determine sq elow. Enter the % R Right Bank Left Bank	Tree stratum (dbh > with > 60% tree canon-maintained und located within the	mal 3 inches) present, nopy cover and a erstory. Wetlands riparian areas. 5 ach stream bank ach by measuring 100% 1.5 100% 1.5 tried substrate si	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 Into Condition C g or estimating ler parian category in	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Coungth and width. Coungth and width. Coungth and width. Coungth and depths; wodes.	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85 Indition Scores using the shrub and the shr	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh > 3 inches) present, with < 30% tree canopy cover with maintained understory: Low 0.75 ing the povided for you	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F Blocks 6	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5 the sums Riparian equal 100 100%	NOTES>>		CI 1.50
Riparian Buffers Condition Scores Delineate ripa sescriptors. Determine sq elow. Enter the % R Right Bank Left Bank INSTREAN ndercut banks;	Tree stratum (dbh > with > 60% tree ca non-maintained und located within the located with	mal 3 inches) present, nopy cover and a erestory. Wetlands riparian areas. 5 seach stream bank ach by measuring 100% 1.5 100% 1.5 aried substrate siffle poole comple	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 Into Condition C g or estimating ler parian category in zes, water velocity ixes, stable featur	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Coungth and width. Coungth and width. Coungth and width. Coungth and depths; wores. Conditiona	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <a>30 tree tree canopy cover. High 0.85 Indition Scores using the calculators are producted to the calculators are producted t	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh >3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75 ing the provided for you	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F Blocks 6	Low Poor: Impervious surfaces, mine pool lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5 the sums Riparian equal 100 100% 100%	NOTES>> Cl= (Sum % RA *: Rt Bank Cl > Lt Bank Cl >	1.50	_
Condition Scores Delineate ripalescriptors. Determine squelow. Right Bank Left Bank B. INSTREAN	Tree stratum (dbh > with > 60% tree ca non-maintained und located within the located with	mal 3 inches) present, nopy cover and a terstory. Wetlands riparian areas. 5 ach stream bank ach by measuring 100% 1.5 100% 1.5 viried substrate si ffle poole comple mal te typically present	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 Into Condition C g or estimating let parian category in Zes, water velocity exes, stable featur Subo Stable habitat ele present in 30-50% are adequate fo	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Coungth and width. Coungth and width. Coungth and width. Coungth and depths; wodes.	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85 Indition Scores using the state of the state	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh > 3 inches) present, with < 30% tree canopy cover with maintained understory: Low 0.75 ing the povided for you	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F Blocks 6	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5 the sums Riparian equal 100 100%	NOTES>> Cl= (Sum % RA *: Rt Bank Cl > Lt Bank Cl >	1.50	

	St	ream In	npact A	ssessm	ent Fo	rm Page	e 2		
Project #	Applicant		Locality	Cowardin Class.	HUC	Date	Data Point	SAR length	Impact Factor
								500	1
	L ALTERATION: Stream cross spoil piles, constrictions, livestock		Conditiona	al Category				NOTES>>	
	Negligible	Mi	nor		erate 60 - 80% of reach	Sev	vere		
Channel Alteration	Channelization, dredging, alteration, or hardening absent. Stream has an unaltered pattern or has naturalized.	Less than 20% of the stream reach is disrupted by any of the channel alterations listed in the parameter guidelines.	20-40% of the stream reach is disrupted by any of the channel alterations listed in the parameter guidelines.	is disrupted by any of the channel	50 - 50% of Iredam is disrupted by any of the channel alterations listed in the parameter guidelines. If stream has been channelized, normal stable stream meander pattern has not	Greater than 80% of by any of the chann in the parameter g 80% of banks sh riprap, o	of reach is disrupted nel alterations listed guidelines AND/OR lored with gabion, r cement.		
SCORE	1.5	1.3	1.1	0.9	0.7	0	.5		
	REACH C	ONDITION I	NDEX and S	TREAM CO	NDITION UN	ITS FOR TH	IS REACH		
NOTE: The Cls and I	RCI should be rounded to 2 decimal places.	The CR should be rou	nded to a whole numb	er.			THE REACH (CONDITION IN	DEX (RCI) >>

COMPENSATION REQUIREMENT (CR) >> 0

CR = RCI X LF X IF



DESCRIBE PROPOSED IMPACT:			

	Stre		fied Stream N	lethodology f	or use in Virg	ginia	m 1)			
Project #	Project Nam		Locality	nels classified a Cowardin Class.	HUC	Date	SAR#	Impact/SAR length	Impact Factor	
5337	I-64 Peninsula S	tudy	York	R2UB3	02080107	July '11		931		
Name	e(s) of Evaluator(s)	Stream Nam	e and Informa	ation						
	Aitkenhead	WUS 26S								
l. Channel C	Condition: Assess the cross-se		(ondition (erosion, conditional Catego						
	Optimal	Subo	ptimal	Mar	ginal	Po	or	Sev	/ere	
	Very little incision or active erosion; 8(erosion or unproted	ew areas of active cted banks. Majority	Poor. Banks more	less than Severe or stable than Severe	Overwiden Vertically/laterally	unstable. Likely to		istability. Severe	
Channel Condition	100% stable banks. Vegetative surface protection or natural rock, prominent (80-100%). AND/OR Stable point bars/bankfull benches are present. Access to their original floodplain or fully developed wide bankfull benches. Mid-channel bars, and transverse bars few. Transient sediment deposition covers less than 10% of bottom.	Vegetative protect prominent (60- Depositional feat stability. The bar channels are well likely has access to or newly develope portions of the rediment covers 10	table (60-80%). tiole (60-80%). MD/OR ures contribute to skfull and low flow I defined. Stream o bankfull benches, d floodplains along each. Transient 0-40% of the stream tom.	Erosion may be pri both banks. Veget 40-60% of banks. bevertical or unde 60% of stream sediment. Sec temporary/trans instability. Depositii stability, may be AND/OR V-shap	swer bank slopes. sesent on 40-60% of ative protection on Streambanks may rcut. AND/OR 40-n is covered by diment may be sient, contribute on that contribute to forming/present. ed channels have	protection prese banks, and is insu erosion. AND/O stream is cover Sediment is temp nature, and contrit AND/OR V-shap vegetative protecti	Erosion present on ks. Vegetative nt on 20-40% of ffficient to prevent R 60-80% of the ed by sediment. orary/transient in outing to instability, and channels have ion is present on >	rooting depth, n vertical/underc protection present banks, is not pre Obvious bank sl Erosion/raw bar AND/OR Aggradin than 80% of strean deposition, contrib	ed below average najority of banks but. Vegetative on less than 20% of eventing erosion. oughing present. hks on 80-100%. In channel. Greater n bed is covered by uting to instability. channels and/or	
				banks and depositi	on on > 40% of the onal features which	40% of the banks a deposition	is absent.	subterrar	nean flow.	CI
Score	3	2	.4		2	1.	.6		1	3.0
2. RIPARIAN	N BUFFERS: Assess both ban Optimal	Con	ditional Cate	gory	ginal Low Marginal:	Po High Poor:		NOTES>>		
Riparian Buffers		Con	ditional Cate	gory	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh >3 inches) present, with <30% tree canopy cover with maintained	Po		,		
Riparian	Optimal Tree stratum (dbh > 3 inches) present with > 60% tree canopy cover and a non-maintained understory. Wetlands	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained	ditional Cate ptimal Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh >3 inches) present, with <30% tree canopy cover with	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable	,		
Riparian	Optimal Tree stratum (dbh > 3 inches) present with > 60% tree canopy cover and a non-maintained understory. Wetlands	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory.	ditional Cate ptimal Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation).	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover.	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh > 3 inches) present, with < 30% tree canopy cover with maintained understory.	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable condition.	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions.	,		
Riparian Buffers Condition Scores 1. Delineate ripa descriptors. 2. Determine squelow.	Optimal Tree stratum (dbh > 3 inches) present with > 60% tree canopy cover and a non-maintained understory. Wetlands located within the riparian areas. 1.5 arian areas along each stream ban quare footage for each by measuring	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 k into Condition C	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Coungth and width. Coungth	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh > 3 inches) present, tree canopy cover with maintained understory. Low 0.75	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure t of % R	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5	,		
Riparian Buffers Condition Scores Delineate ripz escriptors. Determine squelow. Enter the % F	Optimal Tree stratum (dbh > 3 inches) present with > 60% tree canopy cover and a non-maintained understory. Wetlands located within the riparian areas. 1.5 arian areas along each stream ban quare footage for each by measuring Riparian Area and Score for each in	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 k into Condition C	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Coungth and width. Coungth	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh > 3 inches) present, tree canopy cover with maintained understory. Low 0.75	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure t of % R	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5 he sums tiparian qual 100	,		
Riparian Buffers Condition Scores Delineate ripalescriptors. Determine squelow.	Optimal Tree stratum (dbh > 3 inches) present with > 60% tree canopy cover and a non-maintained understory. Wetlands located within the riparian areas. 1.5 arian areas along each stream ban quare footage for each by measuring Riparian Area and Score for each r	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 k into Condition C	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Coungth and width. Coungth	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh > 3 inches) present, tree canopy cover with maintained understory. Low 0.75	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure t of % R	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5	NOTES>>		
Riparian Buffers Condition Scores Delineate ripaescriptors. Determine squelow. Enter the % F	Optimal Tree stratum (dbh > 3 inches) present with > 60% tree canopy cover and a non-maintained understory. Wetlands located within the riparian areas. 1.5 arian areas along each stream ban quare footage for each by measuring Riparian Area and Score for each response to the street of the score of the	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 k into Condition C	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Coungth and width. Coungth	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh > 3 inches) present, tree canopy cover with maintained understory. Low 0.75	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure t of % R	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5 he sums tiparian qual 100 100%	NOTES>>		
Riparian Buffers Condition Scores Delineate ripz escriptors. Determine squelow. Enter the % F	Optimal Tree stratum (dbh > 3 inches) present with > 60% tree canopy cover and a non-maintained understory. Wetlands located within the riparian areas. 1.5 arian areas along each stream ban quare footage for each by measuring Riparian Area and Score for each result of the street	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 k into Condition C	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Coungth and width. Coungth	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh > 3 inches) present, tree canopy cover with maintained understory. Low 0.75	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure t of % R	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5 he sums tiparian qual 100	NOTES>>	Scores*0.01)/2 0.75 0.75	C1 0.75
Condition Scores Delineate ripalescriptors. Determine squelow. Enter the % F. Right Bank Left Bank	Optimal Tree stratum (dbh > 3 inches) present with > 60% tree canopy cover and a non-maintained understory. Wetlands located within the riparian areas. 1.5 arian areas along each stream ban quare footage for each by measuring Riparian Area and Score for each results and the street of the stre	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 k into Condition C g or estimating ler parian category in	ditional Cate ptimal Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Congth and width. Congth and width. Congth and width. Congth and depths; wodes.	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85 Indition Scores using alculators are producted to the product of the product	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh - 3 inches) present, with <a>o voyer with maintained understory. Low 0.75 Ing the vided for you	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure to d % R Blocks e	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5 he sums tiparian qual 100 100%	NOTES>> CI= (Sum % RA* S Rt Bank CI >	0.75	CI 0.75
Condition Scores Delineate ripalescriptors. Determine squelow. Enter the % Right Bank Left Bank INSTREAM Indercut banks;	Optimal Tree stratum (dbh > 3 inches) present with > 60% tree canopy cover and a non-maintained understory. Wetlands located within the riparian areas. 1.5 arian areas along each stream ban quare footage for each by measuring Riparian Area and Score for each resulting the score > 0.75 % Riparian Area 100% Score > 0.75 M HABITAT: Varied substrate s	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 k into Condition C g or estimating ler parian category in zes, water velocity exes, stable featur	ditional Cate ptimal Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Congth and width. Congth and width. Congth and width. Congth and depths; wodes.	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85 Indition Scores using alculators are production of the prod	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh - 3 inches) present, with <a>o voyer with maintained understory. Low 0.75 Ing the vided for you	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure t of % R Blocks e	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5 he sums tiparian qual 100 100%	NOTES>> CI= (Sum % RA * S Rt Bank CI > Lt Bank CI >	0.75	
Condition Scores 1. Delineate ripadescriptors. 2. Determine squelow. 3. Enter the % F	Tree stratum (dbh > 3 inches) present with > 60% tree canopy cover and a non-maintained understory. Wetlands located within the riparian areas. 1.5 arian areas along each stream ban quare footage for each by measuring Riparian Area and Score for each reach Riparian Area and Score solves on the score of the score o	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 k into Condition C g or estimating let parian category in zes, water velocity exes, stable featur Subo Stable habitat ele present in 30-50% are adequate fo	ditional Cate ptimal Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Co ongth and width. Co the blocks below y and depths; wodes. Conditional	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85 Indition Scores using alculators are producted and care producted and ca	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh >3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75 Ing the vided for you	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure to deep the seeded and stabilized area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure to deep the seeded and seeded	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5 he sums liparian qual 100 100% 100%	NOTES>> CI= (Sum % RA * S Rt Bank CI > Lt Bank CI >	0.75	

	St	ream In	npact A	ssessm	ent Fo	rm Page	e 2		
Project #	Applicant		Locality	Cowardin Class.	HUC	Date	Data Point	SAR length	Impact Factor
								500	1
	ALTERATION: Stream cross poil piles, constrictions, livestock	sings, riprap, conc			traightening of ch	annel, channeliza	ition,	NOTES>>	
	Negligible	l Mi	nor	al Category	erate	Sev	vere		
Channel Alteration	Channelization, dredging, alteration, or hardening absent. Stream has an unaltered pattern or has naturalized.	Less than 20% of the stream reach is disrupted by any of the channel alterations listed in the parameter guidelines.	20-40% of the stream reach is disrupted by any of the channel alterations listed in the parameter guidelines.	is disrupted by any of the channel	of the channel	by any of the chang in the parameter of	of reach is disrupted nel alterations listed juidelines AND/OR ored with gabion, r cement.		
SCORE	1.5	1.3	1.1	0.9	0.7	0	.5		
	REACH C	ONDITION	NDEX and S	TREAM CO	NDITION UN	ITS FOR TH	IS REACH		
NOTE: The CIs and R	RCI should be rounded to 2 decimal places.	The CR should be rou	nded to a whole numb	er.			THE REACH (CONDITION INI	DEX (RCI) >>

COMPENSATION REQUIREMENT (CR) >> 0

CR = RCI X LF X IF

INSERT PHOTOS:





		Stre	Unit	fied Stream N	lethodology 1	Form	ginia	m 1)			
Project #		Project Name		Locality	nels classified a Cowardin Class.	HUC	perennial Date	SAR#	Impact/SAR length	Impact Factor	
5337	I-64	Peninsula S	tudy	James City	R2UB2	02080206	July '11		79		
Name	e(s) of Evaluat	tor(s)	Stream Nam	e and Informa	ation						
	Aitkenhead		WUS 27S								
. Channel C	Condition: Asse	ess the cross-sec	tion of the stream		ondition (erosion, conditional Catego						
	Opti	imal	Subo	ptimal	Mar	ginal	Po	oor	Se	vere	
	Very little incision o	r active erosion: 80	erosion or unproted	ew areas of active cted banks. Majority	Poor. Banks more	less than Severe or stable than Severe	Vertically/laterally	ned/incised. unstable. Likely to	incision flow co	nstability. Severe	
Channel Condition	100% stable bar surface protection prominent (80-10 Stable point bars/be present. Access floodplain or fully bankfull benches. and transverse ba sediment depositio 10% of I	nks. Vegetative n or natural rock, 00%). AND/OR ankfull benches are to their original developed wide Mid-channel bars, ars few. Transient n covers less than	Vegetative protect prominent (60- Depositional feat stability. The bar channels are well likely has access to rnewly develope portions of the rediment covers 10	table (60-80%). tion or natural rock -80%) AND/OR tures contribute to nkfull and low flow Il defined. Stream o bankfull benches, d floodplains along reach. Transient 0-40% of the stream tom.	Erosion may be pr both banks. Veget 40-60% of banks. bevertical or unde 60% of stream sediment. Se- temporary/tran instability. Depositi stability, may be	ower bank slopes. esent on 40-60% of tative protection on Streambanks may ercut. AND/OR 40- n is covered by diment may be sient, contribute on that contribute to e forming/present. ed channels have	are near vertical. 60-80% of bar protection prese banks, and is insi erosion. AND/C stream is cover Sediment is tem nature, and contri AND/OR V-shap	jority of both banks Erosion present on iks. Vegetative ent on 20-40% of afficient to prevent R 60-80% of the eed by sediment. corary/transient in buting to instability. ed channels have ion is present on >	rooting depth, r vertical/under protection present banks, is not pr Obvious bank s Erosion/raw ba AND/OR Aggradir than 80% of strear deposition, contril	ned below average majority of banks cut. Vegetative on less than 20% of eventing erosion. sloughing present. Inks on 80-100%. ng channel. Greater m bed is covered by buting to instability. I channels and/or	
					banks and depositi	ion on > 40% of the ional features which	deposition	and stable sediment is absent.	subterra	nean flow.	CI
Score	3	3	2	.4		2	1	.6		1	2.4
2. RIPARIAN	N BUFFERS: A		Con	ditional Cate	gory Mar	ginal Low Marginal: Non-maintained,	Po High Poor:	n may be accepta	NOTES>>		
2. RIPARIAN Riparian Buffers	Opti Tree stratum (dbh > with > 60% tree ca	imal - 3 inches) present, nopy cover and a lerstory. Wetlands	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree	ditional Cate	gory	ginal Low Marginal:	Pe		NOTES>>		
Riparian	Option Tree stratum (dbh > with > 60% tree canon-maintained unc	imal - 3 inches) present, nopy cover and a lerstory. Wetlands	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory.	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation).	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover.	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh >3 inches) present, with <30% tree canopy cover with maintained understory.	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable condition.	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions.	NOTES>>		
Riparian	Option Tree stratum (dbh > with > 60% tree canon-maintained unc	3 inches) present, inopy cover and a derstory. Wetlands e riparian areas.	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present with <30% tree	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh >3 inches) present, with <30% tree canopy cover with maintained	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable	NOTES>>		
Riparian Buffers Condition Scores Delineate ripalescriptors. 2. Determine squelow.	Tree stratum (dbh > with > 60% tree ca non-maintained unc located within the	imal 3 inches) present, inopy cover and a lerstory. Wetlands e riparian areas.	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 into Condition C	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Coungth and width. Co	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh >3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5	NOTES>>		
Riparian Buffers Condition Scores Delineate ripa escriptors. Determine sq elow.	Tree stratum (dbh > with > 60% tree ca non-maintained unc located within the	imal 3 inches) present, unopy cover and a ferstory. Wetlands e riparian areas.	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 into Condition C	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Coungth and width. Co	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh >3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5	NOTES>>		
Riparian Buffers Condition Scores Delineate ripalescriptors. Determine squelow.	Tree stratum (dbh > with > 60% tree ca non-maintained unc located within the	imal 3 inches) present, inopy cover and a lerstory. Wetlands e riparian areas.	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 into Condition C	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Coungth and width. Co	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh >3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5	NOTES>>		
Riparian Buffers Condition Scores Delineate ripaescriptors. Determine squelow. Enter the % F	Tree stratum (dbh > with > 60% tree ca non-maintained unc located within the located with	imal 3 inches) present, unopy cover and a lerstory. Wetlands e riparian areas. 5 each stream bank ach by measuring Score for each riparian areas.	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 into Condition C	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Coungth and width. Co	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh >3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5 the sums Riparian equal 100	NOTES>>		
Riparian Buffers Condition Scores Delineate ripaescriptors. Determine squelow. Enter the % F	Tree stratum (dbh > with > 60% tree ca non-maintained uncolocated within the located with	imal 3 inches) present, unopy cover and a lerstory. Wetlands e riparian areas. 5 each stream bank ach by measuring 100% 0.85	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 into Condition C	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Coungth and width. Co	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh >3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5	NOTES>>	0.85	CI 0.85
Condition Scores 1. Delineate ripadescriptors. 2. Determine squelow. 3. Enter the % F. Right Bank Left Bank 3. INSTREAR	Tree stratum (dbh > with > 60% tree ca non-maintained unc located within the located with	imal 3 inches) present, unopy cover and a lerstory. Wetlands e riparian areas. 5 ach stream bank ach by measuring 100% 0.85 100% 0.85 aried substrate si	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 k into Condition C g or estimating ler parian category in	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Coungth and width. Coungth and width. Coungth and width. Coungth and depths; wodes.	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85 Indition Scores us calculators are production of the product	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh > 3 inches) present, with < 30% tree canopy cover with maintained understory: Low 0.75 ing the ovided for you	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F Blocks 6	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5 the sums Riparian equal 100 100%	NOTES>> Cl= (Sum % RA*: Rt Bank Cl >		
Condition Scores Delineate ripa elescriptors. Deltre the % F Right Bank Left Bank Left Bank B. INSTREAN Left banks;	Tree stratum (dbh > with > 60% tree ca non-maintained unc located within the located with	imal 3 inches) present, nopy cover and a lerstory. Wetlands e riparian areas. 5 each stream bank ach by measuring 100% 0.85 100% 0.85 aried substrate significations in the proofe complete the stream of the proofe complete	Riph Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 Into Condition C g or estimating ler parian category in	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Coungth and width. Coungth and width. Coungth and width. Coungth and depths; wodes.	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <a>3 inches) present, with <a>3 inches) present, or a tree canopy cover. High 0.85 Indition Scores us calculators are production of the control of th	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh > 3 inches) present, with < 30% tree canopy cover with maintained understory: Low 0.75 ing the ovided for you	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F Blocks 6	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5 the sums Riparian equal 100 100%	NOTES>> Ci= (Sum % RA *: Rt Bank Ci > Lt Bank Ci >	0.85	
Condition Scores 1. Delineate ripadescriptors. 2. Determine squelow. 3. Enter the % F. Right Bank Left Bank 3. INSTREAR	Tree stratum (dbh > with > 60% tree ca non-maintained unc located within the located with	5 Score for each ri 100% 0.85 100% 0.85 riped substrate siffle poole comple	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 Into Condition C g or estimating let parian category in Zes, water velocity ixes, stable featur Subo Stable habitat ele present in 30-50% are adequate fo	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Coungth and width. Coungth and width. Coungth and width. Coungth and depths; wores. Conditiona	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85 Indition Scores us calculators are production of the present in 10-30 are adequate for a seadequate for the present in 10-30 are adequate for the present in 10-30 are adeq	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh >3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75 ing the vided for you	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % f Blocks 6	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5 the sums Riparian equal 100 100%	CI= (Sum % RA *: Rt Bank CI > Lt Bank CI > NOTES>>	0.85	CI 0.85

Stream Impact Assessment Form Page 2 Applicant Project # Cowardin Class Data Point SAR length Impact Factor 4. CHANNEL ALTERATION: Stream crossings, riprap, concrete, gabions, or concrete blocks, straightening of channel, channelization, NOTES>> embankments, spoil piles, constrictions, livestock Conditional Category Moderate Minor Negligible Severe 40 - 60% of reach is disrupted by any of the channel 20-40% of the stream reach is Less than 20% of alterations listed in the parameter guidelines. If Channel Iterations listed in Greater than 80% of reach is disrupted the stream reach the parameter Channelization, dredging, alteration, or hardening absent. Stream has an unaltered pattern or has naturalized. by any of the channel alterations listed in the parameter guidelines AND/OR 80% of banks shored with gabion, s disrupted by any disrupted by any Alteration of the channel Iterations listed i of the channel Iterations listed i guidelines. If stream has been channelized, normal stable stream has been channelized, normal stable the parameter the parameter riprap, or cement. guidelines. guidelines. stream meander stream meander pattern has not pattern has not SCORE 1.5 1.3 1.1 0.9 0.7 0.5 0.70 REACH CONDITION INDEX and STREAM CONDITION UNITS FOR THIS REACH THE REACH CONDITION INDEX (RCI) >> NOTE: The CIs and RCI should be rounded to 2 decimal places. The CR should be rounded to a whole number. 0.97

RCI= (Sum of all CI's)/5

COMPENSATION REQUIREMENT (CR) >> 0

CR = RCI X LF X IF

INSERT PHOTOS:





	3116	Uni	fied Stream N	lethodology 1	,	ginia	m 1)			
Project #	Project Nam		Locality	Cowardin Class.	HUC	Date	SAR #	Impact/SAR length	Impact Factor	
5337	I-64 Peninsu	a	James City		02080206	July 2011		352		
Name	e(s) of Evaluator(s)		e and Informa	ation						
	Aitkenhead / Nies	WUS 28S								
. Channel C	Condition: Assess the cross-se	ction of the stream		ondition (erosion, Conditional Catego						
	Optimal	Subo	ptimal	Mar	ginal	Po	oor	Sev	/ere	
Channel Condition	Very little incision or active erosion; 80 100% stable banks. Vegetative surface protection or natural rock,	erosion or unproted of banks are s	ew areas of active cted banks. Majority table (60-80%). tion or natural rock	Poor. Banks more or Poor due to lo Erosion may be pr	less than Severe or stable than Severe ower bank slopes. esent on 40-60% of	Vertically/laterally widen further. Ma are near vertical.	ned/incised. unstable. Likely to jority of both banks Erosion present on	incision, flow cor banks. Streambe	istability. Severe ntained within the ed below average najority of banks	
Condition	surface protection or natural rock, prominent (80-100%). AND/OR Stable point bars/bankfull benches are present. Access to their original floodplain or fully developed wide bankfull benches. Mid-channel bars, and transverse bars few. Transient sediment deposition covers less than 10% of bottom.	Depositional feat stability. The bar channels are we likely has access t or newly develope portions of the sediment covers 10	-80%) AND/OR tures contribute to hkfull and low flow II defined. Stream o bankfull benches, d floodplains along reach. Transient 0-40% of the stream tom.	40-60% of banks. bevertical or unde 60% of strean sediment. See temporary/tran instability. Depositi stability, may be AND/OR V-shap vegetative protect	tative protection on Streambanks may protect. AND/OR 40- n is covered by diment may be sient, contribute on that contribute to forming/present. ed channels have ion on > 40% of the ional features which	protection prese banks, and is insi ersoion. AND/O stream is cover Sediment is tem nature, and contri AND/OR V-shap vegetative protect 40% of the banks a	uks. Vegetative ent on 20-40% of ufficient to prevent R 60-80% of the red by sediment. occary/transient in buting to instability. Led channels have ion is present on > and stable sediment is absent.	vertical/underc protection present of banks, is not pre Obvious banks I Erosion/raw bar AND/OR Aggradin than 80% of strean deposition, contrib Multiple thread	cut. Vegetative on less than 20% of eventing erosion. loughing present.	CI
Score	3	2	.4	- 1	2	· · · · · · · · · · · · · · · · · · ·	.6		1	3.0
NOTES>>		•								
Riparian		High Suboptimal: Riparian areas with tree stratum	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches)	High Marginal: Non-maintained,	Low Marginal: Non-maintained, dense herbaceous	High Poor: Lawns, mowed,				
Buffers	Tree stratum (dbh > 3 inches) present with > 60% tree canopy cover and a non-maintained understory. Wetlands located within the riparian areas.	to 60% tree	present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation).	dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover.	vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh >3 inches) present, with 30% tree canopy cover with maintained understopy	and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, recently seeded and stabilized, or other comparable condition.	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions.			
	with > 60% tree canopy cover and a non-maintained understory. Wetlands	present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained	present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense	vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree	riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh >3 inches) present, with <30% tree canopy cover with	and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated nonmaintained area, recently seeded and stabilized, or other comparable	Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable			
Condition Scores	with > 60% tree canopy cover and a non-maintained understory. Wetlands	present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory.	present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation).	vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover.	riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh > 3 inches) present, with < 30% tree canopy cover with maintained understory.	and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, recently seeded and stabilized, or other comparable condition.	Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions.			
Condition Scores 1. Delineate ripa descriptors. 2. Determine squelow.	with > 60% tree canopy cover and a non-maintained understory. Wetlands located within the riparian areas. 1.5 arian areas along each stream ban uare footage for each by measuring Riparian Area and Score for each respons	Present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 k into Condition Corg or estimating length of the condition of the conditio	present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Congth and width. Congth and	vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85	riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh >3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75	and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % I	Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions.			
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Condition Scores Delineate ripa escriptors. Determine squelow. Enter the % R	with > 60% tree canopy cover and a non-maintained understory. Wetlands located within the riparian areas. 1.5 arian areas along each stream ban uare footage for each by measuring Riparian Area and Score for each respons	Present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 k into Condition Corg or estimating length of the condition of the conditio	present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Congth and width. Congth and	vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85	riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh >3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75	and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % I	Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5	CI= (Sum % RA * S Rt Bank CI >	Scores*0.01)/2 1.50	CI
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Condition Scores Delineate ripa escriptors. Determine squelow. Enter the % R Right Bank Left Bank	with > 60% tree canopy cover and a non-maintained understory. Wetlands located within the riparian areas. 1.5 arian areas along each stream ban uare footage for each by measuring the stream Area and Score for each result of the stream Area and	present, with 30% to 60% tree to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 k into Condition C ag or estimating ler in the category in	present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Congth and width. Congth and width. Congth and width. Conthe blocks below y and depths; wodes. Conditions	vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85 Indition Scores us calculators are process.	riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh > 3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75 ing the production of the present of the pres	and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F Blocks 6	Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5 the sums Riparian equal 100 100%	Rt Bank CI >	1.50	
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Project # Applicant Learning Control Colors Learning Control Colors Learning Col		St	ream In	npact A	ssessn	nent Fo	rm Pag	je 2		
4. CHANNEL ALTERATION: Stream crossings, inprep, controlled increases, spell piles, spell	Project #			_					SAR length	Impact Factor
Channel Alteration Channel Channe									500	1
Channel Alteration Channel Alteration Channel Channe			sings, riprap, cond	crete, gabions, or	concrete blocks, s	straightening of ch	annel, channeliz	zation,	NOTES>>	
Channel Charmellation, designs, attention, unafficed pattern or has naturalized pattern or has natural		Magliaikis				lorato		OVOTO.		
Channel Alteration Channel Consideration (red sping), allerations or hardering states (red states) and unables of politic in a first channel or hardering states (red states) and unables of politic in a first channel or hardering states (red states) and unables of politic in a first channel or hardering states (red states) and unables of politic in a first channel or hardering states (red states) and unables of politic in a first channel or hardering states (red states) and unables of politic in a first channel or hardering states (red states) and unables of politic in a first channel or hardering states (red states) and unables (red stat		Negrigible	IVII		40 - 60% of reach	60 - 80% of reach		evere		
REACH CONDITION INDEX and STREAM CONDITION UNITS FOR THIS REACH NOTE: The Cis and RCI should be rounded to 2 decimal places. The Cif should be rounded to a whole number: THE REACH CONDITION INDEX (RCI) >>		or hardening absent. Stream has an	the stream reach is disrupted by any of the channel alterations listed in the parameter	stream reach is disrupted by any of the channel alterations listed in the parameter	of the channel alterations listed in the parameter guidelines. If stream has been channelized, normal stable stream meander	of the channel alterations listed in the parameter guidelines. If stream has been channelized, normal stable stream meander	Greater than 80% by any of the cha in the parameter 80% of banks	annel alterations listed r guidelines AND/OR shored with gabion,		
NOTE: The Cits and RCI should be reunded to 2 decimal places. The CR should be reunded to a whole number. THE REACH CONDITION INDEX (RCI) >> RCI= (Sum of BI CITS)S COMPENSATION REQUIREMENT (CR) >> CR = RCI X LF X IF INSERT PHOTOS:	SCORE	1.5	1.3	1.1	0.9	0.7		0.5		
INSERT PHOTOS: RCI= (Sum of all Cris)/5 COMPENSATION REQUIREMENT (CR) >>		REACH C	CONDITION	NDEX and S	STREAM CO	NDITION UN	ITS FOR T	HIS REACH		
INSERT PHOTOS: CR = RCI X LF X IF INSERT PHOTOS:	NOTE: The Cls and F	RCI should be rounded to 2 decimal places.	The CR should be rou	inded to a whole numl	ber.			THE REACH (CONDITION IN	DEX (RCI) >>
INSERT PHOTOS: CR = RCI XLF XIF										
INSERT PHOTOS:										MENT (CR) >>
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DESCRIBE PROPOSED IMPACT:										
DESCRIBE PROPOSED IMPACT:										
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		Stre		fied Stream N	lethodology f	for use in Virg	ginia	m 1)			
Project #	ı	Project Name		Locality	Cowardin Class.	HUC	Date Date	SAR#	Impact/SAR length	Impact Factor	
5337	Į.	-64 Peninsul	a	Newport News	R2UB2	02080206	July '11		784		
Nam	e(s) of Evalua	tor(s)	Stream Nam	e and Informa	ation						
	Aitkenhead		WUS 29S								
. Channel (Condition: Asse	ess the cross-sec	tion of the stream		ondition (erosion, Conditional Catego						
	Opti	mal	Subo	ptimal	Mar	ginal	Po	oor	Se	vere	
	Very little incision o	r active erosion: 80	erosion or unproted	ew areas of active cted banks. Majority	Poor. Banks more	less than Severe or stable than Severe	Vertically/laterally	ned/incised. unstable. Likely to		nstability. Severe	
Channel Condition	100% stable bar surface protection prominent (80-10 Stable point bars/be present. Access floodplain or fully bankfull benches. and transverse ba sediment depositio	nks. Vegetative n or natural rock, 00%). AND/OR ankfull benches are to their original developed wide Mid-channel bars, ars few. Transient n covers less than	Vegetative protect prominent (60- Depositional feat stability. The bar channels are well likely has access to rnewly develope portions of the rediment covers 10	table (60-80%), titon or natural rock -80%) AND/OR tures contribute to nkfull and low flow II delined. Stream o bankfull benches, at floodplains along reach. Transient 0-40% of the stream tom.	Erosion may be pr both banks. Veget 40-60% of banks. bevertical or unde 60% of strean sediment. Sed temporary/tran instability. Depositi stability, may be	ower bank slopes. esent on 40-60% of tative protection on Streambanks may ercut. AND/OR 40- n is covered by diment may be sient, contribute on that contribute to e forming/present. ed channels have	are near vertical. 60-80% of bar protection prese banks, and is inst erosion. AND/O stream is cover Sediment is temp nature, and contri AND/OR V-shap	jority of both banks Erosion present on iks. Vegetative ent on 20-40% of afficient to prevent R 60-80% of the red by sediment. corary/transient in buting to instability. ed channels have ion is present on >	banks. Streamb rooting depth, r vertical/underr vertical/under protection present banks, is not pr Obvious bank s Erosion/raw ban AND/OR Aggradir than 80% of strear deposition, contril	ed below average majority of banks cut. Vegetative on less than 20% of eventing erosion. loughing present. nks on 80-100%. ng channel. Greater m bed is covered by buting to instability.	
			DOI	tom.	vegetative protecti	ion on > 40% of the ional features which	40% of the banks a	and stable sediment is absent.		channels and/or nean flow.	CI
Score	3	3	2	2.4		2	1	.6		1	2.0
. RIPARIAN	N BUFFERS: A		Con	nditional Cate ptimal	gory	ginal Low Marginal:	Po	n may be accepta	NOTES>>		
. RIPARIAN Riparian Buffers	Opti Tree stratum (dbh > with > 60% tree ca	imal - 3 inches) present, nopy cover and a lerstory. Wetlands	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy	gory	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh >3 inches) present, with 30% inches) present, with <a href<="" th=""><th></th><th></th><th></th><th></th><th></th>					
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Riparian	Option Tree stratum (dbh > with > 60% tree canon-maintained unc	3 inches) present, inopy cover and a derstory. Wetlands e riparian areas.	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh >3 inches) present, with <30% tree canopy cover with maintained	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable			
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Riparian Buffers Condition Scores Delineate ripascriptors. Determine square. Enter the % F	Tree stratum (dbh > with > 60% tree ca non-maintained unc located within the	imal 3 inches) present, unopy cover and a ferstory. Wetlands e riparian areas.	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 into Condition C g or estimating ler	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Coungth and width. Counter	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh > 3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5			
Riparian Buffers Condition Scores Delineate ripasscriptors. Determine squew. Enter the % F	Tree stratum (dbh > with > 60% tree ca non-maintained unc located within the	imal 3 inches) present, incopy cover and a lerstory. Wetlands e riparian areas.	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 into Condition C	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Coungth and width. Coungth	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh > 3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5	NOTES>>		
Riparian Buffers Condition Scores Delineate ripasscriptors. Determine solow. Enter the % F	Tree stratum (dbh > with > 60% tree ca non-maintained unc located within the located with	imal 3 inches) present, unopy cover and a lerstory. Wetlands e riparian areas. 5 each stream bank ach by measuring 20% 0.85	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 Into Condition C g or estimating ler parian category in 30%	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Coungth and width. Counter the blocks below	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh > 3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5 the sums Riparian equal 100	NOTES>>		CI
Riparian Buffers Condition Scores Delineate rips scriptors. Determine scolow. Enter the % F	Tree stratum (dbh > with > 60% tree ca non-maintained unc located within the located with	imal 3 inches) present, unopy cover and a lerstory. Wetlands e riparian areas. 5 each stream bank ach by measuring 20% 0.85	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 Into Condition C g or estimating ler parian category in 30%	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Coungth and width. Counter the blocks below	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh > 3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5	NOTES>>	Scores*0.01)/2 0.60 1.20	CI 0.90
Condition Scores Delineate rips escriptors. Determine squalow. Enter the % F	Tree stratum (dbh > with > 60% tree ca non-maintained unc located within the located with	imal 3 inches) present, unopy cover and a lerstory. Wetlands e riparian areas. 5 bach stream bank ach by measuring 20% 0.85 100% 1.2 aried substrate si	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 into Condition C g or estimating ler parian category in 30% 0.6	Inditional Cate ptimal Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Coungth and width. Coungth and width. Coungth and width. Coungth and width. Coungth and depths; wodes.	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85 Indition Scores usional calculators are productions of the control of the con	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh > 3 inches) present, with < 30% tree canopy cover with maintained understory: Low 0.75 ing the ovided for you	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F Blocks 6	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5 the sums Riparian equal 100 100%	CI= (Sum % RA*; Rt Bank CI > Lt Bank CI > NOTES>> Fi	0.60 1.20 sh and kpot and	CI 0.90
Condition Scores Delineate ripe escriptors. Determine so elow. Enter the % F Right Bank Left Bank	Tree stratum (dbh > with > 60% tree ca non-maintained unc located within the located with	imal 3 inches) present, nopy cover and a lerstory. Wetlands e riparian areas. 5 each stream bank ach by measuring 20% 0.85 100% 1.2 aried substrate significations are significant areas.	Riph Suboptimal: Riparian areas with tree stratum (dbh s 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 Into Condition C g or estimating ler parian category in 30% 0.6	Inditional Cate ptimal Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Coungth and width. Coungth and width. Coungth and width. Coungth and width. Coungth and depths; wodes.	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <a>30 tree canopy cover. High 0.85 Indition Scores usional calculators are production of the calculators are productional calculators.	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh > 3 inches) present, with < 30% tree canopy cover with maintained understory: Low 0.75 ing the ovided for you	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F Blocks 6	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5 the sums Riparian equal 100 100%	CI= (Sum % RA * S Rt Bank CI > Lt Bank CI >	0.60 1.20 sh and kpot and	
Condition Scores Delineate ripe escriptors. Determine so elow. Enter the % F Right Bank Left Bank INSTREAI ndercut banks;	Tree stratum (dbh > with > 60% tree ca non-maintained unc located within the located with	5 Score for each ri 20% 0.85 100% 1.2 aried substrate siffle poole comple	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 into Condition C g or estimating ler parian category in 30% 0.6 Stable habitat ele present in 30-50% are adequate fo	Inditional Cate ptimal Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Coungth and width. Coungth and width. Coungth and width. Coungth and width. Coungth and depths; wores. y and depths; wores. Conditional	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85 Indition Scores using the state of the state	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh >3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75 ing the vided for you	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F Blocks 6	Low Poor: Impervious surfaces, mine pool lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5 the sums Riparian equal 100 100% 100%	CI= (Sum % RA*; Rt Bank CI > Lt Bank CI > NOTES>> Fi	0.60 1.20 sh and kpot and	_

	St	ream In	npact A	ssessm	ent Fo	rm Pag	e 2		
Project #	Applicant		Locality	Cowardin Class.	HUC	Date	Data Point	SAR length	Impact Factor
								500	1
	L ALTERATION: Stream cross spoil piles, constrictions, livestock			al Category	traightening of ch		vere	NOTES>>	
Channel Alteration		Less than 20% of the stream reach is disrupted by any of the channel alterations listed in the parameter guidelines.	20-40% of the stream reach is disrupted by any of the channel alterations listed in the parameter guidelines.	40 - 60% of reach is disrupted by any of the channel	60 - 80% of reach is disrupted by any of the channel alterations listed in the parameter guidelines. If stream has been channelized, normal stable stream meander pattern has not	Greater than 80% by any of the chan in the parameter 80% of banks sh	of reach is disrupted nel alterations listed guidelines AND/OR nored with gabion, or cement.		
SCORE	1.5	1.3	1.1	0.9	0.7	0).5		
	REACH C	ONDITION I	NDEX and S	TREAM CO	NDITION UN	ITS FOR TH	IS REACH		
NOTE: The Cls and F	RCI should be rounded to 2 decimal places.	The CR should be rou	nded to a whole numb	er.			THE REACH (CONDITION IN	DEX (RCI) >>

COMPENSATION REQUIREMENT (CR) >>

CR = RCI X LF X IF



DESCRIBE PROPOSED IMPACT:		
	 	 ·

	<u> </u>		fied Stream N	lethodology 1	for use in Virg	ginia	m 1)			
Project #	Project Na		Locality	nels classified a Cowardin Class.	HUC	perennial Date	SAR #	Impact/SAR length	Impact Factor	
5337	I-64 Penins	sula	Henrico	R2UB1	02080206	July '11		41		
Name	e(s) of Evaluator(s)	Stream Nam	e and Informa	ation						
	Aitkenhead	WUS 2S								
. Channel C	Condition: Assess the cross-	section of the stream		ondition (erosion, conditional Catego						
	Optimal	Subo	ptimal	Mar	ginal	Po	oor	Sev	/ere	
	Very little incision or active erosion	erosion or unprote	few areas of active cted banks. Majority	Poor. Banks more	less than Severe or stable than Severe	Vertically/laterally	ned/incised. unstable. Likely to		stability. Severe	
Channel Condition	100% stable banks. Vegetative surface protection or natural rock prominent (80-100%). AND/OR Stable point bars/bankfull benches present. Access to their origina floodplain or fully developed wid bankfull benches. Mid-channel bz and transverse bars few. Transie sediment deposition covers less the 10% of bottom.	Vegetative protect are e e likely has access or newly develope portions of the sediment covers 1	stable (60-80%). tion or natural rock +80%) AND/OR tures contribute to nkfull and low flow sll defined. Stream to bankfull benches, ad floodplains along reach. Transient 0-40% of the stream	Erosion may be pr both banks. Veget 40-60% of banks. bevertical or unde 60% of stream sediment. Se- temporary/tran instability. Depositi stability, may be	ower bank slopes. esent on 40-60% of tative protection on Streambanks may ercut. AND/OR 40- n is covered by diment may be sient, contribute on that contribute to forming/present.	are near vertical. 60-80% of bar protection prese banks, and is insi erosion. AND/C stream is cover Sediment is tem nature, and contri AND/OR V-shap	jority of both banks Erosion present on iks. Vegetative ent on 20-40% of ufficient to prevent R 60-80% of the red by sediment. corary/transient in buting to instability. ed channels have	banks. Streamberooting depth, novertical/underceprotection present banks, is not pre Obvious bank sl Erosion/raw bar AND/OR Aggradin than 80% of strean deposition, contrib	ed below average najority of banks but. Vegetative on less than 20% of eventing erosion. oughing present. Iks on 80-100%. In bed is covered by outing to instability.	
		bo	ttom.	vegetative protect	ed channels have ion on > 40% of the ional features which	40% of the banks	tion is present on > and stable sediment is absent.	Multiple thread subterrar	channels and/or nean flow.	CI
Score	3	2	2.4		2	1	.6		1	1.6
Riparian	Optimal Tree stratum (dbh > 3 inches) pres	High Suboptimal Riparian areas with tree stratum (dbh > 3 inches) ent, present, with 30%	with tree stratum (dbh > 3 inches)	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub	Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland;	Low Poor: Impervious surfaces, mine			
Kiparian	with > 60% tree canopy cover and	a to 60% tree	cover and a		tree stratum, nav	actively grazed	spoil lands,			
Buffers	non-maintained understory. Wetla located within the riparian areas	nds canopy cover and	maintained understory. Recent cutover (dense vegetation).	layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover.	production, ponds, open water. If present, tree stratum (dbh >3 inches) present, with <30% tree canopy cover with maintained understory.	actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable condition.				
Buffers	located within the riparian areas	canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High	maintained understory. Recent cutover (dense vegetation).	layer (dbh > 3 inches) present, with <30% tree canopy cover.	production, ponds, open water. If present, tree stratum (dbh >3 inches) present, with <30% tree canopy cover with maintained understory.	pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable condition.	spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions.			
		canopy cover and containing both herbaceous and shrub layers or a non-maintained understory.	maintained understory. Recent cutover (dense vegetation).	layer (dbh > 3 inches) present, with <30% tree canopy cover.	production, ponds, open water. If present, tree stratum (dbh >3 inches) present, with <30% tree canopy cover with maintained understory.	pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable condition.	spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions.			
Condition Scores Delineate ripa escriptors. Determine squ	located within the riparian areas	canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 ank into Condition C	maintained understory. Recent cutover (dense vegetation).	layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85	production, ponds, open water. If present, tree stratum (dbh >3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75	pasture, sparsely vegetated non-maintained area, recently seeded and stabilized, or other comparable condition. High 0.6	spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions.			
Condition Scores Delineate ripa escriptors. Determine squelow.	located within the riparian areas 1.5 arian areas along each stream b	ank into Condition Couring or estimating let	maintained understory. Recent cutover (dense vegetation). Low 1.1 Lategories and Congth and width. Congth and width. Congth cutoff cutoff can be congeted as a congete conge	layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85 Indition Scores us	production, ponds, open water. If present, tree stratum (dbh >3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75	pasture, sparsely vegetated non-maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F	spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5			
Condition Scores Delineate ripa scriptors. Determine squalow. Enter the % R	1.5 arian areas along each stream buare footage for each by measuraparian Area and Score for each with the stream and Score for each stream and Sco	ank into Condition Couring or estimating let h riparian category in 20%	maintained understory. Recent cutover (dense vegetation). Low 1.1 Categories and Coungth and width. Coung	layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85 Indition Scores us	production, ponds, open water. If present, tree stratum (dbh >3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75	pasture, sparsely vegetated non-maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F	spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5			
Condition Scores Delineate ripa escriptors. Determine squelow. Enter the % R	1.5 arian areas along each stream buare footage for each by measuraparian Area and Score for each	canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 ank into Condition Curing or estimating le	maintained understory. Recent cutover (dense vegetation). Low 1.1 Categories and Coungth and width. Counthe blocks below	layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85 Indition Scores us	production, ponds, open water. If present, tree stratum (dbh >3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75	pasture, sparsely vegetated non-maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F	spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5	CI≕ (Sum % RA * °	Scores*0.01)/2	
Condition Scores Delineate ripa escriptors. Determine squelow. Enter the % R Right Bank	1.5 arian areas along each stream buare footage for each by measuraparian Area and Score for each with the stream and Score for each stream and Sco	ank into Condition Couring or estimating let h riparian category in 20%	maintained understory. Recent cutover (dense vegetation). Low 1.1 Categories and Coungth and width. Coung	layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85 Indition Scores us	production, ponds, open water. If present, tree stratum (dbh >3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75	pasture, sparsely vegetated non-maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F	spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5	CI= (Sum % RA * S Rt Bank CI >	Scores*0.01)/2 0.66	CI
Condition Scores Delineate ripa scriptors. Determine squalow. Enter the % R	1.5 arian areas along each stream buare footage for each by measu Riparian Area and Score for each stream barian Area and Score for each score > 0.85	ank into Condition Couring or estimating let h riparian category in 20% 0.75	maintained understory. Recent cutover (dense vegetation). Low 1.1 Categories and Coungth and width. Coung	layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85 Indition Scores us	production, ponds, open water. If present, tree stratum (dbh >3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75	pasture, sparsely vegetated non-maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F	spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5 the sums Riparian equal 100			CI 0.72
Condition Scores Delineate ripa escriptors. Determine squelow. Enter the % R Right Bank Left Bank	1.5 arian areas along each stream buare footage for each by measu Riparian Area and Score for eac % Riparian Area> 30% Score > 0.85	ank into Condition Couring or estimating leth riparian category in 20% 0.75 70% 0.75 es sizes, water velocit	maintained understory. Recent cutover (dense vegetation). Low 1.1 Categories and Coungth and width. Coungth and width. Coungth and coung	layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85 Indition Scores us calculators are pro-	production, ponds, open water. If present, tree stratum (dbh >3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75 ing the vided for you	pasture, sparsely vegetated non-maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F Blocks 6	spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5 the sums Riparian equal 100 100%	Rt Bank CI >	0.66	
Condition Scores Delineate ripa escriptors. Determine squelow. Enter the % R Right Bank Left Bank INSTREAM	1.5 arian areas along each stream buare footage for each by meast Riparian Area and Score for each % Riparian Area and Score for each by meast % Riparia	ank into Condition Curing or estimating let h riparian category in 20% 0.75 70% 0.75 e sizes, water velocit plexes, acanopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 ank into Condition Curing or estimating le h riparian category in 20% 0.75	maintained understory. Recent cutover (dense vegetation). Low 1.1 Categories and Coungth and width. Coungth and width. Coungth and width. Coungth and width. Coungth and co	layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85 Indition Scores us alculators are pro-	production, ponds, open water. If present, tree stratum (dbh >3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75 ing the evided for you	pasture, sparsely vegetated non-maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F Blocks 6	spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5 the sums Riparian equal 100 100% 100%	Rt Bank CI >	0.66	
Condition Scores 1. Delineate ripa lescriptors. 2. Determine squelow. 3. Enter the % R Right Bank Left Bank 3. INSTREAM	1.5 arian areas along each stream buare footage for each by measure footage for each by many footage for each by measure footage for each by measure for each for each b	ank into Condition Couring or estimating let h riparian category in 20% 0.75 70% 0.75 20% 0.75 Sizes, water velocil pplexes, stable feature that the stable habitat elent the stable habitat element the stable habitat elem	maintained understory. Recent cutover (dense vegetation). Low 1.1 Categories and Coungth and width. Coungth and width. Coungth and coung	layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85 Indition Scores us calculators are proceed to the control of the co	production, ponds, open water. If present, tree stratum (dbh >3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75 ing the vided for you	pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F Blocks 6 Habitat element: lacking or are u elements are typic elements.	spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5 the sums Riparian equal 100 100%	Rt Bank CI >	0.66	

	St	ream In	npact A	ssessm	ent Fo	rm Pag	e 2		
Project #	Applicant		Locality	Cowardin Class.	HUC	Date	Data Point	SAR length	Impact Factor
								500	1
	L ALTERATION: Stream cross spoil piles, constrictions, livestock	ings, riprap, conc		oncrete blocks, s	traightening of ch	annel, channeliz	ation,	NOTES>>	
	Negligible	Mi	nor		erate		vere		
Channel Alteration	Channelization, dredging, alteration, or hardening absent. Stream has an unaltered pattern or has naturalized.	Less than 20% of the stream reach is disrupted by any of the channel alterations listed in the parameter guidelines.	20-40% of the stream reach is disrupted by any of the channel	is disrupted by any of the channel	60 - 80% of reach is disrupted by any of the channel alterations listed in the parameter guidelines. If stream has been channelized, normal stable stream meander pattern has not	Greater than 80% by any of the char in the parameter 80% of banks s	of reach is disrupted nnel alterations listed guidelines AND/OR hored with gabion, or cement.		
SCORE	1.5	1.3	1.1	0.9	0.7		0.5		
	REACH C	ONDITION I	NDEX and S	TREAM CO	NDITION UN	ITS FOR TH	IIS REACH		
OTE: The Cls and F	RCI should be rounded to 2 decimal places.	The CR should be rou	nded to a whole numb	er.			THE REACH (CONDITION IN	DEX (RCI) >>

CR = RCI X LF X IF



		Stre		fied Stream N	lethodology f	or use in Virg	ginia	· · · · /			
Project #		Project Name		Locality	nels classified a Cowardin Class.	HUC	perennial Date	SAR#	Impact/SAR length	Impact Factor	
5337	I-64	Peninsula S	tudy	Newport News	R2UB2	02080206	July '11		557		
Nam	e(s) of Evalua	itor(s)	Stream Nam	e and Informa	ation	l					
	Aitkenhead		WUS 30S								
Channel C	Condition: Ass	ess the cross-sec	ction of the stream								
	Opt	imal	Subo	ptimal	Conditional Catego Mar	_{ry} ginal	Po	oor	Sev	rere	
		W.	erecion or uppreted	rew areas of active cted banks. Majority		less than Severe or stable than Severe		ed/incised. unstable. Likely to		tstability. Severe	
Channel Condition	100% stable ba surface protectio prominent (80-1 Stable point bars/b present. Access floodplain or fully bankfull benches. and transverse ba	00%). AND/OR ankfull benches are s to their original y developed wide Mid-channel bars, ars few. Transient on covers less than	of banks are si Vegetative protect prominent (60- Depositional feat stability. The bar channels are wel likely has access to or newly develope portions of the rediment covers 10	stable (60-80%). tition or natural rock- e80%) AND/OR tures contribute to nkfull and low flow ill defined. Stream to bankfull benches, ad floodplains along reach. Transient 0-40% of the stream tom.	or Poor due to lo Erosion may be pri both banks. Veget 40-60% of banks. bevertical or unde 60% of stream sediment. Sec temporary/trans instability. Deposition stability, may be	wer bank slopes. esent on 40-60% of ative protection on Streambanks may	widen further. Ma are near vertical. 60-80% of bar protection prese banks, and is inst erosion. AND/O stream is cover Sediment is temp nature, and contri AND/OR V-shap	iority of both banks Erosion present on ks. Vegetative ent on 20-40% of ifficient to prevent R 60-80% of the ed by sediment. sorary/transient in buting to instability. ed channels have ion is present on >	banks. Streamber rooting depth, in vertical/underc protection present obanks, is not pre Obvious bank sl Erosion/raw bar AND/OR Aggradin than 80% of stream deposition, contrib	ed below average najority of banks ut. Vegetative on less than 20% of eventing erosion. bughing present. iks on 80-100%. Greater in bed is covered by uting to instability.	
			bot	aom.	vegetative protecti	on on > 40% of the onal features which	40% of the banks a	and stable sediment is absent.	Multiple thread subterran		CI
Score	;	3	2	2.4		2	1	.6		I	2.4
	N BUFFERS: /	Assess both bank	Con	an areas along the nditional Cate	gory	ginal		n may be accepta	NOTES>>		
	Opt Tree stratum (dbh : with > 60% tree c:	imal > 3 inches) present, anopy cover and a derstory. Wetlands	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy	gory	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh >3 inches) present, with <30% tree canopy cover with			NOTES>>		
RIPARIAN	Opt Tree stratum (dbh with > 60% tree cr	imal > 3 inches) present, anopy cover and a derstory. Wetlands	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained	Low Suboptimal Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh >3 inches) present, with <30% tree	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable	NOTES>>		
RIPARIAN Riparian Buffers	Tree stratum (dbh: with > 60% tree ci	imal > 3 inches) present, anopy cover and a derstory. Wetlands	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory.	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation).	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover.	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh > 3 inches) present, with < 30% tree canopy cover with maintained understory.	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable condition.	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions.	NOTES>>		
Riparian Buffers Condition Scores Delineate ripaescriptors. Determine scelow.	Tree stratum (dbh with > 60% tree canon-maintained un located within the strain areas along quare footage for e	imal > 3 inches) present, anopy cover and a derstory. Wetlands le riparian areas. .5 each stream bank each by measurin. Score for each ri	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 into Condition C	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 Lategories and Coungth and width. Coungth and width. Coungth and width. Coungth and width. Coungth and coungth and width. Coungth and width. Coungth and width. Coungth areas with particular areas with the properties of the proper	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <a>30 % tree canopy cover. High 0.85	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh >3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions.	NOTES>>		
Riparian Buffers Condition Scores Delineate ripalescriptors. Determine solow. Enter the % F	Tree stratum (dbh: with > 60% tree conon-maintained un located within the strain areas along equare footage for earlian Area and % Riparian Area and % Riparian Area>	imal 3 inches) present, anopy cover and a derstory. Wetlands le riparian areas. 5 each stream bank each by measurin.	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 into Condition C	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 Lategories and Coungth and width. Coungth and width. Coungth and width. Coungth and width. Coungth and coungth and width. Coungth and width. Coungth and width. Coungth areas with particular areas with the properties of the proper	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <a>30 % tree canopy cover. High 0.85	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh >3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5	NOTES>>	scores*0.011/2	
Riparian Buffers Condition Scores Delineate ripalescriptors. Determine solidow. Enter the % F	Tree stratum (dbh with > 60% tree canon-maintained un located within the strain areas along quare footage for e	imal > 3 inches) present, anopy cover and a derstory. Wetlands le riparian areas. .5 each stream bank each by measurin. Score for each ri	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 into Condition C	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 Lategories and Coungth and width. Coungth and width. Coungth and width. Coungth and width. Coungth and coungth and width. Coungth and width. Coungth and width. Coungth areas with particular areas with the properties of the proper	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <a>30 % tree canopy cover. High 0.85	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh >3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5	NOTES>>	ccores*0.01)/2	CI
Riparian Buffers Condition Scores Delineate ripa secriptors. Determine square Inter the % F	Tree stratum (dbh: with > 60% tree ci non-maintained un located within th 1. arian areas along quare footage for e Riparian Area and % Riparian Area> Score >	imal 3 inches) present, anopy cover and a derstory. Wetlands le riparian areas. 5 each stream bant each by measuring ach by measuring 100% 1.1 100% 0.5	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 Into Condition C g or estimating ler parian category in	Inditional Cate potimal Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 Sategories and Co	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh - 3 inches) present, with <a>o voyer with maintained understory. Low 0.75 Ing the vided for you	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F Blocks 6	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5 the sums Riparian equal 100 100%	NOTES>> CI= (Sum % RA * S Rt Bank CI > Lt Bank CI >	·	CI 0.80
Riparian Buffers Condition Scores Delineate ripasscriptors. Determine solow. Enter the % F	Tree stratum (dbh with > 60% tree conon-maintained un located within the stratum areas along quare footage for e Riparian Area and % Riparian Area > Score >	imal > 3 inches) present, anopy cover and a derstory. Wetlands ie riparian areas. 5 each stream bank each by measurin 100% 1.1 100% 0.5 aried substrate si	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 into Condition C g or estimating ler parian category in	Inditional Cate potimal Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 Lategories and Coungth and width. Coungth and width. Coungth and width. Coungth and depths; woo y and depths; woo res.	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85 Indition Scores using the control of the control	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh - 3 inches) present, with <a>one with can be a sinches) present, with can be can opy cover with maintained understory. Low 0.75 Ing the vided for you	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F Blocks 6	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5 the sums Riparian equal 100 100%	NOTES>> CI= (Sum % RA * S Rt Bank CI >	1.10	
Riparian Buffers Condition Scores Delineate ripascriptors. Determine solow. Enter the % F Right Bank Left Bank INSTREAM	Tree stratum (dbh: with > 60% tree conon-maintained un located within the located within	imal > 3 inches) present, anopy cover and a derstory. Wetlands ie riparian areas. 5 each stream bank each by measurin 100% 1.1 100% 0.5 aried substrate si	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 Into Condition C g or estimating ler parian category in zes, water velocity ixes, stable featur	Inditional Cate potimal Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 Lategories and Coungth and width. Coungth and width. Coungth and width. Coungth and depths; woo y and depths; woo res.	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <a>30% tree canopy cover. High 0.85 Indition Scores usional calculators are producted to the canopy cover.	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh - 3 inches) present, with <a>one with can be a sinches) present, with can be can opy cover with maintained understory. Low 0.75 Ing the vided for you	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F Blocks 6	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5 the sums Riparian equal 100 100%	NOTES>> CI= (Sum % RA * S Rt Bank CI > Lt Bank CI >	1.10	
Riparian Buffers Condition Scores Delineate ripasscriptors. Determine scalow. Enter the % F	Tree stratum (dbh: with > 60% tree ci non-maintained un located within th 1. arian areas along i quare footage for e Riparian Area and % Riparian Area> Score > M HABITAT: V ; root mats; SAV; r Opt Habitat elements a	imal > 3 inches) present, anopy cover and a derstory. Wetlands ie riparian areas. .5 each stream bant each by measuring the stream of the s	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 Into Condition C g or estimating let parian category in Zes, water velocity exes, stable featur Subo Stable habitat ele present in 30-50% are adequate fo	Inditional Cate potimal Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 Sategories and Co ngth and width. Co in the blocks below y and depths; woo res. Conditional	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85 Indition Scores using a calculators are producted at Category Stable habitat ele present in 10-30% are adequate for a category and a category and a category are adequate for a category and a category are adequate for a category are adequate for a category and a category are adequate for a category are adequate for a category and a category are adequate for a category are adequate for a category and a category are adequated for a category and a category are a category and a category and a category are a category and a category and a category and a category are a category and a category are a category and a category and a category and a category are a category and a category	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh - 3 inches) present, with callow-reserved traum (dbh - 3 inches) present, with callow-reserved traum (dbh - 3 inches) present, with callow-reserved traum (dbh - 3 inches) present, with callow-reserved traum (dbh - 3 inches) present Union (draw traum) O.75 Ing the vided for you	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F Blocks 6	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5 the sums Riparian squal 100 100%	CI= (Sum % RA * S Rt Bank CI > Lt Bank CI >	1.10	

	St	ream In	npact A	ssessm	nent Fo	rm Pag	je 2		
Project #	Applicant		Locality	Cowardin Class.	HUC	Date	Data Point	SAR length	Impact Factor
								500	1
	L ALTERATION: Stream cross spoil piles, constrictions, livestock	sings, riprap, concr		concrete blocks, s	straightening of ch	nannel, channeliz	zation,	NOTES>>	
	Negligible	Mir	nor		erate		evere		
Channel Alteration	Channelization, dredging, alteration, or hardening absent. Stream has an unaltered pattern or has naturalized.	Less than 20% of the stream reach is disrupted by any of the channel alterations listed in the parameter guidelines.	20-40% of the stream reach is disrupted by any of the channel alterations listed in the parameter guidelines.	is disrupted by any of the channel	60 - 80% of reach is disrupted by any of the channel alterations listed in the parameter guidelines. If stream has been channelized, normal stable stream meander pattern has not researched.	Greater than 80% by any of the cha in the parameter 80% of banks s	6 of reach is disrupted innel alterations listed r guidelines AND/OR shored with gabion, or cement.		
SCORE	1.5	1.3	1.1	0.9	0.7		0.5		
	REACH C	ONDITION II	NDEX and S	TREAM CO	NDITION UN	IITS FOR TH	HIS REACH		

CR = RCI X LF X IF

INSERT PHOTOS:





		Stre		fied Stream N	lethodology f	or use in Virg	ginia				
Project #	I	Project Name		Locality	nels classified a Cowardin Class.	HUC	Date Date	SAR#	Impact/SAR length	Impact Factor	
5337	I-64	Peninsula S	tudy	Henrico	R2UB1	02080206	July '11		39		
Name	e(s) of Evalua	tor(s)		e and Inform	ation						
	Aitkenhead		WUS 3S								
1. Channel C	Condition: Asse	ess the cross-sec	ction of the stream		ondition (erosion,						
	Opti	imal	Subo	ptimal		ginal	Po	or	Se	vere	
	" de	JAK.		ew areas of active		less than Severe or stable than Severe		ed/incised.		astability. Severe	
Channel Condition	Very little incision or 100% stable bar surface protection prominent (80-16 Stable point bars/be present. Access floodplain or fully bankfull benches. and transverse ba sediment depositio 10% of !	nks. Vegetative n or natural rock, 00%). AND/OR ankfull benches are to their original of developed wide Mid-channel bars, ars few. Transient in covers less than	of banks are s Vegetative protect prominent (60 Depositional feat stability. The ban channels are we likely has access t or newly develope portions of the sediment covers 10	cted banks. Majority table (60-80%). ition or natural rock -80%) AND/OR tures contribute to nkfull and low flow III defined. Stream o bankfull benches, et floodplains along reach. Transient 0-40% of the stream tom.	or Poor due to Ic Erosion may be pr both banks. Vegel 40-60% of banks. bevertical or unde 60% of strean sediment. See temporary/tran instability. Depositi stability, may be AND/OR V-shap	wer bank slopes, sesent on 40-60% of attive protection on Streambanks may rout. AND/OR 40- n is covered by diment may be sient, contribute on that contribute to forming/present, ad channels have	widen further. Ma, are near vertical. I. 60-80% of ban protection prese banks, and is instension. AND/O stream is cover Sediment is temp nature, and contril AND/OR V-shap vegetative protect	ority of both banks Erosion present on ks. Vegetative int on 20-40% of ifficient to prevent R 60-80% of the ed by sediment. corary/transient in puting to instability. d channels have ion is present on >	banks. Streamb rooting depth, r vertical/underr protection present banks, is not pr Obvious bank s Erosion/raw ban AND/OR Aggradir than 80% of strear deposition, contril	ntained within the ed below average majority of banks but. Vegetattive on less than 20% of eventing erosion. loughing present. has on 80-100%. In bed is covered by buting to instability. channels and/or	CI
					banks and depositi	on on > 40% of the onal features which	deposition	ind stable sediment is absent.	subterra	nean flow.	
Score	3	3	2	2.4		2	1	.6		1	2.4
2. RIPARIAN	N BUFFERS: A		Con	nditional Cate	gory				able)	teep Slopes	
2. RIPARIAN Riparian Buffers	Option Op	imal 3 inches) present, anopy cover and a derstory. Wetlands	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy	gory	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh >3 inches) present, with <30% tree canopy cover with		Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions.		eep Slopes	
Riparian	Opti Tree stratum (dbh > with > 60% tree ca	imal 3 inches) present, anopy cover and a derstory. Wetlands	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory.	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation).	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover.	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh > 3 inches) present, with < 30% tree canopy cover with maintained understory.	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, recently seeded and stabilized, or other comparable condition.	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions.		eep Slopes	
Riparian	Tree stratum (dbh > with > 60% tree ca non-maintained unclocated within the	• 3 inches) present, anopy cover and a derstory. Wetlands e riparian areas.	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation).	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover.	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh >3 inches) present, with <30% tree canopy cover with maintained understory. Low	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable condition.	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions.		eep Slopes	
Riparian Buffers	Opti Tree stratum (dbh > with > 60% tree ca	• 3 inches) present, anopy cover and a derstory. Wetlands e riparian areas.	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory.	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation).	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover.	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh > 3 inches) present, with < 30% tree canopy cover with maintained understory.	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, recently seeded and stabilized, or other comparable condition.	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions.		eep Slopes	
Riparian Buffers Condition Scores Delineate ripa descriptors. Delineate ripa descriptors.	Tree stratum (dbh > with > 60% tree ca non-maintained unc located within the	imal 3 inches) present, anopy cover and a derstory. Wetlands e riparian areas.	Com Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 into Condition C	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Co	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh >3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure 1 of % F	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5		teep Slopes	
Riparian Buffers Condition Scores Delineate ripa descriptors. Locate representation of the second	Tree stratum (dbh > with > 60% tree canon-maintained midh in the located within the locat	imal 3 inches) present, anopy cover and a derstory. Wetlands e riparian areas. 5 ach stream banl ach by measurin	Com Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 into Condition C	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Co	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh >3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure 1 of % F	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5		eep Slopes	
Riparian Buffers Condition Scores Delineate ripa descriptors. Locate representation of the second	Tree stratum (dbh > with > 60% tree ca non-maintained unc located within the	imal 3 inches) present, anopy cover and a derstory. Wetlands e riparian areas. 5 ach stream bank ach by measurin Score for each ri	Com Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 into Condition C	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Co	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh >3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure 1 of % F	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5		eep Slopes	
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Riparian Buffers Condition Scores Delineate ripalescriptors. Determine squelow. Enter the % F	Tree stratum (dbh > with > 60% tree canon-maintained unclocated within the located within	imal 3 inches) present, anopy cover and a derstory. Wetlands e riparian areas. 5 ach stream bank ach by measurin Score for each ri 100% 1.2	Com Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 into Condition C	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Co	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh >3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure 1 of % F	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5	NOTES>> Si	Scores*0.01)/2 1.20	CI
Riparian Buffers Condition Scores Delineate ripelescriptors. Determine squelow. Enter the % F Right Bank	Tree stratum (dbh > with > 60% tree canon-maintained unclocated within the located within	imal 3 inches) present, anopy cover and a derstory. Wetlands e riparian areas. 5 each stream bani ach by measurin Score for each ri 100% 1.2	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 Into Condition C g or estimating ler parian category in	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory, Recent cutover (dense vegetation). Low 1.1 attegories and Co ongth and width. Co	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85	Jinal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh > 3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75 Ing the vided for you	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F Blocks 6	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5 the sums tiparian qual 100 100%	CI= (Sum % RA * : Rt Bank CI > Lt Bank CI >	Scores*0.01)/2	CI 1.20
Condition Scores Delineate ripalescriptors. Determine squelow. Enter the % F. Right Bank Left Bank	Tree stratum (dbh > with > 60% tree canon-maintained unclocated within the located within	imal 3 inches) present, anopy cover and a derstory. Wetlands e riparian areas. 5 ach stream bank ach by measurin Score for each ri 100% 1.2 100% 1.2 aried substrate si	Com Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 Into Condition C g or estimating let parian category in	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Co ongth and width. Co the blocks below y and depths; woo	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85	Jinal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh > 3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75 Ing the vided for you	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F Blocks 6	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5 the sums tiparian qual 100 100%	NOTES>> Si	Scores*0.01)/2 1.20	
Condition Scores 1. Delineate ripe descriptors. 2. Determine squelow. 3. Enter the % F Right Bank Left Bank 3. INSTREAR undercut banks;	Tree stratum (dbh > with > 60% tree ca non-maintained unc located within the located with	imal 3 inches) present, anopy cover and a derstory. Wetlands e riparian areas. 5 each stream band ach by measurin 100% 1.2 100% 1.2 arried substrate siffle poole complete.	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 s into Condition C g or estimating let parian category in zes, water velocit ixes, stable featur	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Co ngth and width. Co n the blocks below y and depths; wodes. Conditions	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85 Indition Scores usional calculators are production of the control of the contr	Ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh -3 inches) present, with +30% tree canopy cover with maintained understory. Low 0.75 Ing the vided for you	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F Blocks e	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5 the sums Riparian qual 100 100% 100% ess; shade;	CI= (Sum % RA * : Rt Bank CI > Lt Bank CI >	Scores*0.01)/2 1.20	
Condition Scores 1. Delineate ripadescriptors. 2. Determine squelow. 3. Enter the % F Right Bank Left Bank 3. INSTREAR	Tree stratum (dbh > with > 60% tree ca non-maintained und located within the located with	imal 3 inches) present, anopy cover and a derstory. Wetlands e riparian areas. 5 each stream bani ach by measurin 100% 1.2 100% 1.2 aried substrate si ffle poole completimal	Com Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 Into Condition C g or estimating let parian category in zes, water velocit exes, stable featur Subo Stable habitat ele present in 30-509 are adequate fo	ditional Cate ptimal Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Co ongth and width. Co on the blocks below y and depths; wodes.	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85 Indition Scores usion all Category Mar Stable habitat ele present in 10-30% are adequate fo	Jinal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh > 3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75 Ing the vided for you	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure 1 of % F Blocks e	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5 the sums tiparian qual 100 100%	NOTES>> Si	Scores*0.01)/2 1.20	

	St	ream In	npact A	ssessm	ent Fo	rm Pag	e 2		
Project #	Applicant		Locality	Cowardin Class.	HUC	Date	Data Point	SAR length	Impact Factor
								500	1
	L ALTERATION: Stream cross spoil piles, constrictions, livestock	ings, riprap, conc		concrete blocks, s	traightening of ch	annel, channeliza	ation,	NOTES>>	
	Negligible	Mi	nor		erate	Se	vere		
Channel Alteration	Channelization, dredging, alteration, or hardening absent. Stream has an unaltered pattern or has naturalized.	Less than 20% of the stream reach is disrupted by any of the channel alterations listed in the parameter guidelines.	20-40% of the stream reach is disrupted by any of the channel alterations listed in the parameter guidelines.	is disrupted by any of the channel	60 - 80% of reach is disrupted by any of the channel alterations listed in the parameter guidelines. If stream has been channelized, normal stable stream meander pattern has not	Greater than 80% by any of the chan in the parameter 80% of banks sh	of reach is disrupted nel alterations listed guidelines AND/OR nored with gabion, or cement.		
SCORE	1.5	1.3	1.1	0.9	0.7	C).5		
	REACH C	ONDITION	NDEX and S	TREAM CO	NDITION UN	ITS FOR TH	IS REACH		
IOTE: The Cls and I	RCI should be rounded to 2 decimal places.	The CR should be rou	nded to a whole numb	er.			THE REACH	CONDITION IN	DEX (RCI) >>

COMPENSATION REQUIREMENT (CR) >>

CR = RCI X LF X IF



DESCRIBE	PROPOSED	IMPACT:
•	·	

		Stre		fied Stream N	lethodology f	or use in Virg	ginia				
Project #	I	Project Name		Locality	Cowardin Class.	HUC	Date Date	SAR#	Impact/SAR length	Impact Factor	
5337	I-64	Peninsula S	tudy	Henrico	R2UB3	02080206	July '11		65		
Name	e(s) of Evalua	tor(s)	Stream Nam	e and Inform	ation	•	•		<u>'</u>		
	Aitkenhead		WUS 4S								
I. Channel C	Condition: Asse	ess the cross-sec	ction of the stream								
	Opti	imal	Subo	ptimal	Conditional Catego Mar	_{ry} ginal	Po	oor	Sev	vere	
		W.		ew areas of active		less than Severe or		ed/incised.	vertical/lateral in	istability. Severe	
Channel Condition	Very little incision o 100% stable ban surface protection prominent (80-11 Stable point bar/sbc present. Access floodplain or fully bankfull benches. and transverse be sediment depositio 10% of l	nks. Vegetative n or natural rock, 00%). AND/OR ankfull benches are to their original v developed wide Mid-channel bars, ars few. Transient on covers less than	of banks are s Vegetative protect prominent (60 Depositional feat stability. The bat channels are we likely has access to or newly developed portions of the sediment covers 10	cted banks. Majority table (60-80%). Itable (60-80%). Itable (60-80%). AND/OR tures contribute to nkfull and low flow III defined. Stream o bankfull benches, at floodplains along reach. Transient 0-40% of the stream tom.	or Poor due to Ic Erosion may be pr both banks. Vegel 40-60% of banks. bevertical or unde 60% of strean sediment. See temporary/tran instability. Depositi stability, may be AND/OR V-shap	stable than Severe wer bank slopes, sesent on 40-60% of attive protection on Streambanks may ercut. AND/OR 40-n is covered by diment may be sient, contribute on that contribute to forming/present, ed channels have	widen further. Ma are near vertical. 60-80% of bar protection press banks, and is instension. AND/O stream is cover Sediment is temp nature, and contri AND/OR V-shap vegetative protect	ed channels have ion is present on >	incision, flow corbanks. Streamb rooting depth, n vertical/undere protection present banks, is not pre Obvious bank sl Erosion/raw bar AND/OR Aggradir than 80% of strear deposition, contril	ntained within the ed below average anjority of banks cut. Vegetative on less than 20% of eventing erosion. loughing present. loughing present. on 80-100%. It getannel. Greater n bed is covered by cuting to instability. channels and/or	CI
					banks and depositi	on on > 40% of the onal features which	deposition	ind stable sediment is absent.		nean flow.	
Score	3	3	2	2.4		2	1	.6		1	2.4
. RIPARIAI	N BUFFERS: /	Assess both bank		an areas along the		igh measurement	s of length & widtl	n may be accepta	NOTES>>		
Riparian Buffers	Opti	imal > 3 inches) present, anopy cover and a derstory. Wetlands	Cor Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy	gory	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh >3 inches) present, with <30% tree canopy cover with		Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions.			
Riparian	Option Tree stratum (dbh with > 60% tree canon-maintained und	imal > 3 inches) present, anopy cover and a derstory. Wetlands	Cor Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory.	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation).	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover.	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh >3 inches) present, with <a>30 % tree canopy cover with maintained understory.	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, recently seeded and stabilized, or other comparable condition.	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions.			
Riparian	Tree stratum (dbh > with > 60% tree cc onon-maintained und located within the	imal 3 inches) present, anopy cover and a derstory. Wetlands e riparian areas.	Cor Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory.	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation).	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover.	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh >3 inches) present, with <30% tree canopy cover with maintained understory. Low	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, recently seeded and stabilized, or other comparable condition.	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions.			
Riparian Buffers	Option Tree stratum (dbh with > 60% tree canon-maintained und	imal 3 inches) present, anopy cover and a derstory. Wetlands e riparian areas.	Cor Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory.	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation).	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover.	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh >3 inches) present, with <a>30 % tree canopy cover with maintained understory.	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, recently seeded and stabilized, or other comparable condition.	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions.			
Riparian Buffers Condition Scores Delineate ripa descriptors. Delineate ripa descriptors.	Tree stratum (dbh > with > 60% tree ca non-maintained unc located within the	imal 3 inches) present, anopy cover and a derstory. Wetlands e riparian areas. 5 each stream bank ach by measurin	High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 k into Condition C	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Co	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh > 3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5			
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	St	ream In	npact A	ssessm	ent Fo	rm Pag	e 2		
Project #	Applicant		Locality	Cowardin Class.	HUC	Date	Data Point	SAR length	Impact Factor
								500	1
	L ALTERATION: Stream cross spoil piles, constrictions, livestock	sings, riprap, conc		concrete blocks, s	traightening of ch	annel, channeliza	ation,	NOTES>>	
	Negligible	Mi	nor	Mod	erate	Se	vere		
Channel Alteration	Channelization, dredging, alteration, or hardening absent. Stream has an unaltered pattern or has naturalized.	Less than 20% of the stream reach is disrupted by any of the channel alterations listed in the parameter guidelines.	20-40% of the stream reach is disrupted by any of the channel alterations listed in the parameter guidelines.	is disrupted by any of the channel	50 - 80% of reach is disrupted by any of the channel alterations listed in the parameter guidelines. If stream has been channelized, normal stable stream meander pattern has not	Greater than 80% by any of the char in the parameter 80% of banks sl	of reach is disrupted intel alterations listed guidelines AND/OR nored with gabion, or cement.		
SCORE	1.5	1.3	1.1	0.9	0.7	().5		
	REACH C	ONDITION I	NDEX and S	TREAM CO	NDITION UN	ITS FOR TH	IIS REACH		
VOTE: The Cls and I	RCI should be rounded to 2 decimal places.	The CR should be rou	nded to a whole numb	er.			THE REACH (CONDITION IN	DEX (RCI) >>

CR = RCI X LF X IF



FSCRIRE	PROPOSED	IMPACT-

	Stı		fied Stream N	lethodology 1	for use in Vir	ginia	,			
Project #	Project Na		Locality	Cowardin Class.	HUC	Date	SAR#	Impact/SAR length	Impact Factor	
5337	I-64 Peninsula	Study	Henrico	R2UB1	02080206	July '11		157		
Nam	e(s) of Evaluator(s)		e and Inform	ation						
	Aitkenhead	WUS 5S								
I. Channel (Condition: Assess the cross	-section of the strean		ondition (erosion,						
	Optimal	Subo	ptimal		ginal	Po	oor	Sev	vere	
Channel Condition	Very little incision or active erosion 100% stable banks. Vegetativ surface protection or natural roc prominent (80-100%). AND/OI	erosion or unprote of banks are s Vegetative protect prominent (60	few areas of active cted banks. Majority stable (60-80%). tion or natural rock 0-80%) AND/OR	Poor. Banks more or Poor due to k Erosion may be pr both banks. Veget	less than Severe or stable than Severe ower bank slopes. sesent on 40-60% of tative protection on	Vertically/laterally widen further. Ma are near vertical. 60-80% of bar	ned/incised. unstable. Likely to jority of both banks Erosion present on lks. Vegetative	incision, flow cor banks. Streamb rooting depth, n	istability. Severe ntained within the ed below average najority of banks zut. Vegetative	
	Stable point bars/bankfull benches present. Access to their origin floodplain or fully developed wit bankfull benches. Mid-channel b and transverse bars few. Transis sediment deposition covers less to 10% of bottom.	are le stability. The ba channels are we likely has access to r newly developer portions of the sediment covers 1	tures contribute to nkfull and low flow still defined. Stream to bankfull benches, and floodplains along reach. Transient 0-40% of the stream ttom.	bevertical or under 60% of stream sediment. Set temporary/tran instability. Depositi stability, may be AND/OR V-shap vegetative protect	Streambanks may prout. AND/OR 40- nis covered by diment may be sient, contribute on that contribute to forming/present. ed channels have ion on > 40% of the ional features which	banks, and is ins erosion. AND/C stream is cove Sediment is tem nature, and contri AND/OR V-shar vegetative protec 40% of the banks	ent on 20-40% of officient to prevent R 60-80% of the red by sediment. porary/transient in buting to instability. hed channels have it ion is present on > and stable sediment in is absent.	protection present banks, is not pre Obvious bank sl Erosion/raw ban AND/OR Aggradir than 80% of strear deposition, contrik Multiple thread	on less than 20% of eventing erosion. loughing present. nks on 80-100%. g channel. Greater n bed is covered by buting to instability. channels and/or nean flow.	CI
Score	3	2	2.4		2	1	.6		1	2.4
							_			
2. RIPARIAI	N BUFFERS: Assess both t	Cor	nditional Cate	gory			h may be accepta	NOTES>>		
2. RIPARIAI Riparian Buffers	Optimal Optimal Tree stratum (dbh > 3 inches) preswith > 60% tree canopy cover anon-maintained understory. Wetla located within the riparian area.	High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) ent. present, with 30% da to 60% tree do containing both herbaceous and shrub layers or a non-maintained understory.	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation).	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover.	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh >3 inches) present, with <30% tree canopy cover with maintained understory.	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable condition.	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces row crops, active feed lots, trails, or other comparable conditions.	NOTES>>		
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Riparian Buffers	Optimal Tree stratum (dbh > 3 inches) pres with > 60% tree canopy cover an non-maintained understory. Wetla	High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) ent. present, with 30% da to 60% tree do containing both herbaceous and shrub layers or a non-maintained understory.	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation).	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover.	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh >3 inches) present, with <30% tree canopy cover with maintained understory.	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable condition.	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces row crops, active feed lots, trails, or other comparable conditions.	NOTES>>		
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	St	ream In	npact A	ssessm	ent Fo	rm Pag	e 2		
Project #	Applicant		Locality	Cowardin Class.	HUC	Date	Data Point	SAR length	Impact Factor
								500	1
	L ALTERATION: Stream cross spoil piles, constrictions, livestock	sings, riprap, conc		concrete blocks, s	traightening of ch	annel, channeliza	ation,	NOTES>>	
	Negligible	Mi	nor		erate		vere		
Channel Alteration	Channelization, dredging, alteration, or hardening absent. Stream has an unaltered pattern or has naturalized.	Less than 20% of the stream reach is disrupted by any of the channel alterations listed in the parameter guidelines.	20-40% of the stream reach is disrupted by any of the channel alterations listed in the parameter guidelines.	is disrupted by any of the channel	60 - 80% of reach is disrupted by any of the channel alterations listed in the parameter guidelines. If stream has been channelized, normal stable stream meander pattern has not	Greater than 80% of by any of the chan in the parameter \$80% of banks sh	of reach is disrupted nel alterations listed guidelines AND/OR lored with gabion, or cement.		
SCORE	1.5	1.3	1.1	0.9	0.7	0).5		
	REACH C	ONDITION	NDEX and S	TREAM CO	NDITION UN	ITS FOR TH	IS REACH		
VOTE: The Cls and F	RCI should be rounded to 2 decimal places.	The CR should be rou	nded to a whole numb	oer.			THE REACH (CONDITION IN	DEX (RCI) >>

THE REACH CONDITION INDEX (RCI) >>

RCI= (Sum of all Cl's)/5

COMPENSATION REQUIREMENT (CR) >>

CR = RCI X LF X IF



DESCRIBE PROPOSED IMPACT:		

		Stre	Unit		lethodology 1	for use in Vir	ginia	m 1)			
Project #		Project Name		Locality	nels classified a Cowardin Class.	HUC	perennial Date	SAR#	Impact/SAR	Impact Factor	
5337	I-64	Peninsula S	tudy	Henrico	R2UB1	02080206	July '11		41	1 4 4 4	
Name	e(s) of Evalua	tor(s)	Stream Nam	e and Informa	ation						
	Aitkenhead		WUS 6S								
I. Channel C	Condition: Asse			C	Conditional Catego	ory					
	Opti	imal	Subo	ptimal	Mar	ginal	Po	oor	Se	vere	
	Very little incision o	or active erosion: 80	erosion or unproted	ew areas of active cted banks. Majority	Poor. Banks more	less than Severe or stable than Severe		unstable. Likely to	incision, flow co	nstability. Severe	
Channel Condition	100% stable bar surface protection prominent (80-11 Stable point bars/bar present. Access floodplain or fully bankfull benches. and transverse bar sediment deposition 10% of 1	nks. Vegetative n or natural rock, 00%). AND/OR ankfull benches are s to their original y developed wide Mid-channel bars, ars few. Transient on covers less than	Vegetative protect prominent (60- Depositional feat stability. The bar channels are well likely has access to or newly develope portions of the resediment covers 10 to definite the covers of the resediment covers 10 to definite the covers of the resediment covers 10 to definite the covers of the resediment covers 10 to definite the covers 10 to definite	table (60-80%). tion or natural rock- e80%) AND/OR tures contribute to nkfull and low flow II defined. Stream o bankfull benches, ed floodplains along reach. Transient 0-40% of the stream tom.	Erosion may be pr both banks. Veget 40-60% of banks. bevertical or unde 60% of stream sediment. Se- temporary/tran instability. Depositi stability, may be	ower bank slopes. resent on 40-60% of tative protection on Streambanks may ercut. AND/OR 40- n is covered by diment may be isient, contribute to e forming/present. sed channels have	are near vertical. 60-80% of bar protection prese banks, and is inst erosion. AND/O stream is cover Sediment is temp nature, and contri	ed channels have	rooting depth, vertical/under protection present banks, is not pt Obvious banks Erosion/raw ba AND/OR Aggradi than 80% of streadeposition, contri	ped below average majority of banks rout. Vegetative ton less than 20% of reventing erosion. sloughing present. anks on 80-100%. ng channel. Greater m bed is covered by ibuting to instability.	
			DOL	tom.	vegetative protect	ion on > 40% of the ional features which	40% of the banks a	and stable sediment is absent.		d channels and/or nean flow.	CI
Score	3	3	2	2.4		2	1	.6		1	2.4
2. RIPARIAN	N BUFFERS: A		Con	n areas along the nditional Cate ptimal	gory	ugh measurement	Po	n may be accepta	NOTES>>		
2. RIPARIAN Riparian Buffers	Opti	imal > 3 inches) present, anopy cover and a derstory. Wetlands	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy	gory	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh > 3 inches) present, with <30% tree canopy cover with					
Riparian	Option Tree stratum (dbh > with > 60% tree canon-maintained und	imal > 3 inches) present, anopy cover and a derstory. Wetlands	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory.	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation).	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover.	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh >3 inches) present, with <30% tree canopy cover with maintained understory.	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, recently seeded and stabilized, or other comparable condition.	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions.			
Riparian	Option Tree stratum (dbh > with > 60% tree canon-maintained und	imal > 3 inches) present, anopy cover and a derstory. Wetlands e riparian areas.	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh > 3 inches) present, with <30% tree canopy cover with maintained	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable			
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Riparian Buffers Condition Scores Delineate ripa lescriptors. Enter the % R Right Bank	Tree stratum (dbh > with > 60% tree conon-maintained und located within the located withi	imal 3 inches) present, anopy cover and a derstory. Wetlands e riparian areas. 5 each stream bank each by measurin. Score for each ri	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 into Condition C	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Coungth and width. Co	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh > 3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5		Scores*0.01)/2	CI
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Condition Scores Delineate ripadescriptors. Deltermine squelow. Enter the % Right Bank Left Bank Left Bank	Tree stratum (dbh > with > 60% tree canon-maintained unc located within the located withi	imal 3 inches) present, anopy cover and a derstory. Wetlands e riparian areas. 5 each stream bank each by measurin 100% 1.2 100% 1.2 aried substrate si	Com Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 Into Condition C g or estimating ler parian category in	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Coungth and width. Coungth and width. Coungth and width. Coungth and width with the blocks below you and depths; woo	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh > 3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75 ing the povided for you	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F Blocks 6	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5 the sums tiparian qual 100 100%	NOTES>> CI= (Sum % RA* Rt Bank CI >	1.20	
Condition Scores Delineate ripa descriptors. Delineate ripa descriptors. Right Bank Left Bank Left Bank Jundercut banks;	Tree stratum (dbh > with > 60% tree ca non-maintained unc located within the located with	imal 3 inches) present, anopy cover and a derstory. Wetlands e riparian areas. 5.5 each stream bank each by measuring the stream bank and the stream bank are to stream bank and the stream bank are to stream bank are to stream bank and the stream bank are to	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 s into Condition C g or estimating ler parian category in zes, water velocity ixes, stable featur	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Coungth and width. Coungth and width. Coungth and width. Coungth and depths; wores. Conditiona	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85 Indition Scores us calculators are production of the product	Ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh >3 inches) present, with <a>30 % tree canopy cover with maintained understory. Low 0.75 ing the price of the product of the present of t	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F Blocks 6	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5 the sums tiparian qual 100 100%	NOTES>> Cl= (Sum % RA* Rt Bank Cl> Lt Bank Cl>	1.20	
Condition Scores Delineate ripadescriptors. Deltermine squelow. Enter the % Right Bank Left Bank Left Bank	Tree stratum (dbh > with > 60% tree co conon-maintained und located within the located wi	imal 3 inches) present, anopy cover and a derstory. Wetlands e riparian areas. 5 each stream banked by measuring the stre	Com Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 Into Condition C g or estimating ler parian category in zes, water velocity exes, stable featur Subo Stable habitat ele present in 30-50% are adequate fo	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Coungth and width. Coungth and width. Coungth and width. Coungth and depths; wodes.	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85 Indition Scores us calculators are processed of the control of	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh > 3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75 ing the povided for you	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F Blocks 6	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5 the sums Riparian qual 100 100% 100% ess; shade;	NOTES>> Cl= (Sum % RA* Rt Bank Cl> Lt Bank Cl>	1.20	

	St	ream In	npact A	ssessm	ent Fo	rm Page	e 2		
Project #	Applicant		Locality	Cowardin Class.	HUC	Date	Data Point	SAR length	Impact Factor
								500	1
	L ALTERATION: Stream cross spoil piles, constrictions, livestock		Conditiona	al Category				NOTES>>	
	Negligible	Mi	nor		erate 60 - 80% of reach	Ser	vere		
Channel Alteration	Channelization, dredging, alteration, or hardening absent. Stream has an unaltered pattern or has naturalized.	Less than 20% of the stream reach is disrupted by any of the channel alterations listed in the parameter guidelines.	20-40% of the stream reach is disrupted by any of the channel alterations listed in the parameter guidelines.	is disrupted by any of the channel	of the channel is disrupted by any of the channel alterations listed in the parameter guidelines. If stream has been channelized, normal stable stream meander pattern has not	Greater than 80% of by any of the chan in the parameter g	of reach is disrupted nel alterations listed juidelines AND/OR ored with gabion, r cement.		
SCORE	1.5	1.3	1.1	0.9	0.7	0	.5		
	REACH C	ONDITION I	NDEX and S	TREAM CO	NDITION UN	ITS FOR TH	IS REACH		
NOTE: The Cls and I	RCI should be rounded to 2 decimal places.	The CR should be rou	nded to a whole numb	er.			THE REACH (CONDITION IN	DEX (RCI) >>

CR = RCI X LF X IF



DESCRIBE PROPOSED IMPACT

		Stre		fied Stream N	lethodology f	for use in Vir	ginia	111 11			
Project #	I	Project Name		Locality	Cowardin Class.	s intermittent or	perennial Date	SAR#	Impact/SAR length	Impact Factor	
5337	I-64	Peninsula S	tudy	Henrico	R2UB3	02080206	July '11		70		
Name	e(s) of Evalua	tor(s)		e and Informa	ation						
	Aitkenhead		WUS 7S								
I. Channel C	Condition: Asse	ess the cross-sec	ction of the stream		ondition (erosion,						
	Opti	imal	Subo	ptimal		ginal	Po	oor	Se	vere	
Channel Condition	Very little incision or 100% stable bar surface protection	nks. Vegetative	erosion or unproted of banks are s Vegetative protec	ew areas of active cted banks. Majority table (60-80%), tion or natural rock	Poor. Banks more or Poor due to lo Erosion may be pr	less than Severe or stable than Severe ower bank slopes. esent on 40-60% of	Vertically/laterally widen further. Ma are near vertical.	ned/incised. unstable. Likely to jority of both banks Erosion present on	incision, flow co banks. Streamb	stability. Severe ntained within the ed below average najority of banks	
35	prominent (80-10 Stable point bars/bc present. Access floodplain or fully bankfull benches. and transverse ba sediment depositio 10% of I	00%). AND/OR anstull benches are s to their original developed wide Mid-channel bars, are few. Transient on covers less than bottom.	Depositional feat stability. The bai channels are we likely has access t or newly develope portions of the sediment covers 10 bot	-80%) AND/OR tures contribute to nkfull and low flow II defined. Stream o bankfull benches, at floodplains along reach. Transient 0-40% of the stream tom.	40-60% of banks. bevertical or unde 60% of strean sediment. See temporary/tran instability. Depositi stability, may be AND/OR V-shap vegetative protect banks and depositi	tative protection on Streambanks may streambanks may ercut. AND/OR 40- n is covered by diment may be sisent, contribute on that contribute to forming/present. ed channels have ion on > 40% of the lonal features which	protection prese banks, and is inst erosion. AND/O stream is cover Sediment is temp nature, and contri AND/OR V-shap vegetative protect 40% of the banks a deposition	kls. Vegetative ent on 20-40% of under on 20-40% of under on 20-40% of under on 20-40% of the ed by sediment, oborary/transient in buting to instability, ed channels have ion is present on > and stable sediment is absent.	vertical/under protection present banks, is not pr Obvious bank s Erosion/raw ba AND/OR Aggradin than 80% of strear deposition, contril Multiple thread subterral	cut. Vegetative on less than 20% of eventing erosion. loughing present. nks on 80-100%. ng channel. Greater in bed is covered by buting to instability. channels and/or nean flow.	CI
Score	3	3	2	2.4		2	1	.6		1	3.0
. KIPARIAI	Opti		Con	n areas along the	gory	ginal		n may be accepta	NOTES>>		
Riparian Buffers	Opti Tree stratum (dbh > with > 60% tree ca	imal > 3 inches) present, anopy cover and a derstory. Wetlands	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy	gory	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh > 3 inches) present, with <30% tree canopy cover with maintained			NOTES>>		
Riparian Buffers	Option Tree stratum (dbh > with > 60% tree canon-maintained unc	imal > 3 inches) present, anopy cover and a derstory. Wetlands	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh >3 inches) present, with 30% inches) present, oranopy cover with	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable	NOTES>>		
Riparian	Option Tree stratum (dbh > with > 60% tree canon-maintained unc	imal 3 inches) present, anopy cover and a derstory. Wetlands e riparian areas.	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory.	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation).	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover.	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh >3 inches) present, with <a>30 % tree canopy cover with maintained understory.	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, recently seeded and stabilized, or other comparable condition.	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions.	NOTES>>		
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Riparian Buffers Condition Scores Delineate ripe escriptors. Determine sq elow.	Tree stratum (dbh > with > 60% tree ca non-maintained unc located within the	imal 3 inches) present, anopy cover and a derstory. Wetlands e riparian areas. 5 each stream banl ach by measurin	Com Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 into Condition C	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Coungth and width. Coungth	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh > 3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5	NOTES>>		
Riparian Buffers Condition Scores Delineate ripalescriptors. Determine squelow. Enter the % F	Tree stratum (dbh > with > 60% tree canon-maintained unc located within the located withi	imal 3 inches) present, anopy cover and a derstory. Wetlands e riparian areas. 5 ach stream bank ach by measuring the stream bank ach by measuring 100% 1.5	Com Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 into Condition C	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Coungth and width. Coungth	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh > 3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5 the sums Riparian equal 100	NOTES>>		
Riparian Buffers Condition Scores Delineate ripalescriptors. Determine squelow. Enter the % F	Tree stratum (dbh > with > 60% tree ca non-maintained unc located within the located with	imal 3 inches) present, anopy cover and a derstory. Wetlands e riparian areas. 5 each stream bank ach by measuring the stream ban	Com Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 into Condition C	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Coungth and width. Coungth	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh > 3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5	NOTES>> Cl= (Sum % RA*: Rt Bank Cl >	1.50	CI
Riparian Buffers Condition Scores Delineate ripe escriptors Determine squelow Enter the % F Right Bank Left Bank	Tree stratum (dbh > with > 60% tree can non-maintained unc located within the located wit	imal 3 inches) present, anopy cover and a derstory. Wetlands e riparian areas. 5 each stream bankach by measuring ach by measuring 100% 1.5 100% 1.5	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 Into Condition C g or estimating ler parian category in	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 attegories and Co ongth and width. Co	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh > 3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75 ing the production of the product	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F Blocks 6	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5 the sums Riparian equal 100 100%	CI= (Sum % RA *: Rt Bank CI > Lt Bank CI >		Cl 1.50
Condition Scores Delineate ripa escriptors. Determine sq elow. Enter the % R Right Bank Left Bank	Tree stratum (dbh > with > 60% tree ca non-maintained unc located within the located with	imal 3 inches) present, anopy cover and a derstory. Wetlands e riparian areas. 5 each stream bank ach by measuring the stream ban	Com Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 Into Condition C g or estimating let parian category in	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Congth and width. Control with the blocks below yand depths; woo	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh > 3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75 ing the production of the product	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F Blocks 6	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5 the sums Riparian equal 100 100%	NOTES>> Cl= (Sum % RA*: Rt Bank Cl >	1.50	
Condition Scores Delineate ripa descriptors. Determine squelow. Right Bank Left Bank INSTREAM	Tree stratum (dbh > with > 60% tree can non-maintained unc located within the located wit	imal 3 inches) present, anopy cover and a derstory. Wetlands e riparian areas. 5 each stream bank ach by measuring the stream ban	Com Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 Into Condition C g or estimating let parian category in	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Coungth and width. Coungth and width. Coungth and width. Coungth and depths; woodes.	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh > 3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75 ing the production of the product	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F Blocks 6	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5 the sums Riparian equal 100 100%	CI= (Sum % RA *: Rt Bank CI > Lt Bank CI >	1.50	
Riparian Buffers Condition Scores 1. Delineate ripa descriptors. 2. Determine squelow. 3. Enter the % R Right Bank Left Bank Left Bank Instream	Tree stratum (dbh > with > 60% tree ca non-maintained unc located within the located with	imal 3 inches) present, anopy cover and a derstory. Wetlands e riparian areas. 5.5 each stream bank ach by measuring the stream bank and by measuring the stream bank and the stream bank ach by measuring the stream bank ach by me	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 s into Condition C g or estimating let parian category in zes, water velocit ixes, stable featur	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Coungth and width. Coungth and width. Coungth and width. Coungth and depths; woodes.	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85 Indition Scores usional calculators are production of the control of the contr	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh > 3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75 ing the production of the product	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F Blocks 6	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5 the sums Riparian equal 100 100%	CI= (Sum % RA *: Rt Bank CI > Lt Bank CI >	1.50	
Condition Scores 1. Delineate ripa descriptors. 2. Determine squelow. 3. Enter the % R Right Bank Left Bank 3. INSTREAN	Tree stratum (dbh > with > 60% tree ca non-maintained unc located within the located with	imal 3 inches) present, anopy cover and a derstory. Wetlands e riparian areas. 5 each stream bani ach by measurin 100% 1.5 100% 1.5 aried substrate si iffle poole completimal	Com Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 Into Condition C g or estimating let parian category in zes, water velocit exes, stable featur Subo Stable habitat ele present in 30-509 are adequate fo	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Co ngth and width. Co n the blocks below y and depths; wodes. Conditiona	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85 Indition Scores usion all Category Mar Stable habitat ele present in 10-30% are adequate fo	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh >3 inches) present, with <a>30 % tree canopy cover with maintained understory. Low 0.75 Ing the production of the present	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F Blocks 6	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5 the sums Riparian equal 100 100%	CI= (Sum % RA *: Rt Bank CI > Lt Bank CI > NOTES>>	1.50	

	St	ream In	npact A	ssessm	ent Fo	rm Pag	e 2		
Project #	Applicant		Locality	Cowardin Class.	HUC	Date	Data Point	SAR length	Impact Factor
								500	1
	L ALTERATION: Stream cross spoil piles, constrictions, livestock	sings, riprap, conc		concrete blocks, s	traightening of ch	annel, channeliza	ation,	NOTES>>	
	Negligible	Mi	nor		erate	Se	vere		
Channel Alteration	Channelization, dredging, alteration, or hardening absent. Stream has an unaltered pattern or has naturalized.	Less than 20% of the stream reach is disrupted by any of the channel alterations listed in the parameter guidelines.	20-40% of the stream reach is disrupted by any of the channel alterations listed in the parameter guidelines.	is disrupted by any of the channel	60 - 80% of reach is disrupted by any of the channel alterations listed in the parameter guidelines. If stream has been channelized, normal stable stream meander pattern has not	Greater than 80% by any of the chan in the parameter 80% of banks sh	of reach is disrupted nel alterations listed guidelines AND/OR nored with gabion, or cement.		
SCORE	1.5	1.3	1.1	0.9	0.7	0).5		
	REACH C	ONDITION	NDEX and S	TREAM CO	NDITION UN	ITS FOR TH	IS REACH		
NOTE: The Cls and F	RCI should be rounded to 2 decimal places	The CR should be rou	nded to a whole numb	ner	.,,		THE REACH (CONDITION IN	DEX (RCI) >>

THE REACH CONDITION INDEX (RCI) >>

RCI= (Sum of all Cl's)/5

COMPENSATION REQUIREMENT (CR) >> 0

CR = RCI X LF X IF



	Str		fied Stream N	lethodology 1	for use in Vir	ginia	m 1)			
Project #	Project Na		Locality	cowardin Class.	HUC	perennial Date	SAR#	Impact/SAR length	Impact Factor	
5337	I-64 Peninsula	Study	New Kent	R2UB1	02080206	July '11		443		
Name	e(s) of Evaluator(s)	Stream Nam	e and Informa	ation	<u>'</u>					
	Aitkenhead	WUS 8S								
. Channel C	Condition: Assess the cross-		C	Conditional Catego	ory					
	Optimal	Subo	ptimal	Mar	ginal	Po	oor	Se	vere	
	www.	arceion or unprote	few areas of active cted banks. Majority		less than Severe or		ned/incised.		nstability. Severe	
Channel Condition	Very little incision or active erosion 100% stable banks. Vegetative surface protection or natural roc prominent (80-100%). AND/OF Stable point bars/bankfull benches present. Access to their origina floodplain or fully developed wich bankfull benches. Mid-channel bankfull benches. Mid-channel band transverse bars few. Transie sediment deposition covers less the 10% of bottom.	Vegetative protect are are are till depreciation are selected by the selected	stable (60-80%). tion or natural rock -80%) AND/OR tures contribute to nkfull and low flow ill defined. Stream to bankfull benches, ad floodplains along reach. Transient 0-40% of the stream	Erosion may be pr both banks. Vege 40-60% of banks. bevertical or unde 60% of strear sediment. Se temporary/tran instability. Depositi stability, may be	ower bank slopes. resent on 40-60% of tative protection on Streambanks may ercut. AND/OR 40- n is covered by diment may be sisent, contribute ion that contribute to e forming/present.	are near vertical. 60-80% of bar protection prese banks, and is insi erosion. AND/C stream is cover Sediment is tem nature, and contri AND/OR V-shap	jority of both banks Erosion present on aks. Vegetative ent on 20-40% of ufficient to prevent aR 60-80% of the red by sediment. porary/transient in buting to instability. and channels have	banks. Streamb rooting depth, r vertical/undern protection present banks, is not pre Obvious bank s Erosion/raw ban AND/OR Aggradir than 80% of strear	ned below average majority of banks cut. Vegetative on less than 20% of eventing erosion. loughing present. nks on 80-100%. ng channel. Greater m bed is covered by buting to instability.	
	10% 61 25%6	bot	ttom.	vegetative protect	ed channels have ion on > 40% of the ional features which	40% of the banks a	tion is present on > and stable sediment n is absent.		channels and/or nean flow.	CI
Score	3	2	2.4		2	1	.6		1	2.0
	Ontimal	Subo	nditional Cate	 	rginal	Pr	oor	NOTES>>		
Riparian	Optimal Tree stratum (dbh > 3 inches) pres with > 60% tree canopy cover an	High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) ent, present, with 30% d a to 60% tree	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy	 	Ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds,	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces,	NOTES>>		
Riparian Buffers	Tree stratum (dbh > 3 inches) pres	High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) to 60% tree unds anopy cover ands anopy cover ands	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub	Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable condition.	Low Poor: Impervious surfaces, mine spoil lands,	NOTES>>		
Buffers	Tree stratum (dbh > 3 inches) pres with > 60% tree canopy cover an non-maintained understory. Wetla located within the riparian areas	High Suboptimal Riparian areas with tree stratum (dbh > 3 inches) present, with 30% da to 60% tree nds canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory, Recent cutover (dense vegetation).	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover.	Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh > 3 inches) present, with <30% tree canopy cover with maintained understory. Low	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable condition.	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions.	NOTES>>		
Buffers Condition Scores	Tree stratum (dbh > 3 inches) pres with > 60% tree canopy cover an non-maintained understory. Wetla located within the riparian areas	High Suboptimal. Riparian areas with tree stratum (dbh > 3 inches) ent. breach a to 60% tree acompy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory, Recent cutover (dense vegetation). Low 1.1	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85	Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh >3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable condition.	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions.	NOTES>>		
Condition Scores Delineate ripasscriptors. Determine sq	Tree stratum (dbh > 3 inches) pres with > 60% tree canopy cover an non-maintained understory. Wetla located within the riparian areas	High Suboptimal Riparian areas with tree stratum (dbh > 3 inches) present, with 30% da to 60% tree documents canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 Dank into Condition C	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory, Recent cutover (dense vegetation). Low 1.1	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85	Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh > 3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable condition. High 0.6	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions.	NOTES>>		
Condition Scores Delineate ripa secriptors. Determine sq	Tree stratum (dbh > 3 inches) pres with > 60% tree canopy cover an non-maintained understory. Wetla located within the riparian areas 1.5	High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% da to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 Dank into Condition Curring or estimating le	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 Lategories and Coungth and width. Coungth and width. Coungth areas	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85	Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh > 3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5	NOTES>>		
Condition Scores Delineate ripa escriptors. Determine squelow.	Tree stratum (dbh > 3 inches) pres with > 60% tree canopy cover an non-maintained understory. Wetla located within the riparian areas 1.5 arian areas along each stream to guare footage for each by measure footage for each by measure footage for each stream to guare footage for each by measure footage footage for each by measure footage for each by measure footage fo	High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% da to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 Dank into Condition Curring or estimating le	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 Lategories and Coungth and width. Coungth and width. Coungth areas	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85	Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh > 3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5	NOTES>>		
Condition Scores Delineate ripa escriptors. Determine squelow.	Tree stratum (dbh > 3 inches) pres with > 60% tree canopy cover an non-maintained understory. Wetla located within the riparian areas 1.5 arian areas along each stream to guare footage for each by meast	High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% da to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 Dank into Condition Curring or estimating le	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 Lategories and Coungth and width. Coungth and width. Coungth areas	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85	Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh > 3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5	NOTES>> CI= (Sum % RA * 3*	Scores*0.01)/2	
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Condition Scores Delineate ripa escriptors. Determine sq elow. Enter the % R Right Bank Left Bank INSTREAM	Tree stratum (dbh > 3 inches) pres with > 60% tree canopy cover an non-maintained understory. Wetla located within the riparian areas 1.5 arian areas along each stream to quare footage for each by meast Riparian Area and Score for each % Riparian Area > 100% Score > 1.2	High Suboptimal. Riparian areas with tree stratum (dbh > 3 inches) present, with 30% da compy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 Deank into Condition Curring or estimating leth riparian category in the property of the containing beth described by the containing beth riparian category in the containing between the containing bet	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 Lategories and Coungth and width. Coungth and width. Coungth and width. Coungth and depths; woores.	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85 Indition Scores us calculators are production of the produc	Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh > 3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75 ing the povided for you	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F Blocks 6	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5 the sums Riparian equal 100 100%	CI= (Sum % RA * \) Rt Bank CI >	1.20	
Condition Scores Delineate ripa escriptors. Determine squelow. Enter the % R Right Bank Left Bank Linstream Left Bank Linstream Left Bank	Tree stratum (dbh > 3 inches) pres with > 60% tree canopy cover an non-maintained understory. Wetla located within the riparian areas 1.5 arian areas along each stream b quare footage for each by meast Riparian Area and Score for each % Riparian Area > 100% Score > 1.2 W Riparian Area > 100% Score > 1.2 W HABITAT: Varied substrat root mats; SAV; riffle poole con	High Suboptimal: Riparian areas with tree stratum (dsh > 3 inches) present, with 30% d a to 60% tree ands canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 Deank into Condition C suring or estimating le the riparian category in e sizes, water velocit pplexes, stable feature	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 Lategories and Congth and width. Congth and width. Congth and width. Congth and width are congth and width. Congth and depths; workes. Conditions	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85 Indition Scores us calculators are processed of the proces	Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh > 3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75 ing the provided for you	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F Blocks 6	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5 the sums Riparian equal 100 100% 100%	CI= (Sum % RA * S Rt Bank CI > Lt Bank CI >	1.20	
Condition Scores Delineate ripa lescriptors. Determine squelow. Enter the % R Right Bank Left Bank Left Bank	Tree stratum (dbh > 3 inches) pres with > 60% tree canopy cover an non-maintained understory. Wetla located within the riparian areas 1.5 Tarian areas along each stream to guare footage for each by meast Riparian Area and Score for each stream to guare footage for each by meast Riparian Area and Score for each stream to guare footage for each by meast Riparian Area and Score for each stream to guare footage for each by meast Riparian Area and Score for each stream to guare footage for each by meast Riparian Area and Score for each stream to guare footage footage for each stream to guare footage for each stream to guare footage for each stream to guare footage for each stream to guar	High Suboptimal. Riparian areas with tree stratum (dbh > 3 inches) present, with 30% da to 60% tree canpy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 Dank into Condition Curring or estimating leth riparian category in present in 30-50 to are adequate featurent.	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 Lategories and Coungth and width. Coungth and width. Coungth and width. Coungth and depths; woores.	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85 addulators are production of the control of the	Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh > 3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75 ing the povided for you	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F Blocks 6 Habitat element: lacking or are u elements are typic	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5 the sums Riparian equal 100 100%	CI= (Sum % RA * S Rt Bank CI > Lt Bank CI >	1.20	

	St	ream In	npact A	ssessm	ent Fo	rm Pag	e 2		
Project #	Applicant		Locality	Cowardin Class.	HUC	Date	Date Data Point		Impact Factor
								500	1
	L ALTERATION: Stream cross poil piles, constrictions, livestock	ings, riprap, conci		concrete blocks, s	traightening of ch	annel, channeliza	ation,	NOTES>> C been altered up and dow	by a road
	Negligible	Mir	nor		erate	Se	vere	the reach.	
Channel Alteration	or hardening absent. Stream has an	Less than 20% of the stream reach is disrupted by any of the channel alterations listed in the parameter guidelines.	20-40% of the stream reach is disrupted by any of the channel alterations listed in the parameter guidelines.	40 - 60% of reach is disrupted by any of the channel alterations listed in the parameter guidelines. If stream has been channelized, normal stable stream meander pattern has not	of the channel	Greater than 80% by any of the chan in the parameter 80% of banks sh	of reach is disrupted nel alterations listed guidelines AND/OR nored with gabion, or cement.		
SCORE	1.5	1.3	1.1	0.9	0.7	0).5		
	REACH C	ONDITION II	NDEX and S	TREAM CO	NDITION UN	ITS FOR TH	IIS REACH		
NOTE: The Cle and E	CCI should be rounded to 2 decimal places	The CR should be roug	aded to a whole numb	or			THE REACH (CONDITION IN	DEX (RCI) >>

COMPENSATION REQUIREMENT (CR) >>

Upstream

CR = RCI X LF X IF

INSERT PHOTOS:





		Stre	Unit	fied Stream N		•	•				
Project #	F	Project Name		Locality	Cowardin Class.	HUC	Date	SAR#	Impact/SAR length	Impact Factor	
5337	I-64	Peninsula St	tudy	New Kent	R2UB3	02080206	July '11		44		
Name	e(s) of Evaluat	or(s)		e and Informa	ation						
	Aitkenhead		WUS 9S								
. Channel C	Condition: Asse	ss the cross-sec	tion of the stream		ondition (erosion, conditional Catego						
	Opti	mal	Subo	ptimal		ginal	Po	oor	Sev	vere	
	mark and a second	JANA .		ew areas of active cted banks. Majority		less than Severe or stable than Severe	Overwider Vertically/laterally	ed/incised.		nstability. Severe	
Channel Condition	Very little incision or 100% stable ban surface protection prominent (80-10 stable point bars/ban present. Access floodplain or fully bankfull benches. It and transverse ban sediment deposition 10% of b	nks. Vegetative n or natural rock, 00%). AND/OR unkfull benches are to their original developed wide Mid-channel bars, urs few. Transient n covers less than	of banks are si Vegetative protect prominent (60- Depositional feat stability. The bar channels are wel likely has access to or newly develope portions of the resediment covers 10	table (60-80%), tion or natural rock 80%) AND/OR tures contribute to hkfull and low flow II defined. Stream o bankfull benches, d floodplains along reach. Transient 0-40% of the stream tom.	or Poor due to lc Erosion may be pro both banks. Veget 40-60% of banks. bevertical or unde 60% of stream sediment. Sec temporary/trans instability. Depositi stability, may be AND/OR V-shap vegetative protecti	wer bank slopes, esent on 40-60% of attive protection on Streambanks may rorut. AND/OR 40-n is covered by diment may be sient, contribute on that contribute to forming/present, ed channels have on on > 40% of the	widen further. Ma are near vertical. I. 60-80% of ban protection prese banks, and is investigation. AND/O stream is cover Sediment is temp nature, and contril AND/OR V-shap vegetative protect 40% of the banks a	ority of both banks Erosion present on ks. Vegetative int on 20-40% of ffficient to prevent R 60-80% of the ed by sediment, oorary/transient in buting to instability, ed channels have ion is present on > ion d stable sediment	banks. Streamb rooting depth, n vertical/under protection present banks, is not pro Obvious bank sl Erosion/raw ban AND/OR Aggradir than 80% of strear deposition, contril Multiple thread	ntained within the ed below average majority of banks cut. Vegetative on less than 20% of eventing erosion. loughing present. nks on 80-100%. g channel. Greater n bed is covered by buting to instability. channels and/or nean flow.	CI
Score	3		2	.4		onal features which	deposition 1	is absent.		1	2.4
NOTES>>							_		1	<u>-</u>	2
2. RIPARIAN	N BUFFERS: A		Con Subo	n areas along the	gory	ginal Low Marginal: Non-maintained.	Po High Poor:	n may be accepta	NOTES>>		
2. RIPARIAN Riparian Buffers		mal 3 inches) present, nopy cover and a lerstory. Wetlands	Con	ditional Cate	gory	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh >3 inches) present, with <30% tree canopy cover with maintained	Po				
Riparian Buffers	Option Tree stratum (dbh > with > 60% tree can non-maintained und	mal 3 inches) present, nopy cover and a lerstory. Wetlands	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh >3 inches) present, with ~30% tree canopy cover with	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable			
Riparian	Option Tree stratum (dbh > with > 60% tree can non-maintained und	mal 3 inches) present, nopy cover and a lerstory. Wetlands riparian areas.	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory.	ditional Cate ptimal Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation).	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover.	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh > 3 inches) present, with <a>30 % tree canopy cover with maintained understory.	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, recently seeded and stabilized, or other comparable condition.	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions.			
Riparian Buffers Condition Scores Delineate ripa descriptors. Locate representation of the second	Tree stratum (dbh > with > 60% tree can non-maintained und located within the	mal 3 inches) present, nopy cover and a lerstory. Wetlands e riparian areas.	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 sinto Condition C	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Congth and width. Congth and	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh >3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5			
Riparian Buffers Condition Scores Delineate ripalescriptors. Determine squelow. Enter the % F	Tree stratum (dbh > with > 60% tree car non-maintained und located within the	mal 3 inches) present, nopy cover and a lerstory. Wetlands e riparian areas.	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 sinto Condition C	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Congth and width. Congth and	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh >3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions.			
Riparian Buffers Condition Scores Delineate ripa electriptors.	Tree stratum (dbh > with > 60% tree can non-maintained und located within the	mal 3 inches) present, nopy cover and a lerstory. Wetlands e riparian areas. 5 each stream bank ach by measuring	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 sinto Condition C	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Congth and width. Congth and	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh >3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5	NOTES>>		
Riparian Buffers Condition Scores Delineate ripe escriptors. Determine sq elow. Enter the % F	Tree stratum (dbh > with > 60% tree can non-maintained und located within the located wit	mal 3 inches) present, nopy cover and a lerstory. Wetlands e riparian areas. 5 each stream bank ach by measuring Score for each rip 100% 1.2	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 sinto Condition C	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Congth and width. Congth and	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh >3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5 the sums tiparian qual 100 100%	NOTES>> Cl= (Sum % RA * S	,	2:
Riparian Buffers Condition Scores Delineate ripe escriptors. Determine sq elow. Enter the % F	Tree stratum (dbh > with > 60% tree can non-maintained und located within the	mal 3 inches) present, nopy cover and a leterstory. Wetlands e riparian areas. 5 each stream bank ach by measuring Score for each rip 100% 1.2	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 sinto Condition C	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Congth and width. Congth and	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh >3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5	NOTES>> Cl= (Sum % RA* S Rt Bank Cl >	1.20	CI 1.20
Condition Scores Delineate ripalescriptors. Determine squelow. Enter the % F. Right Bank Left Bank	Tree stratum (dbh > with > 60% tree can non-maintained und located within the located within the arian areas along e quare footage for ea Riparian Area and \$ % Riparian Area > \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$	mal 3 inches) present, nopy cover and a lerstory. Wetlands e riparian areas. 5 sach stream bank ach by measuring 100% 1.2 100% 1.2 aried substrate siz	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 Into Condition C g or estimating ler parian category in	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Co oright and width. Co oright and width. Co oright and width. Co oright and depths; woo y and depths; woo y and depths; woo	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh > 3 inches) present, with <a>only wow of with maintained understory. Low 0.75	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F Blocks 6	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5 the sums tiparian qual 100 100%	NOTES>> Cl= (Sum % RA * S	,	CI 1.20
Condition Scores Delineate ripalescriptors. Delineate ripalescriptors. Enter the % F Right Bank Left Bank Left Bank J. INSTREAI J. INSTREAI J. Indercut banks;	Tree stratum (dbh > with > 60% tree car non-maintained und located within the located within the arian areas along e quare footage for each grant area and S (Riparian Area and S Score > M HABITAT: Varroot mats; SAV; rife	mal 3 inches) present, nopy cover and a lerstory. Wetlands e riparian areas. 5 each stream bank ach by measuring 100% 1.2 100% 1.2 aried substrate siz ffle poole comple.	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 s into Condition C g or estimating ler parian category in category	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Co ongth and width. Co the blocks below y and depths; wodes. Conditiona	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85 Indition Scores using alculators are production of the prod	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh -3 inches) present, with +30% tree canopy cover with maintained understory. Low 0.75	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F Blocks e	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5 the sums Riparian qual 100 100% 100%	NOTES>> CI= (Sum % RA * S Rt Bank CI > Lt Bank CI >	1.20	
Condition Scores 1. Delineate ripadescriptors. 2. Determine squelow. 3. Enter the % F	Tree stratum (dbh > with > 60% tree can non-maintained und located within the located wit	mal 3 inches) present, nopy cover and a lerstory. Wetlands riparian areas. 5 each stream bank ach by measuring 100% 1.2 100% 1.2 aried substrate siz ffle poole comple:	Com Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 Into Condition C g or estimating ler parian category in Subo Stable habitat ele present in 30-50% are adequate fo	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Coungth and width. Coungth and width. Coungth and width. Coungth and depths; wodes.	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85 Indition Scores using alculators are producted and care producted and ca	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh > 3 inches) present, with <a>only wow of with maintained understory. Low 0.75	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F Blocks e	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5 the sums Riparian qual 100 100% 100% 1isted above are stable. Habitat ally present in less	NOTES>> CI= (Sum % RA * S Rt Bank CI > Lt Bank CI >	1.20	

	St	ream In	npact A	ssessn	nent Fo	rm Pag	e 2		
Project #	Applicant		Locality	Cowardin Class.	HUC	Date	Data Point	SAR length	Impact Factor
								500	1
	L ALTERATION: Stream cross spoil piles, constrictions, livestock		Conditiona	al Category				NOTES>>	
	Negligible	Miı	nor		erate		evere		
Channel Alteration	Channelization, dredging, alteration, or hardening absent. Stream has an unaltered pattern or has naturalized.	Less than 20% of the stream reach is disrupted by any of the channel alterations listed in the parameter guidelines.	20-40% of the stream reach is disrupted by any of the channel alterations listed in the parameter guidelines.	is disrupted by any of the channel	60 - 80% of reach is disrupted by any of the channel alterations listed in the parameter guidelines. If stream has been channelized, normal stable stream meander pattern has not	Greater than 80% by any of the cha in the parameter 80% of banks s	o of reach is disrupted nnel alterations listed guidelines AND/OR shored with gabion, or cement.		
SCORE	1.5	1.3	1.1	0.9	0.7	(0.5		
	REACH C	ONDITION II	NDEX and S	TREAM CO	NDITION UN	ITS FOR TH	IIS REACH		

COMPENSATION REQUIREMENT (CR) >> 0

CR = RCI X LF X IF

INSERT PHOTOS:





	Str		fied Stream N	lethodology 1	for use in Vir	ginia	· · · · · · · · · · · · · · · · · · ·			
Project #	Project Nar		Locality	Cowardin Class.	HUC	Date Date	SAR#	Impact/SAR length	Impact Factor	
5337	I-64 Penins	ıla	York	R2UB2	02080107	11/9/11		474		
Nam	e(s) of Evaluator(s)		e and Inform	ation						
	Aitkenhead / Nies	WUS 154S								
I. Channel (Condition: Assess the cross-s	ection of the stream		ondition (erosion,						
	Optimal	Subo	ptimal		ginal	Po	oor	Sev	vere	
Channel Condition	Very little incision or active erosion; 100% stable banks. Vegetative surface protection or natural rock, prominent (86-100%). AND/OR	of banks are s Vegetative protect prominent (60		Poor. Banks more or Poor due to lo Erosion may be pr both banks. Veget		Vertically/laterally widen further. Ma are near vertical. 60-80% of bar		incision, flow cor banks. Streamb rooting depth, n	stability. Severe ntained within the ed below average najority of banks ut. Vegetative	
	prominent (80-100%). AND/OR Stable point bars/bankfull benches are present. Access to their original floodplain or fully developed wide bankfull benches. Mid-channel bars, and transverse bars few. Transient sediment describers occurs the provision of the provis		prominent (60-80%) AND/OR Depositional features contribute to stability. The bankfull and low flow channels are well defined. Stream likely has access to bankfull benches, or newly developed floodplains along portions of the reach. Transient sediment covers 10-40% of the stream bottom.		both banks. Vegetative protection on 40-60% of banks. Streambanks may bevertical or undercut. AND/OR 40- 60% of stream is covered by sediment. Sediment may be temporary/transient, contribute instability. Deposition that contribute to stability, may be forming/present. AND/OR V-shaped channels have vegetative protection on > 40% of the banks and depositional features which		60-80% of banks. Vegetative protection present on 20-40% of banks, and is insufficient to prevent erosion. AND/OR 60-80% of the stream is covered by sediment. Sediment is temporary/transient in nature, and contributing to instability. AND/OR V-shaped channels have vegetative protection is present on > 40% of the banks and stable sediment deposition is absent.		on less than 20% of eventing erosion. loughing present. lks on 80-100%. Ig channel. Greater n bed is covered by suting to instability. channels and/or nean flow.	CI
Score	3	2	2.4		2	1	.6		1	2.0
2. RIPARIAN	N BUFFERS: Assess both ba	Con	an areas along the	gory	ugh measurement		h may be accepta	notes>>		
2. RIPARIAN Riparian Buffers		High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree is canopy cover and containing both herbaceous and shrub layers or a non-maintained understory.	nditional Cate ptimal Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation).	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover.	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh >3 inches) present, with <30% tree canopy cover with maintained understory.	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable condition.	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions.	NOTES>>		
Riparian Buffers	Optimal Tree stratum (dbh > 3 inches) prese with > 60% tree canopy cover and non-maintained understory. Wetlan	High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) to 60% tree is canopy cover and containing both herbaceous and shrub layers or a non-maintained	Low Suboptimal Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory, Recent cutover (dense	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hospopen water. If present, tree stratum (dbh > 3 inches) present, with <30% tree canopy cover with maintained	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable	NOTES>>		
Riparian Buffers Condition Scores 1. Delineate ripe descriptors. 2. Determine scorelow.	Optimal Tree stratum (dbh > 3 inches) prese with > 60% tree canopy cover and non-maintained understory. Wetlan located within the riparian areas.	High Suboptimal: Riparian areas with tree stratum (Idoh > 3 inches) present, with 30% to 60% tree ds canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 not into Condition C	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 Lategories and Congth and width. Congth and width. Congth and width. Congth and width. Congth and suboptimal and width. Congth areas with the position of the posit	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh > 3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % I	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions.	NOTES>>	Scores*0.01)/2	
Riparian Buffers Condition Scores 1. Delineate ripalescriptors. 2. Determine squelow. 3. Enter the % F	Optimal Tree stratum (dbh > 3 inches) prese with > 60% tree canopy cover and non-maintained understory. Wetlan located within the riparian areas. 1.5 arian areas along each stream be quare footage for each by measur Riparian Area and Score for each % Riparian Area 100% Score > 1.2	High Suboptimal: Riparian areas with tree stratum (Idoh > 3 inches) present, with 30% to 60% tree ds canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 not into Condition C	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 Lategories and Congth and width. Congth and width. Congth and width. Congth and width. Congth and suboptimal and width. Congth areas with the position of the posit	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh > 3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % I	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5	NOTES>> Cl= (Sum % RA*S Rt Bank Cl>	1.20	CI
Condition Scores Delineate ripe descriptors. Deltermine scoelow. English Bank Left Bank Left Bank INSTREA	Optimal Tree stratum (dbh > 3 inches) prese with > 60% tree canopy cover and non-maintained understory. Wetlan located within the riparian areas. 1.5 arian areas along each stream baquare footage for each by measur Riparian Area and Score for each % Riparian Area 100% Score > 1.2	High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree is canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 Ink into Condition C Ing or estimating let riparian category in	nditional Cate ptimal Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 Tategories and Co	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh > 3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75 ing the povided for you	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % I Blocks 6	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5 the sums Riparian equal 100 100%	NOTES>>		
Condition Scores 1. Delineate ripalescriptors. 2. Determine sopelow. 3. Enter the % F Right Bank Left Bank 3. INSTREAI	Optimal Tree stratum (dbh > 3 inches) prese with > 60% tree canopy cover and non-maintained understory. Wetlan located within the riparian areas. 1.5 arian areas along each stream baquare footage for each by measure. Riparian Area and Score for each % Riparian Area 100% Score > 1.2 % Riparian Area 100% Score 1.2 M HABITAT: Varied substrate root mats; SAV; riffle poole comp	High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree to canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 nk into Condition C riparian category in sizes, water velocit lexes, stable featur	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 Lategories and Congth and width. Congth and width. Congth and width. Congth and width. Congth and depths; wores. Conditions	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85 Indition Scores us calculators are production of the product	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (bdh > 3 inches) present, with <a>30 % tree canopy cover with maintained understory. Low 0.75 ing the price of the provided for you	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % I Blocks 6	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5 the sums Riparian equal 100 100%	CI= (Sum % RA * S Rt Bank CI > Lt Bank CI >	1.20	CI 1.20
Condition Scores Delineate ripe descriptors. Deltermine scoelow. English Bank Left Bank Left Bank INSTREA	Optimal Tree stratum (dbh > 3 inches) prese with > 60% tree canopy cover and non-maintained understory. Wetlan located within the riparian areas. 1.5 arian areas along each stream be quare footage for each by measure. Riparian Area and Score for each % Riparian Area = 100% Score > 1.2 % Riparian Area = 100% Score > 1.2 M HABITAT: Varied substrate	High Suboptimal: Riparian areas with tree stratum (dob > 3 inches) present, with 30% to 60% tree is canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 Ink into Condition C Ing or estimating let riparian category in Sizes, water velocit lexes, stable featur Subo Stable habitat ele present in 30-50 are adequate fo are adequate fo	Inditional Cate ptimal Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 Sategories and Co	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85 Indition Scores us calculators are processed of the control of	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh > 3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75 ing the povided for you	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % I Blocks 6 Habitat element lacking or are Lelements are typic	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5 the sums Riparian equal 100 100%	CI= (Sum % RA * S Rt Bank CI > Lt Bank CI >	1.20	

	St	ream In	npact A	ssessn	nent Fo	rm Pag	e 2		
Project #	Applicant		Locality	Cowardin Class.	нис	Date	Data Point	SAR length	Impact Factor
								500	1
	L ALTERATION: Stream cross	sings, riprap, cond	rete, gabions, or o	concrete blocks, s	straightening of ch	nannel, channeliz	ation,	NOTES>>	
embankments, s	spoil piles, constrictions, livestock		Condition	al Category					
	Negligible	Mi	nor	Mod	lerate		vere		
Channel Alteration	Channelization, dredging, alteration, or hardening absent. Stream has an unaltered pattern or has naturalized.	Less than 20% of the stream reach is disrupted by any of the channel alterations listed in the parameter guidelines.	20-40% of the stream reach is disrupted by any of the channel alterations listed in the parameter guidelines.	guidelines. If	is disrupted by any of the channel	Greater than 80% by any of the chal in the parameter 80% of banks s	of reach is disrupted nnel alterations listed guidelines AND/OR hored with gabion, or cement.		
SCORE	1.5	1.3	1.1	0.9	0.7	(0.5		
	REACH C	ONDITION	NDEX and S	TREAM CO	NDITION UN	IITS FOR TH	IIS REACH		
NOTE: The CIs and I	RCI should be rounded to 2 decimal places.							CONDITION IN	DEX (RCI) >>
								l= (Sum of all C	
							COMPENSATI		MENT (CR) >>
							CR = RC	I X LF X IF	
DESCRIBE F	PROPOSED IMPACT:								

		Stre	Unit	fied Stream N	lethodology 1	Form	ginia	m 1)			
Project #		Project Name		Locality	nels classified a Cowardin Class.	HUC	perennial Date	SAR#	Impact/SAR	Impact Factor	
5337	ı	-64 Peninsul	a	York	R2UB2	02080107	11/9/11		53		
Name	e(s) of Evalua	tor(s)	Stream Nam	e and Informa	ation	1	'				
	Aitkenhead / Nies		WUS 155S								
I. Channel C	Condition: Ass	ess the cross-sec	tion of the stream		ondition (erosion, Conditional Catego						
	Opt	imal	Subo	ptimal		ginal	Po	or	Se	vere	
Channal	Very little incision o	r active erosion; 80	erosion or unproted	ew areas of active cted banks. Majority	Poor. Banks more	less than Severe or a stable than Severe ower bank slopes.		ed/incised. unstable. Likely to ority of both banks	incision, flow co	nstability. Severe	
Channel Condition	100% stable bar surface protection prominent (80-1 Stable point bars/br present. Access floodplain or fully bankfull benches. and transverse bar sediment deposition	nks. Vegetative n or natural rock, 00%). AND/OR ankfull benches are to their original or developed wide Mid-channel bars, ars few. Transient or covers less than	Vegetative protect prominent (60- Depositional feat stability. The bar channels are well likely has access to r newly develope portions of the resediment covers 1 (1)	table (60-80%), tion or natural rock-80%) AND/OR tures contribute to which and low flow observed to be a contribute to shafull and low flow observed to be a contribute to shafull benches, of floodplains along reach. Transient 0-40% of the stream torm.	Erosion may be pr both banks. Veget 40-60% of banks. bevertical or unde 60% of strean sediment. Set temporary/tran instability. Depositi stability, may be AND/OR V-shap	resent on 40-60% of tative protection on Streambanks may recut. AND/OR 40-m is covered by diment may be issient, contribute too froming/present. ed channels have ion on > 40% of the	are near vertical. 60-80% of bar protection prese banks, and is inst erosion. AND/O stream is cover Sediment is temp nature, and contri AND/OR V-shap vegetative protect	Erosion present on ks. Vegetative on 20-40% of officient to prevent R 60-80% of the ed by sediment. orary/transient in buting to instability. ed channels have	rooting depth, vertical/under protection present banks, is not produced by the control of the co	ped below average majority of banks rotu. Vegetative to n less than 20% of reventing erosion. Sloughing present. anks on 80-100%. In g.channel. Greate m bed is covered bibuting to instability. d channels and/or	r
Coore	3	•	2	.4	banks and depositi	ional features which	deposition	is absent.	subterra	nean flow.	2.0
Score	•	3		.4			Į į	.0		1	2.0
2. RIPARIAN	N BUFFERS: /		Con Subo	n areas along the	gory	ginal Low Marginal: Non-maintained,	Po High Poor:	n may be accepta	NOTES>>		
2. RIPARIAN Riparian Buffers	Opti	imal - 3 inches) present, anopy cover and a derstory. Wetlands	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy	gory	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh > 3 inches) present, with <30% tree canopy cover with maintained	Po				
Riparian	Option Tree stratum (dbh > 60% tree cr	imal - 3 inches) present, anopy cover and a derstory. Wetlands	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained	ditional Cate ptimal Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh > 3 inches) present, with <30% tree canopy cover with	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable			
Riparian	Option Tree stratum (dbh swith > 60% tree cr	• 3 inches) present, anopy cover and a derstory. Wetlands e riparian areas.	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory.	ditional Cate ptimal Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation).	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover.	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh >3 inches) present, with <30% tree canopy cover with maintained understory.	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, recently seeded and stabilized, or other comparable condition.	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions.			
Riparian Buffers Condition Scores Delineate ripa descriptors. Delineate ripa descriptors.	Tree stratum (dbh a with a 60% tree cc non-maintained und located within th	imal 3 inches) present, anopy cover and a derstory. Wetlands e riparian areas.	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 into Condition C	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Coungth and width. Co	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh > 3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions.			
Riparian Buffers Condition Scores Delineate ripalescriptors. Determine squelow. Enter the % F	Tree stratum (dbh swith > 60% tree canon-maintained und located within the	imal 3 inches) present, anopy cover and a derstory. Wetlands e riparian areas.	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 into Condition C	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Coungth and width. Co	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh > 3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5			
Riparian Buffers Condition Scores Delineate ripa descriptors. Locate representation of the second	Tree stratum (dbh > with > 60% tree conon-maintained und located within the located withi	imal 3 inches) present, anopy cover and a derstory. Wetlands e riparian areas. 5 ach by measuring score for each right and score for each right	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 into Condition C	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Coungth and width. Co	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh > 3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5	NOTES>>	Scores*9.041/2	
Riparian Buffers Condition Scores Delineate ripalescriptors. Determine squelow. Enter the % F. Right Bank	Tree stratum (dbh > with > 60% tree connon-maintained und located within the located with	imal 3 inches) present, anopy cover and a derstory. Wetlands e riparian areas. 5 ach stream bank ach by measuring Score for each riparian areas.	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 into Condition C	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Coungth and width. Co	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh > 3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5		Scores*0.01)/2	CI
Riparian Buffers Condition Scores Delineate ripalescriptors. Determine squelow. Enter the % F	Tree stratum (dbh > with > 60% tree conon-maintained und located within the located withi	imal 3 inches) present, anopy cover and a derstory. Wetlands e riparian areas. 5 ach stream bank ach by measuring 100% 1.1	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 into Condition C	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Coungth and width. Co	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh > 3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5 the sums Riparian qual 100	NOTES>>		CI 0.93
Condition Scores Delineate ripadescriptors. Deltermine squelow. Enter the % Finance of the second s	Tree stratum (dbh > with > 60% tree conon-maintained und located within the located withi	imal 3 inches) present, anopy cover and a derstory. Wetlands e riparian areas. 5 ach stream bank ach by measuring 100% 1.1 100% 0.75 aried substrate si	Com Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 Into Condition C g or estimating ler parian category in	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Coungth and width. Country the blocks below y and depths; wodes.	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85 addition Scores us calculators are production of the produc	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh > 3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75 ing the povided for you	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F Blocks 6	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5 the sums stiparian qual 100 100%	NOTES>> CI= (Sum % RA* Rt Bank CI >	1.10	
Condition Scores Delineate ripa descriptors. Deltheate ripa descriptors. Right Bank Left Bank Left Bank J. INSTREAR Landercut banks;	Tree stratum (dbh with > 60% tree canon-maintained und located within the located within	imal 3 inches) present, anopy cover and a derstory. Wetlands e riparian areas. 5 each stream bank ach by measuring 100% 1.1 100% 0.75 aried substrate si ffle poole comple	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 sinto Condition C g or estimating ler parian category in parian category in	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Coungth and width. Coungth and width. Coungth and width. Coungth and depths; wores. Conditiona	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85 Indition Scores us calculators are production of the product	Ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh >3 inches) present, with <a>30 % tree canopy cover with maintained understory. Low 0.75 ing the price of the product of the present of t	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F Blocks e	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5 the sums Riparian qual 100 100% 100% ess; shade;	NOTES>> Cl= (Sum % RA* Rt Bank Cl> Lt Bank Cl>	1.10	
Condition Scores Delineate ripadescriptors. Deltermine squelow. Enter the % Finance of the second s	Tree stratum (dbh > with > 60% tree cc non-maintained und located within th 1. arian areas along of quare footage for e Riparian Area and % Riparian Area> Score > % Riparian Area> Score > M HABITAT: Va ; root mats; SAV; ri	imal 3 inches) present, anopy cover and a derstory. Wetlands e riparian areas. 5 each stream bank ach by measuring 100% 1.1 100% 0.75 aried substrate si ffle poole completimal	Com Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 Into Condition C g or estimating ler parian category in Zes, water velocity ixes, stable featur Subo Stable habitat ele present in 30-50% are adequate fo	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Coungth and width. Country the blocks below y and depths; wodes.	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85 Indition Scores us calculators are processed of the control of	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh > 3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75 ing the povided for you	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F Blocks 6	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5 the sums stiparian qual 100 100%	NOTES>> Cl= (Sum % RA* Rt Bank Cl> Lt Bank Cl>	1.10	

	St	ream In	npact A	ssessn	nent Fo	rm Pag	e 2			
Project #	Applicant		Locality	Cowardin Class.	HUC	Date	Data Point	SAR length	Impact Factor	
								500	1	
4. CHANNEL	L ALTERATION: Stream cross	sings, riprap, conc	rete, gabions, or	concrete blocks, s	straightening of ch	nannel, channeliz	ation,	NOTES>>		
ernbankments, s	spoil piles, constrictions, livestock		Condition	al Category						
	Negligible	Mi	nor		lerate		evere			
Channel Alteration	Channelization, dredging, alteration, or hardening absent. Stream has an unaltered pattern or has naturalized.	Less than 20% of the stream reach is disrupted by any of the channel alterations listed in the parameter guidelines.	20-40% of the stream reach is disrupted by any of the channel alterations listed in the parameter guidelines.	40 - 60% of reach is disrupted by any of the channel alterations listed in the parameter guidelines. If stream has been channelized, normal stable stream meander pattern has not	is disrupted by any of the channel	Greater than 80% by any of the cha in the parameter 80% of banks s	of reach is disrupted nnel alterations listed guidelines AND/OR shored with gabion, or cement.			
SCORE	1.5	1.3	1.1	0.9	0.7		0.5			0.90
	REACH C	ONDITION I	NDEX and S	STREAM CO	NDITION UN	IITS FOR TH	IIS REACH			
NOTE: The Cls and R	RCI should be rounded to 2 decimal places.	The CR should be rou	nded to a whole numl	ber.			THE REACH (CONDITION IN	DEX (RCI) >>	1.01
								l= (Sum of all C		
							COMPENSATI		MENT (CR) >>	0
INSERT PHO							CK = KC	IXLFXIF		
DESCRIBE F	PROPOSED IMPACT:									

		Stre	Unit	fied Stream N	lethodology 1	Form	ginia	m 1)			
Project #		Project Name		Locality	nels classified a Cowardin Class.	HUC	perennial Date	SAR#	Impact/SAR	Impact Factor	
5337	Į.	-64 Peninsul	a	Henrico	R2UB1	02080206	11/15/11		85	1	
Nam	e(s) of Evalua	tor(s)		e and Informa	ation						
	Aitkenhead / Nies		WUS 156S								
I. Channel (Condition: Asse	ess the cross-sec	ction of the stream		ondition (erosion, Conditional Catego						
	Opti	imal	Subo	ptimal	Mar	ginal	Po	oor	Se	vere	
Channel	Very little incision o	or active erosion; 80	erosion or unproted	ew areas of active cted banks. Majority table (60-80%).	Poor. Banks more	less than Severe or e stable than Severe ower bank slopes.		ed/incised. unstable. Likely to ority of both banks	incision, flow co	instability. Severe	
Condition	100% stable bar surface protection prominent (80-11 Stable point bars/bar present. Access floodplain or fully bankfull benches. and transverse bar sediment deposition 10% of l	n or natural rock, 00%). AND/OR ankfull benches are s to their original of developed wide, Mid-channel bars, ars few. Transient on covers less than	Vegetative protect prominent (60- Depositional feat stability. The bar channels are well likely has access to or newly develope portions of the resediment covers 10	tion or natural rock- 80%) AND/OR tures contribute to nkfull and low flow Il defined. Stream o bankfull benches, of floodplains along reach. Transient 0-40% of the stream tom.	Erosion may be pr both banks. Veget 40-60% of banks. bevertical or unde 60% of strean sediment. Set temporary/tran instability. Depositi stability, may be AND/OR V-shap	resent on 40-60% of tative protection on Streambanks may ercut. AND/OR 40-n is covered by diment may be issient, contribute too forming/present. ded channels have ion on > 40% of the	are near vertical. 60-80% of bar protection prese banks, and is inst erosion. AND/O stream is cover Sediment is temp nature, and contri AND/OR V-shap vegetative protect	Erosion present on ks. Vegetative on 20-40% of officient to prevent R 60-80% of the ed by sediment. orary/transient in buting to instability. ed channels have	rooting depth, vertical/under protection present banks, is not pr Obvious bank s Erosion/raw ba AND/OR Aggradi than 80% of strea deposition, contri Multiple threac	bed below average majority of banks rotu. Vegetative ton less than 20% of reventing erosion. Sloughing present. anks on 80-100%. ing channel. Greater im bed is covered by ibuting to instability. d channels and/or	r
C	3	,	2	.4	banks and depositi	ional features which	deposition	is absent.		anean flow.	4.0
Score NOTES>>	3)		.~		_	1	.0		1	1.6
2. RIPARIAN	N BUFFERS: A		Con Subo	n areas along the aditional Cate ptimal	gory	ginal Low Marginal: Non-maintained,	Po High Poor:	n may be accepta	NOTES>>		
Riparian Buffers	Opti Tree stratum (dbh > with > 60% tree ca	imal > 3 inches) present, anopy cover and a derstory. Wetlands	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy	gory	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh > 3 inches) present, with <30% tree canopy cover with maintained	Po				
Riparian	Option Tree stratum (dbh > with > 60% tree canon-maintained unc	imal > 3 inches) present, anopy cover and a derstory. Wetlands	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained	ditional Cate ptimal Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh > 3 inches) present, with <30% tree canopy cover with	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable			
Riparian	Option Tree stratum (dbh > with > 60% tree canon-maintained unc	imal 3 inches) present, anopy cover and a derstory. Wetlands e riparian areas.	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory.	ditional Cate ptimal Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation).	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover.	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh >3 inches) present, with <30% tree canopy cover with maintained understory.	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, recently seeded and stabilized, or other comparable condition.	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions.			
Riparian Buffers Condition Scores 1. Delineate ripe descriptors. 2. Determine scorelow.	Tree stratum (dbh > with > 60% tree ca non-maintained unc located within the	imal 3 inches) present, anopy cover and a derstory. Wetlands e riparian areas. 5 each stream banl ach by measurin	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 into Condition C	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Coungth and width. Co	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh > 3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5			
Riparian Buffers Condition Scores Delineate riptescriptors. Determine squelow. Enter the % F	Tree stratum (dbh > with > 60% tree conon-maintained und located within the located withi	imal 3 inches) present, anopy cover and a derstory. Wetlands e riparian areas. 5 ach stream banl ach by measurin.	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 into Condition C	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Coungth and width. Co	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh > 3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5			
Riparian Buffers Condition Scores Delineate ripe descriptors. Deltermine so	Tree stratum (dbh > with > 60% tree ca non-maintained unc located within the	imal 3 inches) present, anopy cover and a derstory. Wetlands e riparian areas. 5 each stream banl ach by measurin	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 into Condition C	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Coungth and width. Co	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh > 3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5	NOTES>>		
Riparian Buffers Condition Scores Delineate ripalescriptors. Determine squelow. Enter the % F	Tree stratum (dbh > with > 60% tree ca non-maintained unc located within the located with	imal 3 inches) present, anopy cover and a derstory. Wetlands e riparian areas. 5 ach stream bank ach by measuring the stream bank ach by	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 into Condition C	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Coungth and width. Co	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh > 3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5 the sums Riparian qual 100	NOTES>>		
Riparian Buffers Condition Scores Delineate riptescriptors. Determine squelow. Enter the % F	Tree stratum (dbh > with > 60% tree conon-maintained und located within the located withi	imal 3 inches) present, anopy cover and a derstory. Wetlands e riparian areas. 5 ach stream bank ach by measurin. Score for each ri	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 into Condition C	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Coungth and width. Co	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh > 3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5	NOTES>>	Scores*0.01)/2 0.85 0.85	CI 0.8
Condition Scores Delineate ripe descriptors. Deltermine scorelow. English Bank Left Bank Left Bank INSTREA	Tree stratum (dbh > with > 60% tree ca non-maintained unc located within the located with	imal 3 inches) present, anopy cover and a derstory. Wetlands e riparian areas. 5 each stream bank ach by measuring the stream ban	Com Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 Into Condition C g or estimating ler parian category in	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Coungth and width. Country the blocks below y and depths; wodes.	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85 addition Scores us calculators are production of the produc	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh > 3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75 ing the povided for you	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F Blocks 6	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5 the sums stiparian qual 100 100%	NOTES>> CI= (Sum % RA * Rt Bank CI >	0.85	
Condition Scores Delineate ripe descriptors. Delineate ripe descriptors. Ender the % F Right Bank Left Bank Left Bank INSTREAI undercut banks;	Tree stratum (dbh > with > 60% tree ca non-maintained unc located within the located with	imal 3 inches) present, anopy cover and a derstory. Wetlands e riparian areas. 5 each stream bank ach by measuring the stream ban	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 s into Condition C g or estimating ler parian category in zes, water velocity ixes, stable featur	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Coungth and width. Country the blocks below y and depths; wodes.	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85 Indition Scores us calculators are production of the product	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh > 3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75 ing the povided for you	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F Blocks e	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5 the sums stiparian qual 100 100%	NOTES>> CI= (Sum % RA * Rt Bank CI > Lt Bank CI >	0.85	
Condition Scores Delineate ripe descriptors. Deltermine scoelow. English Bank Left Bank Left Bank INSTREA	Tree stratum (dbh > with > 60% tree cc non-maintained und located within the located with	imal 3 inches) present, anopy cover and a derstory. Wetlands e riparian areas. 5 each stream bani ach by measurin Score for each ri 100% 0.85 100% 1	Com Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 Into Condition C g or estimating ler parian category in zes, water velocity exes, stable featur Subo Stable habitat ele present in 30-50% are adequate fo	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Coungth and width. Coungth and width. Coungth and width. Coungth and depths; wores. Conditiona	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85 Indition Scores us calculators are processed of the control of	Ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh >3 inches) present, with <a>30 % tree canopy cover with maintained understory. Low 0.75 ing the price of the product of the present of t	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F Blocks 6	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5 the sums Riparian qual 100 100% 100% ess; shade;	NOTES>> CI= (Sum % RA * Rt Bank CI > Lt Bank CI >	0.85	

	St	ream In	າpact A	ssessm	ient Foi	rm Pago	e 2		
Project #	Applicant		Locality	Cowardin Class.	HUC	Date	Data Point	SAR length	Impact Factor
								500	1
	L ALTERATION: Stream cross spoil piles, constrictions, livestock	ings, riprap, conci	ete, gabions, or o	concrete blocks, s	traightening of ch	annel, channeliza	ation,	NOTES>>	
			Condition	al Category					
	Negligible	Mir	nor		erate	Se	vere		
Channel Alteration	or hardening absent. Stream has an	Less than 20% of the stream reach is disrupted by any of the channel alterations listed in the parameter guidelines.	20-40% of the stream reach is disrupted by any of the channel alterations listed in the parameter guidelines.	is disrupted by any of the channel	of the channel	Greater than 80% of by any of the chan in the parameter (80% of banks sh	of reach is disrupted nel alterations listed juidelines AND/OR lored with gabion, r cement.		
SCORE	1.5	1.3	1.1	0.9	0.7	0	.5		
	REACH C	ONDITION II	NDEX and S	TREAM CO	NDITION UN	ITS FOR TH	IS REACH		
NOTE: The CIs and F	RCI should be rounded to 2 decimal places.	The CR should be rour	nded to a whole numb	er.			THE REACH (CONDITION IN	DEX (RCI) >>
							RCI	= (Sum of all C	l's)/5

COMPENSATION REQUIREMENT (CR) >>

CR = RCI X LF X IF

INSERT PHOTOS:







DOWNSTREAM



		Stre	Unit	SSESS fied Stream M	lethodology 1	for use in Virg	ginia	m 1)			
Project #		Project Name		Locality	cowardin Class.	HUC	perennial Date	SAR#	Impact/SAR length	Impact Factor	
5337	ŀ	-64 Peninsul	a	Henrico	R2UB2	02080206	11/15/11		49		
Name	e(s) of Evalua	tor(s)	Stream Nam	e and Informa	ation						
	Aitkenhead / Nies		WUS 157S								
. Channel C	Condition: Asse	ess the cross-sec	ction of the stream		ondition (erosion, conditional Catego						
	Opti	imal	Subo	ptimal	Mar	ginal	Po	oor	Se	vere	4
	Very little incision o	r active erosion: 80	erosion or unproted	ew areas of active cted banks. Majority	Poor. Banks more	less than Severe or stable than Severe	Vertically/laterally	ed/incised. unstable. Likely to		nstability. Severe	
Channel Condition	100% stable bar surface protection prominent (80-1) Stable point bars/ba- present. Access floodplain or fully bankfull benches. and transverse basediment depositio sediment depositio	nks. Vegetative n or natural rock, 00%). AND/OR ankfull benches are to their original or developed wide Mid-channel bars, ars few. Transient in covers less than	Vegetative protect prominent (60- Depositional feat stability. The bar channels are well likely has access to or newly develope portions of the resediment covers 10 to definite the covers of the resediment covers 10 to definite the covers of the resediment covers 10 to definite the covers of the resediment covers 10 to definite the covers 10 to definite	table (60-80%), titon or natural rock -80%) AND/OR tures contribute to nkfull and low flow II defined. Stream o bankfull benches, at floodplains along reach. Transient 0-40% of the stream tom.	Erosion may be pr both banks. Veget 40-60% of banks. bevertical or unde 60% of stream sediment. Se- temporary/tran instability. Depositi stability, may be	ower bank slopes. esent on 40-60% of tative protection on Streambanks may ercut. AND/OR 40- n is covered by diment may be sient, contribute on that contribute to e forming/present. ed channels have	are near vertical. 60-80% of bar protection prese banks, and is inst erosion. AND/O stream is cover Sediment is temp nature, and contri AND/OR V-shap	ority of both banks Erosion present on ks. Vegetative int on 20-40% of ifficient to prevent R 60-80% of the ed by sediment. borary/transient in puting to instability. ed channels have ion is present on >	rooting depth, r vertical/under protection present banks, is not pr Obvious bank s Erosion/raw ba AND/OR Aggradir than 80% of streat deposition, contril	ed below average majority of banks cut. Vegetative on less than 20% of eventing erosion. loughing present. nks on 80-100%. ng channel. Greater n bed is covered by buting to instability. channels and/or	
					banks and depositi	ion on > 40% of the ional features which	deposition	ind stable sediment is absent.	subterra	nean flow.	CI
Score	3	3	2	2.4		2	1	.6		1	2.4
. RIPARIAN	N BUFFERS: A		Con	nditional Cate	gory Mar	ginal Low Marginal: Non-maintained,	Po High Poor:	n may be accepta	NOTES>>		
RIPARIAN Riparian Buffers	Opti	imal 3 inches) present, anopy cover and a derstory. Wetlands	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy	gory	ginal Low Marginal:	Po		,		
Riparian	Option Tree stratum (dbh > with > 60% tree canon-maintained unc	imal 3 inches) present, anopy cover and a derstory. Wetlands	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory.	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation).	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover.	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh >3 inches) present, with <30% tree canopy cover with maintained understory.	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable condition.	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions.	,		
Riparian	Option Tree stratum (dbh > with > 60% tree canon-maintained unc	imal 3 inches) present, anopy cover and a derstory. Wetlands e riparian areas.	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh >3 inches) present, with <30% tree canopy cover with maintained	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable	,		
Riparian Buffers Condition Scores Delineate ripa escriptors. Determine sq elow.	Tree stratum (dbh > with > 60% tree ca non-maintained unc located within the	imal 3 inches) present, anopy cover and a derstory. Wetlands e riparian areas.	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 k into Condition C	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Coungth and width. Coungth	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh >3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5	,		
Riparian Buffers Condition Scores Delineate ripasscriptors. Determine squadow.	Tree stratum (dbh > with > 60% tree ca non-maintained unc located within the located with	imal 3 inches) present, anopy cover and a derstory. Wetlands e riparian areas. 5 ach stream bank ach by measurin.	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 k into Condition C	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Coungth and width. Coungth	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh >3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5	,		
Riparian Buffers Condition Scores Delineate ripaescriptors. Determine squelow. Enter the % F	Tree stratum (dbh > with > 60% tree ca non-maintained unc located within the	imal 3 inches) present, anopy cover and a derstory. Wetlands e riparian areas.	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 k into Condition C	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Coungth and width. Coungth	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh >3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5	NOTES>>		
Riparian Buffers Condition Scores Delineate ripascriptors. Determine squelow. Enter the % F	Tree stratum (dbh > with > 60% tree canon-maintained unc located within the located withi	imal 3 inches) present, anopy cover and a derstory. Wetlands e riparian areas. 5 each stream bank ach by measurin Score for each ri	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 k into Condition C	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Coungth and width. Coungth	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh >3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5 the sums Riparian qual 100	NOTES>>		
Riparian Buffers Condition Scores Delineate ripascriptors. Determine squelow. Enter the % F	Tree stratum (dbh > with > 60% tree ca non-maintained unc located within the located with	imal 3 inches) present, anopy cover and a derstory. Wetlands e riparian areas. 5 each stream bank ach by measurin 100% 1.1 100%	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 k into Condition C	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Coungth and width. Coungth	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh >3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5	NOTES>> CI= (Sum % RA*: Rt Bank CI >	1.10	CI
Riparian Buffers Condition Scores Delineate ripa escriptors. Determine squelow. Enter the % F Right Bank Left Bank	Tree stratum (dbh > with > 60% tree canon-maintained unc located within the located withi	imal 3 inches) present, anopy cover and a derstory. Wetlands e riparian areas. 5 ach stream bank ach by measurin 100% 1.1 100% 0.85 aried substrate si	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 Into Condition C g or estimating ler parian category in	Inditional Cate ptimal Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Coungth and width. Coungth and width. Coungth and width. Coungth and depths; wodes.	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85 Indition Scores us calculators are production of the produc	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh > 3 inches) present, with < 30% tree canopy cover with maintained understory: Low 0.75 ing the evided for you	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F Blocks 6	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5 the sums Riparian qual 100 100%	NOTES>>		CI 0.98
Condition Scores Delineate ripa escriptors. Determine squelow. Enter the % F Right Bank Left Bank I. INSTREAN ndercut banks;	Tree stratum (dbh > with > 60% tree ca non-maintained unc located within the located with	imal 3 inches) present, enopy cover and a derstory. Wetlands e riparian areas. 5 each stream bank ach by measuring the form of the following	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 Into Condition C g or estimating ler parian category in zes, water velocity ixes, stable featur	Inditional Cate ptimal Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Coungth and width. Coungth and width. Coungth and depths; wores. Conditional	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <a>3 inches) present, with <a>3 inches) present, or a tree canopy cover. High 0.85 Indition Scores us calculators are production of the control of th	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh >3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75 ing the vided for you	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F Blocks 6	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5 the sums Riparian qual 100 100%	NOTES>> Cl= (Sum % RA *: Rt Bank Cl > Lt Bank Cl >	1.10	
Condition Scores Delineate ripalescriptors. Determine squelow. Enter the % F. Right Bank Left Bank	Tree stratum (dbh > with > 60% tree ca non-maintained unc located within the located with	imal 3 inches) present, anopy cover and a derstory. Wetlands e riparian areas. 5 5 cach stream bani ach by measurin. Score for each ri 100% 1.1 100% 0.85 aried substrate si ffle poole completimal.	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 Into Condition C g or estimating let parian category in zes, water velocity exes, stable featur Subo Stable habitat ele present in 30-50% are adequate fo	Inditional Cate ptimal Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Coungth and width. Coungth and width. Coungth and width. Coungth and depths; wodes.	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85 Indition Scores us calculators are production of the present in 10-30 are adequate for a seadequate for the present in 10-30 are adequate for the present in 10-30 are adeq	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh > 3 inches) present, with < 30% tree canopy cover with maintained understory: Low 0.75 ing the evided for you	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F Blocks 6	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5 the sums Riparian qual 100 100% 100%	NOTES>> Cl= (Sum % RA *: Rt Bank Cl > Lt Bank Cl >	1.10	

	St	ream In	npact A	ssessn	nent Fo	rm Pag	je 2			
Project #	Applicant		Locality	Cowardin Class.	HUC	Date	Data Point	SAR length	Impact Factor	
								500	1	
4. CHANNE	L ALTERATION: Stream cross	sings, riprap, cond	crete, gabions, or	concrete blocks, s	straightening of ch	annel, channeliz	zation,	NOTES>>		
embankments, s	spoil piles, constrictions, livestock		Condition	al Category						
	Negligible	Mi	nor	Mod	lerate	S	evere			
Channel	Channelization, dredging, alteration,	Less than 20% of the stream reach is disrupted by any	20-40% of the stream reach is disrupted by any	is disrupted by any of the channel	60 - 80% of reach is disrupted by any of the channel alterations listed in the parameter	Greater than 80%	6 of reach is disrupted			
Alteration	or hardening absent. Stream has an unaltered pattern or has naturalized.	of the channel alterations listed in the parameter guidelines.	of the channel	guidelines. If stream has been channelized, normal stable stream meander pattern has not	guidelines. If stream has been channelized, normal stable stream meander pattern has not	in the parameter 80% of banks	r guidelines AND/OR shored with gabion, or cement.			
SCORE	1.5	1.3	1.1	0.9	0.7		0.5			0.
	REACH C	CONDITION	NDEX and S	TREAM CO	NDITION UN	ITS FOR TI	HIS REACH			
NOTE: The Cls and F	RCI should be rounded to 2 decimal places.	The CR should be rou	inded to a whole numl	ber.			THE REACH (CONDITION IN	DEX (RCI) >>	0.
								= (Sum of all C		
							COMPENSATI		MENT (CR) >>	
							CR = RC	XLFXIF		
DESCRIBE D	PROPOSED IMPACT:									

		Stre	Unit	fied Stream N	lethodology 1	Form	ginia	m 1)			
Project #		Project Name		Locality	nels classified a Cowardin Class.	HUC	perennial Date	SAR#	Impact/SAR	Impact Factor	
5337	ŀ	-64 Peninsul	a	Henrico	R2UB2	02080206	11/15/11		182		
Nam	e(s) of Evalua	tor(s)		e and Informa	ation	•					
	Aitkenhead / Nies		WUS 158S								
1. Channel (Condition: Asse	ess the cross-sec	ction of the stream		ondition (erosion, Conditional Catego						
	Opti	imal	Subo	ptimal	Mar	ginal	Po	or	Se	vere	
Channel	Very little incision o	or active erosion; 80	erosion or unproted	ew areas of active cted banks. Majority table (60-80%).	Poor. Banks more	less than Severe or e stable than Severe ower bank slopes.		ed/incised. unstable. Likely to ority of both banks	incision, flow co	nstability. Severe ontained within the bed below average	
Condition	100% stable bar surface protection prominent (80-11 Stable point bars/ba present. Access floodplain or fully bankfull benches. and transverse ba sediment depositio 10% of l	n or natural rock, 00%). AND/OR ankfull benches are s to their original of developed wide, Mid-channel bars, ars few. Transient on covers less than	Vegetative protect prominent (60- Depositional feat stability. The bar channels are well likely has access to or newly develope portions of the resediment covers 10	tion or natural rock-80%) AND/OR tures contribute to nkfull and low flow II defined. Stream o bankfull benches, difloodplains along reach. Transient 0-40% of the stream tom.	both banks. Veget 40-60% of banks. bevertical or unde 60% of strean sediment. Set temporary/tran instability. Depositi stability, may be AND/OR V-shap	resent on 40-60% of tative protection on Streambanks may ercut. AND/OR 40- n is covered by diment may be sisent, contribute too forming/present. ed channels have too n > 40% of the	60-80% of bar protection press banks, and is insu- erosion. AND/O stream is cover Sediment is temp nature, and contri AND/OR V-shap vegetative protect	ed channels have	rooting depth, vertical/under protection present banks, is not pr Obvious bank s Erosion/raw ba AND/OR Aggradi than 80% of strea deposition, contri Multiple threac	majority of banks rout. Vegetative on less than 20% or reventing erosion. sloughing present. anks on 80-100%. or g channel. Greate m bed is covered by ibuting to instability. d channels and/or inean flow.	
Saara	3	2	2	.4		ional features which	deposition	is absent.		1	2.0
Score		•					'	.0		1	2.0
2. RIPARIAI	N BUFFERS: A		Con Subo	ditional Cate	gory	ginal Low Marginal:	Po High Poor:	n may be accepta	NOTES>>		
2. RIPARIAN Riparian Buffers	Opti Tree stratum (dbh > with > 60% tree ca	imal > 3 inches) present, anopy cover and a derstory. Wetlands	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy	gory	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh > 3 inches) present, with <30% tree canopy cover with maintained	Po				
Riparian	Option Tree stratum (dbh > with > 60% tree canon-maintained unc	imal > 3 inches) present, anopy cover and a derstory. Wetlands	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained	ditional Cate ptimal Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh > 3 inches) present, with <30% tree canopy cover with	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable			
Riparian	Option Tree stratum (dbh > with > 60% tree canon-maintained unc	imal 3 inches) present, anopy cover and a derstory. Wetlands e riparian areas.	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory.	ditional Cate ptimal Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation).	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover.	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh >3 inches) present, with <30% tree canopy cover with maintained understory.	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, recently seeded and stabilized, or other comparable condition.	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions.			
Riparian Buffers Condition Scores Delineate ripe descriptors. Deleneate ripe descriptors.	Tree stratum (dbh > with > 60% tree ca non-maintained unc located within the	imal 3 inches) present, anopy cover and a derstory. Wetlands e riparian areas. 5 each stream banl ach by measurin	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 into Condition C	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Coungth and width. Co	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh > 3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5			
Riparian Buffers Condition Scores Delineate riptescriptors. Determine squelow. Enter the % F	Tree stratum (dbh > with > 60% tree conon-maintained und located within the located withi	imal 3 inches) present, anopy cover and a derstory. Wetlands e riparian areas. 5 each stream bank ach by measurin.	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 into Condition C	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Coungth and width. Co	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh > 3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5			
Riparian Buffers Condition Scores Delineate ripe descriptors. Deltermine so	Tree stratum (dbh > with > 60% tree ca non-maintained unc located within the	imal 3 inches) present, anopy cover and a derstory. Wetlands e riparian areas. 5 each stream banl ach by measurin	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 into Condition C	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Coungth and width. Co	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh > 3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5	NOTES>>		
Riparian Buffers Condition Scores Delineate ripalescriptors. Determine squelow. Enter the % F	Tree stratum (dbh > with > 60% tree ca non-maintained unc located within the located with	imal 3 inches) present, anopy cover and a derstory. Wetlands e riparian areas. 5 each stream bank ach by measurin Score for each ri 100% 1.1	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 into Condition C	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Coungth and width. Co	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh > 3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5 the sums Riparian qual 100	NOTES>>		
Riparian Buffers Condition Scores Delineate riptescriptors. Determine squelow. Enter the % F	Tree stratum (dbh > with > 60% tree conon-maintained und located within the located withi	imal 3 inches) present, anopy cover and a derstory. Wetlands e riparian areas. 5 ach stream bank ach by measurin. Score for each ri	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 into Condition C	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Coungth and width. Co	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh > 3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5	NOTES>>	Scores*0.01)/2 1.10 1.10	CI 1.10
Condition Scores Delineate ripe descriptors. Deltermine scoelow. English Bank Left Bank Left Bank INSTREA	Tree stratum (dbh > with > 60% tree ca non-maintained unc located within the located with	imal 3 inches) present, anopy cover and a derstory. Wetlands e riparian areas. 5 each stream bank ach by measuring the stream ban	Com Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 Into Condition C g or estimating ler parian category in	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Coungth and width. Country the blocks below y and depths; wodes.	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85 addition Scores us calculators are production of the produc	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh > 3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75 ing the povided for you	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F Blocks 6	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5 the sums tiparian qual 100 100%	NOTES>> CI= (Sum % RA * Rt Bank CI >	1.10	
Condition Scores Delineate ripe descriptors. Delineate ripe descriptors. Ender the % F Right Bank Left Bank Left Bank INSTREAI undercut banks;	Tree stratum (dbh > with > 60% tree ca non-maintained unc located within the located with	imal 3 inches) present, anopy cover and a derstory. Wetlands e riparian areas. 5 each stream bank ach by measuring the stream ban	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 s into Condition C g or estimating ler parian category in zes, water velocity ixes, stable featur	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Coungth and width. Country the blocks below y and depths; wodes.	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85 Indition Scores us calculators are production of the product	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh > 3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75 ing the povided for you	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F Blocks e	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5 the sums tiparian qual 100 100%	NOTES>> CI= (Sum % RA * Rt Bank CI > Lt Bank CI >	1.10	
Condition Scores Delineate ripe descriptors. Deltermine scoelow. English Bank Left Bank Left Bank INSTREA	Tree stratum (dbh > with > 60% tree cc non-maintained und located within the located with	imal 3 inches) present, anopy cover and a derstory. Wetlands e riparian areas. 5 each stream bani ach by measurin 100% 1.1 100% 1.1 aried substrate si iffle poole completimal re typically present	Com Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 Into Condition C g or estimating ler parian category in zes, water velocity exes, stable featur Subo Stable habitat ele present in 30-50% are adequate fo	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Coungth and width. Coungth and width. Coungth and width. Coungth and depths; wores. Conditiona	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85 Indition Scores us calculators are processed of the control of	Ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh >3 inches) present, with <a>30 % tree canopy cover with maintained understory. Low 0.75 ing the price of the product of the present of t	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F Blocks 6	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5 the sums Riparian qual 100 100% 100% ess; shade;	NOTES>> CI= (Sum % RA * Rt Bank CI > Lt Bank CI >	1.10	

	St	ream In	npact A	ssessm	ent Fo	rm Pago	e 2		
Project #	Applicant		Locality	Cowardin Class.	HUC	Date	Data Point	SAR length	Impact Factor
								500	1
	L ALTERATION: Stream cross poil piles, constrictions, livestock	ings, riprap, conci		concrete blocks, s	traightening of ch	annel, channeliza	ation,	NOTES>>	
	Negligible	Mir	nor		erate		vere		
Channel Alteration	Channelization, dredging, alteration, or hardening absent. Stream has an unaltered pattern or has naturalized.	Less than 20% of the stream reach is disrupted by any of the channel alterations listed in the parameter guidelines.	20-40% of the stream reach is disrupted by any of the channel alterations listed in the parameter guidelines.	is disrupted by any of the channel	of the channel	Greater than 80% of by any of the chang in the parameter greations and the second seco	of reach is disrupted nel alterations listed guidelines AND/OR lored with gabion, or cement.		
SCORE	1.5	1.3	1.1	0.9	0.7	0).5		
	REACH C	ONDITION	NDEX and S	TREAM CO	NDITION UN	ITS FOR TH	IS REACH		
NOTE: The Cls and F	RCI should be rounded to 2 decimal places.	The CR should be rour	nded to a whole numb	er.			THE REACH (CONDITION IN	DEX (RCI) >>

COMPENSATION REQUIREMENT (CR) >>

CR = RCI X LF X IF



DESCRIBE PROPOSED IMPACT:		

	St		ified Stream N	lethodology 1	for use in Vir	ginia	m 1)			
Project #	Project I		Locality	Cowardin Class.	HUC	Date	SAR#	Impact/SAR length	Impact Factor	
5337	I-64 Peni	nsula	Henrico	R2UB2	02080206	11/15/11		97		
Name	e(s) of Evaluator(s)		ne and Inform	ation						
	Aitkenhead / Nies	WUS 159S								
l. Channel C	Condition: Assess the cro	ss-section of the stream		ondition (erosion, Conditional Catego						
	Optimal	Subc	ptimal		ginal	Po	oor	Se	vere	
Channel Condition	Very little incision or active eros 100% stable banks. Vegetat surface protection or natural prominent (80-100%). AND/	erosion or unprote of banks are s Vegetative prote prominent (60	few areas of active toted banks. Majoristable (60-80%). ction or natural rock -80%). AND/OR attures contribute to	Poor. Banks more or Poor due to lo Erosion may be pr both banks. Veget	less than Severe or stable than Severe wer bank slopes. resent on 40-60% of tative protection on Streambanks may	Vertically/laterally widen further. Ma are near vertical. 60-80% of bar	ned/incised. unstable. Likely to jority of both banks Erosion present on iks. Vegetative ant on 20-40% of	incision, flow co banks. Streamb rooting depth, r vertical/under	ustability. Severe tained within the ed below average rajority of banks but. Vegetative	
	Stable point bars/bankfull bend present. Access to their orig floodplain or fully developed bankfull benches. Mid-channe and transverse bars few. Tran sediment deposition covers les 10% of bottom.	stability. The batchannels are we likely has access or newly develop portions of the sediment covers 1	ankfull and low flow ell defined. Stream to bankfull benches, ed floodplains along reach. Transient 0-40% of the stream ttom.	bevertical or under 60% of stream sediment. Set temporary/tran instability. Depositi stability, may be AND/OR V-shap vegetative protect	ercut. AND/OR 40-n is covered by diment may be sient, contribute on that contribute to forming/present. wed channels have ion on > 40% of the ional features which	banks, and is ins erosion. AND/C stream is cove Sediment is tem nature, and contri AND/OR V-shap vegetative protec 40% of the banks	ufficient to prevent NR 60-80% of the red by sediment. porary/transient in buting to instability. led channels have tion is present on > and stable sediment is absent.	banks, is not pro Obvious bank s Erosion/raw ban AND/OR Aggradir than 80% of strear deposition, contril Multiple thread	on less than 20% of eventing erosion. oughing present. nks on 80-100%. ng channel. Greater n bed is covered by - outing to instability. channels and/or nean flow.	CI
Score	3	- 2	2.4		2	1	.6		1	2.4
2. RIPARIAN	N BUFFERS: Assess both	Coi	nditional Cate		ugh measurement	s of length & widt	h may be accepta	able) NOTES>>		
Riparian Buffers	Optimal Tree stratum (dbh > 3 inches) p with > 60% tree canopy cover non-maintained understory. We located within the riparian are	High Suboptimal Riparian areas with tree stratum (dbh > 3 inches) present, with 30% and a etlands eas. containing both herbaceous and	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy	gory	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh > 3	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparselly vegetated non- maintained area, recently seeded	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable	NOTES>>		
Riparian Buffers	Optimal Tree stratum (dbh > 3 inches) p with > 60% tree canopy cover non-maintained understory. We	High Suboptimal Riparian areas with tree stratum (dbh > 3 inches) present, with 30% and a and a and a and a and and seas.	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory.	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present,	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area,	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or	NOTES>>		
Riparian	Optimal Tree stratum (dbh > 3 inches) p with > 60% tree canopy cover non-maintained understory. We	High Suboptimal Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and cand and shrub layers or a non-maintained understory.	Low Suboptimal Low Suboptimal Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation).	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover.	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh >3 inches) present, with <30% tree canopy cover with maintained understory.	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable condition.	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions.	NOTES>>		
Riparian Buffers Condition Scores Delineate ripa descriptors. Delineate ripa descriptors.	Optimal Tree stratum (dbh > 3 inches) p with > 60% tree canopy cover non-maintained understory. We located within the riparian an	High Suboptimal Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 The bank into Condition Containing of the containing both assuring or estimating lee the containing both present into Condition Containing the containing both assuring or estimating lee the containing the containing the containing both the containing the	Low Suboptimal Low Suboptimal Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 Categories and Coongth and width. Congth and width. Congth and width. Congth and a congth and width. Cong	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh > 3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % I	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions.	NOTES>>		
Riparian Buffers Condition Scores 1. Delineate ripz descriptors. 2. Determine squelow. 3. Enter the % F	Optimal Tree stratum (dbh > 3 inches) p with > 60% tree canopy cover non-maintained understory. We located within the riparian are 1.5 arian areas along each stream quare footage for each by mea Riparian Area and Score for e % Riparian Area> 100% Score > 1.2	High Suboptimal Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree anopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 The bank into Condition Containing of the containing both assuring or estimating lee to each riparian category in	Low Suboptimal Low Suboptimal Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 Categories and Coongth and width. Congth and width. Congth and width. Congth and a congth and width. Cong	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh > 3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % I	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5 the sums Riparian equal 100	NOTES>> Cl= (Sum % RA**		
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Condition Scores Delineate ripalescriptors. Delineate ripalescriptors. Enter the % F Right Bank Left Bank Left Bank J. INSTREAI J. INSTREAI J. Indercut banks;	Tree stratum (dbh > 3 inches) p with > 60% tree canopy cover non-maintained understory. We located within the riparian are 1.5 arian areas along each stream quare footage for each by mea Riparian Area and Score for e % Riparian Area 100% Score > 1.2 % Riparian Area> 100% Score > 1.2 M HABITAT: Varied substate of the coordinates of	High Suboptimal Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 In bank into Condition Co assuring or estimating le sech riparian category in % rate sizes, water veloci complexes, stable featu	Low Suboptimal Low Suboptimal Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 Categories and Coungth and width. Coungth and width. Coungth and depths; wores. Condition	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85 adiculators are production of the control of the	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (bdh > 3 inches) present, with <a>30 % tree canopy cover with maintained understory. Low 0.75 ing the price of the provided for you	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % I Blocks 6	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5 the sums Riparian equal 100 100%	CI= (Sum % RA * ; Rt Bank CI > Lt Bank CI >	1.20	
Condition Scores Delineate ripadescriptors. Deltermine squelow. Enter the % Finance of the second s	Optimal Tree stratum (dbh > 3 inches) p with > 60% tree canopy cover non-maintained understory. We located within the riparian are 1.5 arian areas along each stream quare footage for each by mea Riparian Area and Score for e % Riparian Area = 100% Score > 1.2 M Riparian Area> 100% Score > 1.2 M HABITAT: Varied subst	High Suboptimal Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and shrub layers or a non-maintained understory. High 1.2 The bank into Condition Consuming of the case of the	Low Suboptimal Low Suboptimal Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 Categories and Coungth and width. Coungth and width. Coungth and width. Coungth and depths; wores.	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85 Indition Scores us calculators are production of the production of the production of the production of the present in 10-30 are adequate for a sea dequate for the present in 10-30 are adequate for the prese	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh > 3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75 ing the povided for you	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % I Blocks 6 Habitat element lacking or are Lelements are typic	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5 the sums Riparian equal 100 100%	CI= (Sum % RA * : Rt Bank CI > Lt Bank CI > NOTES>>	1.20	

	St	ream In	npact A	ssessm	nent Fo	rm Pag	e 2		
Project #	Applicant		Locality	Cowardin Class.	HUC	Date	Data Point	SAR length	Impact Factor
								500	1
	L ALTERATION: Stream cross poil piles, constrictions, livestock	sings, riprap, conci		concrete blocks, s	traightening of ch	annel, channeliz	ation,	NOTES>>	
	Negligible	Mir	nor		erate	Se	evere		
Channel Alteration	or hardening absent. Stream has an	Less than 20% of the stream reach is disrupted by any of the channel alterations listed in the parameter guidelines.	20-40% of the stream reach is disrupted by any of the channel alterations listed in the parameter guidelines.	is disrupted by any of the channel	is disrupted by any of the channel	Greater than 80% by any of the char in the parameter 80% of banks s	of reach is disrupted nnel alterations listed guidelines AND/OR hored with gabion, or cement.		
SCORE	1.5	1.3	1.1	0.9	0.7	(0.5		
	REACH C	ONDITION II	NDEX and S	TREAM CO	NDITION UN	ITS FOR TH	IIS REACH		
NOTE: The Cls and F	RCI should be rounded to 2 decimal places.	The CR should be rour	nded to a whole numb	er.			THE REACH	CONDITION IN	DEX (RCI) >>

COMPENSATION REQUIREMENT (CR) >> 0

CR = RCI X LF X IF

INSERT PHOTOS:



		Stre	Unit	fied Stream N	lethodology 1	Form	ginia	m 1)			
Project #		Project Name		Locality	nels classified a Cowardin Class.	HUC	perennial Date	SAR#	Impact/SAR	Impact Factor	
5337	Į.	-64 Peninsul	a	Henrico	R2UB2	02080206	11/15/11		42	1 0000	
Name	e(s) of Evalua	tor(s)	Stream Nam	e and Informa	ation		ı				1
	Aitkenhead / Nies		WUS 160S								
I. Channel C	Condition: Asse	ess the cross-sec	tion of the stream		ondition (erosion, Conditional Catego						
	Opti	imal	Subo	ptimal	Mar	ginal	Po	oor	Se	vere	
Channel	Very little incision o	r active erosion; 80	erosion or unproted	ew areas of active cted banks. Majority table (60-80%).	Poor. Banks more	less than Severe or e stable than Severe ower bank slopes.		ed/incised. unstable. Likely to ority of both banks	incision, flow co	nstability. Severe	
Condition	100% stable bar surface protection prominent (80-11 Stable point bars/ba present. Access floodplain or fully bankfull benches. and transverse ba sediment depositio 10% of	n or natural rock, 00%). AND/OR ankfull benches are to their original of developed wide Mid-channel bars, ars few. Transient on covers less than	Vegetative protect prominent (60- Depositional feat stability. The bar channels are well likely has access to or newly develope portions of the resediment covers 10	tition or natural rock- -80%) AND/OR tures contribute to htfull and low flow Il defined. Stream o bankfull benches, d floodplains along reach. Transient 0-40% of the stream tom.	Erosion may be pr both banks. Veget 40-60% of banks. bevertical or unde 60% of strean sediment. Set temporary/tran instability. Depositi stability, may be AND/OR V-shap	resent on 40-60% of tative protection on Streambanks may ercut. AND/OR 40- n is covered by diment may be issient, contribute too that contribute to forming/present. ed channels have ion on > 40% of the	are near vertical. 60-80% of bar protection prese banks, and is inst erosion. AND/O stream is cover Sediment is temp nature, and contri AND/OR V-shap vegetative protect	Erosion present on ks. Vegetative on 20-40% of officient to prevent R 60-80% of the ed by sediment. orary/transient in buting to instability. ed channels have	rooting depth, vertical/under protection present banks, is not pr Obvious bank s Erosion/raw ba AND/OR Aggradi than 80% of strea deposition, contri Multiple threac	ped below average majority of banks crut. Vegetative to n less than 20% of reventing erosion. Sloughing present. anks on 80-100%. In gchannel. Greate m bed is covered by butting to instability. It channels and/or	r
Carra		•	2	.4	banks and deposit	ional features which	deposition	is absent.		nean flow.	2.4
Score	3	3		.4		2	1	.6		1	2.4
2. RIPARIAN	N BUFFERS: A		Con Subo	ditional Cate	gory	ginal Low Marginal:	Po High Poor:	n may be accepta	NOTES>>		
Riparian Buffers	Opti	imal - 3 inches) present, anopy cover and a derstory. Wetlands	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy	gory	Low Marginal: Non-maintained, dense herbaceous vegetation,	Po				
Riparian	Option Tree stratum (dbh > with > 60% tree canon-maintained und	imal - 3 inches) present, anopy cover and a derstory. Wetlands	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained	ditional Cate ptimal Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh > 3 inches) present, with <30% tree canopy cover with	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable			
Riparian	Option Tree stratum (dbh > with > 60% tree canon-maintained und	• 3 inches) present, anopy cover and a derstory. Wetlands e riparian areas.	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory.	ditional Cate ptimal Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation).	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover.	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh >3 inches) present, with <30% tree canopy cover with maintained understory.	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, recently seeded and stabilized, or other comparable condition.	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions.			
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Condition Scores Delineate ripa descriptors. Deltheate ripa descriptors. Right Bank Left Bank Left Bank J. INSTREAR Landercut banks;	Tree stratum (dbh > with > 60% tree ca non-maintained unc located within the located with	imal 3 inches) present, anopy cover and a derstory. Wetlands e riparian areas. 5 ach stream bank ach by measuring 100% 1.2 100% 1.2 aried substrate si	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 sinto Condition C g or estimating ler parian category in parian category in	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Coungth and width. Country the blocks below y and depths; wodes.	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85 Indition Scores us alculators are production of the producti	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh > 3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75 ing the povided for you	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F Blocks e	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5 the sums tiparian qual 100 100%	NOTES>> CI= (Sum % RA * Rt Bank CI > Lt Bank CI >	1.20	
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	St	ream In	npact A	ssessm	ent Fo	rm Pag	e 2		
Project #	Applicant		Locality	Cowardin Class.	HUC	Date	Data Point	SAR length	Impact Factor
								500	1
	ALTERATION: Stream cross poil piles, constrictions, livestock	sings, riprap, conci		concrete blocks, s	traightening of ch	annel, channeliza	ation,	NOTES>>	
	Negligible	Mii	nor		erate		vere		
Channel Alteration	or hardening absent. Stream has an	Less than 20% of the stream reach is disrupted by any of the channel alterations listed in the parameter guidelines.	20-40% of the stream reach is disrupted by any of the channel	is disrupted by any of the channel	of the channel	Greater than 80% by any of the char in the parameter 80% of banks sl	of reach is disrupted nnel alterations listed guidelines AND/OR hored with gabion, or cement.		
SCORE	1.5	1.3	1.1	0.9	0.7	(0.5		
	REACH C	ONDITION II	NDEX and S	TREAM CO	NDITION UN	ITS FOR TH	IIS REACH		
NOTE: The Cls and F	RCI should be rounded to 2 decimal places.	The CR should be rour	nded to a whole numb	oer.			THE REACH (CONDITION IN	DEX (RCI) >>

RCI= (Sum of all CI's)/5
COMPENSATION REQUIREMENT (CR) >>

CR = RCI X LF X IF

INSERT PHOTOS:

UPSTREAM



DESCRIBE PROPOSED IMPACT:		

		Stre		fied Stream N	lethodology f	or use in Virg	ginia				
Project #	ı	Project Name		Locality	Cowardin Class.	HUC	Date	SAR#	Impact/SAR length	Impact Factor	
5337	ŀ	-64 Peninsul	a	New Kent	R2UB2	02080206	11/15/11		41		
Name	e(s) of Evalua	tor(s)	Stream Nam	e and Informa	ation						
	Aitkenhead / Nies		WUS 162S								
1. Channel C	Condition: Asse	ess the cross-sec	ction of the stream								
	Opti	imal	Subo	ptimal	Conditional Catego Mar	ginal	Po	or	Ser	vere	
	"Cut	NA PARKET		ew areas of active		ess than Severe or stable than Severe	Overwider Vertically/laterally			istability. Severe	
Channel Condition	Very little incision on 100% stable bar surface protection prominent (80-11 Stable point bars/bs present. Access floodplain or fully bankfull benches. and transverse ba sediment depositio 10% of l	nks. Vegetative n or natural rock, 00%). AND/OR ankfull benches are to their original or developed wide Mid-channel bars, ars few. Transient in covers less than	of banks are s Vegetative protect prominent (60 Depositional feat stability. The ban channels are we likely has access t or newly develope portions of the sediment covers 10	cted banks. Majority table (60-80%). Itable (60-80%). Itable (60-80%). AND/OR turnes contribute to nkfull and low flow II defined. Stream o bankfull benches, ad floodplains along reach. Transient 0-40% of the stream tom.	or Poor due to Ic Erosion may be pr both banks. Vegel 40-60% of banks. bevertical or unde 60% of strean sediment. See temporary/tran instability. Depositi stability, may be AND/OR V-shap		widen further. Ma are near vertical. I 60-80% of ban protection prese banks, and is insu erosion. AND/O stream is cover Sediment is temp nature, and contril	ority of both banks Frosion present on ks. Vegetative nt on 20-40% of ffficient to prevent R 60-80% of the ed by sediment. orary/transient in puting to instability. d channels have on is present on >	banks. Streamb rooting depth, r, vertical/undern protection present banks, is not pro Obvious bank s Erosion/raw ban AND/OR Aggradir than 80% of strear deposition, contril Multiple thread	ntained within the ed below average najority of banks cut. Vegetative on less than 20% of eventing erosion. loughing present. loughing present. Msc on 80-100%. In bed is covered by buting to instability. channels and/or nean flow.	CI
Coore	3	•	2	2.4	banks and depositi	onal features which	· ·	is absent.		1	2.4
Score	3	•		4	1		'	.0	<u> </u>		2.4
2. RIPARIAN	N BUFFERS: A		Con	nditional Cate ptimal	gory	gh measurement ginal Low Marginal:	Po	n may be accepta	NOTES>>		
Riparian Buffers		imal 3 inches) present, anopy cover and a derstory. Wetlands	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy	gory	ginal					
Riparian Buffers	Optia Tree stratum (dbh > with > 60% tree ca	imal 3 inches) present, anopy cover and a derstory. Wetlands	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh >3 inches) present, with <30% tree canopy cover with maintained	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable			
Riparian	Optia Tree stratum (dbh > with > 60% tree ca	• 3 inches) present, anopy cover and a derstory. Wetlands e riparian areas.	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory.	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation).	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover.	Jinal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh > 3 inches) present, with <30% tree canopy cover with maintained understory.	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, recently seeded and stabilized, or other comparable condition.	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions.			
Riparian Buffers Condition Scores 1. Delineate ripa descriptors. 2. Determine squelow.	Tree stratum (dbh > with > 60% tree ca non-maintained unc located within the	imal 3 inches) present, anopy cover and a derstory. Wetlands e riparian areas.	Com Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 k into Condition C	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Coungth and width. Coungth	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85	Jinal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh >3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure 1 of % F	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5			
Riparian Buffers Condition Scores Delineate ripa descriptors. Locate representation of the second	Tree stratum (dbh > with > 60% tree ca non-maintained unch located within the located wit	imal 3 inches) present, anopy cover and a derstory. Wetlands e riparian areas. 5 ach stream banl ach by measurin	Com Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 k into Condition C	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Coungth and width. Coungth	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85	Jinal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh >3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure 1 of % F	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5 he sums tiparian qual 100			
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Condition Scores 1. Delineate ripadescriptors. 2. Determine squelow. 3. Enter the % F. Right Bank Left Bank 3. INSTREAR	Tree stratum (dbh > with > 60% tree ca non-maintained unc located within the located with	imal 3 inches) present, anopy cover and a derstory. Wetlands e riparian areas. 5 ach stream band ach by measurin Score for each ri 100% 0.85 100% 0.85 aried substrate si	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 k into Condition C g or estimating ler parian category in	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Congth and width. Conthe blocks below	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85	Jinal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh > 3 inches) present, with < 30% tree canopy cover with maintained understory. Low 0.75 Ing the vided for you	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F Blocks 6	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5 he sums tiparian qual 100 100%	NOTES>> CI= (Sum % RA** Rt Bank CI >	0.85	
Condition Scores 1. Delineate ripe descriptors. 2. Determine squelow. 3. Enter the % F Right Bank Left Bank 3. INSTREAR	Tree stratum (dbh > with > 60% tree ca non-maintained unc located within the located with	imal 3 inches) present, anopy cover and a derstory. Wetlands e riparian areas. 5 each stream band ach by measurin 100% 0.85 100% 0.85 arried substrate siffle poole complete.	High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 k into Condition C g or estimating let parian category in zes, water velocit exes, stable featur	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Co ngth and width. Co n the blocks below y and depths; wodes. Conditiona	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85 Indition Scores usional calculators are production of the control of the contr	Jinal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh -3 inches) present, with 230% tree canopy cover with maintained understory. Low 0.75 Ing the vided for you	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F Blocks e	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5 he sums tiparian qual 100 100% 100%	NOTES>> Cl= (Sum % RA *: Rt Bank Cl > Lt Bank Cl >	0.85	
Riparian Buffers Condition Scores 1. Delineate ripare september	Tree stratum (dbh > with > 60% tree ca non-maintained unc located within the located with	imal 3 inches) present, anopy cover and a derstory. Wetlands e riparian areas. 5 each stream band ach by measurin 100% 0.85 100% 0.85 arried substrate siffle poole complete.	High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 k into Condition C g or estimating let parian category in zes, water velocit exes, stable featur	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Coungth and width. Coungth and width. Coungth and width. Coungth and depths; woo es.	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85 Indition Scores usional calculators are production of the control of the contr	Jinal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh > 3 inches) present, with < 30% tree canopy cover with maintained understory. Low 0.75 Ing the vided for you	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F Blocks e	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5 he sums tiparian qual 100 100%	NOTES>> Cl= (Sum % RA *: Rt Bank Cl > Lt Bank Cl >	0.85	
Condition Scores 1. Delineate ripe descriptors. 2. Determine squelow. 3. Enter the % F Right Bank Left Bank 3. INSTREAR	Tree stratum (dbh > with > 60% tree ca non-maintained unc located within the located with	imal 3 inches) present, anopy cover and a derstory. Wetlands e riparian areas. 5 each stream bani ach by measurin 100% 0.85 100% 0.85 aried substrate si ffle poole completimal	Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 k into Condition C g or estimating ler parian category in parian category in Stable habitat ele present in 30-50% are adequate fo	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Co ngth and width. Co n the blocks below y and depths; wodes. Conditiona	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85 Indition Scores usion all Category Mar Stable habitat ele present in 10-30% are adequate fo	Jinal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh >3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75 Ing the vided for you	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure 1 of % F Blocks e	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5 he sums tiparian qual 100 100% 100%	NOTES>> Cl= (Sum % RA *: Rt Bank Cl > Lt Bank Cl >	0.85	

	St	ream In	npact A	ssessm	nent Fo	rm Pag	e 2		
Project #	Applicant		Locality	Cowardin Class.	HUC	Date	Data Point	SAR length	Impact Factor
								500	1
	_ ALTERATION: Stream cross poil piles, constrictions, livestock		Conditiona	al Category				NOTES>>	
	Negligible	Mir	nor		erate	Se	vere		
Channel Alteration	Channelization, dredging, alteration, or hardening absent. Stream has an unaltered pattern or has naturalized.	Less than 20% of the stream reach is disrupted by any of the channel alterations listed in the parameter guidelines.	20-40% of the stream reach is disrupted by any of the channel alterations listed in the parameter guidelines.	is disrupted by any of the channel	50 - 80% of reach is disrupted by any of the channel alterations listed in the parameter guidelines. If stream has been channelized, normal stable stream meander pattern has not	Greater than 80% by any of the chan in the parameter 80% of banks sh	of reach is disrupted nel alterations listed guidelines AND/OR nored with gabion, or cement.		
SCORE	1.5	1.3	1.1	0.9	0.7	C).5		
	REACH C	ONDITION II	NDEX and S	TREAM CO	NDITION UN	ITS FOR TH	IIS REACH		
NOTE: The Cls and R	CI should be rounded to 2 decimal places.	The CR should be rour	nded to a whole numb	er.			THE REACH (CONDITION IN	DEX (RCI) >>

COMPENSATION REQUIREMENT (CR) >>

CR = RCI X LF X IF







DOWNSTREAM



	Stre		fied Stream N	lethodology f	for use in Vir	ginia				
Project #	Project Nam		Locality	Cowardin Class.	HUC	Date	SAR#	Impact/SAR length	Impact Factor	
5337	I-64 Peninsu	la	New Kent	R2UB2	02080206	11/15/11		77		
Nam	e(s) of Evaluator(s)		e and Inform	ation						
	Aitkenhead / Nies	WUS 163S								
l. Channel (Condition: Assess the cross-se	ction of the stream		ondition (erosion, Conditional Catego						
	Optimal	Subo	ptimal		ginal	Po	oor	Se	vere	
Channel Condition	Very little incision or active erosion; 8 100% stable banks. Vegetative surface protection or natural rock, prominent (80-100%). AND/OR	of banks are s Vegetative protect prominent (60	ew areas of active cted banks. Majority table (60-80%). tion or natural rock -80%) AND/OR	Poor. Banks more or Poor due to lo Erosion may be pr both banks. Veget	less than Severe or stable than Severe ower bank slopes. seent on 40-60% of tative protection on	Vertically/laterally widen further. Ma are near vertical. 60-80% of bar	ned/incised. unstable. Likely to jority of both banks rerosion present on lks. Vegetative	incision, flow co banks. Streamb rooting depth, r	ustability. Severe ntained within the ed below average najority of banks	
	Stable point bars/bankfull benches an present. Access to their original floodplain or fully developed wide bankfull benches. Mid-channel bars, and transverse bars few. Transient sediment deposition covers less than 10% of bottom.	stability. The bar channels are we likely has access to or newly develope portions of the sediment covers 10	tures contribute to nkfull and low flow Il defined. Stream to bankfull benches, and floodplains along reach. Transient 0-40% of the stream tom.	bevertical or unde 60% of stream sediment. Sec temporary/tran instability. Depositi stability, may be AND/OR V-shap vegetative protecti	Streambanks may prout. AND/OR 40- is covered by diment may be isient, contribute on that contribute to forming/present. ed channels have ion on > 40% of the ional features which	banks, and is ins erosion. AND/C stream is cove Sediment is tem nature, and contri AND/OR V-shap vegetative protec 40% of the banks	ent on 20-40% of ufficient to prevent 9R 60-80% of the red by sediment. porary/transient in buting to instability. hed channels have tion is present on > and stable sediment is absent.	protection present banks, is not pro Obvious bank s Erosion/raw ban AND/OR Aggradir than 80% of strear deposition, contril Multiple thread	on less than 20% of eventing erosion. loughing present. nks on 80-100%. ng channel. Greater n bed is covered by buting to instability. channels and/or nean flow.	CI
Score	3	2	2.4		2	1	.6		1	3.0
2. RIPARIAN	N BUFFERS: Assess both bar	Con	n areas along the	gory	ugh measurement		h may be accepta	NOTES>>		
2. RIPARIAN Riparian Buffers		High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory.	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation).	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover.	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh >3 inches) present, with <30% tree canopy cover with maintained understory.	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable condition.	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions.	NOTES>>		
Riparian Buffers	Optimal Tree stratum (dbh > 3 inches) presen with > 60% tree canopy cover and a non-maintained understory. Wetland	Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hospopen water. If present, tree stratum (dbh > 3 inches) present, with <30% tree canopy cover with maintained	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable	NOTES>>		
Riparian Buffers Condition Scores 1. Delineate ripe descriptors. 2. Determine so	Optimal Tree stratum (dbh > 3 inches) presen with > 60% tree canopy cover and a non-maintained understory. Wetland located within the riparian areas.	High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Co	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh > 3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % I	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions.	NOTES>>	Scores*0.01)/2	
Riparian Buffers Condition Scores 1. Delineate ripalescriptors. 2. Determine squelow. 3. Enter the % F	Optimal Tree stratum (dbh > 3 inches) present with > 60% tree canopy cover and a non-maintained understory. Wetland located within the riparian areas. 1.5 arian areas along each stream bar quare footage for each by measuring Riparian Area and Score for each 1% Riparian Area 100% Score > 1.5	High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Co	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh > 3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % I	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5	NOTES>> Cl= (Sum % RA** Rt Bank Cl >	1.50	CI
Condition Scores Delineate ripe descriptors. Deltermine scoelow. English Bank Left Bank Left Bank INSTREA	Optimal Tree stratum (dbh > 3 inches) present with > 60% tree canopy cover and a non-maintained understory. Wetland located within the riparian areas. 1.5 arian areas along each stream bar quare footage for each by measuring Riparian Area and Score for each to the Riparian Area and	High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 Isk into Condition C ag or estimating let iparian category in	Ditional Cate ptimal Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Co oright and width. Co the blocks below	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh > 3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75 ing the povided for you	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % I Blocks 6	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5 the sums Riparian equal 100 100%	NOTES>> Cl= (Sum % RA * S		CI 1.50
Condition Scores 1. Delineate ripalescriptors. 2. Determine sopelow. 3. Enter the % F Right Bank Left Bank 3. INSTREAI	Optimal Tree stratum (dbh > 3 inches) present with > 60% tree canopy cover and a non-maintained understory. Wetland located within the riparian areas. 1.5 arian areas along each stream bar quare footage for each by measuring the street of the street o	High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree cacappy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 It into Condition C ag or estimating let iparian category in iizes, water velocit exes, stable featur	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Co ngth and width. Co n the blocks below y and depths; wodes. Conditions	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85 Indition Scores usional calculators are production of the control of the contr	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (bdh > 3 inches) present, with <a>30 % tree canopy cover with maintained understory. Low 0.75 ing the price of the provided for you	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % I Blocks 6	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5 the sums Riparian equal 100 100%	NOTES>> Cl= (Sum % RA *: Rt Bank Cl > Lt Bank Cl >	1.50	
Condition Scores Delineate ripe descriptors. Deltermine scoelow. English Bank Left Bank Left Bank INSTREA	Optimal Tree stratum (dbh > 3 inches) present with > 60% tree canopy cover and a non-maintained understory. Wetland located within the riparian areas. 1.5 arian areas along each stream bar quare footage for each by measuring Riparian Area and Score for each 1% Riparian Area and Score for each 1% Riparian Area 100% Score > 1.5 M Riparian Area 100% Score > 1.5 M HABITAT: Varied substrate streams 100% Score > 1.5	High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 Isk into Condition C ag or estimating let iparian category in izes, water velocit exes, stable featur Subo Stable habitat ele present in 30-50 are adequate fo are adequate fo	ditional Cate ptimal Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Co ongth and width. Co on the blocks below y and depths; wodes.	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85 Indition Scores usion all Category Mar Stable habitat ele present in 10-30% are adequate fo	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh > 3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75 ing the povided for you	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % I Blocks 6 Habitat element lacking or are Lelements are typic	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5 the sums Riparian equal 100 100%	CI= (Sum % RA * : Rt Bank CI > Lt Bank CI > NOTES>>	1.50	

Stream Impact Assessment Form Page 2 Project # Applicant Cowardin Class Data Point SAR length Impact Factor 4. CHANNEL ALTERATION: Stream crossings, riprap, concrete, gabions, or concrete blocks, straightening of channel, channelization, NOTES>> embankments, spoil piles, constrictions, livestock Conditional Category Moderate Minor Negligible Severe 40 - 60% of reach is disrupted by any of the channel 20-40% of the stream reach is Less than 20% of Channel Iterations listed in alterations listed in Greater than 80% of reach is disrupted the stream reach the parameter guidelines. If the parameter Channelization, dredging, alteration, or hardening absent. Stream has an unaltered pattern or has naturalized. by any of the channel alterations listed in the parameter guidelines AND/OR 80% of banks shored with gabion, s disrupted by any disrupted by any Alteration of the channel Iterations listed i of the channel lterations listed i guidelines. If tream has been channelized, stream has been channelized, the parameter the parameter riprap, or cement. guidelines. guidelines. normal stable normal stable stream meander stream meander pattern has not pattern has not SCORE 1.5 1.3 1.1 0.9 0.7 0.5 1.50 REACH CONDITION INDEX and STREAM CONDITION UNITS FOR THIS REACH

NOTE: The CIs and RCI should be rounded to 2 decimal places. The CR should be rounded to a whole number.

THE REACH CONDITION INDEX (RCI) >>

1.44

RCI= (Sum of all Cl's)/5
COMPENSATION REQUIREMENT (CR) >>

> 0

CR = RCI X LF X IF

INSERT PHOTOS:

UPSTREAM



DOWNSTREAM



		Stre	Unit	fied Stream N	lethodology 1	for use in Vir	-	m 1)			
Project #		Project Name		Locality	nels classified a Cowardin Class.	HUC	perennial Date	SAR#	Impact/SAR	Impact Factor	
5337	Į.	-64 Peninsul	a	New Kent	R2UB2	02080206	11/15/11		33		
Nam	e(s) of Evalua	tor(s)		e and Informa	ation						
	Aitkenhead / Nies		WUS 164S								
I. Channel C	Condition: Asse	ess the cross-sec	ction of the stream		ondition (erosion, Conditional Catego						-
	Opti	imal	Subo	ptimal	Mar	ginal	Po	or	Se	vere	
Channel	Very little incision o	or active erosion; 80 nks. Vegetative	erosion or unproted of banks are s	ew areas of active cted banks. Majority table (60-80%).	Poor. Banks more or Poor due to lo	less than Severe or stable than Severe ower bank slopes. esent on 40-60% of	widen further. Ma	ed/incised. unstable. Likely to ority of both banks Erosion present on	incision, flow co banks. Streamb	nstability. Severe pontained within the bed below average	
Condition	surface protection prominent (80-1) Stable point bars/bs present. Access floodplain or fully bankfull benches. and transverse be sediment depositio 10% of i	00%). AND/OR ankfull benches are s to their original or developed wide Mid-channel bars, ars few. Transient on covers less than	prominent (60- Depositional feat stability. The bar channels are wel likely has access to or newly develope portions of the r sediment covers 10	tion or natural rock -80%) AND/OR tures contribute to nkfull and low flow II defined. Stream to bankfull benches, ad floodplains along reach. Transient 0-40% of the stream tom.	both banks. Vege 40-60% of banks. bevertical or unde 60% of strean sediment. Se- temporary/tran instability. Depositi stability, may be AND/OR V-shap vegetative protect	esent on 40-600 years tative protection on Streambanks may prout. AND/ORA Unit is covered by diment may be sisent, contribute on that contribute to the forming/present. ed channels have ion on > 40% of the ional features which	60-80% of bar protection press banks, and is insu erosion. AND/O stream is cover Sediment is temp nature, and contri AND/OR V-shap vegetative protect 40% of the banks a	ks. Vegetative int on 20-40% of ifficient to prevent R 60-80% of the ed by sediment in porary/transient in puting to instability.	vertical/under protection present banks, is not pr Obvious bank s Erosion/raw ba AND/OR Aggradi than 80% of strea deposition, contri Multiple threac	majority of banks recut. Vegetative con less than 20% or reventing erosion. sloughing present. anks on 80-100%. In gchannel. Greate m bed is covered by butting to instability. I channels and/or unean flow.	r
Score	3	3	2	2.4		2	-	.6		1	3.0
NOTES>>											
2. RIPARIAN	N BUFFERS: A		Con	nditional Cate	gory			n may be accepta	NOTES>>		
Riparian Buffers	Opti Tree stratum (dbh > with > 60% tree ca	imal > 3 inches) present, anopy cover and a derstory. Wetlands	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy	gory	Ginal Low Marginal: Non-maintained, dense herbaceous vegetation,	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, recently seeded and stabilized, or other comparable condition.				
Riparian Buffers	Tree stratum (dbh > with > 60% tree cc non-maintained unc located within the	imal 3 inches) present, anopy cover and a derstory. Wetlands e riparian areas.	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory, Recent cutover (dense vegetation).	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover.	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh > 3 inches) present, with <30% tree canopy cover with maintained understory. Low	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable condition.	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions.			
Riparian	Option Tree stratum (dbh > with > 60% tree canon-maintained unc	imal 3 inches) present, anopy cover and a derstory. Wetlands e riparian areas.	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory.	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation).	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover.	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh >3 inches) present, with <30% tree canopy cover with maintained understory.	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, recently seeded and stabilized, or other comparable condition.	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions.			
Riparian Buffers Condition Scores 1. Delineate ripe descriptors. 2. Determine so	Tree stratum (dbh > with > 60% tree ca non-maintained unc located within the	imal 3 inches) present, anopy cover and a derstory. Wetlands e riparian areas. 5 each stream banl ach by measurin	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 into Condition C	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Coungth and width. Coungth	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh > 3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5			
Riparian Buffers Condition Scores Delineate riptescriptors. Determine squelow. Enter the % F	Tree stratum (dbh > with > 60% tree conon-maintained und located within the located withi	imal 3 inches) present, anopy cover and a derstory. Wetlands e riparian areas. 5 ach stream banl ach by measurin.	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 into Condition C	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Coungth and width. Coungth	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh > 3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5			
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Riparian Buffers Condition Scores Delineate ripalescriptors. Determine squelow. Enter the % F	Tree stratum (dbh > with > 60% tree ca non-maintained unc located within the located with	imal 3 inches) present, anopy cover and a derstory. Wetlands e riparian areas. 5 each stream bank ach by measurin Score for each ri 100% 1.2	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 into Condition C	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Coungth and width. Coungth	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh > 3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5 the sums Riparian qual 100	NOTES>>		
Riparian Buffers Condition Scores Delineate riptescriptors. Determine squelow. Enter the % F	Tree stratum (dbh > with > 60% tree conon-maintained und located within the located withi	imal 3 inches) present, anopy cover and a derstory. Wetlands e riparian areas. 5 ach stream bank ach by measurin. Score for each ri	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 into Condition C	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Coungth and width. Coungth	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh > 3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5	NOTES>>	Scores*0.01)/2 1.20 1.20	CI 1.20
Condition Scores Delineate ripe descriptors. Deltermine scoelow. English Bank Left Bank Left Bank INSTREA	Tree stratum (dbh > with > 60% tree ca non-maintained unc located within the located with	imal 3 inches) present, anopy cover and a derstory. Wetlands e riparian areas. 5 each stream bank ach by measuring the stream bank ach by measuring the stream bank ach by ach	Com Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 Into Condition C g or estimating ler parian category in	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Coungth and width. Coungth and width. Coungth and width. Coungth and depths; woo res.	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85 addition Scores us calculators are production of the produc	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh > 3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75 ing the povided for you	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F Blocks 6	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5 the sums tiparian qual 100 100%	NOTES>> CI= (Sum % RA * Rt Bank CI >	1.20	
Condition Scores Delineate ripe descriptors. Deltermine scoelow. English Bank Left Bank Left Bank INSTREA	Tree stratum (dbh > with > 60% tree ca non-maintained unc located within the located with	imal 3 inches) present, anopy cover and a derstory. Wetlands e riparian areas. 5 each stream bank ach by measuring the stream bank ach by measuring the stream bank ach by ach	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 s into Condition C g or estimating ler parian category in zes, water velocity ixes, stable featur	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Coungth and width. Coungth and width. Coungth and width. Coungth and depths; woo res.	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85 Indition Scores us calculators are production of the product	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh > 3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75 ing the povided for you	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F Blocks e	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5 the sums tiparian qual 100 100%	NOTES>> CI= (Sum % RA * Rt Bank CI > Lt Bank CI >	1.20	
Condition Scores Delineate ripe descriptors. Delineate ripe descriptors. Ender the % F Right Bank Left Bank Left Bank INSTREAI undercut banks;	Tree stratum (dbh > with > 60% tree cc non-maintained und located within the located with	imal 3 inches) present, anopy cover and a derstory. Wetlands e riparian areas. 5 beach stream bani ach by measurin 100% 1.2 100% 1.2 aried substrate si iffle poole completimal re typically present	Com Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 Into Condition C g or estimating ler parian category in zes, water velocity exes, stable featur Subo Stable habitat ele present in 30-50% are adequate fo	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Co ngth and width. Co n the blocks below y and depths; wodes. Conditiona	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85 Indition Scores us calculators are processed of the control of	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh >3 inches) present, with <a>30 % tree canopy cover with maintained understory. Low 0.75 ing the provided for you	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F Blocks 6	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5 the sums Riparian qual 100 100% 100% ess; shade;	NOTES>> CI= (Sum % RA * Rt Bank CI > Lt Bank CI >	1.20	

	St	ream In	npact A	ssessm	ent Fo	rm Page	e 2		
Project #	Applicant		Locality	Cowardin Class.	HUC	Date	Data Point	SAR length	Impact Factor
								500	1
	ALTERATION: Stream cross poil piles, constrictions, livestock	ings, riprap, conc		concrete blocks, s	traightening of ch	annel, channeliza	tion,	NOTES>>	
	Negligible	Mi	nor		erate	Sev	/ere		
Channel Alteration	Channelization, dredging, alteration, or hardening absent. Stream has an unaltered pattern or has naturalized.	Less than 20% of the stream reach is disrupted by any of the channel alterations listed in the parameter guidelines.	20-40% of the stream reach is disrupted by any of the channel alterations listed in the parameter guidelines.	40 - 60% of reach is disrupted by any of the channel alterations listed in the parameter guidelines. If stream has been channelized, normal stable stream meander pattern has not	60 - 80% of reach is disrupted by any of the channel alterations listed in the parameter guidelines. If stream has been channelized, normal stable stream meander pattern has not	by any of the chang in the parameter g 80% of banks sh	of reach is disrupted nel alterations listed juidelines AND/OR ored with gabion, r cement.		
SCORE	1.5	1.3	1.1	0.9	0.7	0	.5		
	REACH C	ONDITION I	NDEX and S	TREAM CO	NDITION UN	ITS FOR TH	IS REACH		
NOTE: The Cls and R	CI should be rounded to 2 decimal places.	The CR should be rou	nded to a whole numb	er.	•		THE REACH (CONDITION IN	DEX (RCI) >>

COMPENSATION REQUIREMENT (CR) >>

CR = RCI X LF X IF

INSERT PHOTOS:

DOWNSTREAM



DESCRIBE PROPOSED IMPACT:			
	<u> </u>	 <u> </u>	<u> </u>

		Stre	Unit	fied Stream N	lethodology 1	Form	ginia	m 1)			
Project #		Project Name		Locality	cowardin Class.	HUC	Date Date	SAR#	Impact/SAR length	Impact Factor	
5337	ŀ	-64 Peninsul	a	New Kent	R2UB2	02080206	11/15/11		17		
Name	e(s) of Evalua	tor(s)	Stream Nam	e and Informa	ation						
	Aitkenhead / Nies		WUS 165S								
. Channel C	Condition: Asse	ess the cross-sec	ction of the stream		ondition (erosion, conditional Catego						
	Opti	imal	Subo	ptimal	Mar	ginal	Po	oor	Se	vere	
Channel	Very little incision o	r active erosion; 80	erosion or unproted	ew areas of active cted banks. Majority table (60-80%).	Poor. Banks more	less than Severe or stable than Severe ower bank slopes.	Vertically/laterally	ned/incised. unstable. Likely to jority of both banks	incision, flow co	nstability. Severe	
Condition	100% stable bar surface protection prominent (80-11 Stable point bars/ba present. Access floodplain or fully bankfull benches. and transverse ba sediment depositio 10% of	n or natural rock, 00%). AND/OR ankfull benches are to their original of developed wide Mid-channel bars, ars few. Transient in covers less than	Vegetative protect prominent (60- Depositional feat stability. The bar channels are well likely has access to or newly develope portions of the rediment covers 10 to the redi	itable (00-90%). Itable (00-90%). AND/OR tures contribute to hifull and low flow II defined. Stream o bankfull benches, id floodplains along reach. Transient 0-40% of the stream tom.	Erosion may be pr both banks. Veget 40-60% of banks. bevertical or unde 60% of strean sediment. Set temporary/tran instability. Depositi stability, may be AND/OR V-shap	esent on 40-60% of tative protection on Streambanks may prout. AND/OR 40- n is covered by diment may be sisent, contribute on that contribute to forming/present. ed channels have ion on > 40% of the	are near vertical. 60-80% of bar protection press banks, and is insi erosion. AND/O stream is cover Sediment is tem nature, and contri AND/OR V-shap vegetative protect	Erosion present on kls. Vegetative ent on 20-40% of ifficient to prevent R 60-80% of the ed by sediment. oorary/transient in buting to instability. ed channels have ion is present on > and stable sediment	rooting depth, r vertical/under protection present banks, is not pr Obvious bank s Erosion/raw ba AND/OR Aggradir than 80% of streat deposition, contril	ed below average majority of banks cut. Vegetative on less than 20% of eventing erosion. loughing present. nks on 80-100%. ng channel. Greater n bed is covered by buting to instability. channels and/or	
					banks and depositi	ional features which	deposition	is absent.		nean flow.	
Score	3	3		2.4		2	1	.6		1	3.0
. RIPARIAN	N BUFFERS: #		Con	nditional Cate	gory Mar	ginal Low Marginal: Non-maintained,	Po High Poor:	n may be accepta	NOTES>>		
RIPARIAN Riparian Buffers	Opti	imal - 3 inches) present, anopy cover and a derstory. Wetlands	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy	gory	ginal Low Marginal:	Pe		,		
Riparian	Option Tree stratum (dbh > with > 60% tree canon-maintained unc	imal - 3 inches) present, anopy cover and a derstory. Wetlands	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory.	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation).	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover.	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh >3 inches) present, with <30% tree canopy cover with maintained understory.	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable condition.	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions.	,		
Riparian	Option Tree stratum (dbh > with > 60% tree canon-maintained unc	imal 3 inches) present, anopy cover and a derstory. Wetlands e riparian areas.	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained	Low Suboptimal Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh > 3 inches) present, with <30% tree canopy cover with maintained	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable	,		
Riparian Buffers Condition Scores Delineate ripe escriptors. Determine sq elow.	Tree stratum (dbh > with > 60% tree ca non-maintained unc located within the	imal 3 inches) present, anopy cover and a derstory. Wetlands e riparian areas.	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 into Condition C	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Coungth and width. Coungth	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh > 3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % I	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5	,		
Riparian Buffers Condition Scores Delineate ripasscriptors. Determine square.	Tree stratum (dbh > with > 60% tree ca non-maintained unc located within the located with	imal 3 inches) present, anopy cover and a derstory. Wetlands e riparian areas. 5 ach stream bank ach by measuring.	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 into Condition C	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Coungth and width. Coungth	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh > 3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % I	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5	,		
Riparian Buffers Condition Scores Delineate ripaescriptors. Determine squelow. Enter the % F	Tree stratum (dbh > with > 60% tree ca non-maintained unc located within the	imal 3 inches) present, anopy cover and a derstory. Wetlands e riparian areas.	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 into Condition C	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Coungth and width. Coungth	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh > 3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % I	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5	NOTES>>		
Riparian Buffers Condition Scores Delineate ripaescriptors. Determine squelow. Enter the % F	Tree stratum (dbh > with > 60% tree canon-maintained unc located within the located withi	imal 3 inches) present, anopy cover and a derstory. Wetlands e riparian areas. 5 each stream bank ach by measuring 100% 1.5	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 into Condition C	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Coungth and width. Coungth	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh > 3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % I	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5 the sums Riparian equal 100	NOTES>>		
Riparian Buffers Condition Scores Delineate ripasecriptors. Determine squelow. Enter the % F	Tree stratum (dbh > with > 60% tree ca non-maintained unc located within the located with	imal 3 inches) present, anopy cover and a derstory. Wetlands e riparian areas. 5 each stream bank ach by measuring 100% 1.5 100%	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 into Condition C	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Coungth and width. Coungth	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh > 3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % I	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5	NOTES>> CI= (Sum % RA*: Rt Bank CI >	1.50	CI 1 500
Condition Scores Delineate ripa escriptors. Determine squelow. Enter the % F Right Bank Left Bank B. INSTREAR	Tree stratum (dbh > with > 60% tree canon-maintained unc located within the located withi	imal 3 inches) present, anopy cover and a derstory. Wetlands e riparian areas. 5 ach stream bank ach by measuring 100% 1.5 100% 1.5 aried substrate si	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 Into Condition C g or estimating ler parian category in	Inditional Cate ptimal Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Coungth and width. Coungth and width. Coungth and width. Coungth and depths; woo res.	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85 Indition Scores us calculators are production of the produc	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh > 3 inches) present, with < 30% tree canopy cover with maintained understory. Low 0.75 ing the ovided for you	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F Blocks 6	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5 the sums Riparian equal 100 100%	NOTES>>		CI 1.50
Condition Scores Delineate ripa escriptors. Determine squelow. Enter the % R Right Bank Left Bank Instread	Tree stratum (dbh > with > 60% tree ca non-maintained unc located within the located with	imal 3 inches) present, anopy cover and a derstory. Wetlands e riparian areas. 5 each stream bank ach by measuring 100% 1.5 100% 1.5 aried substrate significations in the poole complete.	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 Into Condition C g or estimating ler parian category in zes, water velocity ixes, stable featur	Inditional Cate ptimal Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Congth and width. Congth and width. Congth and width. Congth and depths; wores. Conditional	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <a>3 inches) present, with <a>3 inches) present, or a tree canopy cover. High 0.85 Indition Scores us calculators are production of the control of th	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh >3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75 ing the price of the production of the present of the	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F Blocks 6	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5 the sums Riparian equal 100 100%	NOTES>> Cl= (Sum % RA *: Rt Bank Cl > Lt Bank Cl >	1.50	
Condition Scores Delineate ripalescriptors. Determine squelow. Enter the % F. Right Bank Left Bank	Tree stratum (dbh > with > 60% tree canon-maintained unc located within the located withi	imal 3 inches) present, anopy cover and a derstory. Wetlands e riparian areas. 5 ach stream bank ach by measuring 100% 1.5 100% 1.5 aried substrate si ffle poole completimal	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 Into Condition C g or estimating let parian category in zes, water velocity exes, stable featur Subo Stable habitat ele present in 30-50% are adequate fo	Inditional Cate ptimal Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Coungth and width. Coungth and width. Coungth and width. Coungth and depths; woo res.	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85 Indition Scores us calculators are production of the present in 10-30 are adequate for a seadequate for the present in 10-30 are adequate for the present in 10-30 are adeq	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh > 3 inches) present, with < 30% tree canopy cover with maintained understory. Low 0.75 ing the ovided for you	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % f Blocks 6	Low Poor: Impervious surfaces, mine pool lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5 the sums Riparian equal 100 100% 100%	NOTES>> Cl= (Sum % RA *: Rt Bank Cl > Lt Bank Cl >	1.50	

	St	ream In	npact A	ssessm	nent Fo	rm Pag	e 2		
Project #	Applicant		Locality	Cowardin Class.	HUC	Date	Data Point	SAR length	Impact Factor
								500	1
	L ALTERATION: Stream cross spoil piles, constrictions, livestock		Conditiona	al Category				NOTES>>	
	Negligible	Mir	nor		erate		evere		
Channel Alteration	Channelization, dredging, alteration, or hardening absent. Stream has an unaltered pattern or has naturalized.	Less than 20% of the stream reach is disrupted by any of the channel alterations listed in the parameter guidelines.	20-40% of the stream reach is disrupted by any of the channel alterations listed in the parameter guidelines.	is disrupted by any of the channel	60 - 80% of reach is disrupted by any of the channel alterations listed in the parameter guidelines. If stream has been channelized, normal stable stream meander pattern has not	Greater than 80% by any of the cha in the parameter 80% of banks s	o of reach is disrupted nnel alterations listed guidelines AND/OR shored with gabion, or cement.		
SCORE	1.5	1.3	1.1	0.9	0.7		0.5		
	REACH C	CONDITION	NDEX and S	TREAM CO	NDITION UN	ITS FOR TH	HIS REACH		
NOTE: The CIs and F	RCI should be rounded to 2 decimal places.	The CR should be rour	nded to a whole numb	er.			THE REACH (CONDITION IN	DEX (RCI) >>

COMPENSATION REQUIREMENT (CR) >>

CR = RCI X LF X IF

INSERT PHOTOS:

DOWNSTREAM



DESCRIBE PROPOSED IMPACT:		

		Stre	Uni	fied Stream N	lethodology 1	for use in Vir	-	m 1)			
Project #		Project Name		Locality	nels classified a Cowardin Class.	HUC	perennial Date	SAR#	Impact/SAR	Impact Factor	
5337	Į.	-64 Peninsul	a	New Kent	R2UB2	02080206	11/15/11		43		
Nam	e(s) of Evalua	tor(s)		e and Informa	ation						
	Aitkenhead / Nies		WUS 166S								
1. Channel (Condition: Asse	ess the cross-sec	ction of the stream		ondition (erosion, Conditional Catego						
	Opti	imal	Subo	ptimal	Mar	ginal	Po	or	Se	vere	
Channel	Very little incision o	or active erosion; 80	erosion or unproted	ew areas of active cted banks. Majority table (60-80%).	Poor. Banks more	less than Severe or stable than Severe ower bank slopes.		ed/incised. unstable. Likely to ority of both banks	incision, flow co	nstability. Severe	
Condition	100% stable bar surface protection prominent (80-11 Stable point bars/bar present. Access floodplain or fully bankfull benches. and transverse bar sediment deposition	n or natural rock, 00%). AND/OR ankfull benches are s to their original of developed wide, Mid-channel bars, ars few. Transient on covers less than	Vegetative protect prominent (60 prominent (60 Depositional feat stability. The ball channels are we likely has access to rnewly develope portions of the sediment covers 10 protections.	tion or natural rock- 80%) AND/OR tures contribute to nkfull and low flow Il defined. Stream o bankfull benches, def floodplains along reach. Transient 0-40% of the stream tom.	both banks. Veget 40-60% of banks. bevertical or unde 60% of strean sediment. Set temporary/tran instability. Depositi stability, may be AND/OR V-shap	resent on 40-60% of tative protection on Streambanks may ercut. AND/OR 40-n is covered by diment may be sisent, contribute on that contribute to forming/present. ed channels have ion on > 40% of the	60-80% of bar protection press banks, and is insu- erosion. AND/O stream is cover Sediment is temp nature, and contri AND/OR V-shap vegetative protect	ed channels have	rooting depth, vertical/under protection present banks, is not pr Obvious bank s Erosion/raw ba AND/OR Aggradi than 80% of strea deposition, contri Multiple threac	ped below average majority of banks rout. Vegetative at on less than 20% of reventing erosion. Sloughing present. In this on 80-100%. In g channel. Greater im bed is covered by ibuting to instability. It channels and/or	
Saara	3	2	2	2.4		ional features which	deposition	is absent.		nean flow.	2.0
Score		•		4			'	.0		1	3.0
2. RIPARIAN	N BUFFERS: A		Con Subo	an areas along the nditional Cate ptimal Low Suboptimal	gory	ginal Low Marginal:	Po High Poor:	n may be accepta	NOTES>>		
Riparian Buffers	Opti Tree stratum (dbh > with > 60% tree ca	imal > 3 inches) present, anopy cover and a derstory. Wetlands	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy	gory	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh > 3 inches) present, with <30% tree canopy cover with maintained	Po				
Riparian	Option Tree stratum (dbh > with > 60% tree canon-maintained unc	imal > 3 inches) present, anopy cover and a derstory. Wetlands	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh >3 inches) present, with					

	St	ream In	npact A	ssessm	ent Fo	rm Pag	e 2		
Project #	Applicant		Locality	Cowardin Class.	HUC	Date	Data Point	SAR length	Impact Factor
								500	1
	ALTERATION: Stream cross poil piles, constrictions, livestock	ings, riprap, conci		concrete blocks, s	traightening of ch	annel, channeliza	ation,	NOTES>>	
	Negligible	Mii	nor		erate	Se	vere		
Channel Alteration	or hardening absent. Stream has an	Less than 20% of the stream reach is disrupted by any of the channel alterations listed in the parameter guidelines.	20-40% of the stream reach is disrupted by any of the channel alterations listed in the parameter guidelines.	is disrupted by any of the channel	of the channel	Greater than 80% by any of the chan in the parameter 80% of banks sh	of reach is disrupted anel alterations listed guidelines AND/OR hored with gabion, or cement.		
SCORE	1.5	1.3	1.1	0.9	0.7	C	0.5		
	REACH C	ONDITION	NDEX and S	TREAM CO	NDITION UN	ITS FOR TH	IIS REACH		
NOTE: The CIs and R	RCI should be rounded to 2 decimal places.	The CR should be rour	nded to a whole numb	er.			THE REACH (CONDITION IN	DEX (RCI) >>

COMPENSATION REQUIREMENT (CR) >> 0

CR = RCI X LF X IF

INSERT PHOTOS:

UPSTREAM



		Stre	Unit	SSESS fied Stream N	lethodology f	for use in Vir	ginia	m 1)			
Project #		Project Name		Locality	Cowardin Class.	s intermittent or	Date Date	SAR#	Impact/SAR length	Impact Factor	
5337	ŀ	-64 Peninsul	a	New Kent	R2UB2	02080206	11/15/11		34		
Name	e(s) of Evalua	tor(s)	Stream Nam	e and Informa	ation						1
	Aitkenhead / Nies		WUS 167S								
. Channel C	Condition: Asse	ess the cross-sec	tion of the stream		ondition (erosion, conditional Catego						
	Opti	imal	Subo	ptimal	Mar	ginal	Po	oor	Se	vere	4
Ol annual	Very little incision o	or active erosion; 80	erosion or unproted	ew areas of active cted banks. Majority	Poor. Banks more	less than Severe or stable than Severe ower bank slopes.	Vertically/laterally	ned/incised. unstable. Likely to jority of both banks	incision, flow co	nstability. Severe	
Channel Condition	100% stable bar surface protection prominent (80-1) Stable point bars/bc present. Access floodplain or fully bankfull benches. and transverse be sediment depositio	nks. Vegetative n or natural rock, 00%). AND/OR ankfull benches are to their original v developed wide Mid-channel bars, ars few. Transient on covers less than	Vegetative protect prominent (60- Depositional feat stability. The bar channels are well likely has access to rnewly develope portions of the rediment covers 10	table (60-80%), titon or natural rock -80%) AND/OR tures contribute to nkfull and low flow III defined. Stream o bankfull benches, and floodplains along reach. Transient 0-40% of the stream tom.	Erosion may be pr both banks. Veget 40-60% of banks. bevertical or unde 60% of strean sediment. Sed temporary/tran instability. Depositi stability, may be	ower bank slopbes seent on 40-60% of tative protection on Streambanks may brout. AND/OR 40-n is covered by diment may be sient, contribute on that contribute on that contribute to forming/present. ed channels have	are near vertical. 60-80% of bar protection prese banks, and is inst erosion. AND/O stream is cover Sediment is temp nature, and contri AND/OR V-shap	Erosion present on lks. Vegetative ent on 20-40% of ufficient to prevent R 60-80% of the ed by sediment. porary/transient in buting to instability. ed channels have ion is present on >	rooting depth, r vertical/under protection present banks, is not pr Obvious bank s Erosion/raw ba AND/OR Aggradir than 80% of streat deposition, contril	ed below average majority of banks cut. Vegetattive on less than 20% of eventing erosion. loughing present. nks on 80-100%. ng channel. Greater n bed is covered by buting to instability. channels and/or	
					banks and depositi	ion on > 40% of the ional features which	deposition	and stable sediment is absent.	subterra	nean flow.	
Score	3	3	2	2.4		2	1	.6		1	3.0
	N BUFFERS: #		Con	nditional Cate	gory Mar	ginal Low Marginal: Non-maintained,	Po High Poor:	n may be accepta	NOTES>>		
	Opti	imal > 3 inches) present, anopy cover and a derstory. Wetlands	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy	gory	ginal Low Marginal:	Po		,		
. RIPARIAN	Option Tree stratum (dbh > with > 60% tree canon-maintained uncommaintained u	imal > 3 inches) present, anopy cover and a derstory. Wetlands	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory.	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation).	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover.	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh >3 inches) present, with <30% tree canopy cover with maintained understory.	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable condition.	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions.	,		
. RIPARIAN	Option Tree stratum (dbh > with > 60% tree canon-maintained uncommaintained u	imal 3 inches) present, anopy cover and a derstory. Wetlands e riparian areas.	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained	Low Suboptimal Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh > 3 inches) present, with <30% tree canopy cover with maintained	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable	,		
Riparian Buffers Condition Scores Delineate ripa escriptors. Determine squelow.	Tree stratum (dbh > with > 60% tree ca non-maintained unc located within the	imal 3 inches) present, anopy cover and a derstory. Wetlands e riparian areas. 5 each stream bankach by measuring	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 into Condition C	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Coungth and width. Coungth	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh > 3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5	,		
Riparian Buffers Condition Scores Delineate ripasecriptors. Determine square	Tree stratum (dbh > with > 60% tree ca non-maintained unc located within the located with	imal 3 inches) present, anopy cover and a derstory. Wetlands e riparian areas. 5 each stream bank ach by measurin.	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 into Condition C	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Coungth and width. Coungth	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh > 3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5	,		
Riparian Buffers Condition Scores Delineate ripaescriptors. Determine squelow. Enter the % F	Tree stratum (dbh > with > 60% tree ca non-maintained unc located within the	imal 3 inches) present, anopy cover and a derstory. Wetlands e riparian areas. 5 each stream bankach by measuring	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 into Condition C	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Coungth and width. Coungth	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh > 3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5	NOTES>>		
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Stream Impact Assessment Form Page 2 Project # Applicant Cowardin Class Data Point SAR length Impact Factor 4. CHANNEL ALTERATION: Stream crossings, riprap, concrete, gabions, or concrete blocks, straightening of channel, channelization, NOTES>> embankments, spoil piles, constrictions, livestock Conditional Category Moderate Minor Negligible Severe 40 - 60% of reach is disrupted by any of the channel 20-40% of the stream reach is Less than 20% of Channel Iterations listed in alterations listed in Greater than 80% of reach is disrupted the stream reach the parameter guidelines. If the parameter Channelization, dredging, alteration, or hardening absent. Stream has an unaltered pattern or has naturalized. by any of the channel alterations listed in the parameter guidelines AND/OR 80% of banks shored with gabion, s disrupted by any disrupted by any Alteration of the channel Iterations listed i of the channel Iterations listed i guidelines. If tream has been channelized, stream has been channelized, the parameter the parameter riprap, or cement. guidelines. guidelines. normal stable normal stable stream meander stream meander pattern has not pattern has not SCORE 1.5 1.3 1.1 0.9 0.7 0.5 1.50 REACH CONDITION INDEX and STREAM CONDITION UNITS FOR THIS REACH THE REACH CONDITION INDEX (RCI) >> NOTE: The CIs and RCI should be rounded to 2 decimal places. The CR should be rounded to a whole number. 1.44

RCI= (Sum of all CI's)/5 COMPENSATION REQUIREMENT (CR) >>

CR = RCI X LF X IF

0

INSERT PHOTOS:

UPSTREAM





DOWNSTREAM

	Str		fied Stream N	lethodology f	or use in Virg	ginia	m 1)			
Project #	Project Na		Locality	Cowardin Class.	HUC	Date	SAR#	Impact/SAR length	Impact Factor	
5337	I-64 Penins	ula	New Kent	R2UB2	02080206	11/15/11		52		
Name	e(s) of Evaluator(s)	Stream Nam	e and Inform	ation						
	Aitkenhead / Nies	WUS 168S								
. Channel C	Condition: Assess the cross-s	ection of the stream		ondition (erosion, conditional Catego						
	Optimal	Subo	ptimal	Mar	ginal	Po	or	Sev	/ere	
	Very little incision or active erosion;	erosion or unprote	ew areas of active cted banks. Majority	Poor. Banks more	less than Severe or stable than Severe ower bank slopes.	Overwiden Vertically/laterally widen further. Mai	unstable. Likely to		istability. Severe	
Channel Condition	100% stable banks. Vegetative surface protection or natural rock prominent (80-100%). AND/OR Stable point bars/bankfull benches. present. Access to their original floodplain or fully developed wide bankfull benches. Mid-channel baa and transverse bars few. Transier sediment deposition covers less the 10% of bottom.	Vegetative protect prominent (60 Depositional fea stability. The ba channels are we likely has access to or newly develope portions of the sediment covers 1	table (60-80%). tion or natural rock -80%) AND/OR tures contribute to nkfull and low flow II defined. Stream o bankfull benches, and floodplains along reach. Transient 0-40% of the stream tom.	Erosion may be pri both banks. Veget 40-60% of banks. bevertical or unde 60% of stream sediment. Sec temporary/trans instability. Depositii stability, may be AND/OR V-shap	esent on 40-60% of rative protection on Streambanks may rout. AND/OR 40- n is covered by diment may be sient, contribute on that contribute to forming/present. ed channels have	are near vertical. I 60-80% of ban protection prese banks, and is inst erosion. AND/O stream is cover Sediment is temp nature, and contril AND/OR V-shap vegetative protect	Erosion present on ks. Vegetative int on 20-40% of fifficient to prevent R 60-80% of the ed by sediment. orany/transient in outing to instability, and channels have ion is present on >	rooting depth, n vertical/underc protection present banks, is not pre Obvious bank sl Erosion/raw bar AND/OR Aggradin than 80% of strean deposition, contrib	ed below average najority of banks but. Vegetative on less than 20% of eventing erosion. loughing present. loughing present on bed is covered by buting to instability. channels and/or	CI
		ļ.,		banks and depositi	on on > 40% of the onal features which	deposition		subterrar	nean flow.	
Score	3	2	2.4]	2	1	.6		1	2.4
2. RIPARIAN	N BUFFERS: Assess both ba	Cor	nditional Cate	gory Mar	ginal Low Marginal: Non-maintained,	Po High Poor:	n may be accepta	NOTES>>		
Riparian Buffers		Cor Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) nt, present, with 30% to 60% tree	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy	gory	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh > 3 inches) present, with <30% tree canopy cover with maintained	Po		,		
Riparian	Optimal Tree stratum (dbh > 3 inches) press with > 60% tree canopy cover and non-maintained understory. Wetlar	High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) to 60% tree ds canopy cover and containing both herbaceous and shrub layers or a non-maintained	Low Suboptimal Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh >3 inches) present, with 30% inches) present, canopy cover with	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable	,		
Riparian	Optimal Tree stratum (dbh > 3 inches) press with > 60% tree canopy cover and non-maintained understory. Wetlar	High Suboptimal: Riparian areas with tree stratum (dhb > 3 inches) present, with 30% to 60% tree ds canopy cover and containing both herbaceous and shrub layers or a non-maintained understory.	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation).	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover.	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh >3 inches) present, with <a>30 % tree canopy cover with maintained understory.	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable condition.	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions.	,		
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Condition Scores 1. Delineate ripadescriptors. 2. Determine squelow. 3. Enter the % F	Optimal Tree stratum (dbh > 3 inches) press with > 60% tree canopy cover and non-maintained understory. Wettar located within the riparian areas. 1.5 arian areas along each stream be quare footage for each by measure footage for each by measure footage for each stream be quare for each stream be	High Suboptimal: Riparian areas with tree stratum (dhh > 3 inches) present, with 30% to 60% tree do canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 ank into Condition C	Inditional Cate ptimal Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Co in the blocks below y and depths; wodes.	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85 Indition Scores using alculators are producted to the product of the product	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh > 3 inches) present, with <a>30 % tree canopy cover with maintained understory. Low 0.75 Ing the wided for you	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure to the comparable condition of % For the comparable condition.	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5 he sums tiparian qual 100 100%	NOTES>>		CI 1.50
Condition Scores Delineate ripalescriptors. Deltre the % F Right Bank Left Bank Left Bank J. INSTREAM Left Banks;	Tree stratum (dbh > 3 inches) press with > 60% tree canopy cover and non-maintained understory. Wetlar located within the riparian areas. 1.5 arian areas along each stream by quare footage for each by measu Riparian Area and Score for each % Riparian Area 100% Score > 1.5 % Riparian Area 100% Score > 1.5 M HABITAT: Varied substrate; root mats; SAV; riffle poole com	High Suboptimal: Riparian areas with tree stratum (dhh > 3 inches) present, with 30% to 60% tree do canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 Ank into Condition Coring or estimating le	Inditional Cate ptimal Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Congth and width. Congth and width. Congth and depths; wores. Conditions	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85 Indition Scores using alculators are production of the prod	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh >3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75 Ing the wided for you	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure t of % 6 Blocks e	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5 he sums tiparian qual 100 100%	NOTES>> CI= (Sum % RA * S Rt Bank CI > Lt Bank CI >	1.50	
Condition Scores 1. Delineate ripadescriptors. 2. Determine squelow. 3. Enter the % F	Optimal Tree stratum (dbh > 3 inches) press with > 60% tree canopy cover and non-maintained understory. Wettar located within the riparian areas. 1.5 arian areas along each stream be quare footage for each by measure footage fo	High Suboptimal: Riparian areas with tree stratum (dhh > 3 inches) present, with 30% to 60% tree do canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 ank into Condition Co ring or estimating le riparian category in sizes, water velocit plexes, stable featur Stable habitat ele present in 30-50° are adequate fa	Inditional Cate ptimal Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Co in the blocks below the blocks below y and depths; wodes.	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85 Indition Scores using the state of the state	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh > 3 inches) present, with <a>30 % tree canopy cover with maintained understory. Low 0.75 Ing the wided for you	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure to the comparable condition of the comparable condition.	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5 he sums Liparian qual 100 100% 100%	NOTES>> CI= (Sum % RA * S Rt Bank CI > Lt Bank CI >	1.50	

	St	ream In	npact A	ssessm	ent Fo	rm Pag	e 2		
Project #	Applicant		Locality	Cowardin Class.	HUC	Date	Data Point	SAR length	Impact Factor
								500	1
	L ALTERATION: Stream cross poil piles, constrictions, livestock	ings, riprap, conci		concrete blocks, s	traightening of ch	annel, channeliza	ation,	NOTES>>	
	Negligible	Mir	nor		erate	Se	vere		
Channel Alteration	or hardening absent. Stream has an	Less than 20% of the stream reach is disrupted by any of the channel alterations listed in the parameter guidelines.	20-40% of the stream reach is disrupted by any of the channel alterations listed in the parameter guidelines.	is disrupted by any of the channel	of the channel	Greater than 80% by any of the chan in the parameter 80% of banks sh	of reach is disrupted anel alterations listed guidelines AND/OR nored with gabion, or cement.		
SCORE	1.5	1.3	1.1	0.9	0.7	C).5		
	REACH C	ONDITION II	NDEX and S	TREAM CO	NDITION UN	ITS FOR TH	IIS REACH		
NOTE: The Cls and F	RCI should be rounded to 2 decimal places.	The CR should be rour	nded to a whole numb	er.			THE REACH (CONDITION IN	DEX (RCI) >>

RCI= (Sum of all Cl's)/5

COMPENSATION REQUIREMENT (CR) >> 0

CR = RCI X LF X IF

INSERT PHOTOS:

UPSTREAM



DESCRIBE PROPOSE	ED IMPACT:			

		Stre	Unit	fied Stream N	lethodology f	Form	ginia	m 1)			
Project #	ı	Project Name		Locality	Cowardin Class.	HUC	Date Date	SAR#	Impact/SAR length	Impact Factor	
5337	ŀ	-64 Peninsul	a	New Kent	R2UB2	02080206	11/15/11		542		
Name	e(s) of Evaluat	tor(s)	Stream Nam	e and Informa	ation						
	Aitkenhead / Nies		WUS 169S								
. Channel C	Condition: Asse	ess the cross-sec	tion of the stream		ondition (erosion, conditional Catego						
	Opti	imal	Subo	ptimal	Mar	ginal	Po	oor	Se	vere	
	Very little incision o	r active erosion: 80	erosion or unproted	ew areas of active cted banks. Majority	Poor. Banks more	less than Severe or stable than Severe	Vertically/laterally	ned/incised. unstable. Likely to		nstability. Severe	
Channel Condition	100% stable bar surface protection prominent (80-10 Stable point bars/be present. Access floodplain or fully bankfull benches. and transverse ba sediment depositio 10% of I	nks. Vegetative n or natural rock, 00%). AND/OR ankfull benches are to their original developed wide Mid-channel bars, ars few. Transient n covers less than	Vegetative protect prominent (60- Depositional feat stability. The bar channels are well likely has access to rnewly develope portions of the rediment covers 10	table (60-80%), tion or natural rock -80%) AND/OR tures contribute to nkfull and low flow Il defined. Stream o bankfull benches, d floodplains along reach. Transient 0-40% of the stream tom.	Erosion may be pr both banks. Veget 40-60% of banks. bevertical or unde 60% of strean sediment. Sed temporary/tran instability. Depositi stability, may be	ower bank slopes. resent on 40-60% of tative protection on Streambanks may ercut. AND/OR 40- n is covered by diment may be issent, contribute to e forming/present. sed channels have	are near vertical. 60-80% of bar protection prese banks, and is inst erosion. AND/O stream is cover Sediment is temp nature, and contri AND/OR V-shap	iority of both banks Erosion present on ks. Vegetative ent on 20-40% of ifficient to prevent R 60-80% of the ed by sediment. corary/transient in buting to instability. ed channels have ion is present on >	rooting depth, r vertical/underr protection present banks, is not pr Obvious bank s Erosion/raw ban AND/OR Aggradir than 80% of strear deposition, contril	ed below average majority of banks cut. Vegetative on less than 20% of eventing erosion. loughing present. nks on 80-100%. ng channel. Greater n bed is covered by buting to instability. channels and/or	
					banks and depositi	ion on > 40% of the ional features which	deposition	and stable sediment is absent.	subterra	nean flow.	CI
Score	3	3	2	.4]	2	1	.6	<u> </u>	1	1.0
. RIPARIAN	N BUFFERS: A		Con	ditional Cate	gory Mar	ginal Low Marginal: Non-maintained,		n may be accepta	NOTES>>		
RIPARIAN Riparian Buffers	Opti Tree stratum (dbh > with > 60% tree ca	mal 3 inches) present, unopy cover and a lerstory. Wetlands	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree	nditional Cate	gory	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh >3 inches) present, with 30% lockes) canopy cover with	Po High Poor:		NOTES>>		
Riparian	Option Tree stratum (dbh > with > 60% tree canon-maintained unc	mal 3 inches) present, unopy cover and a lerstory. Wetlands	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory.	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation).	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover.	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh >3 inches) present, with <30% tree canopy cover with maintained understory.	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable condition.	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions.	NOTES>>		
Riparian	Option Tree stratum (dbh > with > 60% tree canon-maintained unc	3 inches) present, inopy cover and a derstory. Wetlands e riparian areas.	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained	Low Suboptimal Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh >3 inches) present, with <30% tree canopy cover with maintained	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable	NOTES>>		
Riparian Buffers Condition Scores Delineate ripe escriptors. Determine sq elow.	Tree stratum (dbh > with > 60% tree ca non-maintained unc located within the	imal 3 inches) present, incopy cover and a lerstory. Wetlands e riparian areas.	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 into Condition C	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Coungth and width. Coungth	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh > 3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5	NOTES>>		
Riparian Buffers Condition Scores Delineate ripa sescriptors. Determine sq	Tree stratum (dbh > with > 60% tree ca non-maintained unc located within the	imal 3 inches) present, unopy cover and a ferstory. Wetlands e riparian areas. 5 each stream bank ach by measurin.	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 into Condition C	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Coungth and width. Coungth	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh > 3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5	NOTES>>		
Riparian Buffers Condition Scores Delineate ripaescriptors. Determine squelow. Enter the % F	Tree stratum (dbh > with > 60% tree ca non-maintained unc located within the	imal 3 inches) present, incopy cover and a lerstory. Wetlands e riparian areas.	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 into Condition C	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Coungth and width. Coungth	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh > 3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5	NOTES>>		
Riparian Buffers Condition Scores Delineate ripasecriptors. Determine squelow. Enter the % F	Tree stratum (dbh > with > 60% tree canon-maintained unclocated within the located within	imal 3 inches) present, unopy cover and a lerstory. Wetlands e riparian areas. 5 each stream bank ach by measurin Score for each ri 100% 1.1	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 into Condition C	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Coungth and width. Coungth	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh > 3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5	NOTES>>		
Riparian Buffers Condition Scores Delineate ripascriptors. Determine squelow. Enter the % F	Tree stratum (dbh > with > 60% tree ca non-maintained unc located within the located with	imal 3 inches) present, unopy cover and a lerstory. Wetlands e riparian areas. 5 each stream bank ach by measurin 100% 1.1 100%	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 into Condition C	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Coungth and width. Coungth	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh > 3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5	NOTES>>	1.10	CI 1.10
Condition Scores Delineate ripa escriptors. Determine squelow. Enter the % F Right Bank Left Bank B. INSTREAR	Tree stratum (dbh > with > 60% tree canon-maintained unc located within the located withi	5 sach stream bank ach by measurin 100% 1.1 aried substrate si	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 k into Condition C g or estimating ler parian category in	ditional Cate ptimal Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Coungth and width. Coungth and width. Coungth and width. Coungth and depths; wodes.	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85 Indition Scores using the shrub and the shr	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh > 3 inches) present, with < 30% tree canopy cover with maintained understory: Low 0.75 ing the povided for you	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F Blocks 6	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5 the sums Riparian equal 100 100%	NOTES>> CI= (Sum % RA**) Rt Bank CI >		CI 1.10
Condition Scores Delineate ripa escriptors. Determine squelow. Enter the % R Right Bank Left Bank Instread	Tree stratum (dbh > with > 60% tree canon-maintained unclocated within the located within	imal 3 inches) present, nopy cover and a lerstory. Wetlands e riparian areas. 5 each stream bank ach by measuring 100% 1.1 100% 1.1 aried substrate is iffle poole complete.	Riph Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 Into Condition C g or estimating ler parian category in parian category in categ	ditional Cate ptimal Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Coungth and width. Coungth and width. Coungth and width. Coungth and depths; wodes.	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <a>30 tree tree canopy cover. High 0.85 Indition Scores using the calculators are producted to the calculators are producted t	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh > 3 inches) present, with < 30% tree canopy cover with maintained understory: Low 0.75 ing the povided for you	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F Blocks 6	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5 the sums Riparian equal 100 100%	NOTES>> Ci= (Sum % RA * : Rt Bank Ci > Lt Bank Ci >	1.10	
Condition Scores Delineate ripalescriptors. Determine squelow. Enter the % F. Right Bank Left Bank	Tree stratum (dbh > with > 60% tree ca non-maintained unc located within the located with	5 Score for each ri 100% 1.1 100% 1.1 re typically present	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 Into Condition C g or estimating let parian category in Zes, water velocity ixes, stable featur Subo Stable habitat ele present in 30-50% are adequate fo	ditional Cate ptimal Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Co ongth and width. Co the blocks below y and depths; wodes. Conditional	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85 Indition Scores using the state of the state	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh >3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75 ing the provided for you	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F Blocks 6	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5 the sums Riparian equal 100 100% 100%	CI= (Sum % RA * : Rt Bank CI > Lt Bank CI > NOTES>>	1.10	

	St	ream In	npact A	ssessm	ent Fo	rm Pag	e 2		
Project #	Applicant		Locality	Cowardin Class.	HUC	Date	Data Point	SAR length	Impact Factor
								500	1
	L ALTERATION: Stream cross poil piles, constrictions, livestock	ings, riprap, conc		concrete blocks, s	traightening of ch	annel, channeliz	zation,	NOTES>>	
	Negligible	Mi	nor		erate	Se	evere		
Channel Alteration	Channelization, dredging, alteration, or hardening absent. Stream has an unaltered pattern or has naturalized.	Less than 20% of the stream reach is disrupted by any of the channel alterations listed in the parameter guidelines.	20-40% of the stream reach is disrupted by any of the channel alterations listed in the parameter guidelines.	is disrupted by any of the channel	60 - 80% of reach is disrupted by any of the channel alterations listed in the parameter guidelines. If stream has been channelized, normal stable stream meander pattern has not	Greater than 80% by any of the cha in the parameter 80% of banks s	o of reach is disrupted nnel alterations listed guidelines AND/OR shored with gabion, or cement.		
SCORE	1.5	1.3	1.1	0.9	0.7	(0.5		
	REACH C	ONDITION	NDEX and S	TREAM CO	NDITION UN	ITS FOR TH	HIS REACH		
VOTE: The Cls and F	RCI should be rounded to 2 decimal places.	The CR should be rou	nded to a whole numb	er.			THE REACH (CONDITION IN	DEX (RCI) >>

COMPENSATION REQUIREMENT (CR) >> 0

CR = RCI X LF X IF





DESCRIBE PROPOSED IMPACT:	

	St		fied Stream N	lethodology 1	for use in Vir	ginia	m 1)			
Project #	Project N		Locality	Cowardin Class.	HUC	Date	SAR#	Impact/SAR length	Impact Factor	
5337	I-64 Peninsul	a Study	Newport News	R2UB2	02080206	July '11		124		
Name	e(s) of Evaluator(s)	_	e and Inform	ation						
	Aitkenhead	WUS 33S								
. Channel C	Condition: Assess the cros	s-section of the stream		ondition (erosion,						
	Optimal	Subo	ptimal		ginal	Po	oor	Se	vere	
Channel Condition	Very little incision or active erosic 100% stable banks. Vegetati surface protection or natural rosers (so 100%) AMDIG (MADIG)	on; 80 erosion or unprote of banks are s Vegetative protec ck,	few areas of active cted banks. Majority stable (60-80%). stion or natural rock -80%) AND/OR	Poor. Banks more or Poor due to k Erosion may be pr both banks. Veget	less than Severe or stable than Severe ower bank slopes. esent on 40-60% of tative protection on	Vertically/laterally widen further. Ma are near vertical. 60-80% of bar	ned/incised. unstable. Likely to jority of both banks Erosion present on iks. Vegetative	incision, flow co banks. Streamb rooting depth, r	Istability. Severe ntained within the ed below average najority of banks cut. Vegetative	
	prominent (80-100%). AND/C Stable point bars/bankfull benche present. Access to their origir floodplain or fully developed w bankfull benches. Mid-channel and transverse bars few. Trans sediment deposition covers less 10% of bottom.	Depositional fea stability. The ba channels are we likely has access it or newly develope portions of the sediment covers 1	tures contribute to nkfull and low flow all defined. Stream to bankfull benches, ad floodplains along reach. Transient 0-40% of the stream ttom.	bevertical or under 60% of stream sediment. Set temporary/tran instability. Depositi stability, may be AND/OR V-shap vegetative protect	Streambanks may prout. AND/OR 40-n to covered by diment may be sient, contribute on that contribute to forming/present. ed channels have ion on > 40% of the ional features which	banks, and is ins erosion. AND/C stream is cove Sediment is tem nature, and contri AND/OR V-shar vegetative protec 40% of the banks	ent on 20-40% of ufficient to prevent IR 60-80% of the red by sediment. porary/transient in buting to instability. led channels have ition is present on > and stable sediment in is absent.	protection present banks, is not pro Obvious bank s Erosion/raw ban AND/OR Aggradir than 80% of strear deposition, contril Multiple thread	on less than 20% of eventing erosion. loughing present. nks on 80-100%. In grannel. Greater in bed is covered by buting to instability. channels and/or nean flow.	CI
Score	3	2	2.4		2	1	.6		1	2.0
2. RIPARIAN	N BUFFERS: Assess both Optimal	Cor	an areas along the	gory	ginal		h may be accepta	able)		
2. RIPARIAN Riparian Buffers		High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) and a ands canopy cover and canopy cover and shrub layers or a non-maintained understory.	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation).	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover.	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh >3 inches) present, with <30% tree canopy cover with maintained understory.	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable condition.	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces row crops, active feed lots, trails, or other comparable conditions.	NOTES>>		
Riparian	Optimal Tree stratum (dbh > 3 inches) pre with > 60% tree canopy cover a non-maintained understory. Wet located within the riparian area.	High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory.	Inditional Cate ptimal Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation).	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover.	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh >3 inches) present, with <30% tree canopy cover with maintained understory. Low	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable condition.	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces row crops, active feed lots, trails, or other comparable conditions.	NOTES>>		
Riparian Buffers	Optimal Tree stratum (dbh > 3 inches) prr with > 60% tree canopy cover a non-maintained understory. Wet	High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) and a ands canopy cover and canopy cover and shrub layers or a non-maintained understory.	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation).	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover.	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh >3 inches) present, with <30% tree canopy cover with maintained understory.	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable condition.	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces row crops, active feed lots, trails, or other comparable conditions.	NOTES>>		
Riparian Buffers Condition Scores Delineate ripa descriptors. Locate representation of the second	Optimal Tree stratum (dbh > 3 inches) pre with > 60% tree canopy cover a non-maintained understory. Wet located within the riparian area.	High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and canopy cover and shrub layers or a non-maintained understory. High 1.2 bank into Condition Co	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 Lategories and Congth and width. Congth and width. Congth and width. Congth and width. Congth and suboptimal congth and width. Congth and w	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh > 3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % I	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces row crops, active feed lots, trails, or other comparable conditions.	NOTES>>		
Riparian Buffers Condition Scores Delineate ripz escriptors. Determine squelow. Enter the % F	Optimal Tree stratum (dbh > 3 inches) pre with > 60% tree canopy cover a non-maintained understory. Wet located within the riparian area. 1.5	High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) pasent, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 bank into Condition C suring or estimating le	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 Lategories and Congth and width. Congth and width. Congth and width. Congth and width. Congth and suboptimal congth and width. Congth and w	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh > 3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % I	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces row crops, active feed lots, trails, or other comparable conditions. Low 0.5	NOTES>>		
Riparian Buffers Condition Scores Delineate ripa electriptors.	Optimal Tree stratum (dbh > 3 inches) pre with > 60% tree canopy cover a non-maintained understory. Wet located within the riparian area. 1.5 arian areas along each stream quare footage for each by mea.	High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) pasent, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 bank into Condition C suring or estimating le	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 Lategories and Congth and width. Congth and width. Congth and width. Congth and width. Congth and suboptimal congth and width. Congth and width. Congth and width. Congth areas with a congth and width. Congth and width. Congth and width. Congth and width. Congth areas with the congth and width. Congth areas with the congth and width. Congth areas with the congth areas with the congth and width. Congth and width. Congth areas with the congth areas with the congth and width. Congth and width. Congth areas with the congth and width. Congth and width. Congth areas with the	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh > 3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % I	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces row crops, active feed lots, trails, or other comparable conditions. Low 0.5	NOTES>>		
Riparian Buffers Condition Scores Delineate ripalescriptors. Determine squelow. Enter the % F. Right Bank	Optimal Tree stratum (dbh > 3 inches) pre with > 60% tree canopy cover a non-maintained understory. Wet located within the riparian area areas along each stream quare footage for each by meanaguare footage footage footage for each by meanaguare footage foot	High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) to 60% tree canopy cover and canopy cover and shrub layers or a non-maintained understory. High 1.2 bank into Condition C suring or estimating let	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 Lategories and Congth and width. Congth and width. Congth and width. Congth and width. Congth and suboptimal congth and width. Congth and width. Congth and width. Congth areas with a congth and width. Congth and width. Congth and width. Congth and width. Congth areas with the congth and width. Congth areas with the congth and width. Congth areas with the congth areas with the congth and width. Congth and width. Congth areas with the congth areas with the congth and width. Congth and width. Congth areas with the congth and width. Congth and width. Congth areas with the	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh > 3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % I	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces row crops, active feed lots, trails, or other comparable conditions. Low 0.5 the sums Riparian equal 100	NOTES>>		CI
Riparian Buffers Condition Scores Delineate ripz escriptors. Determine squelow.	Optimal Tree stratum (dbh > 3 inches) pre with > 60% tree canopy cover a non-maintained understory. Wet located within the riparian area. 1.5 Tarian areas along each stream quare footage for each by mean grant area and Score for each % Riparian Area and Score for each % Riparian Area 100%	High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) to 60% tree canopy cover and canopy cover and shrub layers or a non-maintained understory. High 1.2 bank into Condition C suring or estimating let	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 Lategories and Congth and width. Congth and width. Congth and width. Congth and width. Congth and suboptimal congth and width. Congth and width. Congth and width. Congth areas with a congth and width. Congth and width. Congth and width. Congth and width. Congth areas with the congth and width. Congth areas with the congth and width. Congth areas with the congth areas with the congth and width. Congth and width. Congth areas with the congth areas with the congth and width. Congth and width. Congth areas with the congth and width. Congth and width. Congth areas with the	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh > 3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % I	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces row crops, active feed lots, trails, or other comparable conditions. Low 0.5	NOTES>>	Scores*0.01)/2 1.20 1.20	CI 1.20
Condition Scores Delineate ripadescriptors. Deltermine squelow. Enter the % Finance of the state of the stat	Optimal Tree stratum (dbh > 3 inches) pre with > 60% tree canopy cover a non-maintained understory. Wet located within the riparian area located within the riparian area areas along each stream quare footage for each by mean stream areas along each stream quare footage for each by mean stream Area and Score for each stream areas along each stream quare footage for each by mean stream Area and Score for each stream areas along each stream quare footage for each by mean stream Area and Score for each stream areas along each strea	High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) to 60% tree canopy cover and canopt cover and shrub layers or a non-maintained understory. High 1.2 bank into Condition C suring or estimating le toch riparian category in the sizes, water velocit	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 Categories and Congth and width. Congth and width. Congth and width. Congth and depths; woo res.	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85 Indition Scores us calculators are production of the produc	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh > 3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75 ing the price of the production of the present of the production of the present of t	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % I Blocks 6	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces row crops, active feed lots, trails, or other comparable conditions. Low 0.5 the sums Riparian equal 100 100%	NOTES>> Cl= (Sum % RA** Rt Bank Cl >	1.20	
Condition Scores Delineate ripalescriptors. Delineate ripalescriptors. Enter the % F Right Bank Left Bank Left Bank J. INSTREAI J. INSTREAI J. Indercut banks;	Optimal Tree stratum (dbh > 3 inches) pre with > 60% tree canopy cover a non-maintained understory. Wet located within the riparian area at located within the riparian area	High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and canods containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 bank into Condition Cosuring or estimating le suring or estimating le ch riparian category in the sizes, water velocit mplexes, stable feature	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 Categories and Congth and width. Congth and width. Congth and width. Congth and width. Congth and depths; wores. Conditions	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85 Indition Scores us calculators are production of the product	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (6th > 3 inches) present, with <a>30 % tree canopy cover with maintained understory. Low 0.75 Ing the vided for you	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % I Blocks 6	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces row crops, active feed lots, trails, or other comparable conditions. Low 0.5 the sums Riparian equal 100 100%	NOTES>> Cl= (Sum % RA *: Rt Bank Cl > Lt Bank Cl >	1.20	
Condition Scores Delineate ripadescriptors. Deltermine squelow. Enter the % Finance of the state of the stat	Optimal Tree stratum (dbh > 3 inches) pre with > 60% tree canopy cover a non-maintained understory. Wet located within the riparian area located within the riparian area areas along each stream quare footage for each by mean stream areas along each stream quare footage for each by mean stream Area and Score for each stream areas along each stream quare footage for each by mean stream Area and Score for each stream areas along each stream quare footage for each by mean stream Area and Score for each stream Area and Score > 1.2 M Riparian Area 100% Score > 1.2 M HABITAT: Varied substra	High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) posent, with 30% to 60% tree canopy cover and shrub layers or a non-maintained understory. High 1.2 bank into Condition C suring or estimating let ch riparian category in the sizes, water velocit mplexes, stable featur Subc Stable habitat ele present in 30-50' ch. are adequate for	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 Categories and Congth and width. Congth and width. Congth and width. Congth and depths; woo res.	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85 Indition Scores us calculators are processed of the control of	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh > 3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75 ing the price of the production of the present of the production of the present of t	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % I Blocks 6 Habitat element lacking or are Lelements are typic	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces row crops, active feed lots, trails, or other comparable conditions. Low 0.5 the sums Riparian equal 100 100%	CI= (Sum % RA * : Rt Bank CI > Lt Bank CI > NOTES>>	1.20	

	St	ream In	npact A	ssessm	nent Fo	rm Page	e 2		
Project #	Applicant		Locality	Cowardin Class.	HUC	Date	Data Point	SAR length	Impact Factor
								500	1
	L ALTERATION: Stream cross spoil piles, constrictions, livestock		Condition	al Category				NOTES>>	
	Negligible	Mi	nor		erate 60 - 80% of reach	Se	vere		
Channel Alteration	Channelization, dredging, alteration, or hardening absent. Stream has an unaltered pattern or has naturalized.	Less than 20% of the stream reach is disrupted by any of the channel alterations listed in the parameter guidelines.	20-40% of the stream reach is disrupted by any of the channel alterations listed in the parameter guidelines.	is disrupted by any of the channel	is disrupted by any of the channel alterations listed in the parameter guidelines. If stream has been channelized, normal stable stream meander pattern has not	Greater than 80% of by any of the chan in the parameter (80% of banks sh	of reach is disrupted nel alterations listed guidelines AND/OR nored with gabion, r cement.		
SCORE	1.5	1.3	1.1	0.9	0.7	0).5		
	REACH C	ONDITION I	NDEX and S	TREAM CO	NDITION UN	ITS FOR TH	IS REACH		
VOTE: The Cls and I	RCI should be rounded to 2 decimal places.	The CR should be rou	nded to a whole numb	er.			THE REACH (CONDITION IN	DEX (RCI) >>

COMPENSATION REQUIREMENT (CR) >> 0

CR = RCI X LF X IF

INSERT PHOTOS:





		Stre	Uni	fied Stream N		for use in Vir	ginia	m 1)			
Project #	Р	Project Name		Locality	Cowardin Class.	s intermittent or	Date Date	SAR #	Impact/SAR length	Impact Factor	
5337	I-64 F	Peninsula S	tudy	Newport News	R2UB2	02080108	July '11		59		
Name	e(s) of Evaluate	or(s)	Stream Nam	e and Inform	ation			<u>'</u>			
	Aitkenhead		WUS 34S								
. Channel C	Condition: Asses	ss the cross-sec	tion of the stream								
	Optir	mal	Subo	ptimal	Conditional Catego Mar	_{ry} ginal	Po	oor	Se	vere	
Channel	Very little incision or		erosion or unproted	ew areas of active cted banks. Majority table (60-80%).	Poor. Banks more	less than Severe or stable than Severe ower bank slopes.	Vertically/laterally	ned/incised. v unstable. Likely to ijority of both banks	incision, flow co	istability. Severe	
Condition	100% stable bani surface protection prominent (80-10 Stable point bars/ban present. Access i floodplain or fully o bankfull benches. N and transverse bar sediment deposition 10% of bi	or natural rock, 0%). AND/OR nkfull benches are to their original developed wide wiid-channel bars, is few. Transient a covers less than	Vegetative protect prominent (60 Depositional feat stability. The ball channels are we likely has access to or newly develope portions of the leading to the sediment covers 10	tion or natural rock -80%) AND/OR Livres contribute to nkfull and low flow II defined. Stream to bankfull benches, ad floodplains along reach. Transient 0-40% of the stream tom.	both banks. Veget 40-60% of banks. bevertical or unde 60% of strean sediment. Se- temporary/tran instability. Depositi stability, may be AND/OR V-shap vegetative protect	esent on 40-60% of tative protection on Streambanks may ercut. AND/OR 40- n is covered by diment may be sient, contribute on that contribute to toforming/present. ed channels have ion on > 40% of the lonal features which	60-80% of bar protection press banks, and is ins erosion. AND/C stream is cove Sediment is tem nature, and contri AND/OR V-shap vegetative protec 40% of the banks	Erosion present on k. Vegetative ant on 20-40% of ufficient to prevent RR 60-80% of the bred by sediment. porary/transient in buting to instability. bed channels have tion is present on > and stable sediment is absent.	rooting depth, r vertical/underr protection present banks, is not pro Obvious bank s Erosion/raw ban AND/OR Aggradir than 80% of strear deposition, contril Multiple thread	ed below average majority of banks cut. Vegetative on less than 20% of eventing erosion. loughing present. loughing present. his on 80-100%. In genannel. Greater m bed is covered by buting to instability. channels and/or nean flow.	CI
Score	3		2	2.4		2	1	.6		1	1.6
	Optir	mai	Subo	ptimal	Mar						
Riparian Buffers	Tree stratum (dbh > : with > 60% tree can non-maintained unde located within the	nopy cover and a erstory. Wetlands	to 60% tree	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation).	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover.	Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh >3 inches) present, with <30% tree canopy cover with maintained understory.	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable condition.	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions.			
Buffers	with > 60% tree can non-maintained unde located within the	nopy cover and a erstory. Wetlands riparian areas.	Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained	Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense	Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree	Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh > 3 inches) present, with <30% tree canopy cover with maintained	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable			
•	with > 60% tree can non-maintained under	nopy cover and a erstory. Wetlands riparian areas.	Riparian areas with tree stratum (dbh × 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory.	Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation).	Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover.	Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh >3 inches) present, with <30% tree canopy cover with maintained understory.	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable condition.	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions.			
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Condition Scores Delineate ripa escriptors. Determine squelow. Enter the % F	with > 60% tree can non-maintained unde located within the 1.5 arian areas along ex quare footage for ea Riparian Area and S % Riparian Area> Score >	opy cover and a erstory. Wetlands riparian areas.	Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 Into Condition C	Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Congth and width. Congth and width. Congth are with the congth and width. Congth and wi	Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85	Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh > 3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % I	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5	Rt Bank CI >	0.50	CI
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Condition Scores Delineate ripa escriptors. Determine squelow. Enter the % F Right Bank Left Bank INSTREAM	with > 60% tree can non-maintained unde located within the 1.5 arian areas along ea quare footage for ea Riparian Area and S % Riparian Area> Score > M HABITAT: Var	opy cover and a erstory. Wetlands riparian areas. ach stream bank ach by measuring 100% 0.5 100% 0.5	Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 Into Condition C g or estimating let	Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 attegories and Congth and width. Conthe blocks below	Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85 adculators are pro	Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh > 3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75 ing the production of	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % I Blocks 6	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5 the sums Riparian equal 100 100%	Rt Bank CI >	0.50	
Condition Scores Delineate ripalescriptors. Determine squelow. Enter the % F Right Bank Left Bank B. INSTREAM	with > 60% tree can non-maintained unde located within the 1.5 arian areas along ex quare footage for ea Riparian Area and S % Riparian Area> Score >	opy cover and a erstory. Wetlands riparian areas. ach stream bank ach by measuring 100% 0.5 100% 0.5	Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 Into Condition C g or estimating let	Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Congth and width. Conthe blocks below	Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85 adculators are pro	Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh > 3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75 ing the production of	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % I Blocks 6	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5 the sums Riparian equal 100 100% 100%	Rt Bank CI >	0.50	
Condition Scores Delineate ripa descriptors. Deltremine squelow. Enter the % F Right Bank Left Bank Left Bank INSTREAM Instream	with > 60% tree can non-maintained unde located within the 1.5 arian areas along ea quare footage for ea Riparian Area and S % Riparian Area> Score > M HABITAT: Var	opy cover and a erstory. Wetlands riparian areas. ach stream bank the by measuring the by measuring 100% 0.5 100% 0.5 ried substrate side poole complete.	Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 Into Condition C g or estimating lengarian category in parian category in category in the condition category in the condition category in the condition category in the category in t	Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Congth and width. Conthe blocks below	Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85 Indition Scores us calculators are production of the control o	Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh > 3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75 ing the production of	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % I Blocks 6	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5 the sums Riparian equal 100 100%	Rt Bank CI >	0.50	
Condition Scores 1. Delineate ripz descriptors. 2. Determine squelow. 3. Enter the % F Right Bank Left Bank 3. INSTREAN andercut banks;	with > 60% tree can non-maintained unde located within the 1.5 arian areas along ea quare footage for ea Riparian Area and S % Riparian Area> Score > M HABITAT: Val root mats; SAV; riff	ach stream bant ach by measuring 100% 0.5 100% 0.5 100% 0.5 ried substrate si file poole comple mal	Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 Into Condition C g or estimating let parian category in a category in Stable habitat ele present in 30-50 are adequate fo area designed.	Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Congth and width. Conthe blocks below the blocks below y and depths; wores. Conditions	Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85 Indition Scores us calculators are processed of the control of	Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh > 3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75 Ing the product of the present of the product of the product of the product of the present	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % I Blocks 6 Habitat element lacking or are Lelements are typic	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5 the sums Riparian equal 100 100% 100%	Rt Bank CI >	0.50	

	St	ream In	npact A	ssessm	nent Fo	rm Pag	e 2		
Project #	Applicant		Locality	Cowardin Class.	HUC	Date	Data Point	SAR length	Impact Factor
								500	1
	ALTERATION: Stream cross poil piles, constrictions, livestock	ings, riprap, conci		concrete blocks, s	traightening of ch	annel, channeliz	ation,	NOTES>>	
	Negligible	Mir	nor		erate	Se	vere		
Channel Alteration	Channelization, dredging, alteration, or hardening absent. Stream has an unaltered pattern or has naturalized.	Less than 20% of the stream reach is disrupted by any of the channel alterations listed in the parameter guidelines.	20-40% of the stream reach is disrupted by any of the channel	is disrupted by any of the channel	of the channel	Greater than 80% by any of the char in the parameter 80% of banks s	of reach is disrupted nnel alterations listed guidelines AND/OR hored with gabion, or cement.		
SCORE	1.5	1.3	1.1	0.9	0.7	(0.5		
	REACH C	ONDITION II	NDEX and S	TREAM CO	NDITION UN	ITS FOR TH	IIS REACH		
NOTE: The Cls and R	CI should be rounded to 2 decimal places.	The CR should be rour	nded to a whole numb	er.			THE REACH	CONDITION IN	DEX (RCI) >>

RCI= (Sum of all Cl's)/5

COMPENSATION REQUIREMENT (CR) >>

CR = RCI X LF X IF

INSERT PHOTOS:





		Stre	Uni	SSESS fied Stream M	lethodology 1	for use in Vir	ginia	m 1)			
Project #		Project Name		Locality	cowardin Class.	HUC	Date Date	SAR #	Impact/SAR length	Impact Factor	
5337	I-64	Peninsula S	tudy	Newport News	R2UB2	02080101	July '11		949		
				e and Informa	ation						
011	Aitkenhead		WUS 35S								
. Channel C	Condition: Ass			C	Conditional Catego	ry					
	Opt	imal	Subo	ptimal	Mar	ginal	Po	oor	Se	vere	
	Very little incision o	or active erosion; 80	erosion or unproted	ew areas of active cted banks. Majority	Poor. Banks more	less than Severe or stable than Severe	Vertically/laterally	ned/incised. unstable. Likely to		nstability. Severe	
Channel Condition	100% stable bar surface protection prominent (80-1 Stable point bars/br present. Access floodplain or fully bankfull benches. and transverse be sediment deposition	nks. Vegetative n or natural rock, 00%). AND/OR ankfull benches are s to their original y developed wide Mid-channel bars, ars few. Transient on covers less than	Vegetative protect prominent (60) Depositional feat stability. The bar channels are we likely has access to rnewly develope portions of the table.	table (60-80%), tition or natural rock -80%) AND/OR tures contribute to nkfull and low flow II defined. Stream o bankfull benches, ad floodplains along reach. Transient 0-40% of the stream	Erosion may be pr both banks. Veget 40-60% of banks. bevertical or unde 60% of strean sediment. Se temporary/tran instability. Depositi	ower bank slopes. resent on 40-60% of tative protection on Streambanks may prout. AND/OR 40- n is covered by diment may be sient, contribute on that contribute to torming/present.	are near vertical. 60-80% of bar protection press banks, and is inst erosion. AND/O stream is cover Sediment is temp nature, and contri	jority of both banks Erosion present on iks. Vegetative ent on 20-40% of ufficient to prevent IR 60-80% of the red by sediment. orary/transient in buting to instability. led channels have	banks. Streamb rooting depth, r vertical/under protection present banks, is not pr Obvious bank s Erosion/raw ban AND/OR Aggradir than 80% of strear	ed below average majority of banks cut. Vegetative on less than 20% of eventing erosion. loughing present. nks on 80-100%. ng channel. Greater m bed is covered by buting to instability.	
	10% of bottom.			tom.	AND/OR V-shap vegetative protect	ed channels have ion on > 40% of the ional features which	vegetative protect 40% of the banks a	tion is present on > and stable sediment is absent.	Multiple thread	channels and/or nean flow.	CI
Score	3	3	2	2.4		2	1	.6		1	1.6
	N BUFFERS: A	Assess both bank	s's 100 foot riparia	n areas along the	entire SAR. (rou	ugh measurement	s of length & widtl	n may be accepta	able)		
NOTES>>		Assess both bank	Con	n areas along the	gory	ginal	Po	n may be accepta	NOTES>>		
	Opti	imal > 3 inches) present, anopy cover and a derstory. Wetlands	Cor Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy	gory				NOTES>>		
Riparian Buffers	Tree stratum (dbh > with > 60% tree conon-maintained und located within the	imal > 3 inches) present, anopy cover and a derstory. Wetlands e riparian areas.	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover.	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh > 3 inches) present, with <30% tree canopy cover with maintained	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable	NOTES>>		
2. RIPARIAN	Option Tree stratum (dbh with > 60% tree canon-maintained und	imal > 3 inches) present, anopy cover and a derstory. Wetlands e riparian areas.	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory.	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation).	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover.	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh >3 inches) present, with <30% tree canopy cover with maintained understory.	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable condition.	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions.	NOTES>>		
Riparian Buffers Condition Scores Delineate ripa	Tree stratum (dbh > with > 60% tree conon-maintained und located within the	imal > 3 inches) present, anopy cover and a derstory. Wetlands e riparian areas.	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Con	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh > 3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable condition. High 0.6	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions.	NOTES>>		
Riparian Buffers Condition Scores Delineate ripa escriptors. Determine squelow.	Tree stratum (dbh a with a 60% tree canon-maintained und located within the located withi	imal 3 inches) present, anopy cover and a derstory. Wetlands e riparian areas. 5 each stream bank each by measurin.	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 k into Condition C	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Coungth and width. Coungth	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh > 3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5	NOTES>>		
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Riparian Buffers Condition Scores Delineate ripalescriptors. Determine squelow. Enter the % F. Right Bank Left Bank I. INSTREAM	Tree stratum (dbh with > 60% tree canon-maintained und located within the located within	imal 3 inches) present, anopy cover and a derstory. Wetlands e riparian areas. 5 each stream bank each by measurin 100% 0.6 10% 0.6 arried substrate si	Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 Into Condition C g or estimating let	Inditional Cate ptimal Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Coungth and width. Coungth and width. Coungth and width. Coungth and depths; wodes.	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85 Indition Scores us calculators are production of the product	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh > 3 inches) present, with < 30% tree canopy cover with maintained understory. Low 0.75 ing the ovided for you	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F Blocks 6	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5 the sums Riparian equal 100 100%	NOTES>>		CI 0.56
Riparian Buffers Condition Scores Delineate ripa escriptors. Determine squelow. Enter the % F. Right Bank Left Bank INSTREAM Indercut banks;	Tree stratum (dbh > with > 60% tree ca non-maintained und located within the located with	imal 3 inches) present, anopy cover and a derstory. Wetlands e riparian areas. 5 each stream bank each by measurin 100% 0.6 10% 0.6 arried substrate si	Riphrian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 Into Condition C g or estimating let	Inditional Cate ptimal Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Coungth and width. Coungth and width. Coungth and width. Coungth and depths; wodes.	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <a>3 inches) present, with <a>3 inches) present, or a tree canopy cover. High 0.85 Indition Scores us calculators are production of the control of th	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh > 3 inches) present, with < 30% tree canopy cover with maintained understory. Low 0.75 ing the ovided for you	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F Blocks 6	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5 the sums Riparian equal 100 100%	NOTES>> Ci= (Sum % RA * : Rt Bank Ci > Lt Bank Ci >	0.60	
Riparian Buffers Condition Scores Delineate ripalescriptors. Determine squelow. Enter the % F. Right Bank Left Bank INSTREAM	Tree stratum (dbh > with > 60% tree ca non-maintained und located within the located with	imal 3 inches) present, anopy cover and a derstory. Wetlands e riparian areas. 5 each stream bank each by measuring the stream bank to the stream bank each by measuring the	Riphi Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 Into Condition C g or estimating let grain category in 90% 0.5 Zes, water velocit exes, stable featur Subo Stable habitat ele present in 30-50% are adequate for areas with 100 present in 30-50% are adequate for subtractions.	Inditional Cate ptimal Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Coungth and width. Coungth and width. Coungth and depths; wores. Conditional	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85 Indition Scores us calculators are production of the present in 10-30 are adequate for a seadequate for the present in 10-30 are adequate for the present in 10-30 are adeq	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh >3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75 ing the price of the production of the present of the	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F Blocks 6	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5 the sums Riparian equal 100 100%	CI= (Sum % RA * : Rt Bank CI > Lt Bank CI > NOTES>>	0.60	

	St	ream In	npact A	ssessm	nent Fo	rm Page	e 2		
Project #	Applicant		Locality	Cowardin Class.	HUC	Date	Data Point	SAR length	Impact Factor
								500	1
	L ALTERATION: Stream cross spoil piles, constrictions, livestock			al Category	traightening of ch		vere	NOTES>>	
Channel Alteration		Less than 20% of the stream reach is disrupted by any of the channel alterations listed in the parameter guidelines.	20-40% of the stream reach is disrupted by any of the channel	40 - 60% of reach is disrupted by any of the channel	60 - 80% of reach is disrupted by any of the channel alterations listed in the parameter guidelines. If stream has been channelized, normal stable stream meander pattern has not	Greater than 80% of by any of the chans in the parameter g	of reach is disrupted nel alterations listed juidelines AND/OR ored with gabion, r cement.		
SCORE	1.5	1.3	1.1	0.9	0.7	0	.5		
	REACH C	ONDITION I	NDEX and S	TREAM CO	NDITION UN	ITS FOR TH	IS REACH		
NOTE: The Cls and I	RCI should be rounded to 2 decimal places.	The CR should be rou	nded to a whole numb	er.			THE REACH (CONDITION IN	DEX (RCI) >>

RCI= (Sum of all Cl's)/5

COMPENSATION REQUIREMENT (CR) >>

CR = RCI X LF X IF



DESCRIBE PROPOSED IMPACT:		

		Stre	Unit	SSESS fied Stream M	lethodology 1	for use in Virg	ginia	m 1)			
Project #	ı	Project Name		Locality	cowardin Class.	HUC	Date Date	SAR #	Impact/SAR length	Impact Factor	
5337	I-64	Peninsula S	tudy	Hampton	R2UB2	02080108	July '11		465		
Name	e(s) of Evalua	tor(s)	Stream Nam	e and Informa	ation						1
	Aitkenhead		WUS 36S								
. Channel C	Condition: Asse	ess the cross-sec	ction of the stream		ondition (erosion, conditional Catego						
	Opti	imal	Subo	ptimal	Mar	ginal	Po	oor	Se	vere	4
	Very little incision o	r active erosion: 80	erosion or unproted	ew areas of active cted banks. Majority	Poor. Banks more	less than Severe or stable than Severe	Vertically/laterally	ned/incised. unstable. Likely to		istability. Severe	
Channel Condition	100% stable bar surface protection prominent (80-11 Stable point bars/ba present. Access floodplain or fully bankfull benches. and transverse ba sediment depositio 10% of I	nks. Vegetative n or natural rock, 00%). AND/OR ankfull benches are to their original or developed wide Mid-channel bars, ars few. Transient or covers less than	Vegetative protect prominent (60- Depositional feat stability. The bar channels are well likely has access to or newly develope portions of the resediment covers 10 to definite the covers of the resediment covers 10 to definite the covers of the resediment covers 10 to definite the covers of the resediment covers 10 to definite the covers 10 to definite	table (60-80%), titon or natural rock -80%) AND/OR tures contribute to nkfull and low flow II delined. Stream o bankfull benches, at floodplains along reach. Transient 0-40% of the stream tom.	Erosion may be pr both banks. Veget 40-60% of banks. bevertical or unde 60% of stream sediment. Se- temporary/tran instability. Depositi stability, may be	ower bank slopes. esent on 40-60% of tative protection on Streambanks may ercut. AND/OR 40- n is covered by diment may be sient, contribute on that contribute to e forming/present. ed channels have	are near vertical. 60-80% of bar protection prese banks, and is insi erosion. AND/O stream is cover Sediment is temp nature, and contri AND/OR V-shap	iority of both banks Erosion present on ks. Vegetative ent on 20-40% of ufficient to prevent R 60-80% of the ed by sediment. corary/transient in buting to instability. ed channels have ion is present on >	rooting depth, r vertical/underr protection present banks, is not pr Obvious bank s Erosion/raw ban AND/OR Aggradir than 80% of strear deposition, contril	ed below average majority of banks cut. Vegetative on less than 20% of eventing erosion. loughing present. nks on 80-100%. ng channel. Greater n bed is covered by cuting to instability. channels and/or	
					banks and depositi	ion on > 40% of the ional features which	deposition	and stable sediment is absent.	subterra	nean flow.	CI
Score	3	3	2	2.4		2	1	.6	<u> </u>	1	2.0
	N BUFFERS: A		Con	nditional Cate	gory Mar	ginal Low Marginal: Non-maintained,	Po High Poor:	n may be accepta	NOTES>>		
	Opti Tree stratum (dbh > with > 60% tree ca	imal - 3 inches) present, anopy cover and a derstory. Wetlands	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy	gory	ginal Low Marginal:	Po		NOTES>>		
. RIPARIAN	Option Tree stratum (dbh > with > 60% tree canon-maintained unc	imal - 3 inches) present, anopy cover and a derstory. Wetlands	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory.	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation).	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover.	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh >3 inches) present, with <30% tree canopy cover with maintained understory.	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable condition.	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions.	NOTES>>		
. RIPARIAN	Option Tree stratum (dbh > with > 60% tree canon-maintained unc	imal 3 inches) present, anopy cover and a derstory. Wetlands e riparian areas.	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh >3 inches) present, with <30% tree canopy cover with maintained	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable	NOTES>>		
Riparian Buffers Condition Scores Delineate ripa escriptors. Determine squelow.	Tree stratum (dbh > with > 60% tree ca non-maintained unc located within the	imal 3 inches) present, anopy cover and a derstory. Wetlands e riparian areas.	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 k into Condition C	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Coungth and width. Coungth	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh >3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5	NOTES>>		
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Condition Scores Delineate ripa escriptors. Determine squelow. Enter the % F Right Bank Left Bank B. INSTREAR	Tree stratum (dbh > with > 60% tree canon-maintained unc located within the located withi	imal 3 inches) present, anopy cover and a derstory. Wetlands e riparian areas. 5 ach stream bank ach by measuring 100% 0.75 100% 0.75 aried substrate si	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 Into Condition C g or estimating ler parian category in	Inditional Cate ptimal Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Coungth and width. Coungth and width. Coungth and width. Coungth and depths; wodes.	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85 Indition Scores us calculators are production of the product	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh > 3 inches) present, with < 30% tree canopy cover with maintained understory: Low 0.75 ing the evided for you	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F Blocks 6	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5 the sums Riparian equal 100 100%	NOTES>>		CI 0.75
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	St	ream In	npact A	ssessm	nent Fo	rm Pag	e 2		
Project #	Applicant		Locality	Cowardin Class.	HUC	Date	Data Point	SAR length	Impact Factor
								500	1
	ALTERATION: Stream cross poil piles, constrictions, livestock	sings, riprap, conc		concrete blocks, s	traightening of ch	annel, channeliza	ation,	NOTES>>	
	Negligible	Mi	nor		erate	Se	vere		
Channel Alteration	Channelization, dredging, alteration, or hardening absent. Stream has an unaltered pattern or has naturalized.	Less than 20% of the stream reach is disrupted by any of the channel alterations listed in the parameter guidelines.	20-40% of the stream reach is disrupted by any of the channel	is disrupted by any	60 - 80% of reach is disrupted by any of the channel alterations listed in the parameter guidelines. If stream has been channelized, normal stable stream meander pattern has not	Greater than 80% by any of the chan in the parameter 80% of banks sh	of reach is disrupted nel alterations listed guidelines AND/OR nored with gabion, or cement.		
SCORE	1.5	1.3	1.1	0.9	0.7	0).5		
	REACH C	ONDITION I	NDEX and S	TREAM CO	NDITION UN	ITS FOR TH	IS REACH		
VOTE: The CIs and F	CI should be rounded to 2 decimal places.	The CR should be rou	nded to a whole numb	er.			THE REACH (CONDITION IN	DEX (RCI) >>
							RCI	= (Sum of all C	l's)/5

COMPENSATION REQUIREMENT (CR) >> 0

CR = RCI X LF X IF

INSERT PHOTOS:





		Sire		fied Stream N	lethodology f	or use in Virg	ginia				
Project #	ı	Project Name		Locality	Cowardin Class.	HUC	Date	SAR#	Impact/SAR length	Impact Factor	
5337	I-64	Peninsula S	tudy	Hampton	R2UB2	02080108	July '11		562		
Nam	ne(s) of Evaluat	tor(s)		e and Informa	ation						
	Aitkenhead		WUS 37S								
l. Channel (Condition: Asse	ess the cross-sec	ction of the stream		ondition (erosion,						
	Opti	mal	Subo	ptimal		ginal	Po	oor	Sev	vere .	
Channel Condition		nks. Vegetative n or natural rock,	erosion or unproted of banks are s Vegetative protect	ew areas of active cted banks. Majority table (60-80%). tion or natural rosk. 80%) AND/OR	Poor. Banks more or Poor due to lo Erosion may be pr	less than Severe or stable than Severe ower bank slopes. esent on 40-60% of attive protection on	Vertically/laterally widen further. Ma are near vertical.	ed/incised. unstable. Likely to jority of both banks Erosion present on	incision, flow cor banks. Streamb rooting depth, n	Istability. Severe nataried within the ed below average najority of banks	
	prominent (80-11 Stable point bars/ba present. Access floodplain or fully bankfull benches. and transverse ba sediment deposition 10% of t	ankfull benches are to their original developed wide Mid-channel bars, ars few. Transient n covers less than bottom.	Depositional feat stability. The bai channels are we likely has access t or newly develope portions of the sediment covers 10 bot	tures contribute to nkfull and low flow Il defined. Stream o bankfull benches, and floodplains along reach. Transient 0-40% of the stream tom.	40-60% of banks. bevertical or unde 60% of strean sediment. See temporary/tran instability. Depositi stability, may be AND/OR V-shap vegetative protect banks and depositi	Streambanks may streat. AND/OR 40-n is covered by diment may be sient, contribute on that contribute to forming/present. ed channels have on on > 40% of the onal features which	protection prese banks, and is inst erosion. AND/O stream is cover Sediment is temp nature, and contri AND/OR V-shap vegetative protect 40% of the banks a deposition	ent on 20-40% of ifficient to prevent R 60-80% of the ed by sediment. corary/transient in puting to instability. ed channels have ion is present on > and stable sediment is absent.	protection present banks, is not pre Obvious bank sl Erosion/raw bat AND/OR Aggradir than 80% of strear deposition, contrik Multiple thread subterrar	zut. Vegetative on less than 20% of sventing erosion. oughing present. nks on 80-100%. og channel. Greater n bed is covered by buting to instability. channels and/or nean flow.	CI
Score	3	3	2	2.4		2	1	.6		1	2.0
. RIPARIA	N BUFFERS: A		Con	n areas along the nditional Cate ptimal	gory	ginal		n may be accepta	NOTES>>		
Riparian Buffers		imal 3 inches) present, unopy cover and a lerstory. Wetlands	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy	gory	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, had production, ponds, open water. If present, tree stratum (dbh > 3 inches) present, with <30% tree canopy cover with maintained			NOTES>>		
Riparian Buffers	Opti Tree stratum (dbh > with > 60% tree ca	imal 3 inches) present, unopy cover and a lerstory. Wetlands	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh >3 inches) present, with 30% inches) present, canopy cover with	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable	NOTES>>		
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or hardening absent. Stream has an unaltered pattern or has naturalized. alterations listed in the parameter guidelines. SCORE 1.5 1.3 1.1 0.9 0.9 0.7 0.5 REACH CONDITION INDEX and STREAM CONDITION UNITS FOR THIS REACH		St	ream In	npact A	ssessn	ent Fo	rm Page	e 2		
Channel Alteration Alteration Channel Alteration Alteration Channel Alteration Alteration Alteration Channel Alteration Al	Project #	Applicant		Locality	Cowardin Class.	HUC	Date	Data Point	SAR length	Impact Factor
Channel Alteration Channel Alteration Channel Source pattern or has naturalized. SCORE 1.5 1.3 1.1 0.9 0.7 0.5 Conditional Category Moderate Severe 40 - 60% of reach is disrupted by any of the channel alterations listed in the parameter guidelines. If stream has been channelized, normal stable stream meander pattern has not stream me									500	1
Channel Alteration Channelization, dredging, alteration, or hardening absent. Stream has an unaltered pattern or has naturalized. Channelized, or hardening absent. Stream has an unaltered pattern or has naturalized. Channelized, or hardening absent. Stream has an unaltered pattern or has naturalized. Channelized, or hardening absent. Stream has an unaltered pattern or has naturalized. Channelized, or hardening absent. Stream has an unaltered pattern or has naturalized. Channelized, or hardening absent. Stream has been the parameter guidelines. Channelized, normal stable stream meander pattern has not pattern has no			sings, riprap, conc			traightening of ch	annel, channeliza	ition,	NOTES>>	
Channel Alteration Channelization, dredging, alteration, or hardening absent. Stream has an unaltered pattern or has naturalized. SCORE 1.5 1.3 1.1 1.0 1.0 1.0 1.0 1.0 1.0		Negligible	I Mi			erate	Sev	vere		
REACH CONDITION INDEX and STREAM CONDITION UNITS FOR THIS REACH	Channel Alteration	or hardening absent. Stream has an	the stream reach is disrupted by any of the channel alterations listed in the parameter	stream reach is disrupted by any of the channel alterations listed in the parameter	is disrupted by any of the channel alterations listed in the parameter guidelines. If stream has been channelized, normal stable stream meander	is disrupted by any of the channel alterations listed in the parameter guidelines. If stream has been channelized, normal stable stream meander	Greater than 80% of by any of the chan in the parameter g	nel alterations listed guidelines AND/OR lored with gabion,		
	SCORE	1.5	1.3	1.1	0.9	0.7	0	.5		
THE DEACH CONDITION INDEX (PCI)		REACH C	ONDITION I	NDEX and S	TREAM CO	NDITION UN	ITS FOR TH	IS REACH		
TE: The Cls and RCI should be rounded to 2 decimal places. The CR should be rounded to a whole number. THE REACH CONDITION INDEX (RCI) >>	VOTE: The CIs and F	CI should be rounded to 2 decimal places.	The CR should be rou	nded to a whole numb	er.			THE REACH (CONDITION IN	DEX (RCI) >>
RCI= (Sum of all Cl's)/5								RCI	l= (Sum of all C	l's)/5

COMPENSATION REQUIREMENT (CR) >>

CR = RCI X LF X IF



DESCRIBE PROPOSED IMPACT:			
	DESCRIBE PROPOSED IMPACT:		

		Stre	Unit	SSESS fied Stream M	lethodology 1	for use in Vir	ginia	m 1)			
Project #		Project Name		Locality	cowardin Class.	HUC	Date Date	SAR #	Impact/SAR length	Impact Factor	
5337	I-64	Peninsula S	tudy	Hampton	R2UB2	02080108	July '11		613		
Name	e(s) of Evaluat	tor(s)	Stream Nam	e and Informa	ation					1	
	Aitkenhead		WUS 38S								
. Channel C	Condition: Asse	ess the cross-sec	ction of the stream		ondition (erosion, Conditional Catego						
	Opti	imal	Subo	ptimal	Mar	ginal	Po	oor	Se	vere	
	Very little incision o	or active erosion: 80	erosion or unproted	ew areas of active cted banks. Majority	Poor. Banks more	less than Severe or stable than Severe	Vertically/laterally	ed/incised. unstable. Likely to	incision flow co	nstability. Severe	
Channel Condition	100% stable bar surface protection prominent (80-11 Stable point bars/ba present. Access floodplain or fully bankfull benches. and transverse ba sediment depositio 10% of I	nks. Vegetative n or natural rock, 00%). AND/OR ankfull benches are to their original v developed wide Mid-channel bars, ars few. Transient on covers less than	Vegetative protect prominent (60- Depositional feat stability. The bar channels are well likely has access to or newly develope portions of the resediment covers 10 to defend the resediment covers 10 to defend the resediment covers 10 to describe the resediment covers 1	table (60-80%), titon or natural rock -80%) AND/OR tures contribute to nkfull and low flow II defined. Stream o bankfull benches, at floodplains along reach. Transient 0-40% of the stream tom.	Erosion may be pr both banks. Veget 40-60% of banks. bevertical or unde 60% of stream sediment. Se- temporary/tran instability. Depositi stability, may be	ower bank slopes. esent on 40-60% of tative protection on Streambanks may ercut. AND/OR 40- n is covered by diment may be sient, contribute on that contribute to e forming/present. ed channels have	are near vertical. 60-80% of bar protection prese banks, and is insi erosion. AND/O stream is cover Sediment is temp nature, and contri AND/OR V-shap	iority of both banks Erosion present on ks. Vegetative ent on 20-40% of ifficient to prevent R 60-80% of the ed by sediment. corary/transient in buting to instability. ed channels have ion is present on >	rooting depth, r vertical/under protection present banks, is not pr Obvious bank s Erosion/raw ba AND/OR Aggradir than 80% of strear deposition, contril	ped below average majority of banks cut. Vegetative on less than 20% of eventing erosion. eloughing present. hiks on 80-100%. ng channel. Greater m bed is covered by buting to instability. I channels and/or	
					banks and depositi	ion on > 40% of the ional features which	deposition	and stable sediment is absent.	subterra	nean flow.	CI
Score	3	3	2	2.4		2	1	.6		1	2.0
	N BUFFERS: A		Con	nditional Cate	gory Mar	ginal Low Marginal: Non-maintained,	Po High Poor:	n may be accepta	NOTES>>		
	Opti Tree stratum (dbh > with > 60% tree ca	imal > 3 inches) present, anopy cover and a derstory. Wetlands	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy	gory	ginal Low Marginal:	Po		NOTES>>		
. RIPARIAN	Option Tree stratum (dbh > with > 60% tree canon-maintained unc	imal > 3 inches) present, anopy cover and a derstory. Wetlands	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory.	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation).	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover.	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh >3 inches) present, with <30% tree canopy cover with maintained understory.	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable condition.	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions.	NOTES>>		
. RIPARIAN	Option Tree stratum (dbh > with > 60% tree canon-maintained unc	imal 3 inches) present, anopy cover and a derstory. Wetlands e riparian areas.	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh > 3 inches) present, with <30% tree canopy cover with maintained	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable	NOTES>>		
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Riparian Buffers Condition Scores Delineate ripaescriptors. Determine squelow. Enter the % F	Tree stratum (dbh > with > 60% tree ca non-maintained unc located within the	imal 3 inches) present, anopy cover and a derstory. Wetlands e riparian areas. 5 each stream bank ach by measuring 100% 0.75	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 k into Condition C g or estimating let	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Coungth and width. Coungth	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh > 3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5	NOTES>> Cl= (Sum % RA*: Rt Bank Cl >	0.75	CI 0.75
Riparian Buffers Condition Scores Delineate ripa escriptors. Determine squelow. Enter the % F Right Bank Left Bank B. INSTREAN	Tree stratum (dbh > with > 60% tree canon-maintained unc located within the located withi	imal 3 inches) present, anopy cover and a derstory. Wetlands e riparian areas. 5 each stream bank ach by measuring 100% 0.75 100% 0.75 aried substrate si	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 Into Condition C g or estimating ler parian category in	Inditional Cate ptimal Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Coungth and width. Coungth and width. Coungth and width. Coungth and depths; wodes.	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85 Indition Scores us calculators are production of the product	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh >3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75 ing the ovided for you	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F Blocks 6	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5 the sums Riparian equal 100 100%	NOTES>>		CI 0.75
Riparian Buffers Condition Scores Delineate ripa escriptors. Determine squelow. Enter the % F. Right Bank Left Bank INSTREAM Indercut banks;	Tree stratum (dbh > with > 60% tree canon-maintained unclocated within the located within	imal 3 inches) present, anopy cover and a derstory. Wetlands e riparian areas. 5.5 each stream bank ach by measuring 100% 0.75 100% 0.75 aried substrate si iffle poole comple	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 Into Condition C g or estimating ler parian category in zes, water velocity ixes, stable featur	Inditional Cate ptimal Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Coungth and width. Coungth and width. Coungth and width. Coungth and depths; wodes.	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <a>3 inches) present, with <a>3 inches) present, or a tree canopy cover. High 0.85 Indition Scores us calculators are production of the control of th	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh >3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75 ing the ovided for you	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F Blocks 6	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5 the sums Riparian equal 100 100%	NOTES>> Ci= (Sum % RA *: Rt Bank Ci > Lt Bank Ci >	0.75	
Riparian Buffers Condition Scores Delineate ripalescriptors. Determine squelow. Enter the % F. Right Bank Left Bank B. INSTREAR	Tree stratum (dbh > with > 60% tree ca non-maintained unc located within the located with	imal 3 inches) present, anopy cover and a derstory. Wetlands e riparian areas. 5 5 cach stream bank ach by measuring 100% 0.75 100% 0.75 aried substrate si iffle poole completimal	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 Into Condition C g or estimating let parian category in zes, water velocity exes, stable featur Subo Stable habitat ele present in 30-50% are adequate fo	Inditional Cate ptimal Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Coungth and width. Coungth and width. Coungth and depths; wores. Conditional	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85 Indition Scores us calculators are production of the present in 10-30 are adequate for a seadequate for the present in 10-30 are adequate for the present in 10-30 are adeq	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh >3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75 ing the price of the production of the present of the	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F Blocks 6	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5 the sums Riparian equal 100 100% 100%	CI= (Sum % RA *: Rt Bank CI > Lt Bank CI > NOTES>>	0.75	

	St	ream In	npact A	ssessm	ent Fo	rm Pag	e 2		
Project #	Applicant		Locality	Cowardin Class.	HUC	Date	Data Point	SAR length	Impact Factor
								500	1
	L ALTERATION: Stream cross poil piles, constrictions, livestock		Conditiona	al Category				NOTES>>	
	Negligible	Mir	nor		erate	Se	evere		
Channel Alteration	Channelization, dredging, alteration, or hardening absent. Stream has an unaltered pattern or has naturalized.	Less than 20% of the stream reach is disrupted by any of the channel alterations listed in the parameter guidelines.	20-40% of the stream reach is disrupted by any of the channel	is disrupted by any of the channel	60 - 80% of reach is disrupted by any of the channel alterations listed in the parameter guidelines. If stream has been channelized, normal stable stream meander pattern has not	Greater than 80% by any of the char in the parameter 80% of banks s	of reach is disrupted nnel alterations listed guidelines AND/OR shored with gabion, or cement.		
SCORE	1.5	1.3	1.1	0.9	0.7	(0.5		
	REACH C	ONDITION II	NDEX and S	TREAM CO	NDITION UN	ITS FOR TH	IIS REACH		
NOTE: The Cls and F	RCI should be rounded to 2 decimal places.	The CR should be rour	nded to a whole numb	er.			THE REACH	CONDITION IN	DEX (RCI) >>

CR = RCI X LF X IF

INSERT PHOTOS:



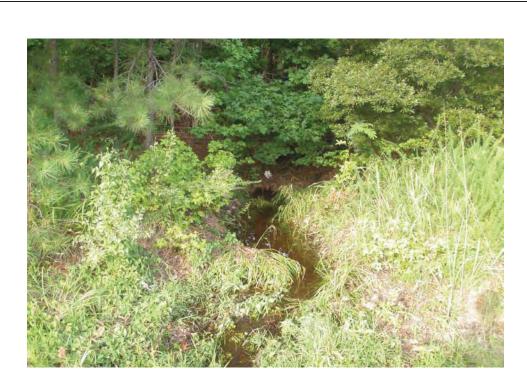


		Stre	Unit	fied Stream N	lethodology f	Form	ginia	m 1)			
Project #		Project Name		Locality	cowardin Class.	HUC	perennial Date	SAR#	Impact/SAR length	Impact Factor	
5337	I-64	Peninsula S	tudy	Newport News	R2UB2	02080108	July '11		209		
Name	e(s) of Evaluat	tor(s)	Stream Nam	e and Informa	ation						
	Aitkenhead		WUS 40S								
. Channel C	Condition: Asse	ess the cross-sec	tion of the stream		ondition (erosion, Conditional Catego						
	Opti	mal	Subo	ptimal	Mar	ginal	Po	oor	Se	vere	
	Very little incision o	ractive erecion: 80	erosion or unproted	ew areas of active cted banks. Majority	Poor. Banks more	less than Severe or stable than Severe	Vertically/laterally	ed/incised. unstable. Likely to	incision flow co	nstability. Severe	
Channel Condition	100% stable bar surface protection prominent (80-11 Stable point bars/ba present. Access floodplain or fully bankfull benches. and transverse ba sediment depositio 10% of 1	nks. Vegetative n or natural rock, 00%). AND/OR ankfull benches are to their original developed wide Mid-channel bars, ars few. Transient n covers less than	Vegetative protect prominent (60- Depositional feat stability. The bar channels are well likely has access to rnewly develope portions of the rediment covers 10	table (60-80%), titon or natural rock -80%) AND/OR tures contribute to nkfull and low flow II defined. Stream o bankfull benches, at floodplains along reach. Transient 0-40% of the stream tom.	Erosion may be pr both banks. Veget 40-60% of banks. bevertical or unde 60% of strean sediment. Sed temporary/tran instability. Depositi stability, may be	ower bank slopes. esent on 40-60% of tative protection on Streambanks may ercut. AND/OR 40- n is covered by diment may be sient, contribute on that contribute to e forming/present. ed channels have	are near vertical. 60-80% of bar protection prese banks, and is inst erosion. AND/O stream is cover Sediment is temp nature, and contri AND/OR V-shap	iority of both banks Erosion present on ks. Vegetative ent on 20-40% of ufficient to prevent R 60-80% of the ed by sediment. corary/transient in buting to instability. ed channels have ion is present on >	banks. Streamb rooting depth, r vertical/under protection present banks, is not pr Obvious bank s Erosion/raw ba AND/OR Aggradir than 80% of streat deposition, contril	ped below average majority of banks cut. Vegetative on less than 20% of eventing erosion. sloughing present. Inks on 80-100%. Ing channel. Greater m bed is covered by buting to instability.	
			DOI	tom.	vegetative protecti	ion on > 40% of the ional features which	40% of the banks a	and stable sediment is absent.		I channels and/or nean flow.	CI
Score	3	3	2	2.4		2	1	.6		1	2.4
. RIPARIAN	N BUFFERS: A		Con	nditional Cate ptimal	gory	ginal Low Marginal:	Po	n may be accepta	NOTES>>		
RIPARIAN Riparian Buffers	Opti Tree stratum (dbh > with > 60% tree ca	imal - 3 inches) present, nopy cover and a lerstory. Wetlands	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy	gory	ginal			NOTES>>		
Riparian	Option Tree stratum (dbh > with > 60% tree canon-maintained unc	imal - 3 inches) present, nopy cover and a lerstory. Wetlands	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory.	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation).	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover.	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh >3 inches) present, with <30% tree canopy cover with maintained understory.	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable condition.	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions.	NOTES>>		
Riparian	Option Tree stratum (dbh > with > 60% tree canon-maintained unc	3 inches) present, inopy cover and a derstory. Wetlands e riparian areas.	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh > 3 inches) present, with <30% tree canopy cover with maintained	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable	NOTES>>		
Riparian Buffers Condition Scores Delineate ripa escriptors. Determine sq elow.	Tree stratum (dbh > with > 60% tree ca non-maintained unc located within the	imal 3 inches) present, inopy cover and a lerstory. Wetlands e riparian areas.	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 into Condition C	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Coungth and width. Coungth	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh > 3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5	NOTES>>		
Riparian Buffers Condition Scores Delineate ripasscriptors. Determine squadow.	Tree stratum (dbh > with > 60% tree ca non-maintained unc. located within the	imal 3 inches) present, unopy cover and a ferstory. Wetlands e riparian areas.	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 into Condition C	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Coungth and width. Coungth	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh > 3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5	NOTES>>		
Riparian Buffers Condition Scores Delineate ripaescriptors. Determine squelow. Enter the % F	Tree stratum (dbh > with > 60% tree ca non-maintained unc located within the	imal 3 inches) present, inopy cover and a lerstory. Wetlands e riparian areas.	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 into Condition C	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Coungth and width. Coungth	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh > 3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5	NOTES>>		
Riparian Buffers Condition Scores Delineate ripasecriptors. Determine squelow. Enter the % F	Tree stratum (dbh > with > 60% tree canon-maintained unclocated within the located within	3 inches) present, unopy cover and a lerstory. Wetlands e riparian areas. 5 each stream bank ach by measuring Score for each ri 100% 0.6	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 into Condition C	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Coungth and width. Coungth	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh > 3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5	NOTES>>		
Riparian Buffers Condition Scores Delineate ripascriptors. Determine squelow. Enter the % F	Tree stratum (dbh > with > 60% tree ca non-maintained uncolocated within the located with	imal 3 inches) present, unopy cover and a lerstory. Wetlands e riparian areas. 5 each stream bank ach by measuring 100% 0.6 100%	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 into Condition C	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Coungth and width. Coungth	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh > 3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5	NOTES>>	0.60	CI 0.60
Riparian Buffers Condition Scores Delineate ripa escriptors. Determine squelow. Enter the % F Right Bank Left Bank	Tree stratum (dbh > with > 60% tree canon-maintained unc located within the located withi	5 sach stream bank ach by measuring Score for each ri 100% 0.6 100% 0.6 aried substrate si	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 k into Condition C g or estimating ler parian category in	Inditional Cate ptimal Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Coungth and width. Coungth and width. Coungth and width. Coungth and depths; wodes.	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85 Indition Scores usional calculators are productions of the control of the con	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh >3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75 ing the ovided for you	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F Blocks 6	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5 the sums Riparian equal 100 100%	NOTES>> Cl= (Sum % RA*: Rt Bank Cl >		CI 0.60
Condition Scores Delineate ripa escriptors. Determine squelow. Enter the % F Right Bank Left Bank I. INSTREAN ndercut banks;	Tree stratum (dbh > with > 60% tree ca non-maintained unc located within the located with	imal 3 inches) present, nopy cover and a lerstory. Wetlands e riparian areas. 5 each stream bank ach by measuring 100% 0.6 100% 0.6 aried substrate signed are substrate signed substrate signed are substrate signed ar	Riph Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 Into Condition C g or estimating ler parian category in	Inditional Cate ptimal Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Coungth and width. Coungth and width. Coungth and depths; wores. Conditional	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <a>30 tree canopy cover. High 0.85 Indition Scores usional calculators are production of the calculators are productional calculators.	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh >3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75 ing the price of the production of the present of the	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F Blocks 6	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5 the sums Riparian equal 100 100% 100%	NOTES>> Ci= (Sum % RA *: Rt Bank Ci > Lt Bank Ci >	0.60	_
Condition Scores Delineate ripa escriptors. Determine squelow. Enter the % F Right Bank Left Bank B. INSTREAR	Tree stratum (dbh > with > 60% tree canon-maintained unclocated within the located within	5 Score for each ri 100% 0.6 100% 0.6 100% 100% 100% 100% 100% 100% 100% 10	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 Into Condition C g or estimating let parian category in Zes, water velocity ixes, stable featur Subo Stable habitat ele present in 30-50% are adequate fo	Inditional Cate ptimal Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Coungth and width. Coungth and width. Coungth and width. Coungth and depths; wodes.	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85 Indition Scores using the state of the state	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh >3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75 ing the ovided for you	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F Blocks 6	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5 the sums Riparian equal 100 100%	CI= (Sum % RA *: Rt Bank CI > Lt Bank CI > NOTES>>	0.60	

	St	ream In	npact A	ssessm	ent Fo	rm Pag	e 2		
Project #	Applicant		Locality	Cowardin Class.	HUC	Date	Data Point	SAR length	Impact Factor
								500	1
	L ALTERATION: Stream cross poil piles, constrictions, livestock		Conditiona	al Category				NOTES>>	
	Negligible	Mir	nor		erate		evere		
Channel Alteration	Channelization, dredging, alteration, or hardening absent. Stream has an unaltered pattern or has naturalized.	Less than 20% of the stream reach is disrupted by any of the channel alterations listed in the parameter guidelines.	20-40% of the stream reach is disrupted by any of the channel	is disrupted by any of the channel	60 - 80% of reach is disrupted by any of the channel alterations listed in the parameter guidelines. If stream has been channelized, normal stable stream meander pattern has not	Greater than 80% by any of the char in the parameter 80% of banks s	o of reach is disrupted nnel alterations listed guidelines AND/OR shored with gabion, or cement.	1	
SCORE	1.5	1.3	1.1	0.9	0.7	(0.5		
	REACH C	ONDITION II	NDEX and S	TREAM CO	NDITION UN	ITS FOR TH	IIS REACH		
NOTE: The Cls and R	RCI should be rounded to 2 decimal places.	The CR should be rour	nded to a whole numb	er.			THE REACH	CONDITION IN	DEX (RCI) >>

RCI= (Sum of all Cl's)/5

COMPENSATION REQUIREMENT (CR) >> CR = RCI X LF X IF



DESCRIBE PROPOSED IMPACT:				
	·		·	·
		_		·
<u> </u>				

		Stre		fied Stream N	lethodology f	or use in Virg	ginia	,			
Project #	ı	Project Name		Locality	Cowardin Class.	HUC	Date	SAR#	Impact/SAR length	Impact Factor	
5337	I-64	Peninsula S	tudy	Newport News	R2UB1	02080108	July '11		628		
Name	e(s) of Evaluat	tor(s)	Stream Nam	e and Informa	ation	•	•				
	Aitkenhead		WUS 41S								
1. Channel C	Condition: Asse	ess the cross-sec	ction of the stream								
	Opti	imal	Subo	ptimal	Conditional Catego Mar	_{ry} ginal	Po	or	Sev	/ere	
	-	Who have		ew areas of active		less than Severe or		ed/incised.		tability. Severe	
Channel Condition	Very little incision or 100% stable bar surface protection prominent (80-11 Stable point bars/ba present. Access floodplain or fully bankfull benches. and transverse ba sediment deposition 10% of t	nks. Vegetative n or natural rock, 00%). AND/OR ankfull benches are to their original developed wide Mid-channel bars, ars few. Transient n covers less than	of banks are s Vegetative protect prominent (60 Depositional feat stability. The ban channels are we likely has access t or newly develope portions of the 1 sediment covers 10	cted banks. Majority table (60-80%). titon or natural rock-80%). AND/OR turnes contribute to nkfull and low flow II defined. Stream o bankfull benches, difloodplains along reach. Transient 0-40% of the stream tom.	or Poor due to Ic Erosion may be pr both banks. Vegel 40-60% of banks. bevertical or unde 60% of strean sediment. See temporary/tran instability. Depositi stability, may be AND/OR V-shap	stable than Severe wer bank slopes. esent on 40-60% of ative protection on Streambanks may rorut. AND/OR 40-h is covered by diment may be sient, contribute on that contribute to forming/present. ed channels have on on > 40% of the	widen further. Ma are near vertical. 60-80% of bar protection press banks, and is instension. AND/O stream is cover Sediment is temp nature, and contri AND/OR V-shap vegetative protect	ed channels have	banks. Streamb rooting depth, n vertical/undere protection present banks, is not pre Obvious bank sl Erosion/raw ban AND/OR Aggradir than 80% of strear deposition, contrik Multiple thread	ntained within the ed below average hajority of banks but. Vegetative on less than 20% of eventing erosion. oughing present. iks on 80-100%. If channel. Greater hed is covered by buting to instability. channels and/or lean flow.	CI
Coore	3	,	2	.4		onal features which	·	is absent.		1	4.6
Score	3)		4			!	.0		'	1.6
2. RIPĀRIAI	Opti			n areas along the	gory	ginal		n may be accepta	NOTES>>		
Riparian Buffers		a inches) present, unopy cover and a derstory. Wetlands	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory.	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover.		High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, recently seeded and stabilized, or other comparable condition.				
Riparian Buffers	Tree stratum (dbh > with > 60% tree ca non-maintained und located within the	· 3 inches) present, nopy cover and a derstory. Wetlands in parian areas.	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory, Recent cutover (dense vegetation).	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover.	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh >3 inches) present, with <30% tree canopy cover with maintained understory. Low	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, recently seeded and stabilized, or other comparable condition.	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions.			
Riparian	Opti Tree stratum (dbh > with > 60% tree ca	· 3 inches) present, nopy cover and a derstory. Wetlands in parian areas.	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory.	ditional Cate ptimal Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation).	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover.	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh >3 inches) present, with <a>30 % tree canopy cover with maintained understory.	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, recently seeded and stabilized, or other comparable condition.	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions.			
Riparian Buffers Condition Scores 1. Delineate ripadescriptors. 2. Determine squelow.	Tree stratum (dbh > with > 60% tree ca non-maintained und located within the	3 inches) present, unopy cover and a derestory. Wetlands e riparian areas.	High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 k into Condition C	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Coungth and width. Coungth	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh > 3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5			
Riparian Buffers Condition Scores Delineate ripa descriptors. 2. Determine squelow.	Tree stratum (dbh > with > 60% tree ca non-maintained undi located within the	imal 3 inches) present, inopy cover and a derstory. Wetlands er iparian areas.	High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 k into Condition C g or estimating let	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Coungth and width. Coungth	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh > 3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5 he sums tiparian qual 100			
Riparian Buffers Condition Scores Delineate ripa descriptors. 2. Determine squelow.	Tree stratum (dbh > with > 60% tree ca non-maintained und located within the	3 inches) present, unopy cover and a derstory. Wetlands er riparian areas. 5 acch stream bank acch by measurin Score for each ri	Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 k into Condition C g or estimating ler	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Coungth and width. Coungth	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh > 3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5			
Riparian Buffers Condition Scores Delineate ripalescriptors. Determine squelow. Enter the % F	Tree stratum (dbh > with > 60% tree ca non-maintained und located within the located with	imal 3 inches) present, inopy cover and a derstory. Wetlands er iparian areas.	High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 k into Condition C g or estimating let	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Coungth and width. Coungth	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh > 3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5 he sums tiparian qual 100		Scores*0.01)/2	
Riparian Buffers Condition Scores Delineate ripalescriptors. Determine squescriptors. Enter the % F	Tree stratum (dbh > with > 60% tree canon-maintained und located within the located within the strategy of the	3 inches) present, nopy cover and a derstory. Wetlands er riparian areas. 5 ach stream bank ach by measurin 50% 0.85	High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 k into Condition C g or estimating let parian category in 50% 0.6	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Coungth and width. Coungth	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh > 3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5 he sums tiparian qual 100	NOTES>> CI= (Sum % RA* S Rt Bank CI >	0.73	CI
Riparian Buffers Condition Scores Delineate ripalescriptors. Determine squelow. Below. Right Bank Left Bank	Tree stratum (dbh > with > 60% tree ca a non-maintained und located within the located wi	imal 3 inches) present, inches present, inches present, inches present, inches present, inches present in present inches present inches present inches present inches pres	High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 k into Condition C g or estimating ler parian category in 50% 0.6	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Co oright and width. Co	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh > 3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75 Ing the wided for you	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F Blocks 6	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5 he sums tiparian qual 100 100%	NOTES>>		CI 0.62
Condition Scores 1. Delineate ripadescriptors. 2. Determine squelow. 3. Enter the % Right Bank Left Bank 3. INSTREAN	Tree stratum (dbh > with > 60% tree canon-maintained und located within the located withi	imal 3 inches) present, unopy cover and a derstory. Wetlands er riparian areas. 5 sach stream band ach by measurin 50% 0.85 20% 0.6 aried substrate si	High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 k into Condition C g or estimating ler parian category in 50% 0.6	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Co ongth and width. Co the blocks below y and depths; woo	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh > 3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75 Ing the wided for you	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F Blocks 6	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5 he sums tiparian qual 100 100%	NOTES>> CI= (Sum % RA* S Rt Bank CI >	0.73	
Condition Scores 1. Delineate ripedescriptors. 2. Determine squelow. 3. Enter the % R Right Bank Left Bank 3. INSTREAN	Tree stratum (dbh > with > 60% tree ca a non-maintained und located within the located wi	imal 3 inches) present, unopy cover and a derstory. Wetlands er riparian areas. 5 sach stream band ach by measurin 50% 0.85 20% 0.6 aried substrate si	High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 k into Condition C g or estimating ler parian category in 50% 0.6	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Coungth and width. Coungth and width. Coungth and width. Coungth and depths; wodes.	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh > 3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75 Ing the wided for you	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F Blocks 6	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5 he sums tiparian qual 100 100%	NOTES>> CI= (Sum % RA * S Rt Bank CI > Lt Bank CI >	0.73	
Condition Scores 1. Delineate ripedescriptors. 2. Determine squelow. 3. Enter the % R Right Bank Left Bank 3. INSTREAN	Tree stratum (dbh > with > 60% tree canon-maintained und located within the located withi	imal 3 inches) present, nopy cover and a lerstory. Wetlands er iparian areas. 5 each stream bani ach by measurin 50% 0.85 20% 0.6 aried substrate siffle poole comple	High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 k into Condition C g or estimating let parian category in 50% 0.6 80% 0.5 izes, water velocit exes, stable featur	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Coungth and width. Coungth and width. Coungth and width. Coungth and depths; wodes.	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85 Indition Scores usional calculators are production of the control of the contr	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh > 3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75 Ing the wided for you	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F Blocks 6	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5 he sums tiparian qual 100 100%	NOTES>> CI= (Sum % RA * S Rt Bank CI > Lt Bank CI >	0.73	
Condition Scores 1. Delineate ripa descriptors. 2. Determine squelow. 3. Enter the % R Right Bank Left Bank 3. INSTREAN	Tree stratum (dbh > with > 60% tree ca non-maintained und located within the located with	imal 3 inches) present, inches present, inches present, inches present, inches present, inches present in present inches present inches present inches present inches pres	High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and shrub layers or a non-maintained understory. High 1.2 k into Condition C g or estimating let parian category in 50% 0.6 80% 0.5 izes, water velocit exes, stable featur Subo Stable habitat ele present in 30-50- are adequate fo	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Congth and width. Congth and width. Congth and width. Congth and width. Congth and depths; wordes. Conditional	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85 Indition Scores usion all Category Mar Stable habitat ele present in 10-30% are adequate fo	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh >3 inches) present, with https://district.org/https://district.org/lines/by/<a hre<="" td=""><td>High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F Blocks 6</td><td>Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5 he sums tiparian qual 100 100% 100%</td><td>NOTES>> CI= (Sum % RA * S Rt Bank CI > Lt Bank CI ></td><td>0.73</td><td></td>	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F Blocks 6	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5 he sums tiparian qual 100 100% 100%	NOTES>> CI= (Sum % RA * S Rt Bank CI > Lt Bank CI >	0.73	

	St	ream In	npact A	ssessm	ent Fo	rm Pag	e 2		
Project #	Applicant		Locality	Cowardin Class.	HUC	Date	Data Point	SAR length	Impact Factor
								500	1
	L ALTERATION: Stream cross poil piles, constrictions, livestock	ings, riprap, conc		concrete blocks, s	traightening of ch	annel, channeliza	ation,	NOTES>>	
	Negligible	Mi	nor		erate		vere		
Channel Alteration	Channelization, dredging, alteration, or hardening absent. Stream has an unaltered pattern or has naturalized.	Less than 20% of the stream reach is disrupted by any of the channel alterations listed in the parameter guidelines.	20-40% of the stream reach is disrupted by any of the channel	is disrupted by any of the channel	of the channel	Greater than 80% by any of the chan in the parameter 80% of banks sh	of reach is disrupted nel alterations listed guidelines AND/OR nored with gabion, or cement.		
SCORE	1.5	1.3	1.1	0.9	0.7	0).5		
	REACH C	ONDITION I	NDEX and S	TREAM CO	NDITION UN	ITS FOR TH	IS REACH		
NOTE: The Cls and F	RCI should be rounded to 2 decimal places.	The CR should be rou	nded to a whole numb	er.			THE REACH (CONDITION IN	DEX (RCI) >>

CR = RCI X LF X IF

INSERT PHOTOS:





		Stre		fied Stream N	lethodology f	or use in Virg	ginia				
Project #	ı	Project Name		Locality	nels classified a Cowardin Class.	HUC	Date Date	SAR#	Impact/SAR length	Impact Factor	
5337	I-64	Peninsula S	tudy	Newport News	R2UB2	02080108	July '11		3679		
Name	e(s) of Evalua	tor(s)	Stream Nam	e and Informa	ation		•		<u>'</u>		
	Aitkenhead		WUS 42S								
l. Channel C	Condition: Asse	ess the cross-sec	ction of the stream								
	Opti	imal	Subo	ptimal	Conditional Catego Mar	ginal	Po	oor	Sev	vere	
	1	Who have		ew areas of active		ess than Severe or		ed/incised.		istability. Severe	
Channel Condition	Very little incision of 100% stable bar surface protection prominent (80-10 Stable point bars/be present. Access floodplain or fully bankfull benches, and transverse ba sediment depositio 10% of 1	nks. Vegetative n or natural rock, 00%). AND/OR ankfull benches are to their original of developed wide Mid-channel bars, ars few. Transient in covers less than	of banks are s Vegetative protect prominent (60 Depositional feat stability. The ban channels are we likely has access t or newly develope portions of the sediment covers 10	cted banks. Majority table (60-80%). titon or natural rock -80%) AND/OR tures contribute to nkfull and low flow III defined. Stream o bankfull benches, ad floodplains along reach. Transient 0-40% of the stream tom.	or Poor due to Ic Erosion may be pr both banks. Vegel 40-60% of banks. bevertical or unde 60% of strean sediment. See temporary/tran instability. Depositi stability, may be AND/OR V-shap	stable than Severe wer bank slopes. seent on 40-60% of ative protection on Streambanks may rout. AND/OR 40-1 is covered by diment may be sient, contribute on that contribute to forming/present. ad channels have on on > 40% of the	widen further. Ma, are near vertical. I. 60-80% of ban protection prese banks, and is instension. AND/O stream is cover Sediment is temp nature, and contril AND/OR V-shap vegetative protect	ed channels have	banks. Streambrooting depth, n vertical/underc protection present - banks, is not pre Obvious bank sl Erosion/raw bar AND/OR Aggradin than 80% of strean deposition, contrik Multiple thread	ntained within the ed below average najority of banks to Vegetative on less than 20% of eventing erosion. oughing present. hks on 80-100%. Ig channel. Greater n bed is covered by puting to instability. channels and/or	CI
					banks and depositi	onal features which	deposition	is absent.		nean flow.	
Score	3	3	2	2.4		2	1	.6	<u> </u>	1	1.6
2. RIPARIAN	N BUFFERS: A	Assess both bank		an areas along the		gh measurement	s of length & width	n may be accepta	nble)		
Riparian Buffers	Opti Tree stratum (dbh > with > 60% tree ca non-maintained und located within the	imal 3 inches) present, anopy cover and a derstory. Wetlands	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory.	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation).	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover.	Jinal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh > 3 inches) present, with <30% tree canopy cover with maintained understory.	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, recently seeded and stabilized, or other comparable condition.	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions.			
Riparian Buffers	Tree stratum (dbh > with > 60% tree ca non-maintained unc located within the	• 3 inches) present, anopy cover and a derstory. Wetlands e riparian areas.	Con Subo High Suboptimal: Riparian areas with tree stratum (abh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory, Recent cutover (dense vegetation).	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover.	Jinal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh >3 inches) present, with <30% tree canopy cover with maintained understory. Low	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable condition.	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions.			
Riparian	Optia Tree stratum (dbh > with > 60% tree ca	• 3 inches) present, anopy cover and a derstory. Wetlands e riparian areas.	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory.	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation).	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover.	Jinal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh > 3 inches) present, with <30% tree canopy cover with maintained understory.	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, recently seeded and stabilized, or other comparable condition.	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions.			
Riparian Buffers Condition Scores Delineate ripa descriptors. 2. Determine squelow.	Tree stratum (dbh > with > 60% tree ca non-maintained unc located within the	imal 3 inches) present, anopy cover and a derstory. Wetlands e riparian areas.	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 k into Condition C	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Coungth and width. Coungth	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85	Jinal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh >3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure 1 of % F	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5			
Riparian Buffers Condition Scores Delineate ripalescriptors. Determine squelow.	Tree stratum (dbh > with > 60% tree canon-maintained unclocated within the located within	imal 3 inches) present, anopy cover and a derstory. Wetlands e riparian areas. 5 ach stream bank ach by measurin.	Com Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 k into Condition C g or estimating ler parian category in	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Coungth and width. Coungth	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85	Jinal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh >3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure 1 of % F	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5			
Riparian Buffers Condition Scores Delineate ripaescriptors. Determine sq	Tree stratum (dbh > with > 60% tree ca non-maintained unc located within the	imal 3 inches) present, anopy cover and a derstory. Wetlands e riparian areas.	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 k into Condition C	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Coungth and width. Coungth	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85	Jinal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh >3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure 1 of % F	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5			
Riparian Buffers Condition Scores Delineate ripa escriptors. Determine squelow.	Tree stratum (dbh > with > 60% tree canon-maintained unclocated within the located within	imal 3 inches) present, anopy cover and a derstory. Wetlands e riparian areas. 5 ach stream bank ach by measurin. Score for each ri	Com Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 k into Condition C g or estimating ler parian category in	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Coungth and width. Coungth	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85	Jinal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh >3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure 1 of % F	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5		Scores*0.01)/2	
Riparian Buffers Condition Scores Delineate ripalescriptors. Determine squelow. Enter the % F	Tree stratum (dbh > with > 60% tree canon-maintained unclocated within the located within	imal 3 inches) present, anopy cover and a derstory. Wetlands e riparian areas. 5 ach stream bank ach by measurin Score for each ri 20% 0.6	Righ Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 k into Condition C g or estimating ler parian category in 80% 0.5	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Coungth and width. Coungth	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85	Jinal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh >3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure 1 of % F	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5	NOTES>> CI= (Sum % RA* S Rt Bank CI >	0.52	CI
Riparian Buffers Condition Scores Delineate ripe lescriptors. Determine squelow. Enter the % F Right Bank Left Bank	Tree stratum (dbh > with > 60% tree ca a non-maintained und located within the located wi	imal 3 inches) present, anopy cover and a derstory. Wetlands e riparian areas. 5 cach stream bant ach by measuring 20% 0.6 20% 0.85	Riparian areas with tree stratum (abh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 K into Condition C g or estimating ler parian category in 80% 0.5	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 attegories and Co ongth and width. Co	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85	Jinal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh > 3 inches) present, with < 30% tree canopy cover with maintained understory. Low 0.75 Ing the vided for you	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F Blocks 6	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5 the sums Riparian equal 100 100%	NOTES>> Cl= (Sum % RA * S Rt Bank Cl > Lt Bank Cl >		CI 0.59
Condition Scores Delineate ripa escriptors. Determine sq elow. Enter the % R Right Bank Left Bank	Tree stratum (dbh > with > 60% tree ca non-maintained unc located within the located with	imal 3 inches) present, anopy cover and a derstory. Wetlands e riparian areas. 5 ach stream bank ach by measuring 20% 0.6 20% 0.85 aried substrate si	Righ Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 k into Condition C g or estimating ler parian category in 80% 0.5	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Congth and width. Conthe blocks below	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85	Jinal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh > 3 inches) present, with < 30% tree canopy cover with maintained understory. Low 0.75 Ing the vided for you	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F Blocks 6	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5 the sums Riparian equal 100 100%	NOTES>> CI= (Sum % RA* S Rt Bank CI >	0.52	
Condition Scores Delineate ripa descriptors. Delineate ripa descriptors. Right Bank Left Bank Instream	Tree stratum (dbh > with > 60% tree ca non-maintained unc located within the located with	imal 3 inches) present, anopy cover and a derstory. Wetlands e riparian areas. 5 each stream band ach by measuring 20% 0.6 20% 0.85 arried substrate siffle poole complete.	High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 k into Condition C g or estimating let parian category in 80% 0.5	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Co ngth and width. Co n the blocks below y and depths; wodes. Conditiona	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85 Indition Scores usional calculators are production of the control of the contr	Jinal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh -3 inches) present, with 230% tree canopy cover with maintained understory. Low 0.75 Ing the vided for you	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F Blocks e	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5 the sums Riparian equal 100 100% 100%	NOTES>> Cl= (Sum % RA * S Rt Bank Cl > Lt Bank Cl >	0.52	
Condition Scores 1. Delineate ripadescriptors. 2. Determine squelow. 3. Enter the % Right Bank Left Bank 3. INSTREAN	Tree stratum (dbh > with > 60% tree ca non-maintained unc located within the located with	imal 3 inches) present, anopy cover and a derstory. Wetlands e riparian areas. 5 each stream bani ach by measurin 20% 0.6 20% 0.85 aried substrate si ffle poole completimal	High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 k into Condition C g or estimating ler parian category in 80% 0.5 80% 0.6 zes, water velocit exes, stable featur Subo Stable habitat ele present in 30-50- are adequate fo	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Coungth and width. Coungth and width. Coungth and width. Coungth and depths; woodes.	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85 Indition Scores usion all Category Mar Stable habitat ele present in 10-30% are adequate fo	Jinal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh >3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75 Ing the vided for you	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure 1 of % F Blocks e	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5 the sums Riparian equal 100 100%	NOTES>> Cl= (Sum % RA * S Rt Bank Cl > Lt Bank Cl >	0.52	

	St	ream In	npact A	ssessm	nent Fo	rm Pag	e 2		
Project #	Applicant		Locality	Cowardin Class.	HUC	Date	Data Point	SAR length	Impact Factor
								500	1
	L ALTERATION: Stream cross poil piles, constrictions, livestock	ings, riprap, conc		concrete blocks, s	traightening of ch	annel, channeliza	ation,	NOTES>>	
	Negligible	Mi	nor		erate		vere		
Channel Alteration	Channelization, dredging, alteration, or hardening absent. Stream has an unaltered pattern or has naturalized.	Less than 20% of the stream reach is disrupted by any of the channel alterations listed in the parameter guidelines.	20-40% of the stream reach is disrupted by any of the channel alterations listed in the parameter guidelines.	is disrupted by any of the channel	of the channel	Greater than 80% by any of the char in the parameter 80% of banks sl	of reach is disrupted annel alterations listed guidelines AND/OR hored with gabion, or cement.		
SCORE	1.5	1.3	1.1	0.9	0.7	(0.5		
	REACH C	ONDITION	NDEX and S	TREAM CO	NDITION UN	ITS FOR TH	IIS REACH		
NOTE: The Cls and F	RCI should be rounded to 2 decimal places.	The CR should be rou	nded to a whole numb	er.			THE REACH (CONDITION IN	DEX (RCI) >>

CR = RCI X LF X IF

INSERT PHOTOS:





		Stre	Unit	fied Stream N	lethodology f	Form	ginia	m 1)			
Project #		Project Name		Locality	nels classified a Cowardin Class.	HUC	perennial Date	SAR#	Impact/SAR length	Impact Factor	
5337	I-64	Peninsula S	tudy	Newport News	R2UB2	02080108	July '11		14596		
Name	e(s) of Evalua	tor(s)	Stream Nam	e and Informa	ation						
	Aitkenhead		WUS 43S								
. Channel C	Condition: Asse	ess the cross-sec	tion of the stream		ondition (erosion, conditional Catego						
	Opti	imal	Subo	ptimal	Mar	ginal	Po	oor	Se	vere	
	Very little incision o	v cation arraign; 90	erosion or unproted	ew areas of active cted banks. Majority	Poor. Banks more	less than Severe or stable than Severe	Vertically/laterally	ned/incised. unstable. Likely to		nstability. Severe	
Channel Condition	100% stable bar surface protection prominent (80-1) Stable point bars/bc present. Access floodplain or fully bankfull benches. and transverse basediment depositio sediment depositio 10% of 1	nks. Vegetative n or natural rock, 00%). AND/OR ankfull benches are to their original v developed wide Mid-channel bars, ars few. Transient on covers less than	Vegetative protect prominent (60- Depositional feat stability. The bar channels are well likely has access to rnewly develope portions of the rediment covers 10	table (60-80%). tion or natural rock -80%) AND/OR tures contribute to nkfull and low flow ll defined. Stream o bankfull benches, defloodplains along reach. Transient 0-40% of the stream	Erosion may be pr both banks. Veget 40-60% of banks. bevertical or unde 60% of strean sediment. Sed temporary/tran instability. Depositi stability, may be	ower bank slopes. esent on 40-60% of tative protection on Streambanks may ercut. AND/OR 40- n is covered by diment may be sient, contribute on that contribute to e forming/present. ed channels have	are near vertical. 60-80% of bar protection prese banks, and is inst erosion. AND/O stream is cover Sediment is temp nature, and contri AND/OR V-shap	jority of both banks Erosion present on iks. Vegetative ent on 20-40% of afficient to prevent R 60-80% of the red by sediment. corary/transient in buting to instability. ed channels have ion is present on >	banks. Streamb rooting depth, r vertical/under vertical/under protection present banks, is not pr Obvious bank s Erosion/raw ban AND/OR Aggradir than 80% of strear deposition, contril	ed below average majority of banks cut. Vegetative on less than 20% of eventing erosion. loughing present. nks on 80-100%. ng channel. Greater bed is covered by buting to instability.	
			DOU	tom.	vegetative protecti	ion on > 40% of the ional features which	40% of the banks a	and stable sediment is absent.		channels and/or nean flow.	CI
Score	3	3	2	2.4		2	1	.6		1	2.0
. RIPARIAN	N BUFFERS: A		Con	n areas along the	gory	ginal Low Marginal:	Po	n may be accepta	NOTES>>		
RIPARIAN Riparian Buffers	Opti Tree stratum (dbh > with > 60% tree ca	imal > 3 inches) present, anopy cover and a derstory. Wetlands	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy	gory	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh >3 inches) present, with 30% inches) present, canopy cover with					
Riparian	Option Tree stratum (dbh > with > 60% tree canon-maintained uncompaintained u	imal > 3 inches) present, anopy cover and a derstory. Wetlands	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory.	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation).	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover.	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh >3 inches) present, with <30% tree canopy cover with maintained understory.	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable condition.	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions.			
Riparian	Option Tree stratum (dbh > with > 60% tree canon-maintained uncompaintained u	imal 3 inches) present, anopy cover and a derstory. Wetlands e riparian areas.	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh >3 inches) present, with <30% tree canopy cover with maintained	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable			
Riparian Buffers Condition Scores Delineate ripa escriptors. Determine squalow.	Tree stratum (dbh > with > 60% tree ca non-maintained unc located within the	imal 3 inches) present, anopy cover and a derstory. Wetlands e riparian areas. 5 each stream bankach by measuring	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 into Condition C	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Coungth and width. Co	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh >3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5			
Riparian Buffers Condition Scores Delineate ripascriptors. Determine squelow. Enter the % F	Tree stratum (dbh > with > 60% tree ca non-maintained unc located within the located with	imal 3 inches) present, anopy cover and a derstory. Wetlands e riparian areas. 5 each stream bank ach by measurin.	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 into Condition C g or estimating ler	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Coungth and width. Co	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh >3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5			
Riparian Buffers Condition Scores Delineate ripasecriptors. Determine squelow. Enter the % F	Tree stratum (dbh > with > 60% tree ca non-maintained unc located within the	imal 3 inches) present, anopy cover and a derstory. Wetlands e riparian areas. 5 each stream bankach by measuring	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 into Condition C	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Coungth and width. Co	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh >3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5	NOTES>>		
Riparian Buffers Condition Scores Delineate ripascriptors. Determine squelow. Enter the % F	Tree stratum (dbh > with > 60% tree ca non-maintained unc located within the located with	imal 3 inches) present, anopy cover and a derstory. Wetlands e riparian areas. 5 each stream bank ach by measurin Score for each ri 50% 0.75	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 into Condition C g or estimating ler parian category in 50% 0.6	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Coungth and width. Co	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh >3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5 the sums Riparian equal 100	NOTES>>	1	
Riparian Buffers Condition Scores Delineate ripasscriptors. Determine squees. Enter the % Residue.	Tree stratum (dbh > with > 60% tree ca non-maintained unc located within the located with	imal 3 inches) present, anopy cover and a derstory. Wetlands e riparian areas. 5 each stream bank ach by measurin. Score for each ri	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 Into Condition C g or estimating ler parian category in	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Coungth and width. Co	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh >3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5	NOTES>>	Scores*0.01)/2 0.68 0.63	CI 0.65
Riparian Buffers Condition Scores Delineate ripa escriptors. Determine squelow. Enter the % F Right Bank Left Bank	Tree stratum (dbh > with > 60% tree canon-maintained unc located within the located withi	imal 3 inches) present, anopy cover and a derstory. Wetlands e riparian areas. 5 each stream bank ach by measurin 50% 0.75 20% 0.75 aried substrate si	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 into Condition C g or estimating ler parian category in 50% 0.6 80% 0.6	Inditional Cate ptimal Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Coungth and width. Coungth and width. Coungth and width. Coungth and depths; wodes.	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85 Indition Scores usional calculators are productions of the control of the con	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh > 3 inches) present, with < 30% tree canopy cover with maintained understory: Low 0.75 ing the evided for you	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F Blocks 6	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5 the sums Riparian equal 100 100%	NOTES>> CI= (Sum % RA** Rt Bank CI >	0.68	CI 0.65
Riparian Buffers Condition Scores Delineate ripa escriptors. Determine squelow. Enter the % F Right Bank Left Bank INSTREAL ndercut banks;	Tree stratum (dbh > with > 60% tree ca non-maintained unc located within the located with	imal 3 inches) present, anopy cover and a derstory. Wetlands e riparian areas. 5.5 each stream bank ach by measuring the stream bank of the str	Right Suboptimal: Riparian areas with tree stratum (dbh s 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 Into Condition C g or estimating ler parian category in 50% 0.6	Inditional Cate ptimal Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Coungth and width. Coungth and width. Coungth and depths; wores. Conditional	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <a>30 tree canopy cover. High 0.85 Indition Scores usional calculators are production of the calculators are productional calculators.	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh >3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75 ing the vided for you	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F Blocks 6	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5 the sums Riparian equal 100 100%	NOTES>> CI= (Sum % RA * : Rt Bank CI > Lt Bank CI >	0.68	
Condition Scores Delineate ripa escriptors. Determine squelow. Enter the % F Right Bank Left Bank B. INSTREAR	Tree stratum (dbh > with > 60% tree ca non-maintained unc located within the located with	imal 3 inches) present, anopy cover and a derstory. Wetlands e riparian areas. 5 5 cach stream bank ach by measuring the stream bank to the stream bank ach by measuring the stream bank ach by me	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 into Condition C g or estimating ler parian category in 50% 0.6 80% 0.6 Zes, water velocity ixes, stable featur Subo Stable habitat ele present in 30-50% are adequate fo	Inditional Cate ptimal Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Coungth and width. Coungth and width. Coungth and width. Coungth and depths; wodes.	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85 Indition Scores using the state of the state	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh > 3 inches) present, with < 30% tree canopy cover with maintained understory: Low 0.75 ing the evided for you	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F Blocks 6	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5 the sums Riparian equal 100 100%	NOTES>> CI= (Sum % RA * S Rt Bank CI > Lt Bank CI >	0.68	

	St	ream In	npact A	ssessm	nent Fo	rm Pag	e 2		
Project #	Applicant		Locality	Cowardin Class.	HUC	Date	Data Point	SAR length	Impact Factor
								500	1
	L ALTERATION: Stream cross poil piles, constrictions, livestock	ings, riprap, conc		concrete blocks, s	traightening of ch	annel, channeliza	ation,	NOTES>>	
	Negligible	Mi	nor		erate		vere		
Channel Alteration	Channelization, dredging, alteration, or hardening absent. Stream has an unaltered pattern or has naturalized.	Less than 20% of the stream reach is disrupted by any of the channel alterations listed in the parameter guidelines.	20-40% of the stream reach is disrupted by any of the channel alterations listed in the parameter guidelines.	is disrupted by any of the channel	of the channel	Greater than 80% by any of the chan in the parameter 80% of banks st	of reach is disrupted intel alterations listed guidelines AND/OR nored with gabion, or cement.		
SCORE	1.5	1.3	1.1	0.9	0.7	C).5		
	REACH C	ONDITION I	NDEX and S	TREAM CO	NDITION UN	ITS FOR TH	IIS REACH		
NOTE: The Cls and F	RCI should be rounded to 2 decimal places.	The CR should be rou	nded to a whole numb	er.			THE REACH (CONDITION IN	DEX (RCI) >>

COMPENSATION REQUIREMENT (CR) >>

CR = RCI X LF X IF

>> 0







		Stre	Uni	fied Stream N	lethodology 1	Form	ginia	m 1)			
Project #	F	Project Name		Locality	Cowardin Class.	s intermittent or	perennial Date	SAR#	Impact/SAR length	Impact Factor	
5337	I-64	Peninsula S	tudy	Hampton	R2UB3	02080108	July '11		3577		
Name	(s) of Evaluat	or(s)		e and Inform	ation						
	Aitkenhead		WUS 44S								
I. Channel Co	ondition: Asse	ss the cross-sec	ction of the stream								
	Opti	mal	Subo	ptimal	Conditional Catego Mar	ginal	Po	oor	Sev	rere	
Channel	Very little incision or 100% stable ban	ks. Vegetative	erosion or unproted of banks are s	ew areas of active cted banks. Majority table (60-80%). tion or natural rock	Poor. Banks more or Poor due to lo Erosion may be pr	less than Severe or stable than Severe wer bank slopes. esent on 40-60% of	Vertically/laterally widen further. Ma are near vertical.	ned/incised. unstable. Likely to jority of both banks Erosion present on	vertical/lateral in: incision, flow con banks. Streambe rooting depth, m	tained within the ed below average	
	surface protection prominent (80-10 Stable point bars/ba present. Access floodplain or fully bankfull benches. I and transverse ba sediment depositior 10% of b	0%). AND/OR nkfull benches are to their original developed wide Mid-channel bars, as few. Transient a covers less than	Depositional feat stability. The bai channels are we likely has access t or newly develope portions of the sediment covers 10 bot	-80%) AND/OR tures contribute to hdfull and low flow II defined. Stream o bankfull benches, difloodplains along reach. Transient 0-40% of the stream tom.	40-60% of banks. bevertical or unde 60% of strean sediment. See temporary/tran instability. Depositi stability, may be AND/OR V-shap vegetative protect banks and deposit	tative protection on Streambanks may recrut. AND/OR 40- n is covered by diment may be sient, contribute on that contribute to forming/present. ed channels have ion on > 40% of the ional features which	protection prese banks, and is inst erosion. AND/O stream is cover Sediment is temp nature, and contri AND/OR V-shap vegetative protect 40% of the banks a	kls. Vegetative ent on 20-40% of ufficient to prevent IR 60-80% of the red by sediment. porary/transient in buting to instability. eed channels have tion is present on > and stable sediment in is absent.	vertical/underc	ut. Vegetative on less than 20% of venting erosion. Dughing present. ks on 80-100%. g channel. Greater bed is covered by uting to instability. Channels and/or	CI
Score	3		2	.4		2	1	.6	1	1	2.0
Riparian	Tree stratum (dbh > with > 60% tree ca non-maintained und located within the	nopy cover and a erstory. Wetlands	to 60% tree	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory, Recent cutover (dense vegetation).	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover.	Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh >3 inches) present, with <30% tree canopy cover with maintained understory.	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable condition.	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions.			
0 1111			High	Low	High	Low	High	Low			
Condition Scores	1.5	5	1.2	1.1	0.85	0.75	0.6	0.5			
lescriptors. Determine squ pelow.	rian areas along e	ach by measuring	g or estimating le	ngth and width. C	Calculators are pro		of % F	the sums Riparian			
	iparian Area and S % Riparian Area>		panan category in	ule blocks below			BIOCKS 6	100%			
Right Bank	% Riparian Area>	100% 0.6						100%	-		
									CI= (Sum % RA * S	cores*0.01)/2	
	% Riparian Area>	20%	80%					100%	Rt Bank CI >	0.60	CI
Left Bank	Score >	0.6	0.5						Lt Bank CI >	0.52	0.56
Left Bank				v and denths: wor	ody and leafy deb	ris; stable substra	te; low embededr	ness; shade;	NOTES>>		
Left Bank B. INSTREAM	HABITAT: Va	ried substrate si	zes, water velocit	y and deptins, wot							
Left Bank 3. INSTREAM	I HABITAT: Va	ried substrate si fle poole comple	xes, water velocit exes, stable featur	es.	al Category						
Left Bank 3. INSTREAM	I HABITAT: Va root mats; SAV; rif	fle poole comple	exes, stable featur	es.		ginal	Po	oor			
Left Bank 3. INSTREAM undercut banks; re	oot mats; SAV; rif	mal e typically present	Subo Stable habitat ele present in 30-509 are adequate fo	es. Condition	Stable habitat ele present in 10-309 are adequate fo	ginal ments are typically % of the reach and r maintenance of ations.	Habitat elements lacking or are u elements are typic	s listed above are instable. Habitat cally present in less of the reach.			CI

	St	ream In	npact A	ssessm	nent Fo	rm Pag	e 2		
Project #	Applicant		Locality	Cowardin Class.	HUC	Date	Data Point	SAR length	Impact Factor
								500	1
	ALTERATION: Stream cross poil piles, constrictions, livestock	sings, riprap, conc		concrete blocks, s	traightening of ch	annel, channeliza	ation,	NOTES>>	
	Negligible	Mi	nor		erate	Se	vere		
Channel Alteration	Channelization, dredging, alteration, or hardening absent. Stream has an unaltered pattern or has naturalized.	Less than 20% of the stream reach is disrupted by any of the channel alterations listed in the parameter guidelines.	20-40% of the stream reach is disrupted by any of the channel	is disrupted by any	60 - 80% of reach is disrupted by any of the channel alterations listed in the parameter guidelines. If stream has been channelized, normal stable stream meander pattern has not	Greater than 80% by any of the chan in the parameter 80% of banks sh	of reach is disrupted nel alterations listed guidelines AND/OR nored with gabion, or cement.		
SCORE	1.5	1.3	1.1	0.9	0.7	0).5		
	REACH C	ONDITION I	NDEX and S	TREAM CO	NDITION UN	ITS FOR TH	IS REACH		
NOTE: The Cls and F	CI should be rounded to 2 decimal places.	The CR should be rou	nded to a whole numb	er.			THE REACH (CONDITION IN	DEX (RCI) >>
							RC	= (Sum of all C	l's)/5

COMPENSATION REQUIREMENT (CR) >> 0

CR = RCI X LF X IF

INSERT PHOTOS:





		Stre	Unit	fied Stream N	lethodology 1	Form	ginia	m 1)			
Project #		Project Name		Locality	cowardin Class.	HUC	Date Date	SAR #	Impact/SAR length	Impact Factor	
5337	I-64	Peninsula S	tudy	Hampton	R2UB3	02080108	July '11		3230		
Name	e(s) of Evalua	tor(s)	Stream Nam	e and Informa	ation	, 					1
	Aitkenhead		WUS 46S								
. Channel C	Condition: Asse	ess the cross-sec	tion of the stream		ondition (erosion, Conditional Catego						
	Opti	imal	Subo	ptimal	Mar	ginal	Po	oor	Se	vere	4
	Very little incision o	ur active erosion: 80	erosion or unproted	ew areas of active	Poor. Banks more	less than Severe or stable than Severe	Vertically/laterally	ned/incised. unstable. Likely to	incision flow co	nstability. Severe	
Channel Condition	100% stable bar surface protection prominent (80-11 Stable point bars/ba present. Access floodplain or fully bankfull benches. and transverse ba sediment depositio 10% of I	nks. Vegetative n or natural rock, 00%). AND/OR ankfull benches are to their original v developed wide Mid-channel bars, ars few. Transient on covers less than	Vegetative protect prominent (60- Depositional feat stability. The bar channels are well likely has access to rnewly develope portions of the rediment covers 10	table (60-80%). tion or natural rock -80%) AND/OR tures contribute to nkfull and low flow Il defined. Stream o bankfull benches, d floodplains along reach. Transient 0-40% of the stream tom.	Erosion may be pr both banks. Veget 40-60% of banks. bevertical or unde 60% of stream sediment. Se- temporary/tran instability. Depositi stability, may be	ower bank slopes. esent on 40-60% of tative protection on Streambanks may ercut. AND/OR 40- n is covered by diment may be sient, contribute on that contribute to e forming/present. ed channels have	are near vertical. 60-80% of bar protection prese banks, and is insi erosion. AND/C stream is cover Sediment is tem nature, and contri AND/OR V-shap	iority of both banks Erosion present on ks. Vegetative ent on 20-40% of ifficient to prevent R 60-80% of the ed by sediment. corary/transient in buting to instability. ed channels have ion is present on >	rooting depth, r vertical/under protection present banks, is not pr Obvious bank s Erosion/raw ba AND/OR Aggradir than 80% of strear deposition, contril	ned below average majority of banks cut. Vegetative on less than 20% of eventing erosion. eloughing present. inks on 80-100%. ng channel. Greater m bed is covered by buting to instability. I channels and/or	ī
					banks and depositi	ion on > 40% of the ional features which	deposition	and stable sediment is absent.	subterra	nean flow.	CI
Score	3	3	2	.4		2	1	.6		1	1.6
. RIPARIAN	N BUFFERS: A		Con	ditional Cate	gory Mar	ginal Low Marginal: Non-maintained,		n may be accepta	NOTES>>		
RIPARIAN Riparian Buffers	Opti Tree stratum (dbh > with > 60% tree ca	imal > 3 inches) present, anopy cover and a derstory. Wetlands	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree	ditional Cate	gory	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh >3 inches) present, with a0b inches) present, with a0b inches) present, with a0b inches) present, word a0b inches) present, word abb inches) present, word <a href<="" th=""><th>Po High Poor:</th><th></th><th>NOTES>></th><th></th><th></th>	Po High Poor:		NOTES>>		
Riparian	Option Tree stratum (dbh > with > 60% tree canon-maintained unc	imal > 3 inches) present, anopy cover and a derstory. Wetlands	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory.	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation).	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover.	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh >3 inches) present, with <30% tree canopy cover with maintained understory.	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable condition.	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions.	NOTES>>		
Riparian Buffers	Option Tree stratum (dbh > with > 60% tree canon-maintained unc	imal 3 inches) present, anopy cover and a derstory. Wetlands e riparian areas.	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh > 3 inches) present, with <30% tree canopy cover with maintained	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable	NOTES>>		
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Condition Scores Delineate ripa escriptors. Determine squelow. Enter the % F Right Bank Left Bank B. INSTREAR	Tree stratum (dbh > with > 60% tree canon-maintained unc located within the located withi	imal 3 inches) present, anopy cover and a derstory. Wetlands e riparian areas. 5 each stream bank ach by measurin 100% 0.6 100% 0.6 aried substrate si	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 Into Condition C g or estimating ler parian category in parian category in	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Coungth and width. Coungth and width. Coungth and width. Coungth and depths; wodes.	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85 Indition Scores us calculators are production of the product	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh >3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75 ing the ovided for you	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F Blocks 6	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5 the sums Riparian equal 100 100%	NOTES>>		CI 0.60
Condition Scores Delineate ripa escriptors. Determine squelow. Enter the % R Right Bank Left Bank Instread	Tree stratum (dbh > with > 60% tree canon-maintained unclocated within the located within	imal 3 inches) present, anopy cover and a derstory. Wetlands e riparian areas. 5.5 each stream bank ach by measuring the stream bank and by measuring the stream bank and the stream bank ach by measuring the stream bank ach by mea	Riph Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 Into Condition C g or estimating ler parian category in	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Coungth and width. Coungth and width. Coungth and width. Coungth and depths; wodes.	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <a>3 inches) present, with <a>3 inches) present, or a tree canopy cover. High 0.85 Indition Scores us calculators are production of the control of th	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh >3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75 ing the ovided for you	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F Blocks 6	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5 the sums Riparian equal 100 100%	NOTES>> Ci= (Sum % RA *: Rt Bank Ci > Lt Bank Ci >	0.60	
Condition Scores Delineate ripalescriptors. Determine squelow. Right Bank Left Bank B. INSTREAR	Tree stratum (dbh > with > 60% tree ca non-maintained unc located within the located with	imal 3 inches) present, anopy cover and a derstory. Wetlands e riparian areas. 5 5 cach stream bani ach by measuring the stream	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 Into Condition C g or estimating let parian category in Zes, water velocity ixes, stable featur Subo Stable habitat ele present in 30-50% are adequate fo	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Coungth and width. Coungth and width. Coungth and width. Coungth and depths; wores. Conditiona	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85 Indition Scores us calculators are production of the present in 10-30 are adequate for a seadequate for the present in 10-30 are adequate for the present in 10-30 are adeq	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh >3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75 ing the price of the production of the present of the	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % f Blocks 6	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5 the sums Riparian equal 100 100% 100%	CI= (Sum % RA *: Rt Bank CI > Lt Bank CI > NOTES>>	0.60	

	St	ream In	npact A	ssessm	nent Fo	rm Pag	e 2		
Project #	Applicant		Locality	Cowardin Class.	HUC	Date	Data Point	SAR length	Impact Factor
								500	1
	L ALTERATION: Stream cross spoil piles, constrictions, livestock Negligible			al Category	traightening of ch		vere	NOTES>>	
Channel Alteration		Less than 20% of the stream reach is disrupted by any of the channel alterations listed in the parameter guidelines.	20-40% of the stream reach is disrupted by any of the channel alterations listed in the parameter guidelines.	40 - 60% of reach is disrupted by any of the channel	60 - 80% of reach is disrupted by any of the channel alterations listed in the parameter guidelines. If stream has been channelized, normal stable stream meander pattern has not	Greater than 80% by any of the chan in the parameter 80% of banks sh	of reach is disrupted nel alterations listed guidelines AND/OR nored with gabion, or cement.		
SCORE	1.5	1.3	1.1	0.9	0.7	0).5		
	REACH C	ONDITION I	NDEX and S	TREAM CO	NDITION UN	ITS FOR TH	IS REACH		
VOTE: The Cls and I	RCI should be rounded to 2 decimal places.	The CR should be rou	nded to a whole numb	er.			THE REACH (CONDITION IN	DEX (RCI) >>

CR = RCI X LF X IF



DESCRIBE PROPOSED IMPACT:		

		Stre	Uni	fied Stream N	lethodology f	for use in Virg	-	m 1)			
Project #		Project Name		Locality	nels classified a Cowardin Class.	HUC	perennial Date	SAR#	Impact/SAR	Impact Factor	
5337	I-64	Peninsula S	tudy	Hampton	R2UB1	02080108	July '11		956	Factor	
Name	e(s) of Evalua	tor(s)	Stream Nam	e and Informa	ation		-				
	Aitkenhead		WUS 47S								
l. Channel C	Condition: Asse	ess the cross-sec	ction of the stream		ondition (erosion, Conditional Catego						
	Opti	imal	Subo	ptimal	Mar	ginal	Po	or	Se	vere	
Channal	Very little incision o	or active erosion; 80	erosion or unproted	ew areas of active cted banks. Majority table (60-80%).	Poor. Banks more	less than Severe or e stable than Severe ower bank slopes.		ed/incised. unstable. Likely to ority of both banks	incision, flow co	nstability. Severe	
Channel Condition	100% stable bar surface protection prominent (80-1). Stable point bars/bc present. Access floodplain or fully bankfull benches. and transverse be sediment deposition 10% of 10%.	nks. Vegetative n or natural rock, 00%). AND/OR ankfull benches are to their original v developed wide Mid-channel bars, ars few. Transient on covers less than	Vegetative protect prominent (60 Depositional feat stability. The bar channels are we likely has access to riewly develope portions of the isediment covers 11.	table (b0-80%). Italia (b0-80%). AND/OR tures contribute to hkfull and low flow II defined. Stream o bankfull benches, d floodplains along reach. Transient 0-40% of the stream tom.	Erosion may be pr both banks. Veget 40-60% of banks. bevertical or unde 60% of strean sediment. Set temporary/tran instability. Depositi stability, may be AND/OR V-shap	resent on 40-60% of tative protection on Streambanks may ercut. AND/OR 40- m is covered by diment may be usient, contribute ion that contribute to be forming/present.	are near vertical. 60-80% of bar protection prese banks, and is inst erosion. AND/O stream is cover Sediment is temp nature, and contri AND/OR V-shap vegetative protect	Erosion present on ks. Vegetative ent on 20-40% of afficient to prevent R 60-80% of the ed by sediment. oprary/transient in buting to instability. ed channels have	rooting depth, vertical/under protection present banks, is not pr Obvious bank s Erosion/raw ba AND/OR Aggradithan 80% of strea deposition, contri Multiple threac	ped below average majority of banks rout. Vegetative on less than 20% of reventing erosion. sloughing present. anks on 80-100%. ng channel. Greater m bed is covered by ibuting to instability. I channels and/or	CI
					banks and depositi	ion on > 40% of the ional features which	deposition	is absent.		anean flow.	
Score	3	3	2	.4		2	1	.6		1	1.6
2. RIPARIAN	N BUFFERS: A		Con Subo	n areas along the	gory	ginal Low Marginal: Non-maintained,	Po High Poor:	n may be accepta	NOTES>>		
Riparian Buffers	Opti Tree stratum (dbh > with > 60% tree ca	imal > 3 inches) present, anopy cover and a derstory. Wetlands	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy	gory	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh > 3 inches) present, with <30% tree canopy cover with maintained	Po				
Riparian	Option Tree stratum (dbh > with > 60% tree canon-maintained unc	imal > 3 inches) present, anopy cover and a derstory. Wetlands	High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained	ditional Cate ptimal Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh > 3 inches) present, with <30% tree canopy cover with	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable			
Riparian	Option Tree stratum (dbh > with > 60% tree canon-maintained unc	imal 3 inches) present, anopy cover and a derstory. Wetlands e riparian areas.	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory.	ditional Cate ptimal Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation).	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover.	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh >3 inches) present, with <30% tree canopy cover with maintained understory.	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, recently seeded and stabilized, or other comparable condition.	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions.			
Riparian Buffers Condition Scores Delineate ripa descriptors. Delineate ripa descriptors.	Tree stratum (dbh > with > 60% tree ca non-maintained unc located within the	imal 3 inches) present, anopy cover and a derstory. Wetlands e riparian areas. 5 each stream banl ach by measurin	High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 k into Condition C	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Coungth and width. Co	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh > 3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5			
Riparian Buffers Condition Scores Delineate ripalescriptors. Determine squelow.	Tree stratum (dbh > with > 60% tree conon-maintained und located within the located withi	imal 3 inches) present, anopy cover and a derstory. Wetlands e riparian areas. 5 ach stream banl ach by measurin.	High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 k into Condition C	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Coungth and width. Co	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh > 3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5			
Riparian Buffers Condition Scores Delineate ripa descriptors. Locate representation of the second	Tree stratum (dbh > with > 60% tree ca non-maintained unc located within the	imal 3 inches) present, anopy cover and a derstory. Wetlands e riparian areas. 5 each stream banl ach by measurin	High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 k into Condition C	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Coungth and width. Co	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh > 3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5	NOTES>>		
Riparian Buffers Condition Scores Delineate ripalescriptors. Determine squelow. Enter the % F	Tree stratum (dbh > with > 60% tree ca non-maintained unc located within the located with	imal 3 inches) present, anopy cover and a derstory. Wetlands e riparian areas. 5 ach stream bank ach by measurin Score for each ri 100% 0.6	High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 k into Condition C	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Coungth and width. Co	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh > 3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5 the sums tiparian qual 100 100%	NOTES>>	, , , , , , , , , , , , , , , , , , ,	
Riparian Buffers Condition Scores Delineate ripalescriptors. Determine squelow. Enter the % F	Tree stratum (dbh > with > 60% tree conon-maintained und located within the located withi	imal 3 inches) present, anopy cover and a derstory. Wetlands e riparian areas. 5 ach stream bank ach by measurin. Score for each ri	High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 k into Condition C	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Coungth and width. Co	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh > 3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5	NOTES>>	Scores*0.01)/2 0.60 0.60	CI 0.6
Condition Scores Delineate ripadescriptors. Deltermine squelow. Enter the % Finance of the state of the stat	Tree stratum (dbh > with > 60% tree canon-maintained unc located within the located withi	imal 3 inches) present, anopy cover and a derstory. Wetlands e riparian areas. 5 each stream bank ach by measuring the stream ban	High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 k into Condition C g or estimating let parian category in	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Coungth and width. Country the blocks below y and depths; wodes.	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85 addition Scores us calculators are production of the produc	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh > 3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75 ing the povided for you	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F Blocks 6	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5 the sums tiparian qual 100 100%	NOTES>> CI= (Sum % RA * Rt Bank CI >	0.60	
Condition Scores Delineate ripadescriptors. Deltermine squelow. Enter the % Finance of the state of the stat	Tree stratum (dbh > with > 60% tree ca non-maintained unc located within the located with	imal 3 inches) present, anopy cover and a derstory. Wetlands e riparian areas. 5 each stream bank ach by measuring the stream ban	High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 k into Condition C g or estimating let parian category in	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Coungth and width. Country the blocks below y and depths; wodes.	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85 Indition Scores us calculators are production of the product	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh > 3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75 ing the povided for you	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F Blocks 6	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5 the sums tiparian qual 100 100%	NOTES>> CI= (Sum % RA * Rt Bank CI > Lt Bank CI >	0.60	
Condition Scores Delineate ripa descriptors. Deltheate ripa descriptors. Right Bank Left Bank Left Bank January Condition	Tree stratum (dbh > with > 60% tree cc non-maintained und located within the located with	imal 3 inches) present, anopy cover and a derstory. Wetlands e riparian areas. 5 5 cach stream bani ach by measurin 100% 0.6 100% 0.6 aried substrate si iffle poole completifie poole completimal re typically present	High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and shrub layers or a non-maintained understory. High 1.2 k into Condition C g or estimating let parian category in sizes, water velocit exes, stable featur Subo Stable habitat ele present in 30-50- are adequate fo	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Coungth and width. Coungth and width. Coungth and width. Coungth and depths; wores. Conditiona	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85 Indition Scores us calculators are processed of the control of	Ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh >3 inches) present, with <a>30 % tree canopy cover with maintained understory. Low 0.75 ing the price of the product of the present of t	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F Blocks 6	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5 the sums Riparian qual 100 100% 100% ess; shade;	NOTES>> CI= (Sum % RA * Rt Bank CI > Lt Bank CI >	0.60	

	St	ream In	npact A	ssessm	nent Fo	rm Pag	e 2		
Project #	Applicant		Locality	Cowardin Class.	HUC	Date	Data Point	SAR length	Impact Factor
								500	1
	L ALTERATION: Stream cross poil piles, constrictions, livestock	ings, riprap, concr		concrete blocks, s	traightening of ch	annel, channeliza	ation,	NOTES>>	
	Negligible	Mir	nor		erate	Se	vere		
Channel Alteration	Channelization, dredging, alteration, or hardening absent. Stream has an unaltered pattern or has naturalized.	Less than 20% of the stream reach is disrupted by any of the channel alterations listed in the parameter guidelines.	20-40% of the stream reach is disrupted by any of the channel alterations listed in the parameter guidelines.	is disrupted by any of the channel	60 - 80% of reach is disrupted by any of the channel alterations listed in the parameter guidelines. If stream has been channelized, normal stable stream meander pattern has not	Greater than 80% by any of the chan in the parameter 80% of banks sh	of reach is disrupted inel alterations listed guidelines AND/OR nored with gabion, or cement.		
SCORE	1.5	1.3	1.1	0.9	0.7	0).5		
	REACH C	ONDITION II	NDEX and S	TREAM CO	NDITION UN	ITS FOR TH	IIS REACH		
VOTE: The Cls and F	RCI should be rounded to 2 decimal places.	The CR should be rour	nded to a whole numb	er.			THE REACH (CONDITION IN	DEX (RCI) >>



			Uni	fied Stream N	lethodology f	Form	ginia	m 1)			
Project #	Р	roject Name		Locality	classified a Cowardin Class.	HUC	Date	SAR #	Impact/SAR length	Impact Factor	
5337	I-64 F	Peninsula S	tudy	Hampton	R2UB3	02080108	July '11		1921		
Name	e(s) of Evaluate	or(s)		e and Informa	ation						
	Aitkenhead		WUS 49S								
. Channel C	Condition: Asses	ss the cross-sec	ction of the stream								
	Optir	mal	Subo	ptimal	Conditional Catego Mar	ginal	Po	oor	Sev	/ere	
Channel Condition	Very little incision or 100% stable bank surface protection prominent (80-100	s. Vegetative or natural rock,	erosion or unproted of banks are s Vegetative protect prominent (60	ew areas of active sted banks. Majority table (60-80%). tion or natural rock -80%) AND/OR	Poor. Banks more or Poor due to lo Erosion may be pr both banks. Veget	less than Severe or stable than Severe ower bank slopes: esent on 40-60% of tative protection on	Vertically/laterally widen further. Ma are near vertical. 60-80% of bar	ned/incised. unstable. Likely to jority of both banks crosion present on lks. Vegetative	incision, flow cor banks. Streambe rooting depth, m vertical/underc	stability. Severe tained within the ad below average anjority of banks tut. Vegetative	
	Stable point bars/bar present. Access t floodplain or fully of bankfull benches. M and transverse bars sediment deposition 10% of bo	nkfull benches are to their original developed wide did-channel bars, s few. Transient covers less than ottom.	stability. The bar channels are we likely has access t or newly develope portions of the i sediment covers 10 bot	ures contribute to hkfull and low flow I defined. Stream o bankfull benches, d floodplains along each. Transient 0-40% of the stream form.	bevertical or unde 60% of stream sediment. Sed temporary/tran instability. Depositi stability, may be AND/OR V-shap vegetative protecti banks and depositi	Streambanks may prout. AND/OR 40-n is covered by diment may be sisent, contribute on that contribute to forming/present. ed channels have ion on > 40% of the local returns which	banks, and is insterosion. AND/C stream is cover Sediment is temp nature, and contri AND/OR V-shap vegetative protect 40% of the banks and deposition	ent on 20-40% of officient to prevent R 60-80% of the ed by sediment. porary/transient in buting to instability. ed channels have ion is present on > and stable sediment is absent.	protection present of banks, is not pre Obvious bank sle Erosion/raw ban AND/OR Aggradin than 80% of stream deposition, contrib Multiple thread subterran	on less than 20% of eventing erosion. oughing present. hks on 80-100%. g channel. Greater n bed is covered by uting to instability. channels and/or lean flow.	CI
Score	3		2	.4		2	1	.6	,	1	1.6
Riparian Buffers	Tree stratum (dbh > 3 with > 60% tree can non-maintained unde located within the	nopy cover and a erstory. Wetlands	to 60% tree	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree	Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area,	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active			
			non-maintained understory.	(dense vegetation).	canopy cover.	stratum (dbh >3 inches) present, with <30% tree canopy cover with maintained	recently seeded and stabilized, or other comparable condition.	feed lots, trails, or other comparable conditions.			
				(dense		inches) present, with <30% tree canopy cover with	recently seeded and stabilized, or other comparable	feed lots, trails, or other comparable			
Condition Scores	1.5	5	understory.	(dense vegetation).	canopy cover.	inches) present, with <30% tree canopy cover with maintained understory.	recently seeded and stabilized, or other comparable condition.	feed lots, trails, or other comparable conditions.			
Scores Delineate ripalescriptors. Determine squelow.	I arian areas along ea uare footage for ea	ach stream bank	High 1.2 s into Condition C g or estimating let	(dense vegetation). Low 1.1 ategories and Congth and width. Cong	High 0.85 Indition Scores using alculators are pro-	inches) present, with <30% tree canopy cover with maintained understory. Low 0.75	recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F	feed lots, trails, or other comparable conditions. Low 0.5			
Scores Delineate ripalescriptors. Determine squelow.	arian areas along ea uare footage for ea Riparian Area and S	ach stream banl ch by measurin core for each ri	High 1.2 s into Condition C g or estimating let	(dense vegetation). Low 1.1 ategories and Congth and width. Cong	High 0.85 Indition Scores using alculators are pro-	inches) present, with <30% tree canopy cover with maintained understory. Low 0.75	recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F	feed lots, trails, or other comparable conditions. Low 0.5 the sums Riparian			
Scores Delineate ripa escriptors. Determine squelow. Enter the % R	I arian areas along ea uare footage for ea	ach stream bank ch by measurin ccore for each ri	High 1.2 s into Condition C g or estimating let	(dense vegetation). Low 1.1 ategories and Congth and width. Cong	High 0.85 Indition Scores using alculators are pro-	inches) present, with <30% tree canopy cover with maintained understory. Low 0.75	recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F	feed lots, trails, or other comparable conditions. Low 0.5			
Scores Delineate ripa escriptors. Determine squelow. Enter the % R	arian areas along ea uare footage for ea Riparian Area and S % Riparian Area>	ach stream banl ch by measurin core for each ri	High 1.2 s into Condition C g or estimating let	(dense vegetation). Low 1.1 ategories and Congth and width. Cong	High 0.85 Indition Scores using alculators are pro-	inches) present, with <30% tree canopy cover with maintained understory. Low 0.75	recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F	feed lots, trails, or other comparable conditions. Low 0.5 the sums Riparian	CI= (Sum % RA * S	Scores*0.01)/2	
Scores Delineate ripa escriptors. Determine squelow. Enter the % R	arian areas along ea uare footage for ea Riparian Area and S % Riparian Area> % Riparian Area>	ach stream bani ch by measurin score for each ri 100% 0.6	High 1.2 s into Condition C g or estimating let parian category in	(dense vegetation). Low 1.1 ategories and Congth and width. Cong	High 0.85 Indition Scores using alculators are pro-	inches) present, with <30% tree canopy cover with maintained understory. Low 0.75	recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F	feed lots, trails, or other comparable conditions. Low 0.5 the sums Riparian	Rt Bank CI >	0.60	CI
Scores Delineate ripa escriptors. Determine sq elow. Enter the % R Right Bank	arian areas along ea uuare footage for ea Riparian Area and S % Riparian Area> Score >	ach stream banich by measurin toore for each ri 100% 0.6	High 1.2 k into Condition C g or estimating let parian category in 90% 0.5	Low 1.1 ategories and Congth and width. Congth blocks below	High 0.85 Indition Scores using alculators are production.	inches) present, with <30% tree canopy cover with maintained understory. Low 0.75 ing the ovided for you	recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F Blocks 6	Low 0.5 the sums Riparian equal 100 100%	Rt Bank CI >		CI 0.56
Scores Delineate ripa escriptors. Determine sq elow. Enter the % R Right Bank Left Bank INSTREAN	arian areas along ea uare footage for ea Riparian Area and S % Riparian Area> Score > % Riparian Area> Score >	ach stream bani ch by measurin core for each ri 100% 0.6 10% 0.6 ried substrate si	High 1.2 s into Condition C g or estimating let parian category in 90% 0.5 zes, water velocit	Low 1.1 ategories and Congth and width. Cothe blocks below	High 0.85 Indition Scores using alculators are production.	inches) present, with <30% tree canopy cover with maintained understory. Low 0.75 ing the ovided for you	recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F Blocks 6	Low 0.5 the sums Riparian equal 100 100%	Rt Bank CI >	0.60	
Scores Delineate ripa descriptors. Descriptors. Determine squelow. Enter the % R Right Bank Left Bank INSTREAN	arian areas along ea uuare footage for ea Riparian Area and S % Riparian Area> Score >	ach stream bani ch by measurin core for each ri 100% 0.6 10% 0.6 ried substrate si	High 1.2 s into Condition C g or estimating let parian category in 90% 0.5 zes, water velocit	Low 1.1 ategories and Congth and width. Congth and width. Congth and depths; woo es.	High 0.85 Indition Scores using alculators are production.	inches) present, with <30% tree canopy cover with maintained understory. Low 0.75 ing the ovided for you	recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F Blocks 6	Low 0.5 the sums Riparian equal 100 100%	Rt Bank CI >	0.60	
Scores 1. Delineate ripa descriptors. 2. Determine sq below. 3. Enter the % R Right Bank Left Bank 3. INSTREAN	arian areas along ea uare footage for ea Riparian Area and S % Riparian Area> Score > % Riparian Area> Score >	ach stream bani ch by measurin core for each ri 100% 0.6 10% 0.6 ried substrate si le poole comple	High 1.2 Into Condition C g or estimating lea parian category in 90% 0.5 zes, water velocit ixxes, stable feature	Low 1.1 ategories and Congth and width. Congth and width. Congth and depths; woo es.	High 0.85 Indition Scores using alculators are production state of the state of th	inches) present, with <30% tree canopy cover with maintained understory. Low 0.75 ing the ovided for you	recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F Blocks 6	Low 0.5 the sums Riparian equal 100 100%	Rt Bank CI >	0.60	
Scores 1. Delineate ripa descriptors. 2. Determine sq below. 3. Enter the % R Right Bank Left Bank 3. INSTREAN undercut banks;	arian areas along ea uare footage for ea Riparian Area and S % Riparian Area> Score > % Riparian Area> Score >	ach stream bani ch by measurin core for each ri 100% 0.6 10% 0.6 ried substrate si le poole comple	High 1.2 s into Condition C g or estimating let parian category in 90% 0.5 zes, water velocit exes, stable featur Subo Stable habitat ele present in 30-50 are adequate fo	Low 1.1 ategories and Congth and width. Congth and depths; wodes. Conditions	High 0.85 Indition Scores using alculators are production and leafy debt al Category Stable habitatele present in 10-30 are adequate for a sedequate for a	inches) present, with <30% tree canopy cover with maintained understory. Low 0.75 ing the voided for you ris; stable substra	recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F Blocks 6 Habitat element lacking or are u elements are typic	Low 0.5 the sums Riparian equal 100 100%	Rt Bank CI >	0.60	

	St	ream In	npact A	ssessm	ent Fo	rm Pag	e 2		
Project #	Applicant		Locality	Cowardin Class.	HUC	Date	Data Point	SAR length	Impact Factor
								500	1
	L ALTERATION: Stream cross poil piles, constrictions, livestock		Conditiona	al Category				NOTES>>	
	Negligible	Mi	nor		erate		vere		
Channel Alteration	Channelization, dredging, alteration, or hardening absent. Stream has an unaltered pattern or has naturalized.	Less than 20% of the stream reach is disrupted by any of the channel alterations listed in the parameter guidelines.	20-40% of the stream reach is disrupted by any of the channel	is disrupted by any of the channel	60 - 80% of reach is disrupted by any of the channel alterations listed in the parameter guidelines. If stream has been channelized, normal stable stream meander pattern has not	Greater than 80% by any of the char in the parameter 80% of banks s	of reach is disrupted nnel alterations listed guidelines AND/OR hored with gabion, or cement.		
SCORE	1.5	1.3	1.1	0.9	0.7		0.5		
	REACH C	ONDITION I	NDEX and S	TREAM CO	NDITION UN	ITS FOR TH	IIS REACH		
NOTE: The Cls and F	RCI should be rounded to 2 decimal places.	The CR should be rou	nded to a whole numb	er.			THE REACH (CONDITION IN	DEX (RCI) >>

CR = RCI X LF X IF

INSERT PHOTOS:





		Stre	Uni	fied Stream N		•	•				
Project #	ı	Project Name		Locality	Cowardin Class.	HUC	Date	SAR#	Impact/SAR length	Impact Factor	
5337	I-64	Peninsula S	tudy	James City		02080206	July '11		37		
Nam	e(s) of Evaluat	tor(s)		e and Informa	ation						
	Aitkenhead		WUS 51S								
I. Channel (Condition: Asse	ess the cross-sec	tion of the stream								
	Opti	mal	Subo	ptimal	Conditional Catego Mar	ginal	Po	oor	Se	vere	
Channel Condition	Very little incision or 100% stable bar surface protectior prominent (80-11 Stable point bars/ba	nks. Vegetative n or natural rock, 00%). AND/OR	erosion or unproted of banks are s Vegetative protect prominent (60 Depositional feat	ew areas of active cted banks. Majority table (60-80%). tion or natural rock -80%) AND/OR tures contribute to	Poor. Banks more or Poor due to lo Erosion may be pr both banks. Veget 40-60% of banks.	less than Severe or stable than Severe over bank slopes. esent on 40-60% of fative protection on Streambanks may	Vertically/laterally widen further. Ma are near vertical. 60-80% of bar protection prese	red/incised. unstable. Likely to jority of both banks Erosion present on ks. Vegetative ent on 20-40% of	incision, flow co banks. Streamb rooting depth, r vertical/under	nstability. Severe ntained within the ed below average najority of banks cut. Vegetative on less than 20% of	
	present. Access floodplain or fully bankfull benches. and transverse ba sediment deposition 10% of t	to their original developed wide Mid-channel bars, rs few. Transient n covers less than bottom.	stability. The bal channels are we likely has access t or newly develope portions of the sediment covers 10 bot	nkfull and low flow Il defined. Stream o bankfull benches, ad floodplains along reach. Transient 0-40% of the stream tom.	60% of stream sediment. Sed temporary/tran instability. Depositi stability, may be AND/OR V-shap vegetative protecti banks and depositi	ercut. AND/OR 40-n covered by diment may be sient, contribute on that contribute to the forming/present. ed channels have ion on > 40% of the ional features which	erosion. AND/O stream is cover Sediment is temp nature, and contri AND/OR V-shap vegetative protect 40% of the banks a depositior	ed channels have ion is present on > and stable sediment is absent.	banks, is not pro Obvious bank s Erosion/raw ban AND/OR Aggradir than 80% of strear deposition, contril Multiple thread subterrar	eventing erosion. loughing present. nks on 80-100%. ng channel. Greater in bed is covered by buting to instability. channels and/or nean flow.	CI
Score	3	}	2	2.4		2	1	.6		1	2.0
NOTES>>	N BUFFERS: A		Con	nditional Cate ptimal	gory	ginal Low Marginal:	Po	n may be accepta	able) NOTES>>		
		imal 3 inches) present, unopy cover and a lerstory. Wetlands	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy	gory	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh > 3 inches) present, with <30% tree canopy cover with maintained			NOTES>>		
2. RIPARIAI Riparian Buffers	Opti Tree stratum (dbh > with > 60% tree ca	imal 3 inches) present, unopy cover and a lerstory. Wetlands	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh >3 inches) present, with 30% inches) present, canopy cover with	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces row crops, active feed lots, trails, or other comparable	NOTES>>		
2. RIPARIAI	Opti Tree stratum (dbh > with > 60% tree ca	3 inches) present, anopy cover and a derstory. Wetlands e riparian areas.	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory.	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation).	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover.	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh >3 inches) present, with <a>30 % tree canopy cover with maintained understory.	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, recently seeded and stabilized, or other comparable condition.	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces row crops, active feed lots, trails, or other comparable conditions.	NOTES>>		
Riparian Buffers Condition Scores 1. Delineate rip descriptors. 2. Determine scopelow.	Tree stratum (dbh > with > 60% tree ca non-maintained und located within the	imal 3 inches) present, intopy cover and a ferstory. Wetlands e riparian areas.	Com Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 into Condition C	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Coungth and width. Co	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh > 3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces row crops, active feed lots, trails, or other comparable conditions. Low 0.5	NOTES>>		
Riparian Buffers Condition Scores Delineate rip elescriptors. 2. Determine scorelow.	Tree stratum (dbh > with > 60% tree ca non-maintained undi located within the	imal 3 inches) present, unopy cover and a derstory. Wetlands e riparian areas. 5 ach by measurin.	Com Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 into Condition C	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Coungth and width. Co	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh > 3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces row crops, active feed lots, trails, or other comparable conditions. Low 0.5	NOTES>>		
Riparian Buffers Condition Scores Delineate rip. elescriptors. 2. Determine scorelow.	Tree stratum (dbh > with > 60% tree ca non-maintained und located within the	imal 3 inches) present, intopy cover and a ferstory. Wetlands e riparian areas.	Com Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 into Condition C	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Coungth and width. Co	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh > 3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces row crops, active feed lots, trails, or other comparable conditions. Low 0.5	NOTES>>		
Riparian Buffers Condition Scores Delineate riplescriptors. Determine scoledw. Enter the % I	Tree stratum (dbh > with > 60% tree ca non-maintained und located within the stratum areas along equare footage for experience of the stratum area and stratum	3 inches) present, unopy cover and a derstory. Wetlands e riparian areas. 5 ach stream bank ach by measurin. Score for each ri 100% 0.95	Com Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 into Condition C	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Coungth and width. Co	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh > 3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces row crops, active feed lots, trails, or other comparable conditions. Low 0.5 the sums Riparian regual 100 100%	NOTES>>	,	
Riparian Buffers Condition Scores Delineate riplescriptors. Determine scoledw. Enter the % I	Tree stratum (dbh > with > 60% tree canon-maintained und located within the located within the strategy of the	imal 3 inches) present, unopy cover and a derstory. Wetlands e riparian areas. 5 bach stream bank ach by measurin Score for each ri 100% 0.95	Com Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 into Condition C	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Coungth and width. Co	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh > 3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces row crops, active feed lots, trails, or other comparable conditions. Low 0.5	NOTES>> Cl= (Sum % RA** Rt Bank Cl >	0.95	CI
Riparian Buffers Condition Scores Delineate ripplescriptors Determine scelow. Enter the % I	Tree stratum (dbh > with > 60% tree ca a non-maintained und located within the located wi	5 Score for each ri 100% 0.95	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 Cinto Condition C g or estimating ler parian category in	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 attegories and Cor ngth and width. C	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh > 3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75 ing the production of the product	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F Blocks 6	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces row crops, active feed lots, trails, or other comparable conditions. Low 0.5 the sums Riparian equal 100 100%	NOTES>> Cl= (Sum % RA *: Rt Bank Cl > Lt Bank Cl >	,	CI 0.85
Riparian Buffers Condition Scores Delineate rip escriptors. Determine scelow. Enter the % I Right Bank Left Bank INSTREA	Tree stratum (dbh > with > 60% tree canon-maintained und located within the located within the strategy of the	imal 3 inches) present, intopy cover and a derstory. Wetlands e riparian areas. 5 ach stream bank ach by measuring the stream ban	Com Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 Into Condition C g or estimating let parian category in	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Coungth and width. Coungth and width. Coungth and width. Coungth and width with the blocks below you and depths; woo	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh > 3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75 ing the production of the product	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F Blocks 6	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces row crops, active feed lots, trails, or other comparable conditions. Low 0.5 the sums Riparian equal 100 100%	NOTES>> Cl= (Sum % RA** Rt Bank Cl >	0.95	
Riparian Buffers Condition Scores Delineate rip descriptors. Deleneate rip descriptors. Right Bank Left Bank I. Left Bank Left Bank Left Banks	Tree stratum (dbh > with > 60% tree ca non-maintained und located within the located with	imal 3 inches) present, inopy cover and a lerstory. Wetlands e riparian areas. 5 each stream bank ach by measuring the stream bank	Com Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 sinto Condition C g or estimating let parian category in zes, water velocit xes, stable featur	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Coungth and width. Coungth and width. Coungth and width. Coungth and depths; wores. Conditiona	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85 Indition Scores usional calculators are production of the control of the contr	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh >3 inches) present, with <a>30 % tree canopy cover with maintained understory. Low 0.75 Ing the production of the present	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F Blocks 6	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces row crops, active feed lots, trails, or other comparable conditions. Low 0.5 the sums Riparian riqual 100 100%	NOTES>> Cl= (Sum % RA *: Rt Bank Cl > Lt Bank Cl >	0.95	
2. RIPARIAI Riparian Buffers Condition Scores 1. Delineate rip descriptors. 2. Determine scoelow. 3. Enter the % I Right Bank Left Bank 3. INSTREAI	Tree stratum (dbh > with > 60% tree ca non-maintained und located within the located with	imal 3 inches) present, not a series of the	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 Into Condition C g or estimating let parian category in the parian category in the parian category in the strategy in the parian category in the parian cate	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Congth and width. Congth and width. Congth and width. Congth and depths; woccess. Conditional ments are typically ments are typically ments are typically	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85 Indition Scores usical culture and the shrub layer of	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh > 3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75 Ing the production of the property	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F Blocks 6 High High High Blocks 6 Blocks 6 High Hig	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces row crops, active feed lots, trails, or other comparable conditions. Low 0.5 the sums Riparian riqual 100 100% 100%	NOTES>> Cl= (Sum % RA *: Rt Bank Cl > Lt Bank Cl >	0.95	
Riparian Buffers Condition Scores 1. Delineate rip descriptors. 2. Determine sc below. 3. Enter the % I Right Bank Left Bank Instream Habitat/	Tree stratum (dbh > with > 60% tree ca non-maintained und located within the located with	5 Score for each ri 100% 0.95 100% 0.75 aried substrate siffle poole comple	Com Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 Cinto Condition C g or estimating ler parian category in zes, water velocit xes, stable featur Subo Stable habitat ele present in 30-50° are adequate fo popul	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Coungth and width. Counthe blocks below y and depths; woc res. Conditiona	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85 Indition Scores usion all Category Mar Stable habitat ele present in 10-30% are adequate fo	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh > 3 inches) present, with < 30% tree canopy cover with maintained understory. Low 0.75 ing the evided for you	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F Blocks 6 Habitat elements are typic than 10% of the comparable condition.	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces row crops, active feed lots, trails, or other comparable conditions. Low 0.5 the sums Riparian rqual 100 100% 100%	CI= (Sum % RA * : Rt Bank CI > Lt Bank CI > NOTES>>	0.95	

	St	ream In	npact A	ssessm	ent Fo	rm Pag	e 2		
Project #	Applicant		Locality	Cowardin Class.	HUC	Date	Data Point	SAR length	Impact Factor
								500	1
	L ALTERATION: Stream cross spoil piles, constrictions, livestock	ings, riprap, conc		concrete blocks, s	traightening of ch	annel, channeliza	ation,	NOTES>>	
	Negligible	Mi	nor		erate	Se	vere		
Channel Alteration	Channelization, dredging, alteration, or hardening absent. Stream has an unaltered pattern or has naturalized.	Less than 20% of the stream reach is disrupted by any of the channel alterations listed in the parameter guidelines.	20-40% of the stream reach is disrupted by any of the channel alterations listed in the parameter guidelines.	is disrupted by any of the channel	50 - 80% of reach is disrupted by any of the channel alterations listed in the parameter guidelines. If stream has been channelized, normal stable stream meander pattern has not	Greater than 80% by any of the chan in the parameter 80% of banks sh	of reach is disrupted intel alterations listed guidelines AND/OR nored with gabion, or cement.		
SCORE	1.5	1.3	1.1	0.9	0.7	C).5		
	REACH C	ONDITION I	NDEX and S	TREAM CO	NDITION UN	ITS FOR TH	IIS REACH		
VOTE: The Cls and I	RCI should be rounded to 2 decimal places.	The CR should be rou	nded to a whole numb	er.			THE REACH (CONDITION IN	DEX (RCI) >>

COMPENSATION REQUIREMENT (CR) >> 0

CR = RCI X LF X IF



DESCRIBE PROPOSED IMPACT:	
	<u> </u>

		Stre		fied Stream N	lethodology f	for use in Vir	ginia	,			
Project #	ı	Project Name		Locality	Cowardin Class.	HUC	Date	SAR#	Impact/SAR length	Impact Factor	
5337	I-64	Peninsula S	tudy	New Kent	R2UB2	02080206	July '11		92		
Name	e(s) of Evaluat	tor(s)		e and Informa	ation						
	Aitkenhead		WUS 52S								
I. Channel C	Condition: Asse	ess the cross-sec	tion of the stream		ondition (erosion, Conditional Catego						
	Opti	mal	Subo	ptimal		ginal	Po	oor	Se	vere	
Channel Condition	Very little incision or 100% stable bar surface protection	nks. Vegetative n or natural rock,	erosion or unproted of banks are s Vegetative protec	ew areas of active cted banks. Majority table (60-80%), tion or natural rock -80%) AND/OR	Poor. Banks more or Poor due to lo Erosion may be pr	less than Severe or stable than Severe ower bank slopes. esent on 40-60% of tative protection on	Vertically/laterally widen further. Ma are near vertical.	red/incised. unstable. Likely to jority of both banks Erosion present on	incision, flow co banks. Streamb rooting depth, r	nstability. Severe ntained within the ed below average majority of banks	
	prominent (80-10 Stable point bars/ba present. Access floodplain or fully bankfull benches. and transverse ba sediment deposition 10% of t	ankfull benches are to their original developed wide Mid-channel bars, ars few. Transient n covers less than	Depositional feat stability. The bai channels are we likely has access to or newly develope portions of the sediment covers 10 bot	tures contribute to nkfull and low flow Il defined. Stream to bankfull benches, and floodplains along reach. Transient 0-40% of the stream tom.	40-60% of banks. bevertical or unde 60% of strean sediment. See temporary/tran instability. Depositi stability, may be AND/OR V-shap vegetative protect banks and depositi	Streambanks may prout. AND/OR 40-n is covered by diment may be sient, contribute on that contribute to e forming/present. eed channels have ion on > 40% of the ional features which	protection prese banks, and is inst erosion. AND/O stream is cover Sediment is temp nature, and contri AND/OR V-shap vegetative protect 40% of the banks a	with on 20-40% of difficient to prevent R 60-80% of the ed by sediment. sorary/transient in buting to instability, d channels have ion is present on > and stable sediment is absent.	protection present banks, is not pro Obvious bank s Erosion/raw ban AND/OR Aggradir than 80% of strear deposition, contril Multiple thread	cut. Vegetative on less than 20% of eventing erosion. loughing present. nks on 80-100%, ng channel. Greater in bed is covered by buting to instability. channels and/or nean flow.	CI
Score	3	3	2	2.4		2	1	.6		1	2.4
2. RIPARIAN	N BUFFERS: A		Con	n areas along the nditional Cate ptimal	gory	ginal		n may be accepta	NOTES>>		
Riparian Buffers		imal 3 inches) present, unopy cover and a lerstory. Wetlands	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy	gory	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh > 3 inches) present, with <30% tree canopy cover with maintained			NOTES>>		
Riparian Buffers	Opti Tree stratum (dbh > with > 60% tree ca non-maintained und	imal 3 inches) present, unopy cover and a lerstory. Wetlands	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh >3 inches) present, with					

	St	ream In	npact A	ssessm	nent Fo	rm Pag	e 2		
Project #	Applicant		Locality	Cowardin Class.	HUC	Date	Data Point	SAR length	Impact Factor
								500	1
	L ALTERATION: Stream cross spoil piles, constrictions, livestock	sings, riprap, conc		concrete blocks, s	traightening of ch	annel, channeliza	ation,	NOTES>>	
	Negligible	Mi	nor	Mod	erate	Se	vere		
Channel Alteration	Channelization, dredging, alteration, or hardening absent. Stream has an unaltered pattern or has naturalized.	Less than 20% of the stream reach is disrupted by any of the channel alterations listed in the parameter guidelines.	20-40% of the stream reach is disrupted by any of the channel alterations listed in the parameter guidelines.	of the channel	60 - 80% of reach is disrupted by any of the channel alterations listed in the parameter guidelines. If stream has been channelized, normal stable stream meander pattern has not	Greater than 80% by any of the char in the parameter 80% of banks sl	of reach is disrupted intel alterations listed guidelines AND/OR nored with gabion, or cement.		
SCORE	1.5	1.3	1.1	0.9	0.7	().5		
	REACH C	ONDITION I	NDEX and S	TREAM CO	NDITION UN	ITS FOR TH	IIS REACH		
VOTE: The Cls and	RCI should be rounded to 2 decimal places.	The CR should be rou	nded to a whole numb	oer.			THE REACH (CONDITION IN	DEX (RCI) >>

COMPENSATION REQUIREMENT (CR) >>

CR = RCI X LF X IF



FSCRIRE	PROP	OSED	IMPACT.	

		Stre	Unit	fied Stream N	lethodology f	Form	ginia	m 1)			
Project #		Project Name		Locality	Cowardin Class.	HUC	Date Date	SAR#	Impact/SAR length	Impact Factor	
5337	ŀ	-64 Peninsul	a	New Kent	R2UB2	02080206	11/15/11		62		
Name	e(s) of Evalua	tor(s)	Stream Nam	e and Informa	ation						
	Aitkenhead / Nies		WUS 170S								
. Channel C	Condition: Asse	ess the cross-sec	ction of the stream		ondition (erosion, conditional Catego						
	Opti	imal	Subo	ptimal	Mar	ginal	Po	oor	Se	vere	4
Channel	Very little incision o	r active erosion; 80	erosion or unproted	ew areas of active cted banks. Majority table (60-80%).	Poor. Banks more	less than Severe or stable than Severe ower bank slopes.	Vertically/laterally	ied/incised. unstable. Likely to jority of both banks	incision, flow co	nstability. Severe	
Condition	100% stable bar surface protection prominent (80-11 Stable point bars/ba present. Access floodplain or fully bankfull benches. and transverse ba sediment depositio 10% of	n or natural rock, 00%). AND/OR ankfull benches are to their original of developed wide Mid-channel bars, ars few. Transient in covers less than	Vegetative protect prominent (60- Depositional feat stability. The bar channels are well likely has access to or newly develope portions of the rediment covers 10	itable (b0-90%). Itable (b0-90%). AND/OR tures contribute to nkfull and low flow II defined. Stream o bankfull benches, id floodplains along reach. Transient 0-40% of the stream tom.	Erosion may be pr both banks. Veget 40-60% of banks. bevertical or unde 60% of strean sediment. Sed temporary/tran instability. Depositi stability, may be AND/OR V-shap	esent on 40-60% of tative protection on Streambanks may precut. AND/OR 40- n is covered by diment may be sisent, contribute on that contribute to forming/present. ed channels have ion on > 40% of the	are near vertical. 60-80% of bar protection prese banks, and is inst erosion. AND/O stream is cover Sediment is temp nature, and contri AND/OR V-shap vegetative protect	Erosion present on ks. Vegetative int on 20-40% of fufficient to prevent R 60-80% of the ed by sediment. overary/transient in butting to instability. ed channels have ion is present on > and stable sediment.	banks. Streamlor rooting depth, in vertical/under protection present banks, is not pr Obvious bank s Erosion/raw ba AND/OR Aggradii than 80% of strear deposition, contril Multiple thread	ned below average majority of banks cut. Vegetative on less than 20% or eventing erosion. sloughing present. Inks on 80-100%. ng channel. Greate m bed is covered by buting to instability. I channels and/or	r
					banks and depositi	ional features which	deposition	is absent.	subterra	nean flow.	
Score	3	3	2	2.4		2	1	.6		1	3.0
. RIPARIAN	N BUFFERS: A		Con	nditional Cate	gory Mar	ginal Low Marginal: Non-maintained,	Po High Poor:	n may be accepta	NOTES>>		
RIPARIAN Riparian Buffers	Opti	imal - 3 inches) present, anopy cover and a derstory. Wetlands	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy	gory	ginal Low Marginal:	Po		NOTES>>		
Riparian	Option Tree stratum (dbh > with > 60% tree canon-maintained unc	imal - 3 inches) present, anopy cover and a derstory. Wetlands	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory.	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation).	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover.	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh >3 inches) present, with <30% tree canopy cover with maintained understory.	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable condition.	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions.	NOTES>>		
Riparian	Option Tree stratum (dbh > with > 60% tree canon-maintained unc	imal 3 inches) present, anopy cover and a derstory. Wetlands e riparian areas.	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained	Low Suboptimal Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh >3 inches) present, with <30% tree canopy cover with maintained	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable	NOTES>>		
Riparian Buffers Condition Scores Delineate ripe escriptors. Determine sq elow.	Tree stratum (dbh > with > 60% tree ca non-maintained unc located within the	imal 3 inches) present, anopy cover and a derstory. Wetlands e riparian areas.	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 k into Condition C	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Coungth and width. Coungth	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh > 3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5	NOTES>>		
Riparian Buffers Condition Scores Delineate ripa sescriptors. Determine squadow.	Tree stratum (dbh > with > 60% tree ca non-maintained unc located within the located with	imal 3 inches) present, anopy cover and a derstory. Wetlands e riparian areas. 5 ach stream bank ach by measuring.	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 k into Condition C	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Coungth and width. Coungth	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh > 3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5	NOTES>>		
Riparian Buffers Condition Scores Delineate ripaescriptors. Determine squelow. Enter the % F	Tree stratum (dbh > with > 60% tree ca non-maintained unc located within the	imal 3 inches) present, anopy cover and a derstory. Wetlands e riparian areas.	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 k into Condition C	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Coungth and width. Coungth	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh > 3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5	NOTES>>		
Riparian Buffers Condition Scores Delineate ripasecriptors. Determine squelow. Enter the % F	Tree stratum (dbh > with > 60% tree canon-maintained unc located within the located withi	imal 3 inches) present, anopy cover and a derstory. Wetlands e riparian areas. 5 each stream bank ach by measuring 100% 1.5	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 k into Condition C	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Coungth and width. Coungth	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh > 3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5	NOTES>>		
Riparian Buffers Condition Scores Delineate ripascriptors. Determine squelow. Enter the % F	Tree stratum (dbh > with > 60% tree ca non-maintained unc located within the located with	imal 3 inches) present, anopy cover and a derstory. Wetlands e riparian areas. 5 each stream bank ach by measuring 100% 1.5 100%	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 k into Condition C	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Coungth and width. Coungth	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh > 3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5	NOTES>>	1.50	CI 1.50
Riparian Buffers Condition Scores Delineate ripa escriptors. Determine squelow. Enter the % F Right Bank Left Bank	Tree stratum (dbh > with > 60% tree canon-maintained unc located within the located withi	imal 3 inches) present, anopy cover and a derstory. Wetlands e riparian areas. 5 ach stream bank ach by measuring 100% 1.5 100% 1.5 aried substrate si	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 Into Condition C g or estimating ler parian category in	Inditional Cate ptimal Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Coungth and width. Coungth and width. Coungth and width. Coungth and depths; woo res.	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85 Indition Scores using the shrub and the shrub layer or a tree canopy cover.	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh > 3 inches) present, with < 30% tree canopy cover with maintained understory: Low 0.75 ing the evided for you	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F Blocks 6	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5 the sums Riparian equal 100 100%	NOTES>> Cl= (Sum % RA*: Rt Bank Cl >		CI 1.50
Condition Scores Delineate ripa escriptors. Determine squelow. Enter the % F Right Bank Left Bank I. INSTREAN ndercut banks;	Tree stratum (dbh > with > 60% tree canon-maintained unc located within the located withi	imal 3 inches) present, anopy cover and a derstory. Wetlands e riparian areas. 5 each stream bank ach by measuring 100% 1.5 100% 1.5 aried substrate significations in the poole complete.	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 Into Condition C g or estimating ler parian category in zes, water velocity ixes, stable featur	Inditional Cate ptimal Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Coungth and width. Coungth and width. Coungth and width. Coungth and depths; woo res.	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <a>30 tree tree canopy cover. High 0.85 Indition Scores using the calculators are producted to the calculators are producted t	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh > 3 inches) present, with < 30% tree canopy cover with maintained understory: Low 0.75 ing the evided for you	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F Blocks 6	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5 the sums Riparian equal 100 100%	NOTES>> Ci= (Sum % RA *: Rt Bank Ci > Lt Bank Ci >	1.50	
Condition Scores Delineate ripalescriptors. Determine squelow. Enter the % F. Right Bank Left Bank	Tree stratum (dbh > with > 60% tree ca non-maintained unc located within the located with	imal 3 inches) present, anopy cover and a derstory. Wetlands e riparian areas. 5 ach stream bank ach by measuring 100% 1.5 100% 1.5 aried substrate si ffle poole completimal	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 Into Condition C g or estimating let parian category in zes, water velocity exes, stable featur Subo Stable habitat ele present in 30-50% are adequate fo	Inditional Cate ptimal Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Congth and width. Congth and width. Congth and width. Congth and depths; wores. Conditional	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85 Indition Scores using the state of the state	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh >3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75 ing the vided for you	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F Blocks 6	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5 the sums Riparian equal 100 100% 100%	CI= (Sum % RA *: Rt Bank CI > Lt Bank CI > NOTES>>	1.50	

	St	ream In	npact A	ssessm	ent Fo	rm Pag	e 2		
Project #	Applicant		Locality	Cowardin Class.	HUC	Date	Data Point	SAR length	Impact Factor
								500	1
	L ALTERATION: Stream cross spoil piles, constrictions, livestock	sings, riprap, conc		concrete blocks, s	traightening of ch	annel, channeliz	ration,	NOTES>>	
	Negligible	Mi	nor		erate		evere		
Channel Alteration	or hardening absent. Stream has an	Less than 20% of the stream reach is disrupted by any of the channel alterations listed in the parameter guidelines.	20-40% of the stream reach is disrupted by any of the channel alterations listed in the parameter guidelines.	is disrupted by any of the channel	of the channel	Greater than 80% by any of the char in the parameter 80% of banks s	of reach is disrupted nnel alterations listed guidelines AND/OR shored with gabion, or cement.		
SCORE	1.5	1.3	1.1	0.9	0.7		0.5		
	REACH C	ONDITION	NDEX and S	TREAM CO	NDITION UN	ITS FOR TH	IIS REACH		
NOTE: The Cls and F	RCI should be rounded to 2 decimal places.	The CR should be rou	nded to a whole numb	er.			THE REACH	CONDITION IN	DEX (RCI) >>

COMPENSATION REQUIREMENT (CR) >>

CR = RCI X LF X IF

INSERT PHOTOS:

UPSTREAM



DESCRIBE PROPOSED IMPACT:		

	Str		fied Stream N	lethodology f	for use in Vir	ginia	m 1)			
Project #	Project Nar		Locality	classified a Cowardin Class.	HUC	Date Date	SAR#	Impact/SAR length	Impact Factor	
5337	I-64 Penins	ıla	New Kent	R2UB2	02080206	11/15/11		108		
Name	e(s) of Evaluator(s)		e and Inform	ation						
	Aitkenhead / Nies	WUS 171S								
I. Channel C	Condition: Assess the cross-s	ection of the stream		ondition (erosion, Conditional Catego						
	Optimal	Subo	ptimal	Mar	ginal	Po	oor	Se	vere	
Channel	Very little incision or active erosion; 100% stable banks. Vegetative	erosion or unprote of banks are s	ew areas of active cted banks. Majority table (60-80%). tion or natural rock	Poor. Banks more or Poor due to lo	less than Severe or stable than Severe ower bank slopes. esent on 40-60% of	Vertically/laterally widen further. Ma	ned/incised. unstable. Likely to jority of both banks Erosion present on	incision, flow co banks. Streamb	stability. Severe ntained within the ed below average	
Condition	surface protection or natural rock, prominent (80-100%). AND/OR Stable point bars/bankfull benches a present. Access to their original floodplain or fully developed wide bankfull benches. Mid-channel bar and transverse bars few. Transient sediment deposition covers less tha 10% of bottom.	prominent (60 Depositional fear stability. The ba channels are we likely has access t or newly develope portions of the sediment covers 10	selvish or inatual rock. Bowlin MD/OR tures contribute to nkfull and low flow ill defined. Stream o bankfull benches, and floodplains along reach. Transient 0-40% of the stream torm.	both banks. Veget 40-60% of banks. bevertical or unde 60% of strean sediment. Set temporary/tran instability. Depositi stability, may be AND/OR V-shap vegetative protecti	tative protection on Streambanks may errut. AND/OR 40- n is covered by diment may be sisent, contribute to e forming/present. eed channels have ion on > 40% of the ional features which	60-80% of bar protection press banks, and is insi erosion. AND/C stream is cover Sediment is tem nature, and contri AND/OR V-shap vegetative protect 40% of the banks a	nks. Vegetative ant on 20-40% of difficient to prevent R 60-80% of the red by sediment. porary/transient in buting to instability. bed channels have tion is present on > and stable sediment is absent.	vertical/undern protection present banks, is not pro Obvious banks is Erosion/raw bank AND/OR Aggradir than 80% of strear deposition, contril Multiple thread	najority of banks cut. Vegetative on less than 20% of eventing erosion. loughing present. nks on 80-100%. It is channel. Greater in bed is covered by buting to instability. channels and/or nean flow.	CI
Score	3	2	2.4		2	· · · · · · · · · · · · · · · · · · ·	.6		1	2.4
NOTES>>						l		L		
2. RIPARIAN	Optimal	Cor	n areas along the nditional Cate ptimal	gory	ginal	Pe	h may be accepta	NOTES>>		
Riparian Buffers		High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy	gory	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hospopen water. If present, tree stratum (dbh > 3 inches) present, with <30% tree canopy cover with maintained			NOTES>>		
Riparian Buffers	Optimal Tree stratum (dbh > 3 inches) prese with > 60% tree canopy cover and non-maintained understory. Wetlan	High Suboptimal: Riparian areas with tree stratum (Ib) present, with 30% to 60% tree ds canopy cover and containing both herbaceous and shrub layers or a non-maintained	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh > 3 inches) present, with <30% tree canopy cover with	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable	NOTES>>		
Riparian	Optimal Tree stratum (dbh > 3 inches) prese with > 60% tree canopy cover and non-maintained understory. Wetlan	High Suboptimal: Ripartian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree ds canopy cover and containing both herbaceous and shrub layers or a non-maintained understory.	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation).	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover.	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh >3 inches) present, with <30% tree canopy cover with maintained understory.	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, recently seeded and stabilized, or other comparable condition.	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions.	NOTES>>		
Riparian Buffers Condition Scores 1. Delineate ripa descriptors. 2. Determine squelow.	Optimal Tree stratum (dbh > 3 inches) prese with > 60% tree canopy cover and non-maintained understory. Wetlan located within the riparian areas. 1.5 arian areas along each stream be quare footage for each by measur	High Suboptimal: Ripartian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree ds canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 Ink into Condition C	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Co	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh > 3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5	NOTES>>		
Riparian Buffers Condition Scores Delineate ripa elecsriptors.	Optimal Tree stratum (dbh > 3 inches) prese with > 60% tree canopy cover and non-maintained understory. Wetlan located within the riparian areas. 1.5 arian areas along each stream be quare footage for each by measur Riparian Area and Score for each % Riparian Area> 100%	High Suboptimal: Ripartian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree ds canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 Ink into Condition C	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Co	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh > 3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5	NOTES>>		
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Riparian Buffers Condition Scores Delineate ripa descriptors. Determine sq elsow. Enter the % R	Optimal Tree stratum (dbh > 3 inches) prese with > 60% tree canopy cover and non-maintained understory. Wetlan located within the riparian areas. 1.5 arian areas along each stream be quare footage for each by measur Riparian Area and Score for each % Riparian Area 100% Score > 1.1	High Suboptimal: Ripartian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree ds canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 Ink into Condition C	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Co	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh > 3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5	NOTES>> Cl= (Sum % RA** Rt Bank Cl >	1.10	CI
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Condition Scores 1. Delineate ripadescriptors. 2. Determine squelow. 3. Enter the % R Right Bank Left Bank 3. INSTREAN	Optimal Tree stratum (dbh > 3 inches) prese with > 60% tree canopy cover and non-maintained understory. Wetlan located within the riparian areas. 1.5 arian areas along each stream be quare footage for each by measur Riparian Area and Score for each % Riparian Area 100% Score > 1.1	High Suboptimal: Ripartian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree ds canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 Ink into Condition C ing or estimating let riparian category in	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Co ongth and width. Co the blocks below y and depths; woo	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh > 3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75 ing the povided for you	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F Blocks 6	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5 the sums Riparian equal 100 100%	NOTES>> Cl= (Sum % RA** Rt Bank Cl >	1.10	
Condition Scores 1. Delineate ripa descriptors. 2. Determine squelow. 3. Enter the % R Right Bank Left Bank 3. INSTREAN	Tree stratum (dbh > 3 inches) prese with > 60% tree canopy cover and non-maintained understory. Wetlan located within the riparian areas. 1.5 arian areas along each stream baquare footage for each by measur Riparian Area and Score for each % Riparian Area 100% Score > 1.1 % Riparian Area> 100% Score > 1.1 M HABITAT: Varied substrate root mats; SAV; riffle poole comp	High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree ds canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 nk into Condition C ting or estimating let riparian category in sizes, water velocit lexes, stable feature	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Co ngth and width. Co n the blocks below y and depths; wodes. Conditions	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85 Indition Scores usional calculators are production of the control of the contr	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (bdh > 3 inches) present, with <a>30 % tree canopy cover with maintained understory. Low 0.75 ing the price of the provided for you	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F Blocks 6	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5 the sums Riparian equal 100 100%	NOTES>> Cl= (Sum % RA *: Rt Bank Cl > Lt Bank Cl >	1.10	
Condition Scores 1. Delineate ripadescriptors. 2. Determine squelow. 3. Enter the % R Right Bank Left Bank 3. INSTREAN	Optimal Tree stratum (dbh > 3 inches) prese with > 60% tree canopy cover and non-maintained understory. Wetlan located within the riparian areas. 1.5 arian areas along each stream be quare footage for each by measur Riparian Area and Score for each % Riparian Area 100% Score > 1.1 % Riparian Area> 100% Score > 1.1 M HABITAT: Varied substrate	High Suboptimal: Ripartian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree ds canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 Ink into Condition C ing or estimating let riparian category in Sizes, water velocit plexes, stable featur Subo Stable habitat ele present in 30-50° are adequate for are ad	ditional Cate ptimal Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Co ongth and width. Co on the blocks below y and depths; wodes.	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85 Indition Scores usion all Category Mar Stable habitat ele present in 10-30% are adequate fo	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh > 3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75 ing the povided for you	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F Blocks 6	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5 the sums Riparian equal 100 100%	CI= (Sum % RA * : Rt Bank CI > Lt Bank CI > NOTES>>	1.10	

	C4	reem la		22222	ont Fai	um Dan	- 2		
	ા	ream In	npact A	ssessm	ient Fo	rm Pag	e z		
Project #	Applicant		Locality	Cowardin Class.	HUC	Date	Data Point	SAR length	Impact Factor
								500	1
	L ALTERATION: Stream cross spoil piles, constrictions, livestock	sings, riprap, conc			traightening of ch	annel, channeliza	ation,	NOTES>>	
	Negligible	NA:	Conditiona nor	al Category	erate		vere		
	Negligible	IVII	l		60 - 80% of reach	36	vere	1	
Channel Alteration	Channelization, dredging, alteration, or hardening absent. Stream has an unaltered pattern or has naturalized.	Less than 20% of the stream reach is disrupted by any of the channel alterations listed in the parameter guidelines.	20-40% of the stream reach is disrupted by any of the channel alterations listed in the parameter guidelines.	is disrupted by any of the channel	is disrupted by any of the channel	Greater than 80% by any of the char in the parameter 80% of banks sl	of reach is disrupted annel alterations listed guidelines AND/OR hored with gabion, or cement.		
SCORE	1.5	1.3	1.1	0.9	0.7	(0.5		
	REACH C	CONDITION	NDEX and S	TREAM CO	NDITION UN	ITS FOR TH	IIS REACH		
NOTE: The Cls and F	RCI should be rounded to 2 decimal places.	The CR should be rou	nded to a whole numb	per.		<u> </u>	THE REACH O	CONDITION IN	DEX (RCI) >>

CR = RCI X LF X IF

INSERT PHOTOS:

DOWNSTREAM



		Stre		fied Stream N	lethodology f	or use in Virg	ginia	111 1)			
Project #	F	Project Name		Locality	Cowardin Class.	s intermittent or	Date Date	SAR#	Impact/SAR length	Impact Factor	
5337	I-	64 Peninsul	a	New Kent	R4UB2	02080206	11/15/11		338		
Nam	e(s) of Evaluat	or(s)		e and Informa	ation						
	Aitkenhead / Nies		WUS 172S								
. Channel (Condition: Asse	ss the cross-sec	tion of the stream		ondition (erosion, Conditional Catego						
	Optii	mal	Subo	ptimal	Mar	ginal	Po	oor	Sev	/ere	
Channel	Very little incision or		erosion or unproted of banks are st	ew areas of active cted banks. Majority table (60-80%).	Poor. Banks more or Poor due to lo	less than Severe or stable than Severe over bank slopes.	Vertically/laterally widen further. Ma	ned/incised. unstable. Likely to jority of both banks	incision, flow cor	istability. Severentained within the	
Condition	On 100% stable banks. Vegetative surface protection or natural rock, prominent (80-100%). AND/OR Stable point bars/bankfull benches are present. Access to their original floodplain or fully developed wide bankfull benches. Mid-channel bars, and transverse bars few. Transient sertiment deposition exwers less than		prominent (60- Depositional feat stability. The bar channels are wel likely has access to or newly develope portions of the r sediment covers 10	tion or natural rock 80%) AND/OR tures contribute to nkfull and low flow Il defined. Stream o bankfull benches, d floodplains along reach. Transient 0-40% of the stream tom.	both banks. Veget 40-60% of banks. bevertical or unde 60% of strean sediment. Set temporary/tran instability. Depositi stability, may be AND/OR V-shap vegetative protecti	esent on 40-60% of native protection on Streambanks may orcut. AND/OR 40-1 is covered by diment may be sient, contribute on that contribute to forming/present. ed channels have on on > 40% of the	60-80% of bar protection press banks, and is insu erosion. AND/O stream is cover Sediment is temp nature, and contri AND/OR V-shap vegetative protect 40% of the banks a	Erosion present on ks. Vegetative int on 20-40% of ufficient to prevent R 60-80% of the ed by sediment. porary/transient in buting to instability. ed channels have ion is present on > and stable sediment	rooting depth, n vertical/underc protection present banks, is not pre Obvious bank sl Erosion/raw bat AND/OR Aggradir than 80% of strear deposition, contril Multiple thread	najority of banks zut. Vegetative on less than 20% of eventing erosion. oughing present. ks on 80-100% g channel. Greater n bed is covered by puting to instability. channels and/or nean flow.	CI
Score	3		2	.4		onal features which	·	is absent.		1	
NOTES>>					ı	MITTENT		.0			
	N BUFFERS: A		Con	n areas along the aditional Cate ptimal	gory	ginal	Po	n may be accepta	NOTES>>		
		a inches) present, nopy cover and a erstory. Wetlands	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree	ditional Cate	gory	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh >3 inches) present, with <30% tree canopy cover with maintained			NOTES>>		
. RIPARIAI	Option Tree stratum (dbh > with > 60% tree can non-maintained under the control of the control	a inches) present, nopy cover and a erstory. Wetlands	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh >3 inches) present, with ~30% tree canopy cover with	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable	NOTES>>		
2. RIPARIAN	Option Tree stratum (dbh > with > 60% tree can non-maintained under the control of the control	mal 3 inches) present, nopy cover and a erstory. Wetlands riparian areas.	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory.	ditional Cate ptimal Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation).	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover.	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh > 3 inches) present, with <a>30 % tree canopy cover with maintained understory.	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, recently seeded and stabilized, or other comparable condition.	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions.	NOTES>>		
Riparian Buffers Condition Scores Delineate rips descriptors. Determine so pelow. Below. Condition Scores	Tree stratum (dbh > with > 60% tree car non-maintained unde located within the	mal 3 inches) present, nopy cover and a erstory. Wetlands riparian areas.	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 sinto Condition Co	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Congth and width. Congth and	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh >3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions.	NOTES>>		
Riparian Buffers Condition Scores Delineate ripe escriptors. Determine second	Tree stratum (dbh > with > 60% tree car non-maintained und located within the	3 inches) present, nopy cover and a erstory. Wetlands riparian areas.	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 sinto Condition Co	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Congth and width. Congth and	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh >3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5	NOTES>>		
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Riparian Buffers Condition Scores Delineate ripaescriptors. Determine squelow. Enter the % F	Tree stratum (dbh > with > 60% tree car non-maintained undt located within the located within the located within areas along exquare footage for ea	3 inches) present, nopy cover and a erstory. Wetlands riparian areas.	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 sinto Condition Co	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Congth and width. Congth and	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh >3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5	NOTES>>	Scores*0.01)/2 1.20 0.85	CI 1.03
Riparian Buffers Condition Scores Delineate ripalescriptors. Determine scielow. Enter the % F. Right Bank Left Bank B. INSTREAI	Tree stratum (dbh > with > 60% tree car non-maintained undid located within the located within the strain areas along exquare footage for ea Riparian Area and S % Riparian Area > Score >	3 inches) present, nopy cover and a erstory. Wetlands riparian areas. 5 ach stream bank ach by measuring 100% 1.2 50% 1.1 ried substrate si	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 Into Condition Con g or estimating ler parian category in 50% 0.6	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Coungth and width. Coungth and width. Coungth and width. Coungth and depths; wodes.	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85 Indition Scores usion all calculators are production of the	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh > 3 inches) present, with <a>only wow of with maintained understory. Low 0.75	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F Blocks 6	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5 the sums Riparian equal 100 100%	NOTES>> Cl= (Sum % RA*S Rt Bank Cl>	1.20	
Riparian Buffers Condition Scores Delineate ripalescriptors. Determine solelow. B. Enter the % F. Right Bank Left Bank I. INSTREAI Landercut banks;	Tree stratum (dbh > with > 60% tree car non-maintained und located within the located located within the located l	3 inches) present, nopy cover and a prestory. Wetlands riparian areas. 5 ach stream bank ach by measuring 100% 1.2 50% 1.1 ried substrate si le poole comple	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 sinto Condition Co g or estimating ler parian category in 50% 0.6 Zes, water velocity xes, stable featur	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Co ongth and width. Co the blocks below y and depths; wodes. Conditiona	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85 Indition Scores usional calculators are production of the control of the contr	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh -3 inches) present, with +30% tree canopy cover with maintained understory. Low 0.75	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F Blocks 6	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5 the sums Riparian riqual 100 100%	CI= (Sum % RA * S Rt Bank CI > Lt Bank CI >	1.20	
Riparian Buffers Condition Scores Delineate ripalescriptors. Delemane sepelow. Enter the % F Right Bank Left Bank INSTREAT	Tree stratum (dbh > with > 60% tree car non-maintained und located within the located wit	mal 3 inches) present, nopy cover and a erstory. Wetlands riparian areas. 5 ach stream bank the by measuring 100% 1.2 50% 1.1 ried substrate si file poole comple mal	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 Into Condition Con g or estimating ler parian category in 50% 0.6 Zes, water velocity xes, stable featur Subo Stable habitat elee present in 30-509 are adequate for	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Coungth and width. Coungth and width. Coungth and width. Coungth and depths; wodes.	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85 Indition Scores usion all Category Mar. Stable habitat ele present in 10-30% are adequate fo are dequate fo	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh > 3 inches) present, with <a>only wow of with maintained understory. Low 0.75	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F Blocks 6	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5 the sums Riparian equal 100 100%	CI= (Sum % RA * S Rt Bank CI > Lt Bank CI >	1.20	

	St	ream In	npact A	ssessm	ent Fo	rm Pag	e 2		
Project #	Applicant		Locality	Cowardin Class.	HUC	Date	Data Point	SAR length	Impact Factor
								500	1
	ALTERATION: Stream cross poil piles, constrictions, livestock	sings, riprap, conc		concrete blocks, s	traightening of ch	annel, channeliza	ation,	NOTES>>	
	Negligible	Mi	nor		erate		vere		
Channel Alteration	Channelization, dredging, alteration, or hardening absent. Stream has an unaltered pattern or has naturalized.	Less than 20% of the stream reach is disrupted by any of the channel alterations listed in the parameter guidelines.	20-40% of the stream reach is disrupted by any of the channel alterations listed in the parameter guidelines.	is disrupted by any of the channel	of the channel	Greater than 80% by any of the char in the parameter 80% of banks sl	of reach is disrupted nnel alterations listed guidelines AND/OR hored with gabion, or cement.		
SCORE	1.5	1.3	1.1	0.9	0.7	(0.5		
	REACH C	ONDITION	NDEX and S	TREAM CO	NDITION UN	ITS FOR TH	IIS REACH		
NOTE: The Cls and F	RCI should be rounded to 2 decimal places.	The CR should be rou	nded to a whole numb	er.	•		THE REACH (CONDITION IN	DEX (RCI) >>

COMPENSATION REQUIREMENT (CR) >>

()>> 0

CR = RCI X LF X IF

INSERT PHOTOS:

DOWNSTREAM



	5116		fied Stream N	lethodology 1	for use in Vir	ginia	m 1)			
Project #	Project Nam		Locality	Cowardin Class.	HUC	Date Date	SAR #	Impact/SAR length	Impact Factor	
5337	I-64 Peninsu	la	New Kent	R2UB2	02080206	11/15/11		47		
Name	e(s) of Evaluator(s)									
	Aitkenhead / Nies	WUS 173S								
I. Channel C	Condition: Assess the cross-se	ction of the stream		ondition (erosion, Conditional Catego						
	Optimal	Subo	ptimal	Mar	ginal	Po	oor	Sev	vere	
Channel	Very little incision or active erosion; 8t 100% stable banks. Vegetative	erosion or unproted of banks are s	ew areas of active cted banks. Majority table (60-80%).	Poor. Banks more or Poor due to lo	less than Severe or stable than Severe ower bank slopes.	Vertically/laterally widen further. Ma	ned/incised. unstable. Likely to jority of both banks	incision, flow cor	istability. Severe ntained within the ed below average	
Condition	surface protection or natural rock, prominent (80-100%). AND/OR Stable point bars/bankfull benches are present. Access to their original floodplain or fully developed wide bankfull benches. Mid-channel bars, and transverse bars few. Transient sediment deposition covers less than 10% of bottom.	prominent (60 Depositional feat stability. The bar channels are we likely has access t or newly develope portions of the sediment covers 10	tion or natural rock -80%) AND/OR Itures contribute to nkfull and low flow Il defined. Stream to bankfull benches, d floodplains along reach. Transient 0-40% of the stream tom.	both banks. Veget 40-60% of banks. bevertical or unde 60% of strean sediment. Se- temporary/tran instability. Depositi stability, may be AND/OR V-shap vegetative protect	esent on 40-60% of tative protection on Streambanks may ercut. AND/OR 40- n is covered by diment may be isient, contribute to forming/present. ed channels have ion on > 40% of the	60-80% of bar protection press banks, and is ins erosion. AND/C stream is cove Sediment is tem nature, and contri AND/OR V-shap vegetative protec 40% of the banks	Erosion present on akks. Vegetative ent on 20-40% of ufficient to prevent IR 60-80% of the red by sediment. porary/transient in buting to instability. Led channels have tion is present on > and stable sediment	vertical/underd protection present banks, is not pre Obvious bank si Erosion/raw ban AND/OR Aggradir than 80% of strear deposition, contril Multiple thread	najority of banks cut. Vegetative on less than 20% of eventing erosion. loughing present. nks on 80-100%. It gchannel. Greater m bed is covered by outing to instability. channels and/or nean flow.	CI
Score	3	2	.4		ional features which	· · · · · ·	is absent.		1	3.0
NOTES>>		_				_		ı		0.0
		High Suboptimal: Riparian areas	Low Suboptimal: Riparian areas		Non-maintained.	High Poor:				
Riparian Buffers	Tree stratum (dbh > 3 inches) present with > 60% tree canopy cover and a non-maintained understory. Wetlands located within the riparian areas.	with tree stratum (dbh > 3 inches) present, with 30% to 60% tree	with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutvoer (dense vegetation).	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover.	dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh >3 inches) present, with <30% tree canopy cover with maintained	Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated nonmaintained area, recently seeded and stabilized, or other comparable condition.	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions.			
Buffers	with > 60% tree canopy cover and a non-maintained understory. Wetlands	with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained	with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense	Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree	dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh >3 inches) present, with <30% tree canopy cover with	Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, recently seeded and stabilized, or other comparable	Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable			
	with > 60% tree canopy cover and a non-maintained understory. Wetlands	with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory.	with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation).	Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover.	dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh >3 inches) present, with <30% tree canopy cover with maintained understory.	Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, recently seeded and stabilized, or other comparable condition.	Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions.			
Condition Scores 1. Delineate ripa descriptors. 2. Determine squ below.	with > 60% tree canopy cover and a non-maintained understory. Wetlands located within the riparian areas. 1.5 arian areas along each stream ban uare footage for each by measuring Riparian Area and Score for each respons	with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 k into Condition C	with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Congth and width. Congth and width. Congth cutouth.	Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85	dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh > 3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75	Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % I	Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions.			
Condition Scores 1. Delineate ripa descriptors. 2. Determine squelow. 3. Enter the % R	with > 60% tree canopy cover and a non-maintained understory. Wetlands located within the riparian areas. 1.5 arian areas along each stream ban uare footage for each by measuring Riparian Area and Score for each r	with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 k into Condition C	with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Congth and width. Congth and width. Congth cutouth.	Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85	dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh > 3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75	Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % I	Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5	CI= (Sum % RA * 8	Scores*0.01)/2	
Condition Scores 1. Delineate ripa descriptors. 2. Determine squelow. 3. Enter the % R Right Bank	with > 60% tree canopy cover and a non-maintained understory. Wetlands located within the riparian areas. 1.5 arian areas along each stream ban uare footage for each by measuring Riparian Area and Score for each respons	with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 k into Condition C	with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Congth and width. Congth and width. Congth cutouth.	Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85	dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh > 3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75	Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % I	Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5	CI= (Sum % RA * 8 Rt Bank CI >	Scores'0.01)/2 1.50	CI
Condition Scores Delineate ripa lescriptors. Determine squelow. Enter the % R Right Bank	with > 60% tree canopy cover and a non-maintained understory. Wetlands located within the riparian areas. 1.5 arian areas along each stream ban uare footage for each by measuring Riparian Area and Score for each respectively. Score > 1.5 % Riparian Area> 100% Score > 1.5	with tree stratum (dbh > 3 inches) present, with 30% to 60% tree scanopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 k into Condition C tig or estimating lei siparian category in	with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Congth and width. Congth and w	Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85 Addition Scores us Calculators are pro	dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh >3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75 ing the vided for you	Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % I Blocks 6	Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5 the sums Riparian equal 100 100%	Rt Bank CI >		CI 1.50
Condition Scores Delineate ripa descriptors. Determine squelow. B. Enter the % R Right Bank Left Bank INSTREAM	with > 60% tree canopy cover and a non-maintained understory. Wetlands located within the riparian areas. 1.5 arian areas along each stream ban uare footage for each by measuring Riparian Area and Score for each response to the street of the score of	with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 k into Condition C ag or estimating let iparian category in	with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Congth and width. Congth and w	Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85 Addition Scores us Calculators are pro	dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh >3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75 ing the vided for you	Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % I Blocks 6	Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5 the sums Riparian equal 100 100%	Rt Bank CI >	1.50	
Condition Scores 1. Delineate ripa descriptors. 2. Determine squelow. 3. Enter the % R Right Bank Left Bank 3. INSTREAM	with > 60% tree canopy cover and a non-maintained understory. Wetlands located within the riparian areas. 1.5 The interest of the interest o	with tree stratum (dbh > 3 inches) present, with 30% to 60% tree is canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 Ik into Condition Cong or estimating let iparian category in its present in the strategory in its present its	with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Co ongth and width. Co the blocks below y and depths; woo es. Conditions	Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85 adiculators are production of the control of the canopy cover.	dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh >3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75 ing the ovided for you	Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % I Blocks 6	Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5 the sums Riparian equal 100 100%	Rt Bank CI >	1.50	
Condition Scores 1. Delineate ripa descriptors. 2. Determine squelow. 3. Enter the % R Right Bank Left Bank 3. INSTREAN	with > 60% tree canopy cover and a non-maintained understory. Wetlands located within the riparian areas. 1.5 arian areas along each stream ban uare footage for each by measuring Riparian Area and Score for each of Score > 1.5 % Riparian Area> 100% Score > 1.5 M HABITAT: Varied substrate s	with tree stratum (dbh > 3 inches) present, with 30% to 60% tree is canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 It into Condition C ag or estimating ler iparian category in izes, water velocit exes, stable featur Stable habitat ele present in 30-50 are adequate fo are dequate fo	with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Congth and width. Congth and width. Congth and width. Congth and width. Congth and depths; workes.	Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85 Indition Scores us Calculators are processed of the control of	dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh >3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75 ing the vided for you	Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % I Blocks 6 Habitat element lacking or are Lelements are typic	Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5 the sums Riparian equal 100 100%	Rt Bank CI >	1.50	

	St	ream In	npact A	ssessm	ent Fo	rm Pag	e 2		
Project #	Applicant		Locality	Cowardin Class.	HUC	Date	Data Point	SAR length	Impact Factor
								500	1
	L ALTERATION: Stream cross poil piles, constrictions, livestock		Conditiona	I Category				NOTES>>	
	Negligible	Mir	nor		erate		vere		
Channel Alteration	Channelization, dredging, alteration, or hardening absent. Stream has an unaltered pattern or has naturalized.	Less than 20% of the stream reach is disrupted by any of the channel alterations listed in the parameter guidelines.	20-40% of the stream reach is disrupted by any of the channel alterations listed in the parameter guidelines.	is disrupted by any of the channel	of the channel	Greater than 80% by any of the chan in the parameter 80% of banks st	of reach is disrupted nel alterations listed guidelines AND/OR nored with gabion, or cement.		
SCORE	1.5	1.3	1.1	0.9	0.7	C).5		
	REACH C	ONDITION II	NDEX and S	TREAM CO	NDITION UN	ITS FOR TH	IS REACH		
NOTE: The Cls and R	RCI should be rounded to 2 decimal places.	The CR should be rour	nded to a whole numb	er.			THE REACH (CONDITION IN	DEX (RCI) >>

CR = RCI X LF X IF

INSERT PHOTOS:







DOWNSTREAM



		Stre		fied Stream N	lethodology 1	for use in Vir	ginia	m 1)			
Project #		Project Name		Locality	nels classified a Cowardin Class.	HUC	perennial Date	SAR#	Impact/SAR length	Impact Factor	
5337	ı	-64 Peninsul	a	Henrico	R2UB1	02080206	11/16/11		2743		
Nam	e(s) of Evalua	tor(s)	Stream Name and Information						1		
	Aitkenhead / Nies		WUS 174S								
I. Channel (Condition: Ass	ess the cross-sec	ction of the stream		ondition (erosion, Conditional Catego						
	Opt	imal	Subo	ptimal	Mar	ginal	Po	or	Se	vere	
Channel	Very little incision o	or active erosion; 80 nks. Vegetative	erosion or unproted	ew areas of active cted banks. Majority table (60-80%).	Poor. Banks more	less than Severe or stable than Severe ower bank slopes.	widen further. Ma	unstable. Likely to ority of both banks	incision, flow co	nstability. Severe intained within the bed below average	
Condition	surface protection prominent (80-1 Stable point bars/br present. Access floodplain or fully bankfull benches. and transverse be sediment deposition 10% of	n or natural rock, 00%). AND/OR ankfull benches are s to their original of developed wide, Mid-channel bars, ars few. Transient on covers less than	prominent (60 Depositional feat stability. The ban channels are we likely has access t or newly develope portions of the sediment covers 10	tion or natural rock -80%) AND/OR tures contribute to nkfull and low flow II defined. Stream to bankfull benches, ad floodplains along reach. Transient 0-40% of the stream tom.	both banks. Vege 40-60% of banks. bevertical or unde 60% of strean sediment. Se- temporary/tran instability. Depositi stability, may be AND/OR V-shap vegetative protect	esent on 40-60% of tative protection on Streambanks may ercut. AND/OR 40- n is covered by diment may be sient, contribute on that contribute to forming/present. ed channels have ion on > 40% of the	60-80% of bar protection press banks, and is insu erosion. AND/O stream is cover Sediment is temp nature, and contri AND/OR V-shap vegetative protect 40% of the banks a	ed channels have ion is present on > and stable sediment	rooting depth, i vertical/under protection present banks, is not pr Obvious bank s Erosion/raw ba AND/OR Aggradi than 80% of streat deposition, contri Multiple thread	majority of banks cut. Vegetative on less than 20% of eventing erosion. sloughing present. inks on 80-100%. ng channel. Greater m bed is covered by buting to instability. I channels and/or nean flow.	CI
Score	3	<u> </u>	2	2.4		ional features which	-	is absent.		1	2.0
NOTES>>	`	<u>, </u>									2.0
2. RIPARIAN	N BUFFERS: A		Cor	nditional Cate ptimal	gory	ginal Low Marginal:		n may be accepta	NOTES>>		
2. RIPARIAN Riparian Buffers	Opti	imal > 3 inches) present, anopy cover and a derstory. Wetlands	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy	gory	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh > 3 inches) present, with <30% tree canopy cover with maintained	Po		,		
Riparian	Option Tree stratum (dbh > 60% tree cr	imal > 3 inches) present, anopy cover and a derstory. Wetlands	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh >3 inches) present, with					

	St	ream In	npact A	ssessm	nent Fo	rm Pag	e 2		
Project #	Applicant		Locality	Cowardin Class.	HUC	Date	Data Point	SAR length	Impact Factor
								500	1
	_ ALTERATION: Stream cross poil piles, constrictions, livestock	ings, riprap, conci		concrete blocks, s	traightening of ch	annel, channeliz	ation,	NOTES>>	
	Negligible	Mii	nor		erate	Se	evere		
Channel Alteration	Channelization, dredging, alteration, or hardening absent. Stream has an unaltered pattern or has naturalized.	Less than 20% of the stream reach is disrupted by any of the channel alterations listed in the parameter guidelines.	20-40% of the stream reach is disrupted by any of the channel alterations listed in the parameter guidelines.	40 - 60% of reach is disrupted by any of the channel alterations listed in the parameter guidelines. If stream has been channelized, normal stable stream meander pattern has not the contractions of the contraction of the stream of the strea	of the channel	by any of the char in the parameter 80% of banks s	of reach is disrupted nnel alterations listed guidelines AND/OR shored with gabion, or cement.		
SCORE	1.5	1.3	1.1	0.9	0.7	(0.5		
	REACH C	ONDITION II	NDEX and S	TREAM CO	NDITION UN	ITS FOR TH	IIS REACH		
NOTE: The Cle and R	CI should be rounded to 2 decimal places.	The CR should be rour	nded to a whole numb	er.			THE REACH	CONDITION IN	DEX (RCI) >>

COMPENSATION REQUIREMENT (CR) >> 0

CR = RCI X LF X IF

INSERT PHOTOS:

DOWNSTREAM



		Stre	Unit	SSESS fied Stream M	lethodology 1	for use in Vir	ginia	m 1)							
Project #		Project Nam		Project Nan		Project Name		Locality	cowardin Class.	HUC	Date Date	SAR#	Impact/SAR length	Impact Factor	
5337	ŀ	-64 Peninsul	a	Henrico	R2UB2	02080206	11/16/11		72						
Name	e(s) of Evalua	tor(s)	Stream Name and Information						1	1					
	Aitkenhead / Nies		WUS 175S												
. Channel C	Condition: Asse	ess the cross-sec	ction of the stream		ondition (erosion, conditional Catego										
	Opti	imal	Subo	ptimal	Mar	ginal	Po	oor	Se	vere	1				
	Very little incision o	r active erosion: 80	erosion or unproted	ew areas of active cted banks. Majority	Poor. Banks more	less than Severe or stable than Severe	Vertically/laterally	ped/incised. unstable. Likely to	incision flow co	nstability. Severe					
Channel Condition	100% stable bar surface protection prominent (80-1) Stable point bars/ba- present. Access floodplain or fully bankfull benches. and transverse basediment depositio sediment depositio	nks. Vegetative n or natural rock, 00%). AND/OR ankfull benches are to their original or developed wide Mid-channel bars, ars few. Transient in covers less than	Vegetative protect prominent (60- Depositional feat stability. The bar channels are well likely has access to or newly develope portions of the resediment covers 10 to defend the resediment covers 10 to defend the resediment covers 10 to describe the resediment covers 1	table (60-80%), titon or natural rock -80%) AND/OR tures contribute to nkfull and low flow II delined. Stream o bankfull benches, at floodplains along reach. Transient 0-40% of the stream tom.	Erosion may be pr both banks. Veget 40-60% of banks. bevertical or unde 60% of stream sediment. Se- temporary/tran instability. Depositi stability, may be	ower bank slopes. esent on 40-60% of tative protection on Streambanks may ercut. AND/OR 40- n is covered by diment may be sient, contribute on that contribute to e forming/present. ed channels have	are near vertical. 60-80% of bar protection prese banks, and is insi erosion. AND/C stream is cover Sediment is tem nature, and contri AND/OR V-shap	iority of both banks Erosion present on ks. Vegetative ent on 20-40% of ufficient to prevent R 60-80% of the ed by sediment. corary/transient in buting to instability. ed channels have ion is present on >	pariks. Steamb rooting depth, r vertical/under protection present banks, is not pr Obvious bank s Erosion/raw ba AND/OR Aggradir than 80% of strear deposition, contril	ned below average majority of banks cut. Vegetattive on less than 20% of eventing erosion. sloughing present. Inks on 80-100%. ng channel. Greater m bed is covered by buting to instability. I channels and/or	ſ				
					banks and depositi	ion on > 40% of the ional features which	deposition	and stable sediment is absent.	subterra	nean flow.	CI				
Score	3	3	2	2.4		2	1	.6		1	3.0				
	N BUFFERS: A		Con	nditional Cate	gory Mar	ginal Low Marginal: Non-maintained,		n may be accepta	NOTES>>						
	Opti	imal 3 inches) present, anopy cover and a derstory. Wetlands	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy	gory	ginal Low Marginal:	Po High Poor:		NOTES>>						
. RIPARIAN	Option Tree stratum (dbh > with > 60% tree canon-maintained unc	imal 3 inches) present, anopy cover and a derstory. Wetlands	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory.	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation).	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover.	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh >3 inches) present, with <30% tree canopy cover with maintained understory.	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable condition.	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions.	NOTES>>						
Riparian	Option Tree stratum (dbh > with > 60% tree canon-maintained unc	imal 3 inches) present, anopy cover and a derstory. Wetlands e riparian areas.	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh > 3 inches) present, with <30% tree canopy cover with maintained	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable	NOTES>>						
Riparian Buffers Condition Scores Delineate ripa escriptors. Determine squelow.	Tree stratum (dbh > with > 60% tree ca non-maintained unc located within the	imal 3 inches) present, anopy cover and a derstory. Wetlands e riparian areas.	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 into Condition C	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Coungth and width. Co	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh > 3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5	NOTES>>						
Riparian Buffers Condition Scores Delineate ripasscriptors. Determine squadow.	Tree stratum (dbh > with > 60% tree ca non-maintained unc located within the located with	imal 3 inches) present, anopy cover and a derstory. Wetlands e riparian areas. 5 ach stream bank ach by measurin.	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 into Condition C	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Coungth and width. Co	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh > 3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5	NOTES>>						
Riparian Buffers Condition Scores Delineate ripaescriptors. Determine squelow.	Tree stratum (dbh > with > 60% tree ca non-maintained unc located within the	imal 3 inches) present, anopy cover and a derstory. Wetlands e riparian areas.	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 into Condition C	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Coungth and width. Co	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh > 3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5	NOTES>>						
Riparian Buffers Condition Scores Delineate ripaescriptors. Determine squelow. Enter the % F	Tree stratum (dbh > with > 60% tree canon-maintained unc located within the located withi	imal 3 inches) present, anopy cover and a derstory. Wetlands e riparian areas. 5 each stream bank ach by measurin Score for each ri	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 into Condition C	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Coungth and width. Co	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh > 3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5	NOTES>>						
Riparian Buffers Condition Scores Delineate ripa secriptors. Determine squelow. Enter the % F	Tree stratum (dbh > with > 60% tree ca non-maintained unc located within the located with	imal 3 inches) present, anopy cover and a derstory. Wetlands e riparian areas. 5 each stream bank ach by measurin 100% 1.2	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 into Condition C	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Coungth and width. Co	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh > 3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5	NOTES>>	1.20	CI 1.20				
Riparian Buffers Condition Scores Delineate ripa escriptors. Determine squelow. Enter the % F Right Bank Left Bank B. INSTREAN	Tree stratum (dbh > with > 60% tree canon-maintained unc located within the located withi	imal 3 inches) present, anopy cover and a derstory. Wetlands e riparian areas. 5 ach stream bank ach by measurin 100% 1.2 100% 1.2 aried substrate si	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 Into Condition C g or estimating ler parian category in	Inditional Cate ptimal Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Coungth and width. Coungth and width. Coungth and width. Coungth and depths; wodes.	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85 Indition Scores us calculators are production of the produc	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh >3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75 ing the ovided for you	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F Blocks 6	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5 the sums Riparian equal 100 100%	NOTES>> Cl= (Sum % RA*: Rt Bank Cl >		CI 1.20				
Riparian Buffers Condition Scores Delineate ripalescriptors. Determine squescriptors. Enter the % F. Right Bank Left Bank INSTREAM Indercut banks;	Tree stratum (dbh > with > 60% tree canon-maintained unc located within the located withi	imal 3 inches) present, enopy cover and a derstory. Wetlands e riparian areas. 5 each stream bank ach by measuring 100% 1.2 100% 1.2 aried substrate siffle poole comple	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 Into Condition C g or estimating ler parian category in zes, water velocity ixes, stable featur	Inditional Cate ptimal Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Coungth and width. Coungth and width. Coungth and width. Coungth and depths; wodes.	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <a>3 inches) present, with <a>3 inches) present, or a tree canopy cover. High 0.85 Indition Scores us calculators are production of the control of th	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh >3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75 ing the ovided for you	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F Blocks 6	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5 the sums Riparian equal 100 100%	NOTES>> Ci= (Sum % RA *: Rt Bank Ci > Lt Bank Ci >	1.20					
Riparian Buffers Condition Scores Delineate ripalescriptors. Determine squelow. Enter the % F. Right Bank Left Bank B. INSTREAR	Tree stratum (dbh > with > 60% tree ca non-maintained unc located within the located with	imal 3 inches) present, anopy cover and a derstory. Wetlands e riparian areas. 5 5 cach stream bani ach by measurin. Score for each ri 100% 1.2 100% 1.2 aried substrate si ffle poole completimal.	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 Into Condition C g or estimating let parian category in zes, water velocity exes, stable featur Subo Stable habitat ele present in 30-50% are adequate fo	Inditional Cate ptimal Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Coungth and width. Coungth and width. Coungth and width. Coungth and depths; wores. Conditional	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85 Indition Scores us calculators are production of the present in 10-30 are adequate for a seadequate for the present in 10-30 are adequate for the present in 10-30 are adeq	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh >3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75 ing the price of the production of the present of the	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % f Blocks 6	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5 the sums Riparian equal 100 100% 100%	CI= (Sum % RA *: Rt Bank CI > Lt Bank CI > NOTES>>	1.20					

	St	ream In	npact A	ssessm	ent Fo	rm Pag	e 2		
Project #	Applicant		Locality	Cowardin Class.	HUC	Date	Data Point	SAR length	Impact Factor
								500	1
	ALTERATION: Stream cross poil piles, constrictions, livestock	sings, riprap, conc		concrete blocks, s	traightening of ch	annel, channeliza	ation,	NOTES>>	
	Negligible	Mi	nor		erate	Se	vere		
Channel Alteration	Channelization, dredging, alteration, or hardening absent. Stream has an unaltered pattern or has naturalized.	Less than 20% of the stream reach is disrupted by any of the channel alterations listed in the parameter guidelines.	20-40% of the stream reach is disrupted by any of the channel alterations listed in the parameter guidelines.	40 - 60% of reach is disrupted by any of the channel alterations listed in the parameter guidelines. If stream has been channelized, normal stable stream meander pattern has not		Greater than 80% by any of the char in the parameter 80% of banks sl	of reach is disrupted inel alterations listed guidelines AND/OR nored with gabion, or cement.		
SCORE	1.5	1.3	1.1	0.9	0.7	().5		
	REACH C	ONDITION	NDEX and S	TREAM CO	NDITION UN	ITS FOR TH	IIS REACH		
OTE: The Cls and R	CI should be rounded to 2 decimal places.	The CR should be rou	nded to a whole numb	er.			THE REACH (CONDITION IN	DEX (RCI) >>

11-1-4

COMPENSATION REQUIREMENT (CR) >>

CR = RCI X LF X IF

INSERT PHOTOS:



DESCRIBE PROPOSED IMPACT:		

	Stre		fied Stream N	lethodology f	for use in Virg	ginia	m 1)			
Project #	Project Nam		Locality	Cowardin Class.	HUC HUC	Date	SAR#	Impact/SAR length	Impact Factor	
5337	I-64 Peninsu	la	New Kent	R2UB2	02080206	11/16/11		47		
Nam	e(s) of Evaluator(s)	Stream Nam	e and Informa	ation						
	Aitkenhead / Nies	WUS 177S								
1. Channel (Condition: Assess the cross-se	ction of the stream		ondition (erosion,						
	Optimal	Subo	ptimal		ginal	Po	or	Se	vere	
Channel	Very little incision or active erosion; 8/ 100% stable banks. Vegetative	erosion or unproted of banks are s	ew areas of active cted banks. Majority table (60-80%). tion or natural rock	Poor. Banks more or Poor due to lo Erosion may be pro	less than Severe or stable than Severe ower bank slopes. esent on 40-60% of	widen further. Ma	ed/incised. unstable. Likely to ority of both banks Erosion present on	incision, flow co banks. Streamb	nstability. Severe ntained within the ed below average najority of banks	
Condition	surface protection or natural rock, prominent (80-100%). AND/OR Stable point bars/bankfull benches ar present. Access to their original floodplain or fully developed wide bankfull benches. Mid-channel bars, and transverse bars few. Transient sediment deposition covers less than 10% of bottom.	prominent (60- Depositional feat stability. The bar channels are wel likely has access to or newly develope portions of the sediment covers 10	-80%) AND/OR tures contribute to nkfull and low flow II defined. Stream o bankfull benches, ed floodplains along reach. Transient 0-40% of the stream tom.	40-60% of banks. bevertical or unde 60% of stream sediment. Sec temporary/tran- instability. Depositi stability, may be AND/OR V-shap- vegetative protecti	tative protection on Streambanks may rerut. AND/OR 40- h is covered by diment may be sient, contribute on that contribute to the forming/present. ed channels have ion on > 40% of the onal features which	protection prese banks, and is instance erosion. AND/O stream is cover Sediment is temp nature, and contril AND/OR V-shap vegetative protect	ks. Vegetative int on 20-40% of difficient to prevent R 60-80% of the ed by sediment. oorary/transient in buting to instability. ed channels have ion is present on > ind stable sediment is absent.	vertical/unden protection present banks, is not pro Obvious bank s Erosion/raw ban AND/OR Aggradir than 80% of strear deposition, contril Multiple thread	utility of balms, cut. Vegetative on less than 20% of eventing erosion. loughing present. hks on 80-100%. Ig channel. Greater to bed is covered by buting to instability. channels and/or nean flow.	CI
Score	3	2	2.4		2	1	.6		1	3.0
2. RIPARIAI	N BUFFERS: Assess both ban	Con	nditional Cate	gory				NOTES>>		
Riparian Buffers	Optimal Tree stratum (dbh > 3 inches) present with > 60% tree canopy cover and a non-maintained understory. Wetlands located within the riparian areas.	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree		gory	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh >3 inches) present, with 30% Inches) present, with <a href<="" th=""><th></th><th>Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions.</th><th>,</th><th></th><th></th>		Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions.	,		
Riparian	Optimal Tree stratum (dbh > 3 inches) present with > 60% tree canopy cover and a non-maintained understory. Wetlands	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory.	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation).	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover.	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh >3 inches) present, with <30% tree canopy cover with maintained understory.	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable condition.	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions.	,		
Riparian Buffers	Optimal Tree stratum (dbh > 3 inches) present with > 60% tree canopy cover and a non-maintained understory. Wetlands	Right Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh >3 inches) present, with <30% tree canopy cover with maintained	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable	,		
Riparian Buffers Condition Scores 1. Delineate ripidescriptors. 2. Determine schelow.	Optimal Tree stratum (dbh > 3 inches) present with > 60% tree canopy cover and a non-maintained understory. Wetlands located within the riparian areas.	Right Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 k into Condition C	Inditional Cate ptimal Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Coungth and width. Coungth and width. Coungth and coungth and width.	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh >3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions.	,		
Riparian Buffers Condition Scores 1. Delineate rip Jescriptors. 2. Determine scoelow. 3. Enter the % F	Optimal Tree stratum (dbh > 3 inches) present with > 60% tree canopy cover and a non-maintained understory. Wetlands located within the riparian areas. 1.5 arian areas along each stream bar quare footage for each by measuring	Right Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 k into Condition C	Inditional Cate ptimal Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Coungth and width. Coungth and width. Coungth and coungth and width.	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh >3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5	,		
Riparian Buffers Condition Scores 1. Delineate ripidescriptors. 2. Determine scorelow.	Optimal Tree stratum (dbh > 3 inches) present with > 60% tree canopy cover and a non-maintained understory. Wetlands located within the riparian areas. 1.5 arian areas along each stream bar quare footage for each by measuring Riparian Area and Score for each in	Right Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 k into Condition C	Inditional Cate ptimal Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Coungth and width. Coungth and width. Coungth and coungth and width.	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh >3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5	NOTES>>		
Riparian Buffers Condition Scores 1. Delineate ripi descriptors. 2. Determine scoelow. 3. Enter the % f	Optimal Tree stratum (dbh > 3 inches) present with > 60% tree canopy cover and a non-maintained understory. Wetlands located within the riparian areas. 1.5 arian areas along each stream bar quare footage for each by measuring Riparian Area and Score for each of Riparian Area and Score for each of the results of the street of the results of the re	Right Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 k into Condition C	Inditional Cate ptimal Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Coungth and width. Coungth and width. Coungth and coungth and width.	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh >3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5	,	Scores*0.01)/2	CI
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Condition Scores 1. Delineate ripedescriptors. 2. Determine schelow. 3. Enter the % from the first thank Left Bank 3. INSTREAL	Optimal Tree stratum (dbh > 3 inches) present with > 60% tree canopy cover and a non-maintained understory. Wetlands located within the riparian areas. 1.5 arian areas along each stream barr quare footage for each by measuring Riparian Area and Score for each result of the street of the stree	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 k into Condition C ag or estimating ler iparian category in	Inditional Cate ptimal Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Coungth and width. Coungth and width. Coungth and width. Coungth and depths; wodes.	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85 Indition Scores using alculators are production of the prod	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh -3 inches) present, with <a>30 % tree canopy cover with maintained understory. Low 0.75 ing the evided for you	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F Blocks 6	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5 the sums Riparian qual 100 100%	NOTES>> CI= (Sum % RA**) Rt Bank CI >	1.50	_
Condition Scores 1. Delineate ripi descriptors. 2. Determine scoelelow. 3. Enter the % f Right Bank Left Bank 3. INSTREAl undercut banks;	Optimal Tree stratum (dbh > 3 inches) present with > 60% tree canopy cover and a non-maintained understory. Wetlands located within the riparian areas. 1.5 arian areas along each stream bar quare footage for each by measuring Riparian Area and Score for each for score > 1.5 % Riparian Area 100% Score > 1.5 M HABITAT: Varied substrate s root mats; SAV; riffle poole complete.	High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 k into Condition C iparian category in iparian category in izes, water velocity exes, stable featur	Inditional Cate ptimal Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Coungth and width. Coungth and width. Coungth and width. Coungth and depths; wores. Conditional	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85 Indition Scores using alculators are production of the prod	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh >3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75 ing the vided for you	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F Blocks e	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5 the sums Riparian qual 100 100% 100%	CI= (Sum % RA * S Rt Bank CI > Lt Bank CI >	1.50	_
Condition Scores 1. Delineate ripedescriptors. 2. Determine schelow. 3. Enter the % f	Optimal Tree stratum (dbh > 3 inches) present with > 60% tree canopy cover and a non-maintained understory. Wetlands located within the riparian areas. 1.5 arian areas along each stream barr quare footage for each by measuring Riparian Area and Score for each of Score > 1.5 % Riparian Area 100% Score > 1.5 M HABITAT: Varied substrate s	Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 k into Condition C ag or estimating ler iparian category in sizes, water velocity exes, stable featur Subo Stable habitat ele present in 30-50% are adequate fo	Inditional Cate ptimal Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Coungth and width. Coungth and width. Coungth and width. Coungth and depths; wodes.	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85 Indition Scores using alculators are properties of the properties of the present of the present of the present in 10-30% are adequate for a sea dequate for the present in 10-30% are adequate for the p	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh -3 inches) present, with <a>30 % tree canopy cover with maintained understory. Low 0.75 ing the evided for you	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure 1 of % F Blocks 6	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5 the sums Riparian qual 100 100%	CI= (Sum % RA * S Rt Bank CI > Lt Bank CI >	1.50	_

	St	ream In	npact A	ssessm	ent Fo	rm Pag	e 2		
Project #	Applicant		Locality	Cowardin Class.	HUC	Date	Data Point	SAR length	Impact Factor
								500	1
	ALTERATION: Stream cross poil piles, constrictions, livestock	sings, riprap, conci		concrete blocks, s	traightening of ch	annel, channeliza	ation,	NOTES>>	
	Negligible	Mii	nor		erate	Se	vere		
Channel Alteration	or hardening absent. Stream has an	Less than 20% of the stream reach is disrupted by any of the channel alterations listed in the parameter guidelines.	20-40% of the stream reach is disrupted by any of the channel alterations listed in the parameter guidelines.	is disrupted by any of the channel	of the channel	Greater than 80% by any of the char in the parameter 80% of banks sl	of reach is disrupted anel alterations listed guidelines AND/OR hored with gabion, or cement.		
SCORE	1.5	1.3	1.1	0.9	0.7	(0.5		
	REACH C	ONDITION	NDEX and S	TREAM CO	NDITION UN	ITS FOR TH	IIS REACH		
NOTE: The Cls and F	RCI should be rounded to 2 decimal places.	The CR should be rour	nded to a whole numb	er.	•		THE REACH (CONDITION IN	DEX (RCI) >>

COMPENSATION REQUIREMENT (CR) >> 0

CR = RCI X LF X IF

INSERT PHOTOS:



DESCRIBE PROPOSED IMPACT:		

		Stre		fied Stream N	lethodology f	or use in Virg	ginia	,			
Project #	F	Project Name		Locality	Cowardin Class.	HUC	Date	SAR#	Impact/SAR length	Impact Factor	
5337	I-	64 Peninsul	a	New Kent	R2UB2	02080206	11/16/11		23		
Nam	e(s) of Evaluat	or(s)		e and Informa	ation						
	Aitkenhead / Nies		WUS 178S								
1. Channel (Condition: Asse	ss the cross-sec	tion of the stream		ondition (erosion,						
	Opti	mal	Subo	ptimal		ginal	Po	oor	Se	vere	
Channel Condition	Very little incision or 100% stable ban surface protection	ks. Vegetative or natural rock,	erosion or unproted of banks are si Vegetative protec	ew areas of active cted banks. Majority table (60-80%). tion or natural rock -80%) AND/OR	Poor. Banks more or Poor due to lo Erosion may be pr	less than Severe or stable than Severe wer bank slopes. esent on 40-60% of attive protection on	Vertically/laterally widen further. Ma are near vertical.	ned/incised. unstable. Likely to jority of both banks Erosion present on	incision, flow co banks. Streamb rooting depth, r	nstability. Severe intained within the ed below average majority of banks	
	prominent (80-10 Stable point bars/ba present. Access floodplain or fully bankfull benches. I and transverse ba sediment deposition 10% of b	nkfull benches are to their original developed wide Mid-channel bars, rs few. Transient n covers less than	Depositional feat stability. The bar channels are wel likely has access to or newly develope portions of the r sediment covers 10	tures contribute to nkfull and low flow Il defined. Stream o bankfull benches, d floodplains along reach. Transient 0-40% of the stream tom.	40-60% of banks. bevertical or unde 60% of strean sediment. See temporary/tran instability. Depositi stability, may be AND/OR V-shap vegetative protecti	Streambanks may streat. AND/OR 40-n is covered by diment may be sient, contribute on that contribute to forming/present. ed channels have on on > 40% of the onal features which	banks, and is insi erosion. AND/C stream is cover Sediment is tem nature, and contri AND/OR V-shap vegetative protect 40% of the banks a	ent on 20-40% of difficient to prevent IR 60-80% of the red by sediment. oorary/transient in buting to instability. ed channels have ion is present on > and stable sediment i s absent.	protection present banks, is not pro Obvious bank s Erosion/raw ba AND/OR Aggradin than 80% of streat deposition, contril Multiple thread	cut. Vegetative on less than 20% of eventing erosion. loughing present. nks on 80-100%. ng channel. Greater m bed is covered by buting to instability. I channels and/or nean flow.	С
Score	3		2	.4		2	1	.6		1	3.
DIDADIA	N BUEEEBO .					,					
2. RIPARIAI	N BUFFERS: A		Con	ditional Cate	gory				NOTES>>		
2. RIPARIAI Riparian Buffers	Option Tree stratum (dbh > with > 60% tree can non-maintained und located within the	mal 3 inches) present, nopy cover and a erstory. Wetlands	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory.	ditional Cate ptimal Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation).	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover.	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh >3 inches) present, with <a>30 % tree canopy cover with maintained understory.	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable condition.	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions.			
Riparian	Tree stratum (dbh > with > 60% tree can non-maintained und located within the	mal 3 inches) present, nopy cover and a erstory. Wetlands riparian areas.	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation).	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover.	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh >3 inches) present, with <30% tree canopy cover with maintained understory. Low	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, recently seeded and stabilized, or other comparable condition.	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions.			
Riparian Buffers	Option Tree stratum (dbh > with > 60% tree can non-maintained und	mal 3 inches) present, nopy cover and a erstory. Wetlands riparian areas.	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory.	ditional Cate ptimal Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation).	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover.	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh >3 inches) present, with <a>30 % tree canopy cover with maintained understory.	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable condition.	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions.			
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Condition Scores 1. Delineate ripidescriptors. 2. Determine scoelow. 3. Enter the % f	Tree stratum (dbh > with > 60% tree car non-maintained und located within the located loca	mal 3 inches) present, nopy cover and a erstory. Wetlands riparian areas. 5 ach stream bank ach by measuring 100% 1.5 100% 1.5 ried substrate si fle poole comple mal	Com Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 Into Condition C g or estimating ler parian category in Zes, water velocity ixes, stable featur Subo Stable habitat ele present in 30-50% are adequate fo	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Co ongth and width. Co the blocks below y and depths; wodes. Conditiona	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85 Indition Scores usion all Category Mar Stable habitat ele present in 10-30% are adequate fo	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh >3 inches) present, with https://district.org/https://district.org/lines/by/<a hre<="" td=""><td>High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F Blocks 6</td><td>Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5 the sums Riparian equal 100 100% 100%</td><td>NOTES>> Cl= (Sum % RA *: Rt Bank Cl> Lt Bank Cl></td><td>1.50</td><td></td>	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F Blocks 6	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5 the sums Riparian equal 100 100% 100%	NOTES>> Cl= (Sum % RA *: Rt Bank Cl> Lt Bank Cl>	1.50	

	St	ream In	npact A	ssessm	ent Fo	rm Pag	e 2		
Project #	Applicant		Locality	Cowardin Class.	HUC	Date	Data Point	SAR length	Impact Factor
								500	1
	L ALTERATION: Stream cross spoil piles, constrictions, livestock	sings, riprap, conc		concrete blocks, s	traightening of ch	annel, channeliz	ration,	NOTES>>	
	Negligible	Mi	nor		erate	Se	evere		
Channel Alteration	Channelization, dredging, alteration, or hardening absent. Stream has an unaltered pattern or has naturalized.	Less than 20% of the stream reach is disrupted by any of the channel alterations listed in the parameter guidelines.	20-40% of the stream reach is disrupted by any of the channel	is disrupted by any of the channel	of the channel	Greater than 80% by any of the char in the parameter 80% of banks s	of reach is disrupted nnel alterations listed guidelines AND/OR shored with gabion, or cement.		
SCORE	1.5	1.3	1.1	0.9	0.7	(0.5		
	REACH C	ONDITION	NDEX and S	TREAM CO	NDITION UN	ITS FOR TH	IIS REACH		
NOTE: The CIs and F	RCI should be rounded to 2 decimal places.	The CR should be rou	nded to a whole numb	er.	•		THE REACH	CONDITION IN	DEX (RCI) >>

COMPENSATION REQUIREMENT (CR) >> 0

CR = RCI X LF X IF

INSERT PHOTOS:

DOWNSTREAM



	5	Stre	Unif	fied Stream N	sment lethodology f	or use in Virg	ginia	m 1)			
Project #	Proje	ect Name		Locality	nels classified a Cowardin Class.	HUC	perennial Date	SAR#	Impact/SAR length	Impact Factor	
5337	I-64 P	eninsula	1	New Kent	R2UB2	02080206	11/16/11		10		
Name	e(s) of Evaluator(s))	Stream Name	e and Informa	ation						
	Aitkenhead / Nies		WUS 179S								
Channel C	Condition: Assess the	e cross-sect	tion of the stream	and prevailing co	ondition (erosion,	aggradation)					
	Optimal		Subo	ptimal	Conditional Catego	ry ginal	Po	oor	Sev	/ere	
	The second second	*		ew areas of active	Often incised, but	ess than Severe or		ed/incised.	vertical/lateral in	stability. Severe	
Channel Condition	Very little incision or active 100% stable banks. Ve surface protection or nat prominent (80-100%). A Stable point bars/bankfull b present. Access to their floodplain or fully develo bankfull benches. Mid-cha and transverse bars few. sediment deposition cover 10% of bottom.	egetative tural rock, AND/OR benches are r original oped wide annel bars, Transient rs less than	of banks are st Vegetative protect prominent (60- Depositional feat stability. The bar channels are wel likely has access to or newly developer portions of the r sediment covers 10	cted banks. Majority table (60-80%). tion or natural rock-80%) AND/OR tures contribute to nkfull and low flow II defined. Stream o bankfull benches, di floodplains along reach. Transient 0-40% of the stream	or Poor due to lo Erosion may be pri both banks. Veget 40-60% of banks. bevertical or unde 60% of stream sediment. Sec temporary/trans instability. Deposition stability, may be	Streambanks may rcut. AND/OR 40- is covered by diment may be sient, contribute on that contribute to forming/present.	widen further. Ma are near vertical. 60-80% of bar protection prese banks, and is inst erosion. AND/O stream is cover Sediment is temp nature, and contri AND/OR V-shap	unstable. Likely to ority of both banks Erosion present on ks. Vegetative ent on 20-40% of difficient to prevent R 60-80% of the ed by sediment. ovaray/transient in buting to instability. ed channels have	banks. Streamber rooting depth, my vertical/underc protection present obanks, is not pre Obvious bank sl Erosion/raw bar AND/OR Aggradin than 80% of stream deposition, contrib	oughing present. lks on 80-100%. g channel. Greater bed is covered by outing to instability.	
			DOT	tom.	vegetative protecti	ed channels have on on > 40% of the onal features which	40% of the banks a	ion is present on > and stable sediment i is absent.	Multiple thread subterran		CI
Score	3		2	.4		2	1	.6		1	2.0
	Ontimal		Con	ditional Cate	gory		s of length & widtl		NOTES>>		
Riparian Buffers	Optimal Tree stratum (dbh > 3 inche with > 60% tree canopy conon-maintained understory. located within the riparia	es) present, over and a	Con		gory	Jinal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh >3 inches) present, with <30% tree		Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions.	NOTES>>		
Riparian Buffers	Tree stratum (dbh > 3 inch with > 60% tree canopy co non-maintained understory.	es) present, over and a	Con Subo Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained	Low Suboptimal Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbb >3 inches) present,	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable	NOTES>>		
Buffers	Tree stratum (dbh > 3 inch with > 60% tree canopy co non-maintained understory.	es) present, over and a	Con Subo Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory.	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation).	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover.	Jinal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh > 3 inches) present, with <30% tree canopy cover with maintained understory.	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable condition.	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions.	NOTES>>		
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Condition Scores Delineate ripa scriptors. Determine squeeze low.	Tree stratum (dbh > 3 inche with > 60% tree canopy or non-maintained understory, located within the riparia 1.5 arian areas along each st quare footage for each by Riparian Area and Score less than the strategies of the strate	es) present, over and a . Wetlands an areas.	Con Subop High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 into Condition Co	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Congth and width. Congth and width. Congth and congth and width. Congth areas	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <a>30 % tree canopy cover. High 0.85	Jinal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh >3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5	NOTES>>		
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Condition Scores Delineate ripa secriptors. Determine sq low. Enter the % R Right Bank Left Bank	Tree stratum (dbh > 3 inche with > 60% tree canopy conon-maintained understory, located within the riparial strain areas along each strain areas along each strain areas along each by Riparian Area and Score 1 % Riparian Area 1 Score > 1	tream bank r measuring for each rip 00% 0.5	Con Subo Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 into Condition Ca or estimating ler parian category in	ditional Cate ptimal Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Coungth and width. Coungth and width. Coungth and width. Coungth and depths; wodes.	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85 Indition Scores using the saleculators are producted to the saleculators ar	Jinal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh > 3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75 Ing the vided for you	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F Blocks 6	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5 the sums Riparian equal 100 100%	NOTES>>		CI 0.50
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Condition Scores Delineate ripa secriptors. Determine sq slow. Enter the % R Right Bank Left Bank INSTREAM	Tree stratum (dbh > 3 inche with > 60% tree canopy conon-maintained understory, located within the riparial strain areas along each strain areas along each strain areas along each by Riparian Area and Score 1 % Riparian Area 1 Score > 1 % Riparian Area 1 % Riparia	es) present, over and a //. Wetlands an areas. tream bank // measuring for each rip 100% 0.5	Con Subo Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 into Condition Ca or estimating ler parian category in sees, water velocity (es, stable feature Subo Stable habitat eler present in 30-50% are adequate for are dequate for are dequate for are adequate for are dequate for are subo subo subo subo subo subo subo subo	ditional Cate ptimal Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Coungth and width. Coungth and width. Coungth and width. Coungth and depths; wodes.	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85 Indition Scores using a calculators are producted at Category Stable habitate lee present in 10-30% are adequate for the same category and a category are adequate for the same category are same category are adequate for the same category are same category are same category are same category and same category are same category and same category are adequate for the same category are same category and same category are same category and category are same category and category are same category are same category are same category are same category and category are same cate	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh - 3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75 Ing the vided for you ginal	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F Blocks 6	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5 the sums Riparian equal 100 100%	CI= (Sum % RA * S Rt Bank CI > Lt Bank CI >	0.50	

	St	ream In	npact A	ssessm	ent Fo	rm Pag	e 2		
Project #	Applicant		Locality	Cowardin Class.	HUC	Date	Data Point	SAR length	Impact Factor
								500	1
	L ALTERATION: Stream cross poil piles, constrictions, livestock	ings, riprap, conci		concrete blocks, s	traightening of ch	annel, channeliz	cation,	NOTES>>	
	Negligible	Mir	nor		erate	Se	evere		
Channel Alteration	Channelization, dredging, alteration, or hardening absent. Stream has an unaltered pattern or has naturalized.	Less than 20% of the stream reach is disrupted by any of the channel alterations listed in the parameter guidelines.	20-40% of the stream reach is disrupted by any of the channel alterations listed in the parameter guidelines.	of the channel	60 - 80% of reach is disrupted by any of the channel alterations listed in the parameter guidelines. If stream has been channelized, normal stable stream meander pattern has not	by any of the char in the parameter 80% of banks s	of reach is disrupted nnel alterations listed guidelines AND/OR shored with gabion, or cement.		
SCORE	1.5	1.3	1.1	0.9	0.7	(0.5		
	REACH C	ONDITION II	NDEX and S	TREAM CO	NDITION UN	ITS FOR TH	IIS REACH		
								CONDITION IN	

COMPENSATION REQUIREMENT (CR) >> 0

CR = RCI X LF X IF

INSERT PHOTOS:

DOWNSTREAM



		Stre	Unit	fied Stream N	lethodology f	Form	ginia	m 1)			
Project #		Project Name		Locality	Cowardin Class.	HUC	Date Date	SAR#	Impact/SAR length	Impact Factor	
5337	ŀ	-64 Peninsul	a	New Kent	R2UB2	02080206	11/16/11		51		
Name	e(s) of Evalua	tor(s)	Stream Nam	e and Informa	ation						
	Aitkenhead / Nies		WUS 180S								
. Channel C	Condition: Asse	ess the cross-sec	ction of the stream		ondition (erosion, conditional Catego						
	Opti	imal	Subo	ptimal	Mar	ginal	Po	oor	Se	vere	
	Very little incision o	or active erosion: 80	erosion or unproted	ew areas of active cted banks. Majority	Poor. Banks more	less than Severe or stable than Severe	Vertically/laterally	ned/incised. unstable. Likely to		nstability. Severe	
Channel Condition	100% stable bar surface protection prominent (80-11 Stable point bars/bar present. Access floodplain or fully bankfull benches. and transverse bar sediment deposition 10% of	nks. Vegetative n or natural rock, 00%). AND/OR ankfull benches are to their original v developed wide Mid-channel bars, ars few. Transient on covers less than	Vegetative protect prominent (60- Depositional feat stability. The bar channels are well likely has access to or newly develope portions of the resediment covers 10 to definite the covers of the resediment covers 10 to definite the covers of the resediment covers 10 to definite the covers of the resediment covers 10 to definite the covers 10 to definite	table (60-80%), tion or natural rock -80%) AND/OR tures contribute to nkfull and low flow ill obankfull benches, at floodplains along reach. Transient 0-40% of the stream tom.	Erosion may be pr both banks. Veget 40-60% of banks. bevertical or unde 60% of strean sediment. Sed temporary/tran instability. Depositi stability, may be	ower bank slopes. esent on 40-60% of tative protection on Streambanks may ercut. AND/OR 40- n is covered by diment may be sient, contribute on that contribute to e forming/present. ed channels have	are near vertical. 60-80% of bar protection prese banks, and is insi erosion. AND/C stream is cover Sediment is tem nature, and contri AND/OR V-shap	iority of both banks Erosion present on ks. Vegetative ent on 20-40% of ufficient to prevent R 60-80% of the ed by sediment. corary/transient in buting to instability. ed channels have ion is present on >	rooting depth, r vertical/under protection present banks, is not pr Obvious bank s Erosion/raw ba AND/OR Aggradir than 80% of streat deposition, contril	ned below average majority of banks cut. Vegetattive on less than 20% of eventing erosion. sloughing present. Inks on 80-100%. ng channel. Greater m bed is covered by buting to instability. I channels and/or	
					banks and depositi	ion on > 40% of the ional features which	deposition	and stable sediment is absent.	subterra	nean flow.	CI
Score	3	3	2	2.4		2	1	.6		1	2.4
	N BUFFERS: A		Con	nditional Cate	gory Mar	ginal Low Marginal: Non-maintained,		n may be accepta	NOTES>>		
RIPARIAN Riparian Buffers	Opti	imal > 3 inches) present, anopy cover and a derstory. Wetlands	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy	gory	ginal Low Marginal:	Po High Poor:		NOTES>>		
. RIPARIAN	Option Tree stratum (dbh > with > 60% tree canon-maintained uncommaintained u	imal > 3 inches) present, anopy cover and a derstory. Wetlands	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory.	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation).	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover.	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh >3 inches) present, with <30% tree canopy cover with maintained understory.	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable condition.	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions.	NOTES>>		
2. RIPARIAN	Option Tree stratum (dbh > with > 60% tree canon-maintained uncommaintained u	imal 3 inches) present, anopy cover and a derstory. Wetlands e riparian areas.	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained	Low Suboptimal Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh >3 inches) present, with <30% tree canopy cover with maintained	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable	NOTES>>		
Riparian Buffers Condition Scores Delineate ripalescriptors. Determine squelow.	Tree stratum (dbh > with > 60% tree ca non-maintained unc located within the	imal 3 inches) present, anopy cover and a derstory. Wetlands e riparian areas. 5 each stream bank ach by measurin	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 k into Condition C	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Coungth and width. Coungth	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh >3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5	NOTES>>		
Riparian Buffers Condition Scores Delineate ripa escriptors. Determine squelow.	Tree stratum (dbh > with > 60% tree ca non-maintained unc located within the located with	imal 3 inches) present, anopy cover and a derstory. Wetlands e riparian areas. 5 each stream bank ach by measurin.	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 k into Condition C	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Coungth and width. Coungth	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh >3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5	NOTES>>		
Riparian Buffers Condition Scores Delineate ripa escriptors. Determine squelow.	Tree stratum (dbh > with > 60% tree ca non-maintained unc located within the	imal 3 inches) present, anopy cover and a derstory. Wetlands e riparian areas. 5 each stream bank ach by measurin	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 k into Condition C	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Coungth and width. Coungth	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh >3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5	NOTES>>		
Riparian Buffers Condition Scores Delineate rips escriptors. Determine squelow. Enter the % F	Tree stratum (dbh > with > 60% tree canon-maintained unc located within the located withi	imal 3 inches) present, anopy cover and a derstory. Wetlands e riparian areas. 5 each stream bank ach by measurin Score for each ri	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 k into Condition C	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Coungth and width. Coungth	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh >3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5	NOTES>>		
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Riparian Buffers Condition Scores Delineate ripalescriptors. Determine squelow. Enter the % F. Right Bank Left Bank I. Left Bank	Tree stratum (dbh > with > 60% tree canon-maintained unc located within the located withi	imal 3 inches) present, anopy cover and a derstory. Wetlands e riparian areas. 5 each stream bank ach by measurin 100% 0.75 100% 0.75 aried substrate si	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 Into Condition C g or estimating ler parian category in	Inditional Cate ptimal Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Coungth and width. Coungth and width. Coungth and width. Coungth and depths; woo res.	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85 Indition Scores using the control of the contro	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh > 3 inches) present, with < 30% tree canopy cover with maintained understory: Low 0.75 ing the ovided for you	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F Blocks 6	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5 the sums Riparian equal 100 100%	NOTES>> Cl= (Sum % RA*: Rt Bank Cl >		CI 0.75
Riparian Buffers Condition Scores Delineate ripalescriptors. Determine squelow. Enter the % F. Right Bank Left Bank INSTREAM Indercut banks;	Tree stratum (dbh > with > 60% tree ca non-maintained und located within the located with	imal 3 inches) present, anopy cover and a derstory. Wetlands e riparian areas. 5 each stream bank ach by measurin 100% 0.75 100% 0.75 aried substrate si	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 Into Condition C g or estimating ler parian category in zes, water velocity ixes, stable featur	Inditional Cate ptimal Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Coungth and width. Coungth and width. Coungth and width. Coungth and depths; woo res.	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <a>30 tree tree canopy cover. High 0.85 Indition Scores using the calculators are producted to the calculators are producted t	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh > 3 inches) present, with < 30% tree canopy cover with maintained understory: Low 0.75 ing the ovided for you	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F Blocks 6	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5 the sums Riparian equal 100 100%	NOTES>> Ci= (Sum % RA *: Rt Bank Ci > Lt Bank Ci >	0.75	
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	St	ream In	npact A	ssessm	nent Fo	rm Pag	e 2		
Project #	Applicant		Locality	Cowardin Class.	HUC	Date	Data Point	SAR length	Impact Factor
								500	1
	L ALTERATION: Stream cross spoil piles, constrictions, livestock	sings, riprap, conc		concrete blocks, s	traightening of ch	annel, channeliz	ation,	NOTES>>	
	Negligible	Mi	nor	Mod	erate	Se	evere		
Channel Alteration	Channelization, dredging, alteration, or hardening absent. Stream has an unaltered pattern or has naturalized.	Less than 20% of the stream reach is disrupted by any of the channel alterations listed in the parameter guidelines.	20-40% of the stream reach is disrupted by any of the channel alterations listed in the parameter guidelines.	is disrupted by any of the channel	is disrupted by any of the channel	Greater than 80% by any of the char in the parameter 80% of banks s	of reach is disrupted nnel alterations listed guidelines AND/OR hored with gabion, or cement.		
SCORE	1.5	1.3	1.1	0.9	0.7	(0.5		
	REACH (CONDITION	NDEX and S	TREAM CO	NDITION UN	ITS FOR TH	IIS REACH		
NOTE: The CIs and I	RCI should be rounded to 2 decimal places.	The CR should be rou	nded to a whole numb	er.			THE REACH (CONDITION IN	DEX (RCI) >>

CR = RCI X LF X IF

INSERT PHOTOS:

DOWNSTREAM



Sample S		S	tre	Unit	fied Stream N	lethodology 1	Form	ginia	m 1)			
Name(s) of Evaluator(s) Alteachead / Nies WUS 1835 I. Channel Condition: Assess the cross-section of the siteman and prevaling condition (erosion, approachion) Onlinear Gargery Optimal O	Project #	Project	t Name			Cowardin		İ	SAR#	-	Impact Factor	
Channel Condition: Assess the cross-section of the stream and prevailing condition (erosion, agardation)	5337	I-64 Per	ninsula	а	New Kent	R2UB2	02080206	11/16/11		97		
Channel Condition: Assess the cross-section of the stream and prevailing condition (etrosion, aggradators) Conditional Category Channel Condition Channel Condition Channel Condition C	Name	.,			e and Inform	ation						
Channel Condition Optimal Suboptimal Marginal Poor Overwidened finance Condition Condition Optimal Suboptimal Suboptimal Suboptimal Poor Overwidened finance Condition Optimal Suboptimal Poor Suboptimal Suboptimal Poor Subo		Aitkenhead / Nies		WUS 183S								
Channel Condition Channel Condition Channel Condition Channel Condition Channel Condition Channel Condition Condition Channel Channel Channel Condition Channel Channel Channel Condition Channel	I. Channel C	Condition: Assess the c	ross-sect	tion of the stream								
Channel Condition Way filtel inclosion or active exodors or supprotected banks. Milgory of Uniformity and Condition Condition Washington and Weighting or Section or supprotected banks. Milgory of Uniformity and Section Condition. Macros to their cityrian and the state of the Condition of the Weighting Protection or entitled from the stability. Amb Dark State and the Section Condition of the Weighting Protection or entitled from the stability. Amb Dark State and the Section Condition Conditio		Optimal		Subo				P	oor	Se	vere	
boverhead or understand. AbJUCR-4D control for preventing residence of the control of the standard and the standard		100% stable banks. Vege surface protection or natura prominent (80-100%). AN	etative al rock, ID/OR	erosion or unproted of banks are si Vegetative protect prominent (60- Depositional feat	cted banks. Majority table (60-80%). tion or natural rock -80%) AND/OR tures contribute to	Poor. Banks more or Poor due to k Erosion may be pr both banks. Vege 40-60% of banks.	e stable than Severe ower bank slopes. resent on 40-60% of tative protection on . Streambanks may	Vertically/laterally widen further. Ma are near vertical. 60-80% of bal protection pres	y unstable. Likely to ajority of both banks Erosion present on nks. Vegetative ent on 20-40% of	incision, flow co banks. Streamb rooting depth, r vertical/under	ntained within the led below average majority of banks cut. Vegetative	
Riparian Buffers Conditional Category		present. Access to their or floodplain or fully develope bankfull benches. Mid-chanr and transverse bars few. Tr. sediment deposition covers le	riginal ed wide nel bars, ransient	channels are wel likely has access to or newly develope portions of the r sediment covers 10	II defined. Stream to bankfull benches, and floodplains along reach. Transient 0-40% of the stream	60% of strear sediment. Se temporary/tran instability. Depositi stability, may be AND/OR V-shap vegetative protect	in is covered by diment may be usient, contribute ion that contribute to be forming/present. and channels have ion on > 40% of the	erosion. AND/C stream is cove Sediment is tem nature, and contr AND/OR V-shal vegetative protec 40% of the banks	DR 60-80% of the red by sediment. porary/transient in ibuting to instability. bed channels have tition is present on > and stable sediment	Obvious bank s Erosion/raw ban AND/OR Aggradir than 80% of strear deposition, contril Multiple thread	loughing present. nks on 80-100%. ng channel. Greater n bed is covered by buting to instability. channels and/or	CI
Conditional Category	Score	3		2	2.4		2	1	1.6		1	3.0
Riparian Buffers Note: tree canopy cover and a nor-maintained understory. Welfands located within the riparian areas. Note: tree canopy cover and a nor-maintained understory. Welfands located within the riparian areas. Note: tree canopy cover and a nor-maintained understory. Welfands located within the riparian areas. Note: tree canopy cover and a nor-maintained understory. Welfands located within the riparian areas. Note: tree stratum, hay a production, ponds aloyer (dbh > 3 inches) present, recent cutover (dense vegetation). Note: tree stratum, hay a production, ponds aloyer (dbh > 3 inches) present, with 30% tree canopy cover with herbaceous and shruld a maintained understory. Note: tree stratum, hay a production, ponds aloyer (dbh > 3 inches) present, with 30% tree canopy cover with herbaceous and shruld a maintained understory. Note: tree stratum, hay a production, ponds aloyer (dbh > 3 inches) present, with 30% tree canopy cover with herbaceous and shruld a maintained understory. Note: tree stratum, hay a production, ponds aloyer (dbh > 3 inches) present, with 30% tree canopy cover with herbaceous and shruld a maintained understory. Note: tree stratum, hay a production, ponds aloyer (dbh > 3 inches) present, with 30% tree canopy cover with with 30% tree canopy cover with with 30% tree canopy cover with herbaceous and shruld a maintained understory. Note: tree stratum, hay a production, ponds aloyer (dbh > 3 inches) present, with 30% tree canopy cover with with				Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches)	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches)	Mar High Marginal: Non-maintained, dense herbaceous	Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas	High Poor: Lawns, mowed, and maintained areas, nurseries;	Low Poor: Impervious	NOTES		
Condition Scores 1.5 1.2 1.1 0.85 0.75 0.6 0.5 Delineate riparian areas along each stream bank into Condition Categories and Condition Scores using the lescriptors. Determine square footage for each by measuring or estimating length and width. Calculators are provided for you below. Ensure the sums of % Riparian Blocks equal 100 Blocks equal 100 CI= (Sum % RA * Scores*0.01)/Z CI= (Sum % RA * Scores*0.01)/Z Left Bank Score > 1.5 Left Bank Score > 1.5 Lt Bank CI > 1.50	•	with > 60% tree canopy cover non-maintained understory.	er and a Wetlands	to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory.	30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation).	either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover.	tree stratum, hay production, ponds, open water. If present, tree stratum (dbh >3 inches) present, with <30% tree canopy cover with maintained understory.	pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable condition.	denuded surfaces, row crops, active feed lots, trails, or other comparable conditions.			
Left Bank Score > 1.5		1.5								1		
Lt Bank Cl > 1.50 Lt Bank Cl > 1.50 Lt Bank Cl > 1.50	1. Delineate ripa descriptors. 2. Determine sq pelow. 3. Enter the % F	quare footage for each by m Riparian Area and Score for % Riparian Area> 100	neasuring r each rip	g or estimating ler	ngth and width. C	Calculators are pro	•	of %	Riparian equal 100	CI= (Sum % RA * \	Scores*0.01)/2	
Score > 1.5 Lt Bank Cl > 1.50	Left Bank								100%		1.50	CI
	3. INSTREAM	M HABITAT: Varied sub	strate siz			ody and leafy deb	ris; stable substra	ate; low embeded	ness; shade;	Lt Bank CI >	1.50	1.50
undercut banks; root mats; SAV; riffle poole complexes, stable features. Conditional Category					es.					4		
Instream Habitat/ Available Cover Optimal Suboptimal Suboptimal Suboptimal Marginal Poor Habitat elements are typically present in 10-30% of the reach and are adequate for maintenance of populations. Stable habitat elements are typically present in 10-30% of the reach and are adequate for maintenance of populations. Habitat elements isted above are lacking or are unstable. Habitat elements are typically present in 10-30% of the reach and are adequate for maintenance of populations. Stable habitat elements are typically present in less of than 10% of the reach.	Habitat/ Available	Habitat elements are typically		Stable habitat ele present in 30-50% are adequate fo	ments are typically % of the reach and or maintenance of	Stable habitat ele present in 10-309 are adequate fo	ements are typically % of the reach and or maintenance of	Habitat element lacking or are u elements are typi	is listed above are unstable. Habitat cally present in less			
Score 1.5 1.2 0.9 0.5	Score	1.5								4		CI 1.50

	St	ream In	pact A	ssessm	ent Fo	rm Page	e 2		
Project #	Applicant		Locality	Cowardin Class.	HUC	Date	Data Point	SAR length	Impact Factor
								500	1
	ALTERATION: Stream cross poil piles, constrictions, livestock	sings, riprap, concr		concrete blocks, s	traightening of ch	annel, channeliza	ition,	NOTES>>	
	Negligible	Mir	nor		erate	Sev	/ere		
Channel Alteration	Channelization, dredging, alteration, or hardening absent. Stream has an unaltered pattern or has naturalized.	Less than 20% of the stream reach is disrupted by any of the channel alterations listed in the parameter guidelines.	20-40% of the stream reach is disrupted by any of the channel alterations listed in the parameter guidelines.	is disrupted by any of the channel	60 - 80% of reach is disrupted by any of the channel alterations listed in the parameter guidelines. If stream has been channelized, normal stable stream meander pattern has not	by any of the chang in the parameter g 80% of banks sh	of reach is disrupted nel alterations listed juidelines AND/OR ored with gabion, r cement.		
SCORE	1.5	1.3	1.1	0.9	0.7	0	.5		
	REACH C	ONDITION II	NDEX and S	TREAM CO	NDITION UN	ITS FOR TH	IS REACH		
NOTE: The Cls and R	CI should be rounded to 2 decimal places.	The CR should be rour	ded to a whole numb	er.			THE REACH O	CONDITION INI	DEX (RCI) >>

COMPENSATION REQUIREMENT (CR) >> 0

CR = RCI X LF X IF

INSERT PHOTOS:



DESCRIBE PROPOSED IMPACT:		

		Stre	Uni	fied Stream N	lethodology f	Form	ginia	m 1)			
Project #		Project Name		Locality	Cowardin Class.	HUC	Date Date	SAR#	Impact/SAR length	Impact Factor	
5337	ŀ	-64 Peninsul	a	New Kent	R2UB2	02080206	11/16/11		104		
Name	e(s) of Evalua	tor(s)	Stream Nam	e and Informa	ation						
	Aitkenhead / Nies		WUS 184S								
. Channel C	Condition: Asse	ess the cross-sec	ction of the stream		ondition (erosion, conditional Catego						
	Opti	imal	Subo	ptimal	Mar	ginal	Po	oor	Se	vere	
	Very little incision o	r active erosion: 80	erosion or unproted	ew areas of active cted banks. Majority	Poor. Banks more	less than Severe or stable than Severe	Vertically/laterally	ped/incised. unstable. Likely to	incision flow co	nstability. Severe	
Channel Condition	100% stable bar surface protection prominent (80-1) Stable point bars/bs present. Access floodplain or fully bankfull benches. and transverse basediment deposition 10% of	nks. Vegetative n or natural rock, 00%). AND/OR ankfull benches are to their original or developed wide Mid-channel bars, ars few. Transient in covers less than	Vegetative protect prominent (60 Depositional feat stability. The bar channels are we likely has access t or newly develope portions of the is sediment covers 11.	table (60-80%), tion or natural rock -80%) AND/OR tures contribute to nkfull and low flow observed to bankfull benches, and floodplains along reach. Transient 0-40% of the stream tom.	Erosion may be pr both banks. Veget 40-60% of banks. bevertical or unde 60% of strean sediment. Sed temporary/tran instability. Depositi stability, may be	ower bank slopes. esent on 40-60% of tative protection on Streambanks may ercut. AND/OR 40- n is covered by diment may be sient, contribute on that contribute to e forming/present. ed channels have	are near vertical. 60-80% of bar protection prese banks, and is inst erosion. AND/O stream is cover Sediment is temp nature, and contri AND/OR V-shap	iority of both banks Erosion present on ks. Vegetative ent on 20-40% of ifficient to prevent R 60-80% of the ed by sediment. corary/transient in buting to instability. ed channels have ion is present on >	pariks. Steamb rooting depth, r vertical/under protection present banks, is not pr Obvious bank s Erosion/raw ba AND/OR Aggradir than 80% of strear deposition, contril	ed below average majority of banks cut. Vegetative on less than 20% of eventing erosion. loughing present. nks on 80-100%. ng channel. Greater n bed is covered by buting to instability. channels and/or	
					banks and depositi	ion on > 40% of the ional features which	deposition	and stable sediment is absent.	subterra	nean flow.	CI
Score	3	3	2	2.4		2	1	.6		1	2.0
. RIPARIAN	N BUFFERS: A		Con	nditional Cate	gory Mar	ginal Low Marginal: Non-maintained,		n may be accepta	NOTES>>		
RIPARIAN Riparian Buffers	Opti	imal 3 inches) present, anopy cover and a derstory. Wetlands	Cor Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy	gory	ginal Low Marginal:	Po High Poor:		NOTES>>		
Riparian	Option Tree stratum (dbh > with > 60% tree canon-maintained unc	imal 3 inches) present, anopy cover and a derstory. Wetlands	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory.	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation).	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover.	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh >3 inches) present, with <30% tree canopy cover with maintained understory.	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable condition.	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions.	NOTES>>		
Riparian	Option Tree stratum (dbh > with > 60% tree canon-maintained unc	imal 3 inches) present, anopy cover and a derstory. Wetlands e riparian areas.	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained	Low Suboptimal Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh > 3 inches) present, with <30% tree canopy cover with maintained	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable	NOTES>>		
Riparian Buffers Condition Scores Delineate ripalescriptors. Determine squelow.	Tree stratum (dbh > with > 60% tree ca non-maintained unc located within the	imal 3 inches) present, anopy cover and a derstory. Wetlands e riparian areas.	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 k into Condition C	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Coungth and width. Coungth	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh > 3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5	NOTES>>		
Riparian Buffers Condition Scores Delineate ripa secriptors. Determine squalow.	Tree stratum (dbh > with > 60% tree ca non-maintained unc located within the located with	imal 3 inches) present, anopy cover and a derstory. Wetlands e riparian areas. 5 ach stream bank ach by measurin.	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 k into Condition C	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Coungth and width. Coungth	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh > 3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5	NOTES>>		
Riparian Buffers Condition Scores Delineate ripz escriptors. Determine squelow. Enter the % F	Tree stratum (dbh > with > 60% tree ca non-maintained unc located within the	imal 3 inches) present, anopy cover and a derstory. Wetlands e riparian areas.	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 k into Condition C	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Coungth and width. Coungth	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh > 3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5	NOTES>>		
Riparian Buffers Condition Scores Delineate ripaescriptors. Determine squelow. Enter the % F	Tree stratum (dbh > with > 60% tree canon-maintained unc located within the located withi	imal 3 inches) present, anopy cover and a derstory. Wetlands e riparian areas. 5 each stream bank ach by measurin Score for each ri	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 k into Condition C	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Coungth and width. Coungth	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh > 3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5	NOTES>>		
Riparian Buffers Condition Scores Delineate ripasecriptors. Determine squelow. Enter the % F	Tree stratum (dbh > with > 60% tree ca non-maintained unc located within the located with	imal 3 inches) present, anopy cover and a derstory. Wetlands e riparian areas. 5 each stream bank ach by measurin 100% 1.2	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 k into Condition C	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Coungth and width. Coungth	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh > 3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5	NOTES>>	1.20	CI 1.20
Condition Scores Delineate ripa escriptors. Determine squelow. Enter the % F Right Bank Left Bank B. INSTREAR	Tree stratum (dbh > with > 60% tree canon-maintained unc located within the located withi	imal 3 inches) present, anopy cover and a derstory. Wetlands e riparian areas. 5 ach stream bank ach by measurin 100% 1.2 100% 1.2 aried substrate si	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 into Condition C g or estimating let parian category in	Inditional Cate ptimal Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Coungth and width. Coungth and width. Coungth and width. Coungth and depths; woo res.	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85 Indition Scores using the control of the contro	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh > 3 inches) present, with < 30% tree canopy cover with maintained understory. Low 0.75 ing the ovided for you	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F Blocks 6	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5 the sums Riparian equal 100 100%	NOTES>> Cl= (Sum % RA*: Rt Bank Cl >		C1 1.20
Condition Scores Delineate ripalescriptors. Determine squelow. Enter the % Right Bank Left Bank INSTREAM Indercut banks;	Tree stratum (dbh > with > 60% tree ca non-maintained unc located within the located with	imal 3 inches) present, anopy cover and a derstory. Wetlands e riparian areas. 5 ach stream bank ach by measurin 100% 1.2 100% 1.2 aried substrate si	Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 Into Condition C g or estimating le	Inditional Cate ptimal Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Coungth and width. Coungth and width. Coungth and width. Coungth and depths; woo res.	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <a>30 tree tree canopy cover. High 0.85 Indition Scores using the calculators are producted to the calculators are producted t	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh > 3 inches) present, with < 30% tree canopy cover with maintained understory. Low 0.75 ing the ovided for you	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F Blocks 6	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5 the sums Riparian equal 100 100%	NOTES>> Ci= (Sum % RA *: Rt Bank Ci > Lt Bank Ci >	1.20	
Condition Scores Delineate ripalescriptors. Determine squelow. Enter the % F. Right Bank Left Bank	Tree stratum (dbh > with > 60% tree ca non-maintained unc located within the located with	imal 3 inches) present, anopy cover and a derstory. Wetlands e riparian areas. 5 5 cach stream bani ach by measurin. Score for each ri 100% 1.2 100% 1.2 aried substrate si ffle poole completimal.	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 Into Condition C g or estimating let parian category in Zes, water velocit exes, stable featur Subo Stable habitat ele present in 30-509 are adequate fo	Inditional Cate ptimal Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Congth and width. Congth and width. Congth and width. Congth and depths; wores. Conditional	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85 Indition Scores using the state of the state	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh >3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75 ing the price of the production of the present of the	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F Blocks 6	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5 the sums Riparian equal 100 100% 100%	CI= (Sum % RA *: Rt Bank CI > Lt Bank CI > NOTES>>	1.20	

	St	ream In	npact A	ssessm	ent Fo	rm Pag	e 2		
Project #	Applicant		Locality	Cowardin Class.	HUC	Date	Data Point	SAR length	Impact Factor
								500	1
	ALTERATION: Stream cross poil piles, constrictions, livestock	sings, riprap, conci	rete, gabions, or c	concrete blocks, s	traightening of ch	annel, channeliza	ation,	NOTES>>	
				al Category					
	Negligible	Mir	nor		erate		vere		
Channel Alteration	Channelization, dredging, alteration, or hardening absent. Stream has an unaltered pattern or has naturalized.	Less than 20% of the stream reach is disrupted by any of the channel alterations listed in the parameter guidelines.	20-40% of the stream reach is disrupted by any of the channel alterations listed in the parameter guidelines.	is disrupted by any of the channel	of the channel	Greater than 80% by any of the chan in the parameter \$80% of banks sh	of reach is disrupted nel alterations listed juidelines AND/OR lored with gabion, r cement.		
SCORE	1.5	1.3	1.1	0.9	0.7	0	.5		
	REACH C	ONDITION	NDEX and S	TREAM CO	NDITION UN	ITS FOR TH	IS REACH		
NOTE: The CIs and R	RCI should be rounded to 2 decimal places.	The CR should be rour	nded to a whole numb	er.			THE REACH O	CONDITION IN	DEX (RCI) >>
							RCI	= (Sum of all C	l's)/5

COMPENSATION REQUIREMENT (CR) >>

0

CR = RCI X LF X IF

INSERT PHOTOS:

DOWNSTREAM



		Stre		fied Stream N	lethodology f	or use in Virg	ginia				
Project #	ı	Project Name		Locality	Cowardin Class.	HUC	Date	SAR#	Impact/SAR length	Impact Factor	
5337	Į.	-64 Peninsul	a	New Kent	R2UB2	02080206	11/16/11		89		
Nam	e(s) of Evalua	tor(s)		e and Inform	ation						
	Aitkenhead / Nies		WUS 185S								
1. Channel (Condition: Asse	ess the cross-sec	ction of the stream		ondition (erosion,						
	Opti	imal	Subo	ptimal		ginal	Po	oor	Se	/ere	
	The state of the s	LIFE OF THE STATE		ew areas of active cted banks. Majority		ess than Severe or stable than Severe		ed/incised.		istability. Severe	
Channel Condition	Very little incision on 100% stable bar surface protection prominent (80-11 Stable point bars/bz present. Access floodplain or fully bankfull benches. and transverse ba sediment depositio 10% of l	nks. Vegetative n or natural rock, 00%). AND/OR ankfull benches are to their original of developed wide Mid-channel bars, ars few. Transient in covers less than	of banks are s Vegetative protect prominent (60 Depositional feat stability. The ban channels are we likely has access t or newly develope portions of the sediment covers 10	table (60-80%). tion or natural rock -80%) AND/OR tures contribute to nkfull and low flow I defined. Stream o bankfull benches, d floodplains along reach. Transient 0-40% of the stream tom.	both banks. Veget 40-60% of banks. bevertical or unde 60% of strean sediment. Sec temporary/tran instability. Depositi stability, may be AND/OR V-shap	wer bank slopes. sesent on 40-60% of attive protection on Streambanks may rout. AND/OR 40-01 is covered by diment may be sient, contribute on that contribute to forming/present. ad channels have on on > 40% of the	are near vertical. 60-80% of ban protection prese banks, and is instension. AND/O stream is cover Sediment is temp nature, and contril AND/OR V-shap vegetative protect	ed channels have	banks. Streamb rooting depth, r, vertical/undern protection present banks, is not pro Obvious bank s Erosion/raw ban AND/OR Aggradir than 80% of strear deposition, contril Multiple thread	ded below average najority of banks cut. Vegetative on less than 20% of eventing erosion. oughing present. nks on 80-100%. Ig channel. Greater in bed is covered by buting to instability. channels and/or nean flow.	CI
Saara	3	•	2	2.4	banks and depositi	onal features which	·	is absent.		1	2.4
Score	3)		4		2	'	.0		'	2.4
2. RIPARIAI	N BUFFERS: A		Con	nditional Cate ptimal	gory	ginal Low Marginal:	Po	n may be accepta	NOTES>>		
Riparian Buffers		imal 3 inches) present, anopy cover and a derstory. Wetlands	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy	gory	ginal					
Riparian Buffers	Tree stratum (dbh > with > 60% tree ca	• 3 inches) present, anopy cover and a derstory. Wetlands e riparian areas.	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation).	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover.	Jinal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh >3 inches) present, with <30% tree canopy cover with maintained understory. Low	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable condition.	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable			
Riparian	Option Tree stratum (dbh > with > 60% tree canon-maintained unc	• 3 inches) present, anopy cover and a derstory. Wetlands e riparian areas.	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory.	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation).	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover.	Jinal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh > 3 inches) present, with <30% tree canopy cover with maintained understory.	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, recently seeded and stabilized, or other comparable condition.	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions.			
Riparian Buffers Condition Scores 1. Delineate rip descriptors. 2. Determine scorelow.	Tree stratum (dbh > with > 60% tree ca non-maintained unc located within the	imal 3 inches) present, anopy cover and a derstory. Wetlands e riparian areas.	Com Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 into Condition C	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Co	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85	Jinal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh >3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure 1 of % F	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5			
Riparian Buffers Condition Scores Delineate rip descriptors. Determine scoelow.	Tree stratum (dbh > with > 60% tree canon-maintained unc located within the	imal 3 inches) present, anopy cover and a derstory. Wetlands e riparian areas. 5 ach stream banl ach by measurin	Com Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 into Condition C	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Co	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85	Jinal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh >3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure 1 of % F	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5			
Riparian Buffers Condition Scores Delineate rip descriptors. Determine scoelow.	Tree stratum (dbh > with > 60% tree ca non-maintained unc located within the	imal 3 inches) present, anopy cover and a derstory. Wetlands e riparian areas.	Com Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 into Condition C	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Co	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85	Jinal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh >3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure 1 of % F	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5			
Riparian Buffers Condition Scores Delineate rip descriptors. Determine scores Enter the % I	Tree stratum (dbh > with > 60% tree canon-maintained unc located within the located withi	imal 3 inches) present, anopy cover and a derstory. Wetlands e riparian areas. 5 ach stream bank ach by measurin Score for each ri 100% 1.5	Com Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 into Condition C	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Co	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85	Jinal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh >3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure 1 of % F	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5 the sums Riparian regual 100 100%	NOTES>> CI= (Sum % RA * S		
Riparian Buffers Condition Scores Delineate rip descriptors. Determine scores Enter the % I	Tree stratum (dbh > with > 60% tree ca non-maintained unc located within the located with	imal 3 inches) present, anopy cover and a derstory. Wetlands e riparian areas. 5 ach stream bank ach by measurin Score for each ri 100% 1.5	Com Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 into Condition C	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Co	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85	Jinal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh >3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure 1 of % F	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5	NOTES>> CI= (Sum % RA** Rt Bank CI >	1.50	CI
Condition Scores Delineate riplescriptors. Determine scoelow. Right Bank Left Bank	Tree stratum (dbh > with > 60% tree can non-maintained unc located within the located wit	imal 3 inches) present, anopy cover and a derstory. Wetlands e riparian areas. 5 each stream bani ach by measurin Score for each ri 100% 1.5	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 Into Condition C g or estimating ler parian category in	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory, Recent cutover (dense vegetation). Low 1.1 attegories and Co ongth and width. Co	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85	Jinal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh > 3 inches) present, with < 30% tree canopy cover with maintained understory. Low 0.75 Ing the vided for you	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F Blocks 6	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5 the sums Riparian equal 100 100%	NOTES>> Cl= (Sum % RA *: Rt Bank Cl > Lt Bank Cl >		CI 1.50
Condition Scores Delineate rip descriptors. Deltermine scorelow. Enght Bank Left Bank Left Bank Line The Manual Control of the Control of	Tree stratum (dbh > with > 60% tree ca non-maintained unc located within the located with	imal 3 inches) present, anopy cover and a derstory. Wetlands e riparian areas. 5 Bach stream band ach by measurin 100% 1.5 100% 1.5 aried substrate si	Com Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 Into Condition C g or estimating let parian category in	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Co ongth and width. Co the blocks below y and depths; woo	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85	Jinal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh > 3 inches) present, with < 30% tree canopy cover with maintained understory. Low 0.75 Ing the vided for you	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F Blocks 6	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5 the sums Riparian equal 100 100%	NOTES>> CI= (Sum % RA** Rt Bank CI >	1.50	
Condition Scores 1. Delineate rip descriptors. 2. Determine scoelow. 3. Enter the % I Right Bank Left Bank 1. Left Bank Left Bank Left Bank Left Bank	Tree stratum (dbh > with > 60% tree ca non-maintained unc located within the located with	imal 3 inches) present, anopy cover and a derstory. Wetlands e riparian areas. 5 each stream band ach by measurin 100% 1.5 100% 1.5 arried substrate siffle poole complete.	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 s into Condition C g or estimating let parian category in zes, water velocit ixes, stable featur	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Co ngth and width. Co n the blocks below y and depths; wodes. Conditions	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85 Indition Scores usional calculators are production of the control of the contr	Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh -3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75 Ing the vided for you	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F Blocks e	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5 the sums Riparian equal 100 100% 100%	NOTES>> Cl= (Sum % RA *: Rt Bank Cl > Lt Bank Cl >	1.50	
Condition Scores 1. Delineate rip descriptors. 2. Determine scoelow. 3. Enter the % I	Tree stratum (dbh > with > 60% tree ca non-maintained und located within the located with	imal 3 inches) present, anopy cover and a derstory. Wetlands e riparian areas. 5 each stream bani ach by measurin 100% 1.5 100% 1.5 aried substrate si ffle poole completimal	Com Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 Into Condition C g or estimating let parian category in zes, water velocit exes, stable featur Subo Stable habitat ele present in 30-509 are adequate fo	ditional Cate ptimal Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Co ongth and width. Co on the blocks below y and depths; wodes.	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85 Indition Scores usion all Category Mar Stable habitat ele present in 10-30% are adequate fo	Jinal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh >3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75 Ing the vided for you	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure 1 of % F Blocks e	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5 the sums Riparian equal 100 100%	NOTES>> Cl= (Sum % RA *: Rt Bank Cl > Lt Bank Cl >	1.50	1.50
Condition Scores 1. Delineate rip descriptors. 2. Determine scoelow. 3. Enter the % I Right Bank Left Bank Instream Habitat/ Available	Tree stratum (dbh > with > 60% tree canon-maintained unc located within the located withi	imal 3 inches) present, anopy cover and a derstory. Wetlands e riparian areas. 5 ach stream ban ach by measurin 100% 1.5 100% 1.5 aried substrate siffle poole completimal re typically present 0% of the reach.	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 Into Condition C g or estimating let parian category in zes, water velocit exes, stable featur Subo Stable habitat ele present in 30-50° are adequate fo popul	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Co oright and width. Co the blocks below y and depths; wor res. Condition: ptimal ments are typically wo fithe reach and remaintenance of	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85 Indition Scores usicalculators are produced to the second of the second	Jinal Low Marginal: Non-maintained, dense herbaceous Vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh -3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75 Ing the Vided for you ginal ments are typically of the reach and maintenace of	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F Blocks e Habitat elements are typic than 10% of the comparable condition.	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5 the sums Riparian rqual 100 100% 100% Illumination of the comparable conditions.	NOTES>> Cl= (Sum % RA *: Rt Bank Cl > Lt Bank Cl >	1.50	

	St	ream In	npact A	ssessm	ent Fo	rm Pag	e 2		
Project #	Applicant		Locality	Cowardin Class.	HUC	Date	Data Point	SAR length	Impact Factor
								500	1
	L ALTERATION: Stream cross spoil piles, constrictions, livestock	sings, riprap, conc		concrete blocks, s	traightening of ch	annel, channeliza	ation,	NOTES>>	
	Negligible	Mi	nor		erate	Se	vere		
Channel Alteration	Channelization, dredging, alteration, or hardening absent. Stream has an unaltered pattern or has naturalized.	Less than 20% of the stream reach is disrupted by any of the channel alterations listed in the parameter guidelines.	20-40% of the stream reach is disrupted by any of the channel alterations listed in the parameter guidelines.	of the channel	60 - 80% of reach is disrupted by any of the channel alterations listed in the parameter guidelines. If stream has been channelized, normal stable stream meander pattern has not	Greater than 80% by any of the char in the parameter 80% of banks sl	of reach is disrupted nnel alterations listed guidelines AND/OR hored with gabion, or cement.		
SCORE	1.5	1.3	1.1	0.9	0.7	(0.5		
	REACH C	CONDITION	NDEX and S	TREAM CO	NDITION UN	ITS FOR TH	IIS REACH		
NOTE: The Cls and F	RCI should be rounded to 2 decimal places.	The CR should be rou	nded to a whole numb	er.			THE REACH (CONDITION IN	DEX (RCI) >>

.._0

COMPENSATION REQUIREMENT (CR) >>

(R) >> 0

CR = RCI X LF X IF

INSERT PHOTOS:

UPSTREAM



DESCRIBE PROPOSED IMPACT:		

	Stre		fied Stream N	lethodology f	or use in Virg	ginia				
Project #	Project Nan		Locality	classified a Cowardin Class.	s intermittent or HUC	Date Date	SAR#	Impact/SAR length	Impact Factor	
5337	I-64 Peninsu	la	New Kent	R2UB2	02080206	November 2011		100		
Name	e(s) of Evaluator(s)		e and Informa	ation						
	Aitkenhead / Nies	WUS 187S								
I. Channel C	Condition: Assess the cross-se	ection of the stream		ondition (erosion, Conditional Catego						
	Optimal	Subo	ptimal	Mar	ginal	Po	oor	Sev	vere	
Channel	Very little incision or active erosion; 8 100% stable banks. Vegetative	of banks are s	ew areas of active cted banks. Majority table (60-80%). tion or natural rock	Poor. Banks more or Poor due to lo	less than Severe or stable than Severe wer bank slopes. esent on 40-60% of	Vertically/laterally widen further. Ma	ned/incised. unstable. Likely to jority of both banks	incision, flow cor banks. Streamb	nstability. Severe	
Condition	surface protection or natural rock, prominent (80-100%). AND/OR Stable point bars/bankfull benches an present. Access to their original floodplain or fully developed wide bankfull benches. Mid-channel bars and transverse bars few. Transient sediment deposition covers less that 10% of bottom.	prominent (60 Depositional feat stability. The bar channels are we likely has access t or newly develope portions of the sediment covers 10	-80%) AND/OR tures contribute to nkfull and low flow Il defined. Stream o bankfull benches, and floodplains along reach. Transient 0-40% of the stream tom.	both banks. Veget 40-60% of banks. bevertical or unde 60% of strean sediment. Set temporary/tran instability. Depositi stability, may be AND/OR V-shap vegetative protecti	ative protection on Streambanks may rcut. AND/OR 40- n is covered by diment may be sient, contribute on that contribute to forming/present. ed channels have on on > 40% of the	60-80% of bar protection press banks, and is insu erosion. AND/O stream is cover Sediment is temp nature, and contri AND/OR V-shap vegetative protect 40% of the banks a	ks. Vegetative ent on 20-40% of ufficient to prevent R 60-80% of the ed by sediment. corary/transient in	vertical/underc protection present - banks, is not pre Obvious bank sl Erosion/raw bar AND/OR Aggradin than 80% of strean deposition, contrit Multiple thread	najority of banks cut. Vegetative on less than 20% of eventing erosion. loughing present. hks on 80-100%. In g channel. Greater or bed is covered by putting to instability. channels and/or lean flow.	CI
Score	3	2	2.4		onal features which	·	.6		1	3.0
NOTES>>		- N						1		
	N BUFFERS: Assess both bar	Con	nditional Cate ptimal	gory	ginal Low Marginal:	Po	n may be accepta	NOTES>>		
		Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches), present, with 30% to 60% tree	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy	gory	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, had production, ponds, open water. If present, tree stratum (dbh > 3 inches) present, with <30% tree canopy cover with maintained			NOTES>>		
2. RIPARIAN Riparian Buffers	Optimal Tree stratum (dbh > 3 inches) presen with > 60% tree canopy cover and a non-maintained understory. Wetland	High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree s canopy cover and containing both herbaceous and shrub layers or a non-maintained	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh >3 inches) present, with 230% trees canopy cover with	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable	NOTES>>		
2. RIPARIAN	Optimal Tree stratum (dbh > 3 inches) presen with > 60% tree canopy cover and a non-maintained understory. Wetland	High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches). It present, with 30% to 60% tree s canopy cover and containing both herbaceous and shrub layers or a non-maintained understory.	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation).	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover.	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh >3 inches) present, with <30% tree canopy cover with maintained understory.	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, recently seeded and stabilized, or other comparable condition.	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions.	NOTES>>		
Riparian Buffers Condition Scores 1. Delineate ripa descriptors. 2. Determine sq below. 3. Enter the % R	Optimal Tree stratum (dbh > 3 inches) presen with > 60% tree canopy cover and a non-maintained understory. Wetland located within the riparian areas.	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree s canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 The into Condition Con and or estimating len the condition Con and con and condition Con and	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Coungth and width. Coungth	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh > 3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions.	NOTES>>		
Riparian Buffers Condition Scores Delineate ripa elescriptors. 2. Determine squelow.	Optimal Tree stratum (dbh > 3 inches) presen with > 60% tree canopy cover and a non-maintained understory. Wetland located within the riparian areas. 1.5 arian areas along each stream ba quare footage for each by measuri	High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree s canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Coungth and width. Coungth	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh > 3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5	NOTES>>	Sparger 9 ANN	
Riparian Buffers Condition Scores Delineate ripa descriptors. Delevelow. Beach Right Bank	Optimal Tree stratum (dbh > 3 inches) presen with > 60% tree canopy cover and a non-maintained understory. Wetland located within the riparian areas. 1.5 arian areas along each stream ba quare footage for each by measuri	High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree s canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Coungth and width. Coungth	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh > 3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5	NOTES>>	Scores*0.01)/2	CI
Riparian Buffers Condition Scores Delineate ripalescriptors. Determine squelow.	Optimal Tree stratum (dbh > 3 inches) presen with > 60% tree canopy cover and a non-maintained understory. Wetland located within the riparian areas. 1.5 arian areas along each stream ba quare footage for each by measuring the properties of th	High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree s canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Coungth and width. Coungth	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh > 3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5 the sums Riparian regual 100 100%	NOTES>>		CI 1.50
Riparian Buffers Condition Scores Delineate ripa descriptors. Determine squelow. Enter the % R Right Bank Left Bank INSTREAM	Optimal Tree stratum (dbh > 3 inches) presen with > 60% tree canopy cover and a non-maintained understory. Wetland located within the riparian areas. 1.5 arian areas along each stream baquare footage for each by measuring the properties of the	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree s canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 The into Condition Cong or estimating let riparian category in	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Congth and width. Control with the blocks below yand depths; woo	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh > 3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75 Ing the vided for you	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F Blocks 6	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5 the sums Riparian equal 100 100%	NOTES>> CI= (Sum % RA * S Rt Bank CI >	1.50	
Riparian Buffers Condition Scores 1. Delineate ripa descriptors. 2. Determine squelow. 3. Enter the % R Right Bank Left Bank 3. INSTREAN undercut banks;	Optimal Tree stratum (dbh > 3 inches) presen with > 60% tree canopy cover and a non-maintained understory. Wetland located within the riparian areas. 1.5 arian areas along each stream ba quare footage for each by measuring Riparian Area and Score for each % Riparian Area 100% Score > 1.5 % Riparian Area 100% Score > 1.5 M HABITAT: Varied substrate root mats; SAV; riffle poole comp	High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree s canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 It into Condition C Interpretation of the condition of th	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Co ngth and width. Co n the blocks below y and depths; wodes. Conditiona	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85 Indition Scores usional calculators are production of the control of the contr	Ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh >3 inches) present, with 200 water. If present, tree stratum (dbh >3 inches) present, with 200 water. If present, tree canopy cover with maintained understory. Low 0.75 Ing the vided for you	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F Blocks 6	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5 the sums Riparian riqual 100 100%	CI= (Sum % RA * S Rt Bank CI > Lt Bank CI >	1.50	
Riparian Buffers Condition Scores 1. Delineate ripa descriptors. 2. Determine sq below. 3. Enter the % R Right Bank Left Bank 3. INSTREAN	Optimal Tree stratum (dbh > 3 inches) presen with > 60% tree canopy cover and a non-maintained understory. Wetland located within the riparian areas. 1.5 arian areas along each stream ba quare footage for each by measuring Riparian Area and Score for each % Riparian Area and Score for each % Riparian Area 100% Score > 1.5 M Riparian Area> 100% Score > 1.5 M HABITAT: Varied substrate	Com Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree s canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 Ak into Condition C ang or estimating let riparian category in Sizes, water velocit exes, stable featur Subo Stable habitat ele typresent in a)-Su- are adequate fo are adequate fo are adequate fo	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Coungth and width. Coungth and width. Coungth and width. Coungth and depths; woo es.	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85 Indition Scores usion all Category Mar Stable habitat ele present in 10-30% are adequate fo	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh > 3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75 Ing the vided for you	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F Blocks 6	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5 the sums Riparian equal 100 100%	CI= (Sum % RA * S Rt Bank CI > Lt Bank CI >	1.50	

	St	ream In	npact A	ssessm	ent Fo	m Page	e 2		
Project #	Applicant		Locality	Cowardin Class.	HUC	Date	Data Point	SAR length	Impact Factor
								500	1
	L ALTERATION: Stream cross spoil piles, constrictions, livestock	sings, riprap, conc		concrete blocks, s	traightening of ch	annel, channeliza	ation,	NOTES>>	
	Negligible	Mi	nor		erate		vere		
Channel Alteration	Channelization, dredging, alteration, or hardening absent. Stream has an unaltered pattern or has naturalized.	Less than 20% of the stream reach is disrupted by any of the channel alterations listed in the parameter guidelines.	20-40% of the stream reach is disrupted by any of the channel alterations listed in the parameter guidelines.	is disrupted by any of the channel	of the channel	Greater than 80% of by any of the chang in the parameter greating 80% of banks sh	of reach is disrupted nel alterations listed juidelines AND/OR ored with gabion, r cement.		
SCORE	1.5	1.3	1.1	0.9	0.7	0	.5		
	REACH C	ONDITION	NDEX and S	TREAM CO	NDITION UN	ITS FOR TH	IS REACH		
NOTE: The Cls and F	RCI should be rounded to 2 decimal places.	The CR should be rou	nded to a whole numb	er.			THE REACH (CONDITION IN	DEX (RCI) >>

CR = RCI X LF X IF

INSERT PHOTOS:

UPSTREAM



DESCRIBE PROPOSED IMPACT:	

		Stre	Unit	SSESS fied Stream N	lethodology f	for use in Virg	ginia	m 1)			
Project #		Project Name		Locality	Cowardin Class.	HUC	Date Date	SAR#	Impact/SAR length	Impact Factor	
5337	ŀ	-64 Peninsul	a	James City	R2UB2	02080206	11/16/11		76		
Name	e(s) of Evalua	tor(s)	Stream Nam	e and Informa	ation					1	1
	Aitkenhead / Nies		WUS 188S								
Channel C	Condition: Assess the cross-section of the str		ction of the stream		ondition (erosion, Conditional Catego						
	Opti	imal	Subo	ptimal	Mar	ginal	Po	oor	Se	vere	
	Very little incision o	r active erosion: 80	erosion or unproted	ew areas of active cted banks. Majority	Poor. Banks more	less than Severe or stable than Severe	Vertically/laterally	ned/incised. unstable. Likely to		nstability. Severe	
Channel Condition	100% stable bar surface protection prominent (80-1) Stable point bars/bar present. Access floodplain or fully bankfull benches. and transverse bar sediment depositio	nks. Vegetative n or natural rock, 00%). AND/OR ankfull benches are to their original or developed wide Mid-channel bars, ars few. Transient in covers less than	Vegetative protect prominent (60- Depositional feat stability. The bar channels are well likely has access to or newly develope portions of the resediment covers 10 to definite the covers of the resediment covers 10 to definite the covers of the resediment covers 10 to definite the covers of the resediment covers 10 to definite the covers 10 to definite	table (60-80%), tion or natural rock -80%) AND/OR tures contribute to nkfull and low flow ill obankfull benches, at floodplains along reach. Transient 0-40% of the stream tom.	Erosion may be pr both banks. Veget 40-60% of banks. bevertical or unde 60% of strean sediment. Sed temporary/tran instability. Depositi stability, may be	ower bank slopes. esent on 40-60% of tative protection on Streambanks may ercut. AND/OR 40- n is covered by diment may be sient, contribute on that contribute to to forming/present. ed channels have	are near vertical. 60-80% of bar protection prese banks, and is inst erosion. AND/O stream is cover Sediment is temp nature, and contri AND/OR V-shap	iority of both banks Erosion present on ks. Vegetative ent on 20-40% of ufficient to prevent R 60-80% of the ed by sediment. corary/transient in buting to instability. ed channels have ion is present on >	rooting depth, r vertical/under protection present banks, is not pr Obvious bank s Erosion/raw ba AND/OR Aggradir than 80% of streat deposition, contril	ned below average majority of banks cut. Vegetative on less than 20% of eventing erosion. eloughing present. inks on 80-100%. ng channel. Greater m bed is covered by buting to instability. I channels and/or	
					banks and depositi	ion on > 40% of the ional features which	deposition	and stable sediment is absent.	subterra	nean flow.	CI
Score	3	3	2	2.4		2	1	.6	<u> </u>	1	2.4
. RIPARIAN	N BUFFERS: A		Con	nditional Cate	gory Mar	ginal Low Marginal: Non-maintained,	Po High Poor:	n may be accepta	NOTES>>		
RIPARIAN Riparian Buffers	Opti	imal 3 inches) present, anopy cover and a derstory. Wetlands	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy	gory	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh >3 inches) present, with 30% Inches) present, with <a href<="" th=""><th>Po</th><th></th><th>NOTES>></th><th></th><th></th>	Po		NOTES>>		
Riparian	Option Tree stratum (dbh > with > 60% tree canon-maintained unc	imal 3 inches) present, anopy cover and a derstory. Wetlands	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory.	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation).	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover.	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh >3 inches) present, with <30% tree canopy cover with maintained understory.	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable condition.	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions.	NOTES>>		
Riparian	Option Tree stratum (dbh > with > 60% tree canon-maintained unc	imal 3 inches) present, anopy cover and a derstory. Wetlands e riparian areas.	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained	Low Suboptimal Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh >3 inches) present, with <30% tree canopy cover with maintained	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable	NOTES>>		
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Riparian Buffers Condition Scores Delineate ripa escriptors. Determine squelow. Enter the % F Right Bank Left Bank	Tree stratum (dbh > with > 60% tree canon-maintained unc located within the located withi	imal 3 inches) present, anopy cover and a derstory. Wetlands e riparian areas. 5 ach stream bank ach by measurin 100% 1.5 100% 1.5 aried substrate si	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 Into Condition C g or estimating ler parian category in	Inditional Cate ptimal Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Coungth and width. Coungth and width. Coungth and width. Coungth and depths; woo res.	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85 Indition Scores using the control of the contro	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh -3 inches) present, with <a>30 % tree canopy cover with maintained understory. Low 0.75 ing the evided for you	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F Blocks 6	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5 the sums Riparian equal 100 100%	NOTES>>		CI 1.50
Condition Scores Delineate ripa escriptors. Determine squelow. Enter the % F Right Bank Left Bank I. INSTREAN ndercut banks;	Tree stratum (dbh > with > 60% tree ca non-maintained unc located within the located with	imal 3 inches) present, enopy cover and a derstory. Wetlands e riparian areas. 5 each stream bank ach by measuring 100% 1.5 100% 1.5 aried substrate siffle poole comple	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 Into Condition C g or estimating ler parian category in zes, water velocity ixes, stable featur	Inditional Cate ptimal Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Congth and width. Congth and width. Congth and width. Congth and depths; wores. Conditional	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <a>30 tree tree canopy cover. High 0.85 Indition Scores using the calculators are producted to the calculators are producted t	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh >3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75 ing the vided for you	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F Blocks 6	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5 the sums Riparian equal 100 100% 100%	NOTES>> Ci= (Sum % RA *: Rt Bank Ci > Lt Bank Ci >	1.50	
Condition Scores Delineate ripa escriptors. Determine squelow. Enter the % F Right Bank Left Bank B. INSTREAR	Tree stratum (dbh > with > 60% tree canon-maintained unc located within the located withi	imal 3 inches) present, anopy cover and a derstory. Wetlands e riparian areas. 5 ach stream bani ach by measurin. Score for each ri 100% 1.5 100% 1.5 ried substrate si ffle poole completimal.	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 Into Condition C g or estimating let parian category in zes, water velocity exes, stable featur Subo Stable habitat ele present in 30-50% are adequate fo	Inditional Cate ptimal Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Coungth and width. Coungth and width. Coungth and width. Coungth and depths; woo res.	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85 Indition Scores using the state of the state	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh -3 inches) present, with <a>30 % tree canopy cover with maintained understory. Low 0.75 ing the evided for you	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F Blocks 6	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5 the sums Riparian equal 100 100%	CI= (Sum % RA *: Rt Bank CI > Lt Bank CI > NOTES>>	1.50	

	St	ream In	npact A	ssessm	ent Fo	rm Pag	e 2		
Project #	Applicant		Locality	Cowardin Class.	HUC	Date	Data Point	SAR length	Impact Factor
								500	1
	L ALTERATION: Stream cross spoil piles, constrictions, livestock	sings, riprap, conc		concrete blocks, s	traightening of ch	annel, channeliza	ation,	NOTES>>	
	Negligible	Mi	nor		erate	Se	vere		
Channel Alteration	Channelization, dredging, alteration, or hardening absent. Stream has an unaltered pattern or has naturalized.	Less than 20% of the stream reach is disrupted by any of the channel alterations listed in the parameter guidelines.	20-40% of the stream reach is disrupted by any of the channel alterations listed in the parameter guidelines.	of the channel	60 - 80% of reach is disrupted by any of the channel alterations listed in the parameter guidelines. If stream has been channelized, normal stable stream meander pattern has not	Greater than 80% by any of the char in the parameter 80% of banks sl	of reach is disrupted nnel alterations listed guidelines AND/OR hored with gabion, or cement.		
SCORE	1.5	1.3	1.1	0.9	0.7	(0.5		
	REACH C	CONDITION	NDEX and S	TREAM CO	NDITION UN	ITS FOR TH	IIS REACH		
NOTE: The Cls and F	RCI should be rounded to 2 decimal places.	The CR should be rou	nded to a whole numb	er.			THE REACH (CONDITION IN	DEX (RCI) >>

CR = RCI X LF X IF

INSERT PHOTOS:



DESCRIBE PROPOSED IMPACT:		

		Stre	Unit	SSESS fied Stream N	lethodology f	for use in Virg	ginia	m 1)			
Project #		Project Name		Locality	Cowardin Class.	HUC	perennial Date	SAR#	Impact/SAR length	Impact Factor	
5337	ŀ	-64 Peninsul	a	James City	R2UB2	02080206	11/16/11		379		
Name	e(s) of Evalua	tor(s)	Stream Nam	e and Informa	ation						
	Aitkenhead / Nies		WUS 189S								
. Channel C	Condition: Asse	ess the cross-sec	ction of the stream		ondition (erosion, Conditional Catego						
	Opti	imal	Subo	ptimal	Mar	ginal	Po	oor	Se	vere	
	Very little incision o	r active erosion: 80	erosion or unproted	ew areas of active cted banks. Majority	Poor. Banks more	less than Severe or stable than Severe	Vertically/laterally	ed/incised. unstable. Likely to		nstability. Severe	
Channel Condition	100% stable bar surface protection prominent (80-1) Stable point bars/ba present. Access floodplain or fully bankfull benches. and transverse ba sediment depositio 10% of	nks. Vegetative n or natural rock, 00%). AND/OR ankfull benches are to their original or developed wide Mid-channel bars, ars few. Transient in covers less than	Vegetative protect prominent (60- Depositional feat stability. The bar channels are well likely has access to or newly develope portions of the resediment covers 10 to definite the covers of the resediment covers 10 to definite the covers of the resediment covers 10 to definite the covers of the resediment covers 10 to definite the covers 10 to definite	table (60-80%), tion or natural rock -80%) AND/OR tures contribute to nkfull and low flow ill obankfull benches, at floodplains along reach. Transient 0-40% of the stream tom.	Erosion may be pr both banks. Veget 40-60% of banks. bevertical or unde 60% of strean sediment. Sed temporary/tran instability. Depositi stability, may be	ower bank slopes. esent on 40-60% of tative protection on Streambanks may ercut. AND/OR 40- n is covered by diment may be sient, contribute on that contribute to e forming/present. ed channels have	are near vertical. 60-80% of bar protection prese banks, and is inst erosion. AND/O stream is cover Sediment is temp nature, and contri AND/OR V-shap	ority of both banks Erosion present on ks. Vegetative int on 20-40% of ifficient to prevent R 60-80% of the ed by sediment. corary/transient in puting to instability. ed channels have ion is present on >	rooting depth, r vertical/underr protection present banks, is not pr Obvious bank s Erosion/raw ban AND/OR Aggradir than 80% of strear deposition, contril	ed below average majority of banks cut. Vegetative on less than 20% of eventing erosion. loughing present. hots on 80-100%. ng channel. Greater n bed is covered by puting to instability. channels and/or	
					banks and depositi	ion on > 40% of the ional features which	deposition	ind stable sediment is absent.	subterra	nean flow.	CI
Score	3	3	2	2.4		2	1	.6		1	2.4
	N BUFFERS: A		Con	nditional Cate	gory Mar	ginal Low Marginal: Non-maintained,	Po High Poor:	n may be accepta	NOTES>>		
	Opti	imal 3 inches) present, anopy cover and a derstory. Wetlands	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy	gory	ginal Low Marginal:	Po		,		
. RIPARIAN	Option Tree stratum (dbh > with > 60% tree canon-maintained unc	imal 3 inches) present, anopy cover and a derstory. Wetlands	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory.	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation).	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover.	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh >3 inches) present, with <30% tree canopy cover with maintained understory.	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable condition.	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions.	,		
Riparian Buffers	Option Tree stratum (dbh > with > 60% tree canon-maintained unc	imal 3 inches) present, anopy cover and a derstory. Wetlands e riparian areas.	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained	Low Suboptimal Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh >3 inches) present, with <30% tree canopy cover with maintained	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable	,		
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Riparian Buffers Condition Scores Delineate ripa escriptors. Determine squelow. Enter the % F. Right Bank Left Bank INSTREAM Indercut banks;	Tree stratum (dbh > with > 60% tree ca non-maintained unc located within the located with	imal 3 inches) present, anopy cover and a derstory. Wetlands e riparian areas. 5 ach stream bank ach by measurin 100% 1.5 100% 1.5 aried substrate si	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 Into Condition C g or estimating ler parian category in zes, water velocity ixes, stable featur	Inditional Cate ptimal Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Coungth and width. Coungth and width. Coungth and width. Coungth and depths; woo res.	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <a>30 tree tree canopy cover. High 0.85 Indition Scores using the calculators are producted to the calculators are producted t	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh > 3 inches) present, with < 30% tree canopy cover with maintained understory: Low 0.75 ing the ovided for you	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F Blocks 6	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5 the sums Riparian qual 100 100%	NOTES>> CI= (Sum % RA * S Rt Bank CI > Lt Bank CI >	1.50	_
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Stream Impact Assessment Form Page 2									
Project #	Applicant		Locality	Cowardin Class.	HUC	Date	Data Point	SAR length	Impact Factor
								500	1
	ALTERATION: Stream cross poil piles, constrictions, livestock	ings, riprap, conci		concrete blocks, s	traightening of ch	annel, channeliza	ation,	NOTES>>	
	Negligible	Mii	nor		erate	Se	vere		
Channel Alteration	or hardening absent. Stream has an	Less than 20% of the stream reach is disrupted by any of the channel alterations listed in the parameter guidelines.	20-40% of the stream reach is disrupted by any of the channel alterations listed in the parameter guidelines.	is disrupted by any of the channel	of the channel	Greater than 80% by any of the chan in the parameter 80% of banks sh	of reach is disrupted anel alterations listed guidelines AND/OR hored with gabion, or cement.		
SCORE	1.5	1.3	1.1	0.9	0.7	C	0.5		
REACH CONDITION INDEX and STREAM CONDITION UNITS FOR THIS REACH									
NOTE: The Cls and F	CI should be rounded to 2 decimal places.	The CR should be rour	nded to a whole numb	er.			THE REACH (CONDITION IN	DEX (RCI) >>

CR = RCI X LF X IF

INSERT PHOTOS:

UPSTREAM



DESCRIBE PROPOSED IMPACT:			
	<u> </u>	 <u> </u>	<u> </u>

		Stre	Unit	fied Stream N	lethodology f	Form	ginia	m 1)			
Project #		Project Name		Locality	Cowardin Class.	HUC	Date Date	SAR#	Impact/SAR length	Impact Factor	
5337	ŀ	-64 Peninsul	a	James City	R4UB2	02080206	11/16/11		111		
Name	e(s) of Evalua	tor(s)	Stream Nam	e and Informa	ation						
	Aitkenhead / Nies		WUS 190S								
. Channel C	Condition: Asse	ess the cross-sec	tion of the stream		ondition (erosion, conditional Catego						
	Opti	imal	Subo	ptimal	Mar	ginal	Po	oor	Se	vere	
	Very little incision o	r active erosion: 80	erosion or unproted	ew areas of active cted banks. Majority	Poor. Banks more	less than Severe or stable than Severe	Vertically/laterally	ned/incised. unstable. Likely to		nstability. Severe	
Channel Condition	100% stable bar surface protection prominent (80-1) Stable point bars/bs present. Access floodplain or fully bankfull benches. and transverse basediment deposition 10% of	nks. Vegetative n or natural rock, 00%). AND/OR ankfull benches are to their original developed wide Mid-channel bars, ars few. Transient n covers less than	Vegetative protect prominent (60- Depositional feat stability. The bar channels are well likely has access to rnewly develope portions of the rediment covers 10	table (60-80%), tion or natural rock -80%) AND/OR tures contribute to nkfull and low flow Il defined. Stream o bankfull benches, d floodplains along reach. Transient 0-40% of the stream tom.	Erosion may be pr both banks. Veget 40-60% of banks. bevertical or unde 60% of strean sediment. Sed temporary/tran instability. Depositi stability, may be	ower bank slopes. resent on 40-60% of tative protection on Streambanks may ercut. AND/OR 40- n is covered by diment may be issent, contribute to e forming/present. sed channels have	are near vertical. 60-80% of bar protection prese banks, and is insi erosion. AND/C stream is cover Sediment is tem nature, and contri AND/OR V-shap	jority of both banks Erosion present on iks. Vegetative ent on 20-40% of afficient to prevent R 60-80% of the eed by sediment. corary/transient in buting to instability. ed channels have ion is present on >	rooting depth, r vertical/underr protection present banks, is not pr Obvious bank s Erosion/raw ban AND/OR Aggradir than 80% of strear deposition, contril	ed below average majority of banks cut. Vegetative on less than 20% of eventing erosion. loughing present. nks on 80-100%. ng channel. Greater n bed is covered by buting to instability. channels and/or	
					banks and depositi	ion on > 40% of the ional features which	deposition	and stable sediment is absent.	subterra	nean flow.	CI
Score	3	3	2	.4		2	1	.6		1	2.4
	N BUFFERS: #		Con Subo	ditional Cate	gory Mar	ginal Low Marginal: Non-maintained,	Po High Poor:	n may be accepta	NOTES>>		
RIPARIAN Riparian Buffers	Opti	mal 3 inches) present, unopy cover and a lerstory. Wetlands	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree	nditional Cate	gory	ginal Low Marginal:	Pe				
. RIPARIAN	Option Tree stratum (dbh > with > 60% tree canon-maintained unc	mal 3 inches) present, unopy cover and a lerstory. Wetlands	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory.	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation).	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover.	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh >3 inches) present, with <30% tree canopy cover with maintained understory.	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable condition.	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions.			
2. RIPARIAN	Option Tree stratum (dbh > with > 60% tree canon-maintained unc	3 inches) present, inopy cover and a derstory. Wetlands e riparian areas.	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained	Low Suboptimal Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh > 3 inches) present, with <30% tree canopy cover with maintained	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable			
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Riparian Buffers Condition Scores Delineate ripalescriptors. Determine squelow. Enter the % F. Right Bank Left Bank I. Left Bank	Tree stratum (dbh > with > 60% tree canon-maintained unc located within the located withi	5 sach stream bank ach by measurin 100% 1.2 100% 1.2 aried substrate si	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 k into Condition C g or estimating ler parian category in	ditional Cate ptimal Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Coungth and width. Coungth and width. Coungth and width. Coungth and depths; wodes.	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85 Indition Scores using the control of the contro	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh > 3 inches) present, with <a>30 % tree canopy cover with maintained understory: Low 0.75 ing the povided for you	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F Blocks 6	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5 the sums Riparian equal 100 100%	NOTES>>		CI 1.20
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Stream Impact Assessment Form Page 2									
Project #	Applicant		Locality	Cowardin Class.	HUC	Date	Data Point	SAR length	Impact Factor
								500	1
	_ ALTERATION: Stream cross poil piles, constrictions, livestock	ings, riprap, conci		concrete blocks, s	straightening of ch	annel, channeliz	ration,	NOTES>>	
	Negligible	Mir	nor		erate		evere		
Channel Alteration	Channelization, dredging, alteration, or hardening absent. Stream has an unaltered pattern or has naturalized.	Less than 20% of the stream reach is disrupted by any of the channel alterations listed in the parameter guidelines.	20-40% of the stream reach is disrupted by any of the channel	is disrupted by any of the channel	60 - 80% of reach is disrupted by any of the channel alterations listed in the parameter guidelines. If stream has been channelized, normal stable stream meander pattern has not	Greater than 80% by any of the char in the parameter 80% of banks s	o of reach is disrupted nnel alterations listed guidelines AND/OR shored with gabion, or cement.		
SCORE	1.5	1.3	1.1	0.9	0.7	(0.5		
	REACH C	ONDITION I	NDEX and S	TREAM CO	NDITION UN	ITS FOR TH	HIS REACH		
	CI should be rounded to 2 decimal places.	The CB should be rou	adad to a whole numb	or			THE REACH	CONDITION IN	DEX (RCI) >>

COMPENSATION REQUIREMENT (CR) >> 0

CR = RCI X LF X IF

INSERT PHOTOS:





		Stre	Unit	fied Stream N	lethodology 1	Form	ginia	m 1)			
Project #		Project Name		Locality	cowardin Class.	HUC	Date Date	SAR#	Impact/SAR length	Impact Factor	
5337	ŀ	-64 Peninsul	a	James City	R2UB2	02080206	11/16/11		36		
Name	e(s) of Evalua	tor(s)	Stream Nam	e and Informa	ation						
	Aitkenhead / Nies		WUS 191S								
. Channel C	Condition: Asse	ess the cross-sec	tion of the stream		ondition (erosion, conditional Catego						
	Opti	imal	Subo	ptimal	Mar	ginal	Po	oor	Se	vere	
Ol survey.	Very little incision o	r active erosion; 80	erosion or unproted	ew areas of active cted banks. Majority	Poor. Banks more	less than Severe or e stable than Severe ower bank slopes.	Vertically/laterally	ned/incised. unstable. Likely to jority of both banks	incision, flow co	istability. Severe	
Channel Condition	100% stable bar surface protection prominent (80-1) Stable point bars/bc present. Access floodplain or fully bankfull benches. and transverse be sediment depositio 10% of	nks. Vegetative n or natural rock, 00%). AND/OR ankfull benches are to their original developed wide Mid-channel bars, ars few. Transient n covers less than	Vegetative protect prominent (60- Depositional feat stability. The bar channels are well likely has access to rnewly develope portions of the rediment covers 10	table (60-80%), tion or natural rock 80%) AND/OR tures contribute to hkfull and low flow Il defined. Stream o bankfull benches, d floodplains along reach. Transient 0-40% of the stream tom.	Erosion may be pr both banks. Veget 40-60% of banks. bevertical or unde 60% of strean sediment. Set temporary/tran instability. Depositi stability, may be AND/OR V-shap	resent on 40-60% of tative protection on Streambanks may ercut. AND/OR 40- m is covered by diment may be usient, contribute ion that contribute to be forming/present.	are near vertical. 60-80% of bar protection prese banks, and is inst erosion. AND/O stream is cover Sediment is temp nature, and contri AND/OR V-shap vegetative protect	Erosion present on iks. Vegetative ent on 20-40% of ufficient to prevent R 60-80% of the red by sediment. porary/transient in buting to instability. led channels have it on is present on >	rooting depth, r vertical/underr protection present banks, is not pr Obvious bank s Erosion/raw ban AND/OR Aggradir than 80% of strear deposition, contril	ed below average majority of banks cut. Vegetative on less than 20% of eventing erosion. loughing present. nks on 80-100%. ng channel. Greater n bed is covered by puting to instability. channels and/or	
					banks and depositi	ion on > 40% of the ional features which	deposition	and stable sediment is absent.	subterra	nean flow.	
Score	3	3	2	.4		2	1	.6		1	3.0
. RIPARIAN	N BUFFERS: A		Con Subo	n areas along the	gory	ginal Low Marginal: Non-maintained,	Po High Poor:	n may be accepta	NOTES>>		
RIPARIAN Riparian Buffers	Opti Tree stratum (dbh > with > 60% tree ca	imal - 3 inches) present, nopy cover and a lerstory. Wetlands	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree	nditional Cate	gory	ginal Low Marginal:	Po				
Riparian	Option Tree stratum (dbh > with > 60% tree canon-maintained uncompaintained u	imal - 3 inches) present, nopy cover and a lerstory. Wetlands	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory.	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation).	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover.	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh >3 inches) present, with <30% tree canopy cover with maintained understory.	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable condition.	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions.			
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Condition Scores Delineate ripa escriptors. Determine squelow. Enter the % R Right Bank Left Bank Instread	Tree stratum (dbh > with > 60% tree ca non-maintained unc located within the located with	imal 3 inches) present, nopy cover and a lerstory. Wetlands e riparian areas. 5 each stream bank ach by measuring 100% 1.5 100% 1.5 aried substrate significations if the poole complete.	Riph Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 Into Condition C g or estimating ler parian category in parian category in categ	ditional Cate ptimal Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Coungth and width. Coungth and width. Coungth and width. Coungth and depths; wodes.	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <a>3 inches) present, with <a>3 inches) present, or a tree canopy cover. High 0.85 Indition Scores us calculators are production of the control of th	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh > 3 inches) present, with <a>30 % tree canopy cover with maintained understory: Low 0.75 ing the povided for you	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F Blocks 6	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5 the sums Riparian equal 100 100%	NOTES>> CI= (Sum % RA * : Rt Bank CI > Lt Bank CI >	1.50	
Condition Scores Delineate ripalescriptors. Determine squelow. Enter the % F. Right Bank Left Bank	Tree stratum (dbh > with > 60% tree ca non-maintained unc located within the located with	5 Score for each ri 100% 1.5 100% 1.5 100% 1.5 100% 1.5 100% 1.5 100% 1.5 100% 1.5	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 Into Condition C g or estimating let parian category in Zes, water velocity ixes, stable featur Subo Stable habitat ele present in 30-50% are adequate fo	ditional Cate ptimal Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Co ongth and width. Co the blocks below y and depths; wodes. Conditional	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85 Indition Scores us calculators are production of the present in 10-30 are adequate for a seadequate for the present in 10-30 are adequate for the present in 10-30 are adeq	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh >3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75 ing the povided for you	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F Blocks 6	Low Poor: Impervious surfaces, mine pool lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5 the sums Riparian equal 100 100% 100%	NOTES>> CI= (Sum % RA * : Rt Bank CI > Lt Bank CI >	1.50	

	St	ream In	npact A	ssessm	nent Fo	rm Page	e 2		
Project #	Applicant		Locality	Cowardin Class.	HUC	Date	Data Point	SAR length	Impact Factor
								500	1
	HANNEL ALTERATION: Stream crossings, riprap, concrete, gabions, or concrete blocks, straightening of channel, channelization, hkments, spoil piles, constrictions, livestock Conditional Category								
	Negligible	Mi	nor		erate		vere		
Channel Alteration	Channelization, dredging, alteration, or hardening absent. Stream has an unaltered pattern or has naturalized.	Less than 20% of the stream reach is disrupted by any of the channel alterations listed in the parameter guidelines.	20-40% of the stream reach is disrupted by any of the channel alterations listed in the parameter guidelines.	is disrupted by any of the channel	60 - 80% of reach is disrupted by any of the channel alterations listed in the parameter guidelines. If stream has been channelized, normal stable stream meander pattern has not	Greater than 80% of by any of the changing the parameter greating 80% of banks sh	of reach is disrupted nel alterations listed juidelines AND/OR lored with gabion, r cement.		
SCORE	1.5	1.3	1.1	0.9	0.7	0	.5		
REACH CONDITION INDEX and STREAM CONDITION UNITS FOR THIS REACH									
NOTE: The Cls and F	RCI should be rounded to 2 decimal places.	The CR should be rou	nded to a whole numb	er.			THE REACH (CONDITION IN	DEX (RCI) >>

CR = RCI X LF X IF

INSERT PHOTOS:



DESCRIBE PROPOSED IMPACT:			
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		Stre	Unit	SSESS fied Stream N	lethodology f	for use in Virg	ginia	m 1)			
Project #		Project Name		Locality	cowardin Class.	HUC	perennial Date	SAR#	Impact/SAR length	Impact Factor	
5337	ŀ	-64 Peninsul	a	James City	R2UB2	02080206	11/16/11		72		
Name	e(s) of Evalua	tor(s)	Stream Nam	e and Informa	ation						
	Aitkenhead / Nies		WUS 192S								
. Channel C	Condition: Asse	ess the cross-sec	ction of the stream		ondition (erosion, Conditional Catego						
	Opti	imal	Subo	ptimal	Mar	ginal	Po	or	Se	vere	
	Very little incision o	r active erosion: 80	erosion or unproted	ew areas of active cted banks. Majority	Poor. Banks more	less than Severe or stable than Severe	Vertically/laterally	ed/incised. unstable. Likely to		(stability. Severe	
Channel Condition	100% stable bar surface protection prominent (80-1) Stable point bars/ba present. Access floodplain or fully bankfull benches. and transverse basediment depositio sediment depositio	nks. Vegetative n or natural rock, 00%). AND/OR ankfull benches are to their original or developed wide Mid-channel bars, ars few. Transient in covers less than	Vegetative protect prominent (60- Depositional feat stability. The bar channels are well likely has access to or newly develope portions of the resediment covers 10 to definite the covers of the resediment covers 10 to definite the covers of the resediment covers 10 to definite the covers of the resediment covers 10 to definite the covers 10 to definite	table (60-80%), tion or natural rock -80%) AND/OR tures contribute to nkfull and low flow ill obankfull benches, at floodplains along reach. Transient 0-40% of the stream tom.	Erosion may be pr both banks. Veget 40-60% of banks. bevertical or unde 60% of strean sediment. Sed temporary/tran instability. Depositi stability, may be	ower bank slopes. esent on 40-60% of tative protection on Streambanks may ercut. AND/OR 40- n is covered by diment may be sient, contribute on that contribute to e forming/present. ed channels have	are near vertical. 60-80% of bar protection prese banks, and is inst erosion. AND/O stream is cover Sediment is temp nature, and contri AND/OR V-shap	ority of both banks Erosion present on ks. Vegetative int on 20-40% of ifficient to prevent R 60-80% of the ed by sediment. corary/transient in puting to instability. ed channels have ion is present on >	rooting depth, r vertical/underr protection present banks, is not pr Obvious bank s Erosion/raw ban AND/OR Aggradir than 80% of strear deposition, contril	ed below average majority of banks cut. Vegetative on less than 20% of eventing erosion. loughing present. Inks on 80-100%. In gehannel. Greater in bed is covered by puting to instability. channels and/or	
					banks and depositi	ion on > 40% of the ional features which	deposition	ind stable sediment is absent.	subterra	nean flow.	CI
Score	3	3	2	2.4		2	1	.6		1	2.4
. RIPARIAN	N BUFFERS: #		Con	nditional Cate	gory Mar	ginal Low Marginal: Non-maintained,	Po High Poor:	n may be accepta	NOTES>>		
RIPARIAN Riparian Buffers	Opti	imal 3 inches) present, anopy cover and a derstory. Wetlands	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy	gory	ginal Low Marginal:	Po		,		
Riparian	Option Tree stratum (dbh > with > 60% tree canon-maintained unc	imal 3 inches) present, anopy cover and a derstory. Wetlands	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory.	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation).	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover.	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh >3 inches) present, with <30% tree canopy cover with maintained understory.	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable condition.	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions.	,		
Riparian Buffers	Option Tree stratum (dbh > with > 60% tree canon-maintained unc	imal 3 inches) present, anopy cover and a derstory. Wetlands e riparian areas.	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained	Low Suboptimal Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh >3 inches) present, with <30% tree canopy cover with maintained	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable	,		
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Riparian Buffers Condition Scores Delineate ripa sescriptors. Determine squadow.	Tree stratum (dbh > with > 60% tree ca non-maintained unc located within the located with	imal 3 inches) present, anopy cover and a derstory. Wetlands e riparian areas. 5 ach stream bank ach by measurin.	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 into Condition C	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Coungth and width. Coungth	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh > 3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5	,		
Riparian Buffers Condition Scores Delineate ripaescriptors. Determine squelow. Enter the % F	Tree stratum (dbh > with > 60% tree ca non-maintained unc located within the	imal 3 inches) present, anopy cover and a derstory. Wetlands e riparian areas.	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 into Condition C	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Coungth and width. Coungth	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh > 3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5	NOTES>>		
Riparian Buffers Condition Scores Delineate ripascriptors. Determine squelow. Enter the % F	Tree stratum (dbh > with > 60% tree canon-maintained unc located within the located withi	imal 3 inches) present, anopy cover and a derstory. Wetlands e riparian areas. 5 each stream bank ach by measurin Score for each ri	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 into Condition C	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Coungth and width. Coungth	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh > 3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5 the sums Riparian qual 100 100%	NOTES>>		
Riparian Buffers Condition Scores Delineate ripascriptors. Determine squelow. Enter the % F	Tree stratum (dbh > with > 60% tree ca non-maintained unc located within the located with	imal 3 inches) present, anopy cover and a derstory. Wetlands e riparian areas. 5 each stream bank ach by measurin 100% 1.5	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 into Condition C	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Coungth and width. Coungth	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh > 3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5	NOTES>>	1.50	CI 1.50
Riparian Buffers Condition Scores Delineate ripa escriptors. Determine squelow. Enter the % F Right Bank Left Bank	Tree stratum (dbh > with > 60% tree canon-maintained unc located within the located withi	imal 3 inches) present, anopy cover and a derstory. Wetlands e riparian areas. 5 ach stream bank ach by measurin 100% 1.5 100% 1.5 aried substrate si	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 Into Condition C g or estimating ler parian category in	Inditional Cate ptimal Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Coungth and width. Coungth and width. Coungth and width. Coungth and depths; woo res.	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85 Indition Scores using the control of the contro	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh > 3 inches) present, with < 30% tree canopy cover with maintained understory: Low 0.75 ing the ovided for you	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F Blocks 6	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5 the sums Riparian qual 100 100%	NOTES>> CI= (Sum % RA**) Rt Bank CI >		CI 1.50
Condition Scores Delineate ripa escriptors. Determine squelow. Enter the % F Right Bank Left Bank I. INSTREAN ndercut banks;	Tree stratum (dbh > with > 60% tree canon-maintained unc located within the located withi	imal 3 inches) present, enopy cover and a derstory. Wetlands e riparian areas. 5 each stream bank ach by measuring 100% 1.5 100% 1.5 aried substrate siffle poole comple	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 Into Condition C g or estimating ler parian category in zes, water velocity ixes, stable featur	Inditional Cate ptimal Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Coungth and width. Coungth and width. Coungth and width. Coungth and depths; woo res.	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <a>30 tree canopy cover. High 0.85 Indition Scores usional calculators are production of the calculators are productional calculators.	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh > 3 inches) present, with < 30% tree canopy cover with maintained understory: Low 0.75 ing the ovided for you	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F Blocks 6	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5 the sums Riparian qual 100 100%	NOTES>> CI= (Sum % RA * S Rt Bank CI > Lt Bank CI >	1.50	_
Condition Scores Delineate ripalescriptors. Determine squelow. Enter the % F. Right Bank Left Bank	Tree stratum (dbh > with > 60% tree ca non-maintained unc located within the located with	imal 3 inches) present, anopy cover and a derstory. Wetlands e riparian areas. 5 ach stream bani ach by measurin. Score for each ri 100% 1.5 100% 1.5 ried substrate si ffle poole completimal.	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 Into Condition C g or estimating let parian category in zes, water velocity exes, stable featur Subo Stable habitat ele present in 30-50% are adequate fo	Inditional Cate ptimal Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Congth and width. Congth and width. Congth and width. Congth and depths; wores. Conditional	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85 Indition Scores using the state of the state	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh >3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75 ing the vided for you	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F Blocks 6	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5 the sums Riparian qual 100 100% 100%	NOTES>> CI= (Sum % RA * S Rt Bank CI > Lt Bank CI >	1.50	_

Stream Impact Assessment Form Page 2									
Project #	Applicant		Locality	Cowardin Class.	HUC	Date	Data Point	SAR length	Impact Factor
								500	1
	NEL ALTERATION: Stream crossings, riprap, concrete, gabions, or concrete blocks, straightening of channel, channelization, tts, spoil piles, constrictions, livestock Conditional Category								
	Negligible	Mi	nor	Mod	erate	Se	vere		
Channel Alteration	Channelization, dredging, alteration, or hardening absent. Stream has an unaltered pattern or has naturalized.	Less than 20% of the stream reach is disrupted by any of the channel alterations listed in the parameter guidelines.	20-40% of the stream reach is disrupted by any of the channel alterations listed in the parameter guidelines.	40 - 60% of reach is disrupted by any of the channel alterations listed in the parameter guidelines. If stream has been channelized, normal stable stream meander pattern has not	60 - 80% of reach is disrupted by any of the channel alterations listed in the parameter guidelines. If stream has been channelized, normal stable stream meander pattern has not	Greater than 80% by any of the chan in the parameter 80% of banks sh	of reach is disrupted nnel alterations listed guidelines AND/OR hored with gabion, or cement.		
SCORE	1.5	1.3	1.1	0.9	0.7	0).5		
REACH CONDITION INDEX and STREAM CONDITION UNITS FOR THIS REACH									
NOTE: The Cls and F	RCI should be rounded to 2 decimal places.	The CR should be rou	nded to a whole numb	er.			THE REACH	CONDITION IN	DEX (RCI) >>

CR = RCI X LF X IF

INSERT PHOTOS:

UPSTREAM



Ephemeral Stream Assessment Form (Form 1a) Unified Stream Methodology for use in Virginia For use in ephemeral streams Cowardin Impact/SAR **Impact** Project # **Project Name** Locality HUC Date SAR # Class length **Factor** 5337 I-64 Peninsula York 02080107 11/16/11 46 Stream Name and Information Name(s) of Evaluator(s) **WUS 193S** Aitkenhead / Nies 2. RIPARIAN BUFFERS: Assess both bank's 100 foot riparian areas along the entire SAR. (rough measurements of length & width may be acceptable) **Conditional Category** NOTES>> Optimal Suboptimal Marginal Poor Low Marginal: Non-maintained, High Poor: ow Suboptimal High Suboptima Lawns, mowed, High Marginal: Riparian areas lense herbaceou Riparian areas and maintained Low Poor: vegetation, riparian areas with tree stratum Non-maintained with tree stratum (dbh > 3 inches) areas, nurseries; no-till cropland; Impervious surfaces, mine lense herbaceous (dbh > 3 inches) lacking shrub and tree stratum, hay production, ponds present, with vegetation with Tree stratum (dbh > 3 inches) present actively grazed pasture, sparsely resent, with 30% spoil lands. 30% tree canop either a shrub layer or a tree Riparian with > 60% tree canopy cover and an non-maintained understory. Wetlands to 60% tree canopy cover and denuded surface Buffers vegetated nonrow crops, active maintained layer (dbh > 3 open water. If containing both herbaceous and shrub layers or a areas. maintained area. feed lots, trails, or understory. Recent cutover inches) present, with <30% tree present, tree stratum (dbh >3 recently seeded and stabilized, or other comparable conditions. (dense canopy cover inches) present non-maintained other comparable vegetation). with <30% tree understory. condition. anopy cover with maintained High Low High High Low Low Condition 1.5 1.1 0.85 0.75 0.6 0.5 1.2 Scores Delineate riparian areas along each stream bank into Condition Categories and Condition Scores using the Ensure the sums Determine square footage for each by measuring or estimating length and width. Calculators are provided for you of % Riparian 3. Enter the % Riparian Area and Score for each riparian category in the blocks below Blocks equal 100 % Riparian Area> 100% 100% Right Bank Score > 1.2 CI= (Sum % RA * Scores*0.01)/2 CI 100% 100% Rt Bank CI > 1.20 % Riparian Area> Left Bank 1.20 1.20 1.2 Lt Bank CI > Score > REACH CONDITION INDEX and STREAM CONDITION UNITS FOR THIS REACH THE REACH CONDITION INDEX (RCI) >: 0.60 NOTE: The CIs and RCI should be rounded to 2 decimal places. The CR should be rounded to a whole number RCI= (Riparian CI)/2 COMPENSATION REQUIREMENT (CR) >> 0 CR = RCI X LF X IF

INSERT	PHOTOS:	

DESCRIBE PROPOSED IMPACT:		

	St		nified Stream N	lethodology 1	for use in Vir	ginia	m 1)			
Project #	Project		Locality	Cowardin Class.	HUC	Date	SAR#	Impact/SAR length	Impact Factor	
5337	I-64 Pen	insula	James City	R4UB2	02080107	11/16/11		83		
Name	e(s) of Evaluator(s)		me and Inform	ation						
	Aitkenhead / Nies	WUS 195S								
I. Channel C	Condition: Assess the cro	oss-section of the stream		ondition (erosion, Conditional Catego						
	Optimal	Suk	optimal	Mar	ginal	Po	oor	Se	vere	
Channel	Very little incision or active ero 100% stable banks. Vegete	sion; 80 erosion or unpro of banks are	d, few areas of active stected banks. Majority e stable (60-80%). ection or natural rock	Poor. Banks more or Poor due to lo	less than Severe or stable than Severe ower bank slopes. esent on 40-60% of	Vertically/laterally widen further. Ma	ned/incised. unstable. Likely to jority of both banks Erosion present on	incision, flow co banks. Streamb	nstability. Severe ntained within the ed below average	
Condition	surface protection or natural prominent (80-100%). AND Stable point bars/bankfull benc present. Access to their orig floodplain or fully developed bankfull benches. Mid-channe and transverse bars few. Transediment deposition covers let 10% of bottom.	//OR hes are ginal wide lel bars, nsient ss than	60-80%) AND/OR eatures contribute to bankfull and low flow well defined. Stream s to bankfull benches, ped floodplains along ie reach. Transient 10-40% of the stream pottom.	both banks. Veget 40-60% of banks. bevertical or unde 60% of strean sediment. Se- temporary/tran instability. Depositi stability, may be AND/OR V-shap vegetative protect	tative protection on Streambanks may errut. AND/OR 40- n is covered by diment may be sisent, contribute on that contribute to e forming/present. eed channels have ion on > 40% of the ional features which	60-80% of bar protection press banks, and is ins erosion. AND/C stream is cove Sediment is tem nature, and contri AND/OR V-shap vegetative protec 40% of the banks	iks. Vegetative ant on 20-40% of fufficient to prevent R 60-80% of the red by sediment. porary/transient in buting to instability. leed channels have tion is present on > and stable sediment is absent.	vertical/undern protection present banks, is not pro Obvious banks is Erosion/raw bank AND/OR Aggradir than 80% of strear deposition, contril Multiple thread	majority of banks cut. Vegetative on less than 20% of eventing erosion. loughing present. nks on 80-100%. ng channel. Greater n bed is covered by buting to instability. channels and/or nean flow.	CI
Score	3		2.4	- 1	2	· · · · · ·	.6		1	3.0
NOTES>>		•		•		•		•		
2. RIPARIAN	N BUFFERS: Assess bot	Co	rian areas along the conditional Cate coptimal	gory	ginal Low Marginal:	Pe	h may be accepta	NOTES>>		
Riparian Buffers		High Suboptim Riparian areas with tree stratur (doh > 3 inches present, with 30 to 60% tree atlands are tlands	al: Night and the stratum (dbh > 3 inches) present, with > 30 you read and and and and and and and and and a	gory	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hospopen water. If present, tree stratum (dbh > 3 inches) present, with <30% tree canopy cover with maintained			NOTES>>		
Riparian Buffers	Optimal Tree stratum (dbh > 3 inches) ; with > 60% tree canopy cover non-maintained understory. W	High Suboptim Riparian areas with tree stratu (dbh > 3 inche present, with 30 to 60% tree canopy cover a conopt containing both herbaceous an shrub layers or non-maintaine	all Riparian areas with tree stratum (dbh > 3 inches) we cover and a maintained understory. Recent cutover (dense	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh > 3 inches) present, with <30% tree canopy cover with	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces row crops, active feed lots, trails, or other comparable	NOTES>>		
Riparian	Optimal Tree stratum (dbh > 3 inches) ; with > 60% tree canopy cover non-maintained understory. W	High Suboptim Riparian area: with tree stratu (dbh > 3 inche: present, with 30 to 60% tree canopy cover a canopy cover a shrub layers or non-maintaine understory.	conditional Cate coptimal Low Suboptimal Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation).	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover.	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh >3 inches) present, with <30% tree canopy cover with maintained understory.	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable condition.	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces row crops, active feed lots, trails, or other comparable conditions.	NOTES>>		
Riparian Buffers Condition Scores 1. Delineate ripa descriptors. 2. Determine squelow.	Optimal Tree stratum (dbh > 3 inches) p with > 60% tree canopy cover non-maintained understory. W located within the riparian at 1.5 arian areas along each strea quare footage for each by me Riparian Area and Score for a	High Suboptim Riparian areas with tree stratus (dob > 3 inches present, with 30 to 60% tree canopy cover a containing both herbaceous an shrub layers or non-maintaine understory. High 1.2 m bank into Condition passuring or estimating peach riparian category	conditional Cate coptimal Low Suboptimal Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 Categories and Collength and width. Collength	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh > 3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % I	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces row crops, active feed lots, trails, or other comparable conditions.	NOTES>>		
Riparian Buffers Condition Scores Delineate ripa descriptors. Determine squescriptors. Enter the % R	Optimal Tree stratum (dbh > 3 inches) p with > 60% tree canopy cover non-maintained understory. W located within the riparian at 1.5 arian areas along each strea quare footage for each by me	High Suboptim Riparian areas with tree stratus (dob > 3 inches present, with 30 to 60% tree canopy cover a containing both herbaceous an shrub layers or non-maintaine understory. High 1.2 m bank into Condition passuring or estimating peach riparian category	conditional Cate coptimal Low Suboptimal Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 Categories and Collength and width. Collength	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh > 3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % I	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces row crops, active feed lots, trails, or other comparable conditions. Low 0.5	NOTES>>	Scores*0.011/2	
Riparian Buffers Condition Scores Delineate ripa descriptors. Determine squelow. Enter the % R Right Bank	Optimal Tree stratum (dbh > 3 inches) p with > 60% tree canopy cover non-maintained understory. W located within the riparian at 1.5 arian areas along each strea quare footage for each by me Riparian Area and Score for a	High Suboptim Riparian areas with tree stratus (dob > 3 inches present, with 30 to 60% tree canopy cover a containing both herbaceous an shrub layers or non-maintaine understory. High 1.2 m bank into Condition passuring or estimating peach riparian category %	conditional Cate coptimal Low Suboptimal Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 Categories and Collength and width. Collength	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh > 3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % I	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces row crops, active feed lots, trails, or other comparable conditions. Low 0.5	NOTES>>	Scores*0.01)/2 1.20	CI
Riparian Buffers Condition Scores Delineate ripalescriptors. Determine squelow. Enter the % R	Optimal Tree stratum (dbh > 3 inches) p with > 60% tree canopy cover non-maintained understory. W located within the riparian at 1.5 arian areas along each strea quare footage for each by me Riparian Area and Score for % Riparian Area> 100 Score > 1.2	High Suboptim Riparian area: with tree stratu (doh > 3 inche: present, with 30 to 60% tree canopy cover a containing both herbaceous an shrub layers or non-maintaine understory. High 1.2 m bank into Condition passuring or estimating peach riparian category 66	conditional Cate coptimal Low Suboptimal Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 Categories and Collength and width. Collength	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh > 3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % I	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces row crops, active feed lots, trails, or other comparable conditions. Low 0.5 the sums Riparian equal 100	NOTES>>		C1 1.20
Condition Scores Delineate ripa lescriptors. Deltermine squelow. Enter the % R Right Bank Left Bank INSTREAN	Optimal Tree stratum (dbh > 3 inches) price with > 60% tree canopy cover normaintained understory. We located within the riparian at located within the ri	High Suboptim Riparian areas with tree stratus (dob > 3 inches present, with 30 to 60% tree canopy cover a containing both herbaceous an shrub layers or non-maintaine understory. High 1.2 m bank into Condition passuring or estimating pach riparian category 26 27 27 37 48 49 49 40 50 51 52 53 54 55 55 56 56 57 57 58 58 58 58 58 58 58 58	conditional Cate cooptimal Low Suboptimal Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 Categories and Co length and width. C	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh > 3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75 ing the povided for you	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % I Blocks 6	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces row crops, active feed lots, trails, or other comparable conditions. Low 0.5 the sums Riparian equal 100 100%	NOTES>> Cl= (Sum % RA** Rt Bank Cl >	1.20	
Condition Scores 1. Delineate ripadescriptors. 2. Determine squelow. 3. Enter the % R Right Bank Left Bank 3. INSTREAN	Optimal Tree stratum (dbh > 3 inches) price with > 60% tree canopy cover non-maintained understory. We located within the riparian at 1.5 1.5 arian areas along each streat quare footage for each by me Riparian Area and Score for each streat grant area and Score for each streat grant area and Score for each streat grant area and Score streat grant area grant	High Suboptim Riparian areas with tree stratus (dbh > 3 inches present, with 30 to 60% tree canopy cover a containing both herbaceous an shrub layers or non-maintaine understory. High 1.2 m bank into Condition pasuring or estimating each riparian category % trate sizes, water velo complexes, stable fea	conditional Cate cooptimal Low Suboptimal Riparian areas with tree stratum (dih > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 Categories and Co length and width. Co length and width. Co length and depths; wor urres. Condition	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85 Indition Scores us calculators are production of the product	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (bdh > 3 inches) present, with <a>30 % tree canopy cover with maintained understory. Low 0.75 ing the price of the provided for you	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % I Blocks 6	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces row crops, active feed lots, trails, or other comparable conditions. Low 0.5 the sums Riparian equal 100 100%	NOTES>> Cl= (Sum % RA *: Rt Bank Cl > Lt Bank Cl >	1.20	
Condition Scores 1. Delineate ripadescriptors. 2. Determine squelow. 3. Enter the % R Right Bank Left Bank 3. INSTREAN	Optimal Tree stratum (dbh > 3 inches) price with > 60% tree canopy cover normaintained understory. We located within the riparian at located within the ri	High Suboptim Riparian area: with tree stratu (dbh > 3 inche: present, with 30 to 60% tree canopy cover a containing both herbaceous an shrub layers or non-maintaine understory. High 1.2 m bank into Condition passuring or estimating pach riparian category trate sizes, water velo complexes, stable fea Stable habitat present in 30-ta are adequate are adequate.	conditional Cate cooptimal Low Suboptimal Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 Categories and Co length and width. C	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85 Indition Scores us calculators are production of the present in 10-30 are adequate for a sedequate for the present in 10-30 are adequate for the present in 10-30 are adequa	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh > 3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75 ing the povided for you	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % I Blocks 6 Habitat element lacking or are Lelements are typic	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces row crops, active feed lots, trails, or other comparable conditions. Low 0.5 the sums Riparian equal 100 100%	CI= (Sum % RA * : Rt Bank CI > Lt Bank CI > NOTES>>	1.20	

	St	ream In	npact A	ssessm	ent Fo	rm Pag	e 2		
Project #	Applicant		Locality	Cowardin Class.	HUC	Date	Data Point	SAR length	Impact Factor
								500	1
	L ALTERATION: Stream cross spoil piles, constrictions, livestock	ings, riprap, conc		concrete blocks, s	traightening of ch	annel, channeliza	ation,	NOTES>>	
	Negligible	Mi	nor		erate	Se	vere		
Channel Alteration	Channelization, dredging, alteration, or hardening absent. Stream has an unaltered pattern or has naturalized.	Less than 20% of the stream reach is disrupted by any of the channel alterations listed in the parameter guidelines.	20-40% of the stream reach is disrupted by any of the channel alterations listed in the parameter guidelines.	40 - 60% of reach is disrupted by any of the channel alterations listed in the parameter guidelines. If stream has been channelized, normal stable stream meander pattern has not	60 - 80% of reach is disrupted by any of the channel alterations listed in the parameter guidelines. If stream has been channelized, normal stable stream meander pattern has not	Greater than 80% by any of the chan in the parameter 80% of banks sh	of reach is disrupted integrations listed guidelines AND/OR nored with gabion, or cement.		
SCORE	1.5	1.3	1.1	0.9	0.7	C).5		
	REACH C	ONDITION I	NDEX and S	TREAM CO	NDITION UN	ITS FOR TH	IIS REACH		
NOTE: The Cls and R	RCI should be rounded to 2 decimal places.	The CR should be rou	nded to a whole numb	er.			THE REACH	CONDITION IN	DEX (RCI) >>

CR = RCI X LF X IF

INSERT PHOTOS:



DESCRIBE PROPOSED IMPACT:		

		Stre	Unit	SSESS fied Stream M	lethodology f	or use in Virg	ginia	m 1)			
Project #		Project Name		Locality	Cowardin Class.	HUC	perennial Date	SAR#	Impact/SAR length	Impact Factor	
5337	-	l-64 Peninsul	a	James City	R4UB2	02080107	11/16/11		79		
Name	e(s) of Evalua	itor(s)	Stream Nam	e and Informa	ation						
	Aitkenhead / Nies		WUS 196S								
Channel C	Condition: Ass	ess the cross-sec	ction of the stream								
	Opt	imal	Subo	ptimal	Conditional Catego Mar	ry ginal	Po	oor	Sev	rere	
	"			few areas of active		less than Severe or stable than Severe		ed/incised. unstable. Likely to	vertical/lateral in		
Channel Condition	100% stable bar surface protection prominent (80-1 Stable point bars/bi- present. Access floodplain or fully bankfull benches. and transverse be sediment deposition	00%). AND/OR ankfull benches are s to their original y developed wide Mid-channel bars,	of banks are si Vegetative protect prominent (60- Depositional feat stability. The bar channels are wel likely has access to or newly develope portions of the rediment covers 10	cted banks. Majority table (60-80%). titon or natural rock-80%). AND/OR tures contribute to nkfull and low flow III defined. Stream to bankfull benches, ad floodplains along reach. Transient 0-40% of the stream tom.	or Poor due to lo Erosion may be pri both banks. Veget 40-60% of banks. bevertical or unde 60% of stream sediment. Sec temporary/trans instability. Deposition stability, may be	wer bank slopes. esent on 40-60% of ative protection on Streambanks may	widen further. Ma are near vertical. 60-80% of bar protection prese banks, and is inst erosion. AND/O stream is cover Sediment is temp nature, and contri AND/OR V-shap	unistable. Likely jointy of both banks Erosion present on ks. Vegetative int on 20-40% of ufficient to prevent R 60-80% of the ed by sediment. porary/transient in buting to instability, ed channels have ion is present on >	banks, is not pre Obvious bank sl Erosion/raw bar AND/OR Aggradin than 80% of stream deposition, contrib	ed below average najority of banks ut. Vegetative on less than 20% of eventing erosion. bughing present. iks on 80-100%. g channel. Greater in bed is covered by uting to instability.	
			DOU	tom.	vegetative protecti	on on > 40% of the onal features which	40% of the banks a	and stable sediment is absent.	Multiple thread subterran		CI
Score	3	3	2	2.4	:	2	1	.6		1	2.4
	N BUFFERS: /	Assess both bank			<u> </u>	gh measurement	s of length & widtl	n may be accepta			
	Opt Tree stratum (dbh: with > 60% tree ca	imal > 3 inches) present, anopy cover and a derstory. Wetlands	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy	gory	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area,	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or	NOTES>>		
Riparian Buffers	Opt Tree stratum (dbh : with > 60% tree cr	imal > 3 inches) present, anopy cover and a derstory. Wetlands	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree	Low Suboptimal Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active	NOTES>>		
. RIPARIAN	Tree stratum (dbh : with > 60% tree conon-maintained un located within th	imal > 3 inches) present, anopy cover and a derstory. Wetlands	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory.	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation).	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover.	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh > 3 inches) present, with < 30% tree canopy cover with maintained understory.	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable condition.	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions.	NOTES>>		
Riparian Buffers Condition Scores Delineate ripaesescriptors. Determine squelow.	Tree stratum (dbh : with > 60% tree conon-maintained un located within th	imal 3 inches) present, anopy cover and a derstory. Wetlands te riparian areas. 5 each stream bank each by measuring.	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 into Condition C	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 Lategories and Coungth and width. Coungth and width. Coungth and width. Coungth and width. Coungth and coungth and width. Coungth and width. Coungth and width. Coungth areas	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <a>30 % tree canopy cover. High 0.85	Ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh >3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5	NOTES>>		
Riparian Buffers Condition Scores Delineate ripa secriptors. Determine sq slow. Enter the % F	Tree stratum (dbh : with > 60% tree ca non-maintained un located within th	imal > 3 inches) present, anopy cover and a derstory. Wetlands le riparian areas. -5 each stream bank each by measuring	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 into Condition C	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 Lategories and Coungth and width. Coungth and width. Coungth and width. Coungth and width. Coungth and coungth and width. Coungth and width. Coungth and width. Coungth areas	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <a>30 % tree canopy cover. High 0.85	Ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh >3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5	NOTES>>		
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Riparian Buffers Condition Scores Delineate ripasscriptors. Determine squadow. Enter the % Right Bank Left Bank INSTREAM	Tree stratum (dbh with > 60% tree canon-maintained un located within the located within t	imal > 3 inches) present, anopy cover and a derstory. Wetlands ie riparian areas. 5 each stream bank each by measuring 100% 1.5 100% 1.5 aried substrate si	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 into Condition C g or estimating ler parian category in	Inditional Cate potimal Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 Sategories and Coungth and width. Coungth and width. Coungth and width. Coungth and width Coungth and depths; woo	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh - 3 inches) present, with canopy cover with maintained understory. Low 0.75 Ing the vided for you	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F Blocks 6	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5 the sums Riparian equal 100 100%	NOTES>>		CI 1.50
Riparian Buffers Condition Scores Delineate ripascriptors. Determine squadow. Enter the % F. Right Bank Left Bank INSTREAN	Tree stratum (dbh swith > 60% tree canon-maintained un located within the located within	imal 3 inches) present, anopy cover and a derstory. Wetlands ie riparian areas. 5 each stream bank each by measuring 100% 1.5 100% 1.5 aried substrate si iffle poole comple	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 Into Condition C g or estimating ler parian category in zes, water velocity ixes, stable featur	Inditional Cate potimal Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 Sategories and Con ingth and width. Con in the blocks below y and depths; woo res. Conditional	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <a>30 tree canopy cover. High 0.85 Indition Scores usional calculators are production of the canopy cover.	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh >3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75 Ing the vided for you	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F Blocks 6	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5 the sums Riparian squal 100 100%	NOTES>> CI= (Sum % RA * S Rt Bank CI > Lt Bank CI >	1.50	
Riparian Buffers Condition Scores Delineate ripa escriptors. Determine sq elow. Enter the % R Right Bank Left Bank	Tree stratum (dbh: with > 60% tree conon-maintained unifocated within the located within	imal > 3 inches) present, anopy cover and a derstory. Wetlands ie riparian areas. 5 each stream bank each by measuring 100% 1.5 100% 1.5 aried substrate si	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 Into Condition C g or estimating let parian category in zes, water velocity exes, stable featur Subo Stable habitat ele present in 30-50% are adequate fo	Inditional Cate potimal Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 Lategories and Con ingth and width. Con in the blocks below y and depths; wodes.	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85 Indition Scores using a calculators are proposed to the canopy cover. Stable habitate lee present in 10-30% are adequate for a degree to the canopy cover.	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh - 3 inches) present, with callog: stratum (dbh - 3 inches) present, with callog: stratum (dbh - 3 inches) present, with callog: stratum (dbh - 3 inches) present, with callog: stratum (dbh - 3 inches) present, with callog: stratum (dbh - 3 inches) present, with callog: stratum (dbh - 3 inches) present, with callog: stratum (dbh - 3 inches) present, with callog: stratum (dbh - 3 inches) present, with callog: stratum (dbh - 3 inches) present, with callog: stratum (dbh - 3 inches) present, with callog: stratum (dbh - 3 inches) present, with callog: stratum (dbh - 3 inches) present, with callog: stratum (dbh - 3 inches) present, with callog: stratum (dbh - 3 inches) present, with callog: stratum (dbh - 3 inches) present, with callog: stratum (dbh - 3 inches) present, with callog: stratum (dbh - 3 inches) present, with callog: stratum (dbh - 3 inches) present, with callog: stratum (dbh - 3 inches) present, with callog: stratum (dbh - 3 inches) present, with callog: stratum (dbh - 3 inches) present, with callog: stratum (dbh - 3 inches) present, with callog: stratum (dbh - 3 inches) present, with callog: stratum (dbh - 3 inches) present,	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F Blocks 6	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5 the sums Riparian equal 100 100%	CI= (Sum % RA * S Rt Bank CI > Lt Bank CI >	1.50	

	St	ream In	npact A	ssessn	nent Fo	rm Pag	e 2		
Project #	Applicant		Locality	Cowardin Class.	нис	Date	Data Point	SAR length	Impact Factor
								500	1
	L ALTERATION: Stream cross spoil piles, constrictions, livestock	sings, riprap, conc	rete, gabions, or	concrete blocks, s	straightening of ch	nannel, channeli.	zation,	NOTES>>	
erribarikments, s				al Category					
	Negligible	Mi	nor		lerate 60 - 80% of reach		evere		
Channel Alteration	Channelization, dredging, alteration, or hardening absent. Stream has an unaltered pattern or has naturalized.	of the channel	20-40% of the stream reach is disrupted by any of the channel alterations listed in the parameter guidelines.	is disrupted by any of the channel alterations listed in the parameter guidelines. If	is disrupted by any of the channel	Greater than 80% by any of the cha in the paramete 80% of banks	o of reach is disrupted nnel alterations listed guidelines AND/OR shored with gabion, or cement.		
SCORE	1.5	1.3	1.1	0.9	0.7		0.5	-	
		CONDITION				IITS FOR T	HIS REACH		
NOTE: The Cls and I	RCI should be rounded to 2 decimal places.							CONDITION IN	DEX (RCI) >>
515 4114 1			ou maille					I= (Sum of all C	
							COMPENSATI	ION REQUIRE	MENT (CR) >>
							CR = RC	I X LF X IF	
ĺ									

		Stre	Unit	fied Stream N	lethodology 1	for use in Vir	-	m 1)			
Project #		Project Name		Locality	nels classified a Cowardin Class.	HUC	perennial Date	SAR#	Impact/SAR length	Impact Factor	
5337	Į.	-64 Peninsul	a	James City	R2UB2	02080107	11/16/11		182		
Nam	e(s) of Evalua	tor(s)	Stream Nam	e and Informa	ation						
	Aitkenhead / Nies		WUS 197S								
I. Channel (Condition: Asse	ess the cross-sec	ction of the stream		ondition (erosion, Conditional Catego						
	Opti	imal	Subo	ptimal	Mar	ginal	Po	oor	Se	vere	
Channel	Very little incision o 100% stable bar	or active erosion; 80	erosion or unproted of banks are s	ew areas of active cted banks. Majority table (60-80%).	Poor. Banks more or Poor due to lo	less than Severe or stable than Severe over bank slopes.	widen further. Ma	unstable. Likely to ority of both banks	incision, flow co	nstability. Severe intained within the led below average	
Condition	surface protection prominent (80-11 Stable point bars/ba present. Access floodplain or fully bankfull benches. and transverse be sediment depositio 10% of l	n or natural rock, 00%). AND/OR ankfull benches are s to their original of developed wide, Mid-channel bars, ars few. Transient on covers less than	prominent (60- Depositional feat stability. The bar channels are wel likely has access to or newly develope portions of the r sediment covers 10	tion or natural rock -80%) AND/OR tures contribute to nkfull and low flow Il defined. Stream o bankfull benches, ad floodplains along reach. Transient 0-40% of the stream tom.	both banks. Vege 40-60% of banks. bevertical or unde 60% of strean sediment. Se- temporary/tran instability. Depositi stability, may be AND/OR V-shap vegetative protect	esent on 40-60% of tative protection on Streambanks may ercut. AND/OR 40- in is covered by diment may be sisent, contribute on that contribute to forming/present. ed channels have ion on > 40% of the ional features which	60-80% of bar protection press banks, and is insu erosion. AND/O stream is cover Sediment is temp nature, and contri AND/OR V-shap vegetative protect 40% of the banks a	ed channels have	vertical/under protection present banks, is not pr Obvious bank s Erosion/raw ba AND/OR Aggradii than 80% of strear deposition, contri Multiple thread	majority of banks cut. Vegetative on less than 20% of eventing erosion. sloughing present. hks on 80-100%. ng channel. Greater m bed is covered by buting to instability. I channels and/or nean flow.	CI
Score	3	3	2	2.4		2	-	.6		1	2.4
NOTES>>			•				•				
2. RIPARIAI	N BUFFERS: A		Con	n areas along the	gory	ugh measurement		n may be accepta	NOTES>>		
Riparian Buffers	Opti Tree stratum (dbh > with > 60% tree ca	imal > 3 inches) present, anopy cover and a derstory. Wetlands	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy	gory	Ginal Low Marginal: Non-maintained, dense herbaceous vegetation,					
Riparian Buffers	Tree stratum (dbh > with > 60% tree cc non-maintained unc located within the	imal 3 inches) present, anopy cover and a derstory. Wetlands e riparian areas.	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory, Recent cutover (dense vegetation).	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover.	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh > 3 inches) present, with <30% tree canopy cover with maintained understory. Low	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable condition.	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions.			
Riparian	Option Tree stratum (dbh > with > 60% tree canon-maintained unc	imal 3 inches) present, anopy cover and a derstory. Wetlands e riparian areas.	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory.	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation).	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover.	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh >3 inches) present, with <30% tree canopy cover with maintained understory.	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, recently seeded and stabilized, or other comparable condition.	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions.			
Riparian Buffers Condition Scores Delineate ripe descriptors. Deltermine so	Tree stratum (dbh > with > 60% tree ca non-maintained unc located within the	imal 3 inches) present, anopy cover and a derstory. Wetlands e riparian areas. 5 each stream banl ach by measurin	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 into Condition C	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Coungth and width. Coungth	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh > 3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5			
Riparian Buffers Condition Scores Delineate ripe descriptors.	Tree stratum (dbh > with > 60% tree conon-maintained und located within the located withi	imal 3 inches) present, anopy cover and a derstory. Wetlands e riparian areas. 5 ach stream banl ach by measurin.	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 into Condition C	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Coungth and width. Coungth	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh > 3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5			
Riparian Buffers Condition Scores Delineate ripe descriptors. Deltermine so	Tree stratum (dbh > with > 60% tree ca non-maintained unc located within the	imal 3 inches) present, anopy cover and a derstory. Wetlands e riparian areas. 5 each stream banl ach by measurin	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 into Condition C	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Coungth and width. Coungth	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh > 3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5			
Riparian Buffers Condition Scores Delineate ripalescriptors. Determine squelow. Enter the % F	Tree stratum (dbh > with > 60% tree ca non-maintained unc located within the located with	imal 3 inches) present, anopy cover and a derstory. Wetlands e riparian areas. 5 ach stream bank ach by measuring the stream bank ach by	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 into Condition C	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Coungth and width. Coungth	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh > 3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5 the sums Riparian qual 100	NOTES>>		
Riparian Buffers Condition Scores Delineate ripalescriptors. Determine squelow. Enter the % F	Tree stratum (dbh > with > 60% tree conon-maintained und located within the located withi	imal 3 inches) present, anopy cover and a derstory. Wetlands e riparian areas. 5 each stream bank ach by measuring the stream ban	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 into Condition C	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Coungth and width. Coungth	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh > 3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5	NOTES>>	1.50	CI 1.5
Condition Scores Delineate ripe descriptors. Deltermine scoelow. English Bank Left Bank Left Bank INSTREA	Tree stratum (dbh > with > 60% tree ca non-maintained unc located within the located with	imal 3 inches) present, anopy cover and a derstory. Wetlands e riparian areas. 5 each stream bank ach by measuring the stream ban	Com Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 Into Condition C g or estimating ler parian category in	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Coungth and width. Coungth and width. Coungth and width. Coungth and depths; woo res.	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85 addition Scores us calculators are production of the produc	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh > 3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75 ing the povided for you	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F Blocks 6	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5 the sums tiparian qual 100 100%	NOTES>> CI= (Sum % RA * Rt Bank CI >		CI 1.50
Condition Scores Delineate ripe descriptors. Deltermine scoelow. English Bank Left Bank Left Bank INSTREA	Tree stratum (dbh > with > 60% tree ca non-maintained unc located within the located with	imal 3 inches) present, anopy cover and a derstory. Wetlands e riparian areas. 5 each stream bank ach by measuring the stream ban	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 s into Condition C g or estimating ler parian category in zes, water velocity ixes, stable featur	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Coungth and width. Coungth and width. Coungth and width. Coungth and depths; woo res.	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85 Indition Scores us calculators are production of the product	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh > 3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75 ing the povided for you	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F Blocks e	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5 the sums tiparian qual 100 100%	NOTES>> CI= (Sum % RA * Rt Bank CI > Lt Bank CI >	1.50	
Condition Scores 1. Delineate ripe descriptors. 2. Determine so pelow. 3. Enter the % F Right Bank Left Bank 3. INSTREAT	Tree stratum (dbh > with > 60% tree cc non-maintained und located within the located with	imal 3 inches) present, anopy cover and a derstory. Wetlands e riparian areas. 5 each stream bani ach by measurin 100% 1.5 100% 1.5 aried substrate si iffle poole completimal	Com Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 Into Condition C g or estimating ler parian category in zes, water velocity exes, stable featur Subo Stable habitat ele present in 30-50% are adequate fo	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Co ngth and width. Co n the blocks below y and depths; wodes. Conditiona	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85 Indition Scores us calculators are processed of the control of	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh >3 inches) present, with <a>30 % tree canopy cover with maintained understory. Low 0.75 ing the provided for you	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F Blocks 6	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5 the sums Riparian qual 100 100% 100% ess; shade;	NOTES>> CI= (Sum % RA * Rt Bank CI > Lt Bank CI >	1.50	

	St	ream In	npact A	ssessm	nent Fo	rm Pag	e 2		
Project #	Applicant		Locality	Cowardin Class.	HUC	Date	Data Point	SAR length	Impact Factor
								500	1
	_ ALTERATION: Stream cross poil piles, constrictions, livestock		Conditiona	al Category				NOTES>>	
	Negligible	Mil	nor		erate 60 - 80% of reach		vere		
Channel Alteration	Channelization, dredging, alteration, or hardening absent. Stream has an unaltered pattern or has naturalized.	Less than 20% of the stream reach is disrupted by any of the channel alterations listed in the parameter guidelines.	20-40% of the stream reach is disrupted by any of the channel alterations listed in the parameter guidelines.	is disrupted by any of the channel	is disrupted by any of the channel	Greater than 80% by any of the char in the parameter 80% of banks sl	of reach is disrupted annel alterations listed guidelines AND/OR hored with gabion, or cement.		
SCORE	1.5	1.3	1.1	0.9	0.7	(0.5		
	REACH C	ONDITION I	NDEX and S	TREAM CO	NDITION UN	ITS FOR TH	IIS REACH		
NOTE: The Cls and R	RCI should be rounded to 2 decimal places.	The CR should be rou	nded to a whole numb	er.			THE REACH (CONDITION IN	DEX (RCI) >>

CR = RCI X LF X IF

INSERT PHOTOS:

UPSTREAM





DOWNSTREAM



	St		ified Stream N	lethodology 1	for use in Vir	ginia	m 1)			
Project #	Project		Locality	Cowardin Class.	HUC	Date	SAR#	Impact/SAR length	Impact Factor	
5337	I-64 Pen	insula	James City	R2UB2	02080107	11/16/11		65		
Name	e(s) of Evaluator(s)		ne and Informa	ation						
	Aitkenhead / Nies	WUS 198S								
1. Channel C	Condition: Assess the cro	oss-section of the stream		ondition (erosion,						
	Optimal	Sub	optimal		ginal	Po	oor	Se	vere	
Channel Condition	Very little incision or active ero 100% stable banks. Vegete surface protection or natural prominent (80-100%). AND	sion; 80 erosion or unprote of banks are Vegetative prote prominent (6	few areas of active scted banks. Majority stable (60-80%), ction or natural rock 0-80%) AND/OR attures contribute to	Poor. Banks more or Poor due to k Erosion may be pr both banks. Veget	less than Severe or stable than Severe wer bank stopes. resent on 40-60% of tative protection on Streambanks may	Vertically/laterally widen further. Ma are near vertical. 60-80% of bar	ned/incised. unstable. Likely to jority of both banks Erosion present on iks. Vegetative ant on 20-40% of	incision, flow co banks. Streamb rooting depth, r vertical/under	instability. Severe ntained within the ed below average najority of banks cut. Vegetative on less than 20% of	
	Stable point bars/bankfull benc present. Access to their ori floodplain or fully developed bankfull benches. Mid-channe and transverse bars few. Tra sediment deposition covers lee 10% of bottom.	stability. The bigginal wide led bars, nsient ss than sediment covers	ankfull and low flow ell defined. Stream to bankfull benches, ted floodplains along reach. Transient 10-40% of the stream ottom.	60% of strean sediment. Se- temporary/tran instability. Depositi stability, may be AND/OR V-shap vegetative protect	ercut. AND/OR 40- n is covered by diment may be sient, contribute on that contribute to f forming/present. ed channels have ion on > 40% of the ional features which	erosion. AND/C stream is cover Sediment is tem nature, and contri AND/OR V-shap vegetative protect 40% of the banks a	ufficient to prevent R 60-80% of the red by sediment. corary/transient in buting to instability. red channels have citon is present on > and stable sediment is absent.	banks, is not pro Obvious bank s Erosion/raw ban AND/OR Aggradir than 80% of strear deposition, contril Multiple thread	orness trail 20% of eventing erosion. loughing present. nks on 80-100%. ng channel. Greater n bed is covered by buting to instability. channels and/or nean flow.	С
Score	3		2.4		2	1	.6		1	2.4
2. RIPARIAN	N BUFFERS: Assess bot				ugh measurement	s of length & widt	n may be accepta			
2. RIPARIAN	N BUFFERS: Assess both	Co Sub	nditional Cate	gory Mar	ginal Low Marginal: Non-maintained,	High Poor: Lawns, mowed,	por	NOTES>>		
2. RIPARIAN Riparian Buffers		High Suboptima Riparian areas with tree stratum (dbh > 3 inches) present, with 30% and a retas. retas. etas. shrub layers or a non-maintained understory.	Inditional Cate Optimal Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation).	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover.	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh >3 inches) present, with <30% tree canopy cover with maintained understory.	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, recently seeded and stabilized, or other comparable condition.	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions.			
Riparian Buffers	Optimal Tree stratum (dbh > 3 inches) with > 60% tree canopy cover non-maintained understory. W	High Suboptima Riparian areas with tree stratum (dbh > 3 inches) present, and a etlands reas. canopy cover an canopy cover an containing both herbaceous and shrub layers or a non-maintained	nditional Cate poptimal Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory, Recent cutover (dense	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh > 3 inches) present, with <30% tree canopy cover with maintained	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable			
Riparian Buffers Condition Scores 1. Delineate ripa descriptors. 2. Determine squelow.	Optimal Tree stratum (dbh > 3 inches) (with > 60% tree canopy cover non-maintained understory. W located within the riparian at	High Suboptima Riparian areas with tree stratum (dbh > 3 inches) present, with 30° to 60% tree canopy cover an containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 m bank into Condition (deasuring or estimating keepen bank) into Condition (deasuring or estimatin	Inditional Cate optimal Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 Categories and Co	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh > 3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions.		Scores*0.01)/2	
Riparian Buffers Condition Scores 1. Delineate ripalescriptors. 2. Determine squelow. 3. Enter the % F	Optimal Tree stratum (dbh > 3 inches) with > 60% tree canopy cover non-maintained understory. W located within the riparian at located within the riparian	High Suboptima Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover an containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 m bank into Condition (deasuring or estimating leach riparian category)%	Inditional Cate optimal Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 Categories and Co	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh > 3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5	NOTES>> CI= (Sum % RA** Rt Bank CI >	1.50	
Condition Scores 1. Delineate ripadescriptors. 2. Determine squelow. 3. Enter the % F Right Bank Left Bank 3. INSTREAR	Optimal Tree stratum (dbh > 3 inches) i with > 60% tree canopy cover non-maintained understory. W located within the riparian at 1.5 1.5 arian areas along each strea quare footage for each by me Riparian Area and Score for % Riparian Area 100 Score > 1.5	High Suboptima Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover an containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 m bank into Condition (deasuring or estimating left) easuring or estimating left) each riparian category % 5 trate sizes, water veloc	Inditional Cate optimal Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 Categories and Coongth and width. Con the blocks below	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh > 3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75 ing the povided for you	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F Blocks 6	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5 the sums Riparian equal 100 100%	NOTES>> CI= (Sum % RA * S		C 1.5
Condition Scores 1. Delineate ripe descriptors. 2. Determine squelow. 3. Enter the % F Right Bank Left Bank 3. INSTREAR undercut banks;	Optimal Tree stratum (dbh > 3 inches) with > 60% tree canopy cover non-maintained understory. W located within the riparian at the riparian areas along each streat quare footage for each by me Riparian Area and Score for % Riparian Area 100 Score > 1.5 M HABITAT: Varied subs root mats; SAV; riffle poole	High Suboptima Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover an containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 m bank into Condition or eastimating le each riparian category % trate sizes, water veloc complexes, stable feature.	Inditional Cate Coptimal Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 Categories and Coo ength and width. Co in the blocks below tity and depths; woo trees. Conditional	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85 Indition Scores us alculators are production of the producti	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh >3 inches) present, with <a>30 % tree canopy cover with maintained understory. Low 0.75 ing the provided for you	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F Blocks 6	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5 the sums Riparian equal 100 100% 100%	NOTES>> CI= (Sum % RA *: Rt Bank CI > Lt Bank CI >	1.50	
Condition Scores 1. Delineate ripadescriptors. 2. Determine squelow. 3. Enter the % F Right Bank Left Bank 3. INSTREAR	Optimal Tree stratum (dbh > 3 inches) i with > 60% tree canopy cover non-maintained understory. W located within the riparian at located within the ripari	High Suboptima Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover an containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 m bank into Condition (deasuring or estimating leach riparian category) which is the condition of the case	Inditional Cate optimal Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 3 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 Categories and Covength and width. Covength and width. Covength and covength and covength and depths; wootness.	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85 addulators are production of the control of the	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh > 3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75 ing the povided for you	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F Blocks 6	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5 the sums Riparian equal 100 100%	NOTES>> CI= (Sum % RA *: Rt Bank CI > Lt Bank CI >	1.50	

	St	ream In	npact A	ssessm	nent Fo	rm Pag	e 2		
Project #	Applicant		Locality	Cowardin Class.	HUC	Date	Data Point	SAR length	Impact Factor
								500	1
	L ALTERATION: Stream cross spoil piles, constrictions, livestock Negligible	sings, riprap, concr	Conditiona	al Category	erate		ation,	NOTES>>	
	Negligible	IVIII	-	40 - 60% of reach	60 - 80% of reach		evere		
Channel Alteration	Channelization, dredging, alteration, or hardening absent. Stream has an unaltered pattern or has naturalized.	Less than 20% of the stream reach is disrupted by any of the channel alterations listed in the parameter guidelines.	20-40% of the stream reach is disrupted by any of the channel	of the channel	is disrupted by any of the channel alterations listed in the parameter guidelines. If stream has been channelized, normal stable stream meander pattern has not	Greater than 80% by any of the char in the parameter 80% of banks sl	of reach is disrupted nnel alterations listed guidelines AND/OR hored with gabion, or cement.		
SCORE	1.5	1.3	1.1	0.9	0.7	(0.5		
	REACH C	ONDITION II	NDEX and S	TREAM CO	NDITION UN	ITS FOR TH	IIS REACH		

RCI= (Sum of all Cl's)/5
COMPENSATION REQUIREMENT (CR) >>

₹) >> 0

CR = RCI X LF X IF

INSERT PHOTOS:







DESCRIBE PROPOSED IMPACT:

		Stre	Unit	fied Stream N	lethodology 1	Form	ginia	m 1)			
Project #		Project Name		Locality	cowardin Class.	HUC	Date Date	SAR#	Impact/SAR length	Impact Factor	
5337	ŀ	-64 Peninsul	a	James City	R2UB2	02080107	11/16/11		104		
Name	e(s) of Evalua	tor(s)	Stream Nam	e and Informa	ation						
	Aitkenhead / Nies		WUS 199S								
. Channel C	Condition: Asse	ess the cross-sec	ction of the stream		ondition (erosion, Conditional Catego						
	Opti	imal	Subo	ptimal	Mar	ginal	Po	oor	Se	vere	
Ol survey.	Very little incision o	r active erosion; 80	erosion or unproted	ew areas of active cted banks. Majority	Poor. Banks more	less than Severe or e stable than Severe ower bank slopes.	Vertically/laterally	ned/incised. unstable. Likely to jority of both banks	incision, flow co	nstability. Severe	
Channel Condition	100% stable bar surface protection prominent (80-11 Stable point bars/bo- present. Access floodplain or fully bankfull benches. and transverse be sediment depositio 10% of l	nks. Vegetative n or natural rock, 00%). AND/OR ankfull benches are to their original or developed wide Mid-channel bars, ars few. Transient in covers less than	Vegetative protect prominent (60- Depositional feat stability. The bar channels are well likely has access to or newly develope portions of the resediment covers 10 to definite the covers of the resediment covers 10 to definite the covers of the resediment covers 10 to definite the covers of the resediment covers 10 to definite the covers 10 to definite	table (60-80%), titon or natural rock-80%) AND/OR tures contribute to nkfull and low flow II defined. Stream o bankfull benches, ad floodplains along reach. Transient 0-40% of the stream tom.	Erosion may be pr both banks. Veget 40-60% of banks. bevertical or unde 60% of strean sediment. Set temporary/tran instability. Depositi stability, may be AND/OR V-shap	resent on 40-60% of tative protection on Streambanks may ercut. AND/OR 40- n is covered by diment may be issient, contribute ion that contribute to e forming/present. ied channels have	are near vertical. 60-80% of bar protection prese banks, and is inst erosion. AND/O stream is cover Sediment is temp nature, and contri AND/OR V-shap vegetative protect	Erosion present on ks. Vegetative ent on 20-40% of ufficient to prevent R 60-80% of the ed by sediment. porary/transient in buting to instability, ed channels have ion is present on >	rooting depth, r vertical/underr protection present banks, is not pr Obvious bank s Erosion/raw ban AND/OR Aggradir than 80% of strear deposition, contril Multiple thread	ed below average majority of banks cut. Vegetative on less than 20% of eventing erosion. loughing present. nks on 80-100%. ng channel. Greater n bed is covered by buting to instability. channels and/or	
					banks and depositi	ion on > 40% of the ional features which	deposition	and stable sediment is absent.	Subterrai	nean flow.	
Score	3	3	2	2.4		2	1	.6		1	3.0
. RIPARIAN	N BUFFERS: A		Con	nditional Cate	gory Mar	ginal Low Marginal: Non-maintained,	Po High Poor:	n may be accepta	NOTES>>		
RIPARIAN Riparian Buffers	Opti	imal 3 inches) present, anopy cover and a derstory. Wetlands	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy	gory	ginal Low Marginal:	Po		NOTES>>		
Riparian	Option Tree stratum (dbh > with > 60% tree canon-maintained unc	imal 3 inches) present, anopy cover and a derstory. Wetlands	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory.	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation).	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover.	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh >3 inches) present, with <30% tree canopy cover with maintained understory.	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable condition.	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions.	NOTES>>		
Riparian	Option Tree stratum (dbh > with > 60% tree canon-maintained unc	imal 3 inches) present, anopy cover and a derstory. Wetlands e riparian areas.	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained	Low Suboptimal Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh >3 inches) present, with <30% tree canopy cover with maintained	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable	NOTES>>		
Riparian Buffers Condition Scores Delineate ripa escriptors. Determine sq elow.	Tree stratum (dbh > with > 60% tree ca non-maintained unc located within the	imal 3 inches) present, anopy cover and a derstory. Wetlands e riparian areas.	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 into Condition C	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Coungth and width. Coungth	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh > 3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5	NOTES>>		
Riparian Buffers Condition Scores Delineate ripasscriptors. Determine square.	Tree stratum (dbh > with > 60% tree ca non-maintained unc located within the located with	imal 3 inches) present, anopy cover and a derstory. Wetlands e riparian areas. 5 ach stream bank ach by measurin.	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 into Condition C	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Coungth and width. Coungth	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh > 3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5	NOTES>>		
Riparian Buffers Condition Scores Delineate ripaescriptors. Determine squelow. Enter the % F	Tree stratum (dbh > with > 60% tree ca non-maintained unc located within the	imal 3 inches) present, anopy cover and a derstory. Wetlands e riparian areas.	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 into Condition C	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Coungth and width. Coungth	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh > 3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5	NOTES>>		
Riparian Buffers Condition Scores Delineate ripaescriptors. Determine squelow. Enter the % F	Tree stratum (dbh > with > 60% tree canon-maintained unc located within the located withi	imal 3 inches) present, anopy cover and a derstory. Wetlands e riparian areas. 5 each stream bank ach by measurin Score for each ri	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 into Condition C	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Coungth and width. Coungth	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh > 3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5	NOTES>>		
Riparian Buffers Condition Scores Delineate ripasecriptors. Determine squelow. Enter the % F	Tree stratum (dbh > with > 60% tree ca non-maintained unc located within the located with	imal 3 inches) present, anopy cover and a derstory. Wetlands e riparian areas. 5 each stream bank ach by measurin 100% 1.5	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 into Condition C	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Coungth and width. Coungth	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh > 3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5	NOTES>> CI= (Sum % RA**) Rt Bank CI >	1.50	CI 1 500
Condition Scores Delineate ripa escriptors. Determine squelow. Enter the % F Right Bank Left Bank B. INSTREAR	Tree stratum (dbh > with > 60% tree canon-maintained unc located within the located withi	imal 3 inches) present, anopy cover and a derstory. Wetlands e riparian areas. 5 ach stream bank ach by measurin 100% 1.5 100% 1.5 aried substrate si	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 Into Condition C g or estimating ler parian category in	Inditional Cate ptimal Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Coungth and width. Coungth and width. Coungth and width. Coungth and depths; woo res.	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85 Indition Scores us calculators are production of the produc	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh > 3 inches) present, with < 30% tree canopy cover with maintained understory: Low 0.75 ing the povided for you	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F Blocks 6	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5 the sums Riparian equal 100 100%	NOTES>>		CI 1.50
Condition Scores Delineate ripa escriptors. Determine squelow. Enter the % R Right Bank Left Bank Instread	Tree stratum (dbh > with > 60% tree ca non-maintained unc located within the located with	imal 3 inches) present, enopy cover and a derstory. Wetlands e riparian areas. 5 each stream bank ach by measuring 100% 1.5 100% 1.5 aried substrate siffle poole comple	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 Into Condition C g or estimating ler parian category in zes, water velocity ixes, stable featur	Inditional Cate ptimal Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Congth and width. Congth and width. Congth and width. Congth and depths; wores. Conditional	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <a>3 inches) present, with <a>3 inches) present, or a tree canopy cover. High 0.85 Indition Scores us calculators are production of the control of th	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh >3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75 ing the provided for you	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F Blocks 6	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5 the sums Riparian equal 100 100% 100%	NOTES>> Ci= (Sum % RA * : Rt Bank Ci > Lt Bank Ci >	1.50	
Condition Scores Delineate ripalescriptors. Determine squelow. Enter the % F. Right Bank Left Bank	Tree stratum (dbh > with > 60% tree canon-maintained unc located within the located withi	imal 3 inches) present, anopy cover and a derstory. Wetlands e riparian areas. 5 ach stream bani ach by measurin. Score for each ri 100% 1.5 100% 1.5 ried substrate si ffle poole completimal.	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 Into Condition C g or estimating let parian category in zes, water velocity exes, stable featur Subo Stable habitat ele present in 30-50% are adequate fo	Inditional Cate ptimal Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Coungth and width. Coungth and width. Coungth and width. Coungth and depths; woo res.	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85 Indition Scores us calculators are production of the present in 10-30 are adequate for a seadequate for the present in 10-30 are adequate for the present in 10-30 are adeq	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh > 3 inches) present, with < 30% tree canopy cover with maintained understory: Low 0.75 ing the povided for you	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F Blocks 6	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5 the sums Riparian equal 100 100%	CI= (Sum % RA * : Rt Bank CI > Lt Bank CI > NOTES>>	1.50	

	St	ream In	npact A	ssessm	ent Fo	rm Pag	e 2			
Project #	Applicant		Locality	Cowardin Class.	HUC	Date	Data Point	SAR length	Impact Factor	
								500	1	
	L ALTERATION: Stream cross poil piles, constrictions, livestock	sings, riprap, conci		concrete blocks, s	traightening of ch	annel, channeliza	ation,	NOTES>>		
	Negligible	Mii	nor		erate		vere			
Channel Alteration	or hardening absent. Stream has an	Less than 20% of the stream reach is disrupted by any of the channel alterations listed in the parameter guidelines.	20-40% of the stream reach is disrupted by any of the channel	is disrupted by any of the channel	of the channel	Greater than 80% by any of the chan in the parameter 80% of banks sh	of reach is disrupted nnel alterations listed guidelines AND/OR hored with gabion, or cement.			
SCORE	1.5	1.3	1.1	0.9	0.7	C	0.5			
REACH CONDITION INDEX and STREAM CONDITION UNITS FOR THIS REACH										
NOTE: The Cls and F	RCI should be rounded to 2 decimal places.	The CR should be rour	nded to a whole numb	er.			THE REACH (CONDITION IN	DEX (RCI) >>	

RCI= (Sum of all Cl's)/5

COMPENSATION REQUIREMENT (CR) >>

CR = RCI X LF X IF

INSERT PHOTOS:

UPSTREAM



DESCRIBE PROPOSED IMPACT:

Ephemeral Stream Assessment Form (Form 1a) Unified Stream Methodology for use in Virginia

For use in ephemeral streams

Project #	Project Name	Locality	Cowardin Class.	HUC	Date	SAR#	Impact/SAR length	Impact Factor
5337	I-64 Peninsula	York		02080107	11/16/11		37	

Name(s) of Evaluator(s) Stream Name and Information

Aitkenhead / Nies **WUS 200S**

2. RIPARIAN BUFFERS: Assess both bank's 100 foot riparian areas along the entire SAR. (rough measurements of length & width may be acceptable)

		Con	ditional Cate	gory			
	Optimal	Subo	ptimal	Mar	ginal	Po	row crops, active feed lots, trails, o other comparable conditions.
Riparian Buffers	Tree stratum (dbh > 3 inches) present, with > 60% tree canopy cover and an non-maintained understory. Wetlands areas.	High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory.	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation).	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover.	Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh > 3 inches) present, with <30% tree canopy cover with maintained understory.	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable condition.	Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable
		High	Low	High	Low	High	Low
Condition Scores	1.5	1.2	1.1	0.85	0.75	0.6	0.5
descriptors.	rian areas along each stream bank uare footage for each by measuring		· ·				the sums
3. Enter the % R	Riparian Area and Score for each rip	parian category in	the blocks below			Blocks e	qual 100
Right Bank	% Riparian Area> 100%						100%
Rigiil Dalik	Score > 1.2						

1.2

100% 100% Rt Bank CI > 1.20 CI % Riparian Area> Left Bank 1.2 Lt Bank CI > 1.20 1.20 Score >

REACH CONDITION INDEX and STREAM CONDITION UNITS FOR THIS REACH

NOTE: The CIs and RCI should be rounded to 2 decimal places. The CR should be rounded to a whole number

THE REACH CONDITION INDEX (RCI) >> RCI= (Riparian CI)/2

CI= (Sum % RA * Scores*0.01)/2

0.60

COMPENSATION REQUIREMENT (CR) >> 0

CR = RCI X LF X IF

INSERT PHOTOS:

DOWNSTREAM



DESCRIBE PROPOSED IMPACT:		

		Stre	Unit	fied Stream N	lethodology 1	Form	ginia	m 1)			
Project #		Project Name		Locality	Cowardin Class.	HUC	Date Date	SAR#	Impact/SAR length	Impact Factor	
5337	I	-64 Peninsul	a	York	R2UB2	02080107	1/16/11			1	
Name	e(s) of Evalua	tor(s)	Stream Nam	e and Informa	ation						
	Aitkenhead / Nies		WUS 201S								
. Channel C	Condition: Asse	ess the cross-sec	ction of the stream		ondition (erosion, conditional Catego						
	Opti	imal	Subo	ptimal	Mar	ginal	Po	oor	Se	vere	
	Very little incision o	ur active erosion: 80	erosion or unproted	ew areas of active cted banks. Majority	Poor. Banks more	less than Severe or stable than Severe	Vertically/laterally	ned/incised. unstable. Likely to		istability. Severe	
Channel Condition	100% stable bar surface protection prominent (80-11 Stable point bars/be present. Access floodplain or fully bankfull benches. and transverse be sediment depositio 10% of 1	nks. Vegetative n or natural rock, 00%). AND/OR ankfull benches are to their original v developed wide Mid-channel bars, ars few. Transient on covers less than	Vegetative protect prominent (60- Depositional feat stability. The bar channels are well likely has access to or newly develope portions of the resediment covers 10 to definite the covers of the resediment covers 10 to definite the covers of the resediment covers 10 to definite the covers of the resediment covers 10 to definite the covers 10 to definite	table (60-80%), titon or natural rock -80%) AND/OR tures contribute to nkfull and low flow II defined. Stream o bankfull benches, at floodplains along reach. Transient 0-40% of the stream tom.	Erosion may be pr both banks. Veget 40-60% of banks. bevertical or unde 60% of stream sediment. Se- temporary/tran instability. Depositi stability, may be	ower bank slopes. resent on 40-60% of tative protection on Streambanks may ercut. AND/OR 40- n is covered by diment may be isient, contribute to e forming/present. sed channels have	are near vertical. 60-80% of bar protection prese banks, and is inst erosion. AND/O stream is cover Sediment is temp nature, and contri AND/OR V-shap	jority of both banks Erosion present on iks. Vegetative ent on 20-40% of afficient to prevent Re 60-80% of the red by sediment. corary/transient in buting to instability. ed channels have ion is present on >	banks. Streamb rooting depth, r vertical/under vertical/under protection present banks, is not pr Obvious bank s Erosion/raw ban AND/OR Aggradir than 80% of strear deposition, contril	ed below average najority of banks cut. Vegetative on less than 20% of eventing erosion. loughing present. loughing present. lough of the control of the control of the covered by outing to instability.	
			DOL	tom.	vegetative protect	ion on > 40% of the ional features which	40% of the banks a	and stable sediment is absent.		channels and/or nean flow.	CI
Score	3	3	2	2.4		2	1	.6		1	2.4
_	N BUFFERS: A		Con	nditional Cate ptimal	gory	ginal Low Marginal:	Po	n may be accepta	NOTES>>		
_	Opti	imal > 3 inches) present, anopy cover and a derstory. Wetlands	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy	gory	ginal			•		
. RIPARIAN	Option Tree stratum (dbh > with > 60% tree canon-maintained unc	imal > 3 inches) present, anopy cover and a derstory. Wetlands	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory.	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover.	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh >3 inches) present, with					

	St	ream In	nnact A	eedeem	ent Fo	rm Pag	۵ 2			
	J.	Caill III	ipact A	3363311	ient i oi	iii i ag	C			
Project #	Applicant		Locality	Cowardin Class.	HUC	Date	Data Point	SAR length	Impact Factor	
							500	1		
	L ALTERATION: Stream cross poil piles, constrictions, livestock	sings, riprap, conc		concrete blocks, s	traightening of ch	annel, channeliza	ation,	NOTES>>		
	Negligible	Mi	nor		erate	Se	vere			
Channel Alteration	Channelization, dredging, alteration, or hardening absent. Stream has an unaltered pattern or has naturalized.	Less than 20% of the stream reach is disrupted by any of the channel alterations listed in the parameter guidelines.	20-40% of the stream reach is disrupted by any of the channel alterations listed in the parameter guidelines.	is disrupted by any of the channel	of the channel	Greater than 80% by any of the char in the parameter 80% of banks sl	of reach is disrupted anel alterations listed guidelines AND/OR nored with gabion, or cement.			
SCORE	1.5	1.3	1.1	0.9	0.7	().5			
REACH CONDITION INDEX and STREAM CONDITION UNITS FOR THIS REACH										
NOTE: The CIs and F	RCI should be rounded to 2 decimal places.	The CR should be rou	nded to a whole numb	er.			THE REACH (CONDITION IN	DEX (RCI) >>	

RCI= (Sum of all Cl's)/5

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COMPENSATION REQUIREMENT (CR) >>

(R) >> 0

CR = RCI X LF X IF

INSERT PHOTOS:

DOWNSTREAM



DESCRIBE PROPOSED IMPACT:		

		Stre		fied Stream N		•	ginia				
Project #	I	Project Name		Locality	Cowardin Class.	HUC	perennial Date	SAR#	Impact/SAR length	Impact Factor	
5337	Į.	-64 Peninsul	a	York	R4UB2	02080107	11/1611			1	
Name	e(s) of Evaluat	tor(s)	Stream Nam	e and Informa	ation						
	Aitkenhead / Nies		WUS 202S								
. Channel C	Condition: Asse	ess the cross-sec	tion of the stream								
	Opti	mal	Subo	ptimal	Conditional Catego Mar	ginal	Po	Poor Severe			
Channel Condition	Very little incision or 100% stable bar surface protectior prominent (80-10	nks. Vegetative n or natural rock,	erosion or unproted of banks are s Vegetative protect prominent (60	ew areas of active cted banks. Majority table (60-80%), tion or natural rock -80%) AND/OR	Poor. Banks more or Poor due to lo Erosion may be pr both banks. Veget	less than Severe or stable than Severe wer bank slopes. seent on 40-60% of ative protection on	Vertically/laterally widen further. Maj are near vertical. 60-80% of ban	unstable. Likely to jority of both banks Erosion present on ks. Vegetative	incision, flow cor banks. Streamber rooting depth, n	stability. Severe ntained within the ed below average najority of banks ut. Vegetative	
	Stable point bars/ba present. Access floodplain or fully bankfull benches. and transverse ba sediment deposition 10% of t	ankfull benches are to their original developed wide Mid-channel bars, ars few. Transient n covers less than bottom.	stability. The bar channels are we likely has access t or newly develope portions of the sediment covers 10 bot	tures contribute to the flow il defined. Stream o bankfull benches, id floodplains along reach. Transient 0-40% of the stream tom.	bevertical or unde 60% of stream sediment. Sed temporary/tran instability. Depositi stability, may be AND/OR V-shap vegetative protecti banks and depositi	n is covered by diment may be sient, contribute on that contribute to forming/present. ed channels have on on > 40% of the onal features which	banks, and is insuerosion. AND/O stream is cover Sediment is temp nature, and contril AND/OR V-shap vegetative protect 40% of the banks a deposition	ed channels have ion is present on > and stable sediment is absent.	protection present banks, is not pre Obvious bank sl Erosion/raw bar AND/OR Aggradin than 80% of strean deposition, contrib Multiple thread subterrar	on less than 20% of eventing erosion. oughing present. hks on 80-100%. g channel. Greater n bed is covered by utting to instability. channels and/or nean flow.	CI
Score	3	3	2	.4		2	1	.6		1	3.0
RIPARIAN	N BUFFERS: A		Con	ditional Cate	gory	ginal Low Marginal:	Po	n may be accepta	NOTES>>		
Riparian Buffers		imal 3 inches) present, unopy cover and a lerstory. Wetlands	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree	ditional Cate	gory	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh >3 inches) present, with <30% tree canopy cover with maintained			NOTES>>		
Riparian Buffers	Opti Tree stratum (dbh > with > 60% tree ca	imal 3 inches) present, unopy cover and a lerstory. Wetlands	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh >3 inches) present, with <30% tree canopy cover with	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces row crops, active feed lots, trails, or other comparable	NOTES>>		
Riparian	Opti Tree stratum (dbh > with > 60% tree ca	3 inches) present, anopy cover and a derstory. Wetlands e riparian areas.	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory.	ditional Cate ptimal Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation).	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover.	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh > 3 inches) present, with < 30% tree canopy cover with maintained understory.	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, recently seeded and stabilized, or other comparable condition.	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces row crops, active feed lots, trails, or other comparable conditions.	NOTES>>		
Riparian Buffers Condition Scores Delineate ripalescriptors. Determine squelow.	Tree stratum (dbh > with > 60% tree canon-maintained und located within the	imal 3 inches) present, intopy cover and a ferstory. Wetlands e riparian areas.	Com Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 into Condition C	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Congth and width. Congth and	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh >3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces row crops, active feed lots, trails, or other comparable conditions. Low 0.5	NOTES>>		
Riparian Buffers Condition Scores Delineate ripaescriptors. Determine squelow.	Tree stratum (dbh > with > 60% tree ca a non-maintained und located within the	imal 3 inches) present, unopy cover and a derstory. Wetlands e riparian areas. 5 ach by measurin.	Com Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 into Condition C	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Congth and width. Congth and	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh >3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces row crops, active feed lots, trails, or other comparable conditions. Low 0.5	NOTES>>		
Riparian Buffers Condition Scores Delineate ripe escriptors. Determine squelow. Enter the % F	Tree stratum (dbh > with > 60% tree canon-maintained und located within the	imal 3 inches) present, intopy cover and a ferstory. Wetlands e riparian areas.	Com Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 into Condition C	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Congth and width. Congth and	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh >3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces row crops, active feed lots, trails, or other comparable conditions. Low 0.5	NOTES>>		
Riparian Buffers Condition Scores Delineate ripe escriptors. Determine squelow. Enter the % F	Tree stratum (dbh > with > 60% tree canon-maintained und located within the	3 inches) present, unopy cover and a derstory. Wetlands e riparian areas. 5 ach stream bank ach by measurin. Score for each ri 100% 1.2	Com Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 into Condition C	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Congth and width. Congth and	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh >3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces row crops, active feed lots, trails, or other comparable conditions. Low 0.5 the sums Riparian regual 100 100%	NOTES>>		
Riparian Buffers Condition Scores Delineate ripe escriptors. Determine squelow. Enter the % F	Tree stratum (dbh > with > 60% tree canon-maintained und located within the located within the strain areas along equare footage for experience of the strain area and strain area.	imal 3 inches) present, unopy cover and a derstory. Wetlands e riparian areas. 5 bach stream bank ach by measurin Score for each ri 100% 1.2	Com Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 into Condition C	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Congth and width. Congth and	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh >3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces row crops, active feed lots, trails, or other comparable conditions. Low 0.5	NOTES>> CI= (Sum % RA * S Rt Bank CI >	1.20	CI
Condition Scores Delineate ripe escriptors. Determine squelow. Enter the % F Right Bank	Tree stratum (dbh > with > 60% tree ca a non-maintained und located within the located wi	5 Score for each ri 100% 1.2	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 Cinto Condition C g or estimating ler parian category in	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Co oright and width. Co	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85	Jinal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh > 3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75 Ing the vided for you	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F Blocks 6	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces row crops, active feed lots, trails, or other comparable conditions. Low 0.5 the sums Riparian equal 100 100%	CI= (Sum % RA * S Rt Bank CI > Lt Bank CI >		CI 1.20
Riparian Buffers Condition Scores Delineate ripaescriptors. Determine squelow. Enter the % F Right Bank Left Bank	Tree stratum (dbh > with > 60% tree canon-maintained und located within the located within the strain areas along equare footage for experience of the strain area and strain area.	imal 3 inches) present, intopy cover and a derstory. Wetlands a riparian areas. 5 bach stream bank ach by measuring 100% 1.2 100% 1.2 aried substrate si	Com Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 k into Condition C g or estimating let parian category in	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Co ongth and width. Co the blocks below y and depths; woo	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85	Jinal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh > 3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75 Ing the vided for you	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F Blocks 6	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces row crops, active feed lots, trails, or other comparable conditions. Low 0.5 the sums Riparian equal 100 100%	NOTES>> CI= (Sum % RA * S Rt Bank CI >	1.20	
Condition Scores Delineate ripalescriptors. Determine squelow. Enter the % Right Bank Left Bank INSTREAM Indercut banks;	Tree stratum (dbh > with > 60% tree ca non-maintained und located within the located with	imal 3 inches) present, inopy cover and a lerstory. Wetlands e riparian areas. 5 each stream bank ach by measuring 100% 1.2 100% 1.2 aried substrate siffle poole complete.	Com Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 sinto Condition C g or estimating let parian category in zes, water velocit xes, stable featur	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Co ongth and width. Co the blocks below y and depths; wodes. Conditiona	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85 Indition Scores usional calculators are production of the control of the contr	Ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh -3 inches) present, with +30% tree canopy cover with maintained understory. Low 0.75 Ing the vided for you	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F Blocks e	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces row crops, active feed lots, trails, or other comparable conditions. Low 0.5 the sums Riparian riqual 100 100%	CI= (Sum % RA * S Rt Bank CI > Lt Bank CI >	1.20	
Riparian Buffers Condition Scores Delineate ripa lescriptors. Determine squelow. Enter the % F Right Bank Left Bank Left Bank Instream	Tree stratum (dbh > with > 60% tree canon-maintained und located within the located within the strain areas along equare footage for example of the strain area and strain are	imal 3 inches) present, inopy cover and a lerstory. Wetlands e riparian areas. 5 each stream bank ach by measuring 100% 1.2 100% 1.2 aried substrate siffle poole complete.	Com Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 sinto Condition C g or estimating let parian category in zes, water velocit xes, stable featur	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Coungth and width. Coungth and width. Coungth and width. Coungth and depths; wodes.	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85 Indition Scores usional calculators are production of the control of the contr	Jinal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh > 3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75 Ing the vided for you	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure of % F Blocks e	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces row crops, active feed lots, trails, or other comparable conditions. Low 0.5 the sums Riparian equal 100 100%	CI= (Sum % RA * S Rt Bank CI > Lt Bank CI >	1.20	
Condition Scores Delineate ripa elescriptors. Deltre the % F Right Bank Left Bank Left Bank Lindercut banks;	Tree stratum (dbh > with > 60% tree ca non-maintained und located within the located with	5 Score for each ri 100% 1.2 100% 1.2 100% 1.2 100% 1.2 100% 1.2 100% 1.2 100% 1.2 100% 1.2	Com Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 Into Condition C g or estimating let parian category in Zes, water velocit ixes, stable featur Subo Stable habitat ele present in 30-50% are adequate fo	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Co ongth and width. Co the blocks below y and depths; wodes. Conditiona	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85 Indition Scores usion all Category Mar Stable habitat ele present in 10-30% are adequate fo	Ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh -3 inches) present, with +30% tree canopy cover with maintained understory. Low 0.75 Ing the vided for you	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure 1 of % F Blocks e	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces row crops, active feed lots, trails, or other comparable conditions. Low 0.5 the sums Riparian riqual 100 100%	CI= (Sum % RA * S Rt Bank CI > Lt Bank CI >	1.20	

	St	ream In	npact A	ssessm	ent Fo	rm Pag	e 2		
Project #	Applicant		Locality	Cowardin Class.	HUC	Date	Data Point	SAR length	Impact Factor
								500	1
	ALTERATION: Stream cross poil piles, constrictions, livestock	sings, riprap, conci		concrete blocks, s	traightening of ch	annel, channeliz	ation,	NOTES>>	
	Negligible	Mir	nor		erate	Se	vere		
Channel Alteration	Channelization, dredging, alteration, or hardening absent. Stream has an unaltered pattern or has naturalized.	Less than 20% of the stream reach is disrupted by any of the channel alterations listed in the parameter guidelines.	20-40% of the stream reach is disrupted by any of the channel alterations listed in the parameter guidelines.	of the channel	60 - 80% of reach is disrupted by any of the channel alterations listed in the parameter guidelines. If stream has been channelized, normal stable stream meander pattern has not	Greater than 80% by any of the char in the parameter 80% of banks s	of reach is disrupted nnel alterations listed guidelines AND/OR hored with gabion, or cement.		
SCORE	1.5	1.3	1.1	0.9	0.7	(0.5		
REACH CONDITION INDEX and STREAM CONDITION UNITS FOR THIS REACH									
VOTE: The Cls and F	RCI should be rounded to 2 decimal places.	The CR should be rour	nded to a whole numb	er.			THE REACH (CONDITION IN	DEX (RCI) >>

RCI= (Sum of all CI's)/5

COMPENSATION REQUIREMENT (CR) >> 0

CR = RCI X LF X IF

INSERT PHOTOS:

DOWNSTREAM



DESCRIBE PROPOSED IMPACT:			
	<u> </u>	 <u> </u>	<u> </u>

Ephemeral Stream Assessment Form (Form 1a) Unified Stream Methodology for use in Virginia For use in ephemeral streams Cowardin Impact/SAR **Impact** Project # **Project Name** Locality HUC Date SAR# Class length **Factor** 5337 I-64 Peninsula York 02080107 11/16/11 Name(s) of Evaluator(s) Stream Name and Information **WUS 203S** 2. RIPARIAN BUFFERS: Assess both bank's 100 foot riparian areas along the entire SAR. (rough measurements of length & width may be acceptable) **Conditional Category** NOTES>> Optimal Suboptimal Marginal Poor Low Marginal: Non-maintained, High Poor: ow Suboptimal High Suboptima Lawns, mowed, High Marginal: Riparian areas lense herbaceou Riparian areas and maintained Low Poor: vegetation, riparian areas with tree stratum Non-maintained with tree stratum (dbh > 3 inches) areas, nurseries; no-till cropland; Impervious surfaces, mine lense herbaceous (dbh > 3 inches) lacking shrub and tree stratum, hay production, ponds present, with vegetation with Tree stratum (dbh > 3 inches) present actively grazed pasture, sparsely resent, with 30% spoil lands. 30% tree canop either a shrub layer or a tree Riparian with > 60% tree canopy cover and an non-maintained understory. Wetlands to 60% tree canopy cover and denuded surface Buffers vegetated nonrow crops, active maintained layer (dbh > 3 open water. If containing both herbaceous and shrub layers or a areas. maintained area. feed lots, trails, or understory. Recent cutover inches) present, with <30% tree present, tree stratum (dbh >3 recently seeded and stabilized, or other comparable conditions. (dense canopy cover inches) present non-maintained other comparable vegetation). with <30% tree understory. condition. anopy cover with maintained High Low High High Low Low Condition 1.5 1.1 0.85 0.75 0.6 0.5 1.2 Scores Delineate riparian areas along each stream bank into Condition Categories and Condition Scores using the Ensure the sums Determine square footage for each by measuring or estimating length and width. Calculators are provided for you of % Riparian Enter the % Riparian Area and Score for each riparian category in the blocks below Blocks equal 100 % Riparian Area> 100% 100% Right Bank Score > 1.2 CI= (Sum % RA * Scores*0.01)/2 CI 100% 100% Rt Bank CI > 1.20 % Riparian Area> Left Bank 1.20 1.20 1.2 Lt Bank CI > Score > REACH CONDITION INDEX and STREAM CONDITION UNITS FOR THIS REACH THE REACH CONDITION INDEX (RCI) >: 0.60 NOTE: The CIs and RCI should be rounded to 2 decimal places. The CR should be rounded to a whole number RCI= (Riparian CI)/2 COMPENSATION REQUIREMENT (CR) >> 0 CR = RCI X LF X IF

INICEDE DILOT	
INSERT PHOT	US:

DESCRIBE PROPOSED IMPACT:		

	Stre		fied Stream N	Methodology f	for use in Virg	ginia				
Project #	Project Nam		Locality	Cowardin Class.	HUC	Date	SAR#	Impact/SAR length	Impact Factor	
5337	I-64 Peninsu	la	York	R2UB2	02080107	11/16/11		36		
Nam	e(s) of Evaluator(s)	s) of Evaluator(s) Stream Name and Information		ation						
	Aitkenhead / Nies	WUS 204S								
. Channel (Condition: Assess the cross-se	ction of the stream		ondition (erosion, Conditional Catego						
	Optimal	Subo	Suboptimal Marginal Poor		Sev	vere				
Channel	Very little incision or active erosion; 8	erosion or unproted	ew areas of active cted banks. Majority table (60-80%).	Poor. Banks more	less than Severe or stable than Severe ower bank slopes.	Overwiden Vertically/laterally widen further. Mai		incision, flow cor	Istability. Severe	
Condition	100% stable banks. Vegetative surface protection or natural rock, prominent (80-100%). AND/OR Stable point bars/bankfull benches an present. Access to their original floodplain or fully developed wide bankfull benches. Mid-channel bars, and transverse bars few. Transient sediment deposition covers less than 10% of bottom.	Vegetative protect prominent (60 Depositional feat stability. The banchannels are we likely has access to riewly develope portions of the sediment covers 11	tition or natural rock-80%) AND/OR tures contribute to nkfull and low flow III defined. Stream o bankfull benches, at floodplains along reach. Transient 0-40% of the stream tom.	Erosion may be pri both banks. Veget 40-60% of banks. bevertical or unde 60% of stream sediment. Sed temporary/trans instability. Depositii stability, may be AND/OR V-shapi	esent on 40-60% of tative protection on Streambanks may ercut. AND/OR 40- n is covered by diment may be sient, contribute on that contribute to torming/present. ed channels have ion on > 40% of the	are near vertical. I 60-80% of ban protection prese banks, and is insu- erosion. AND/O stream is cover Sediment is temp nature, and contril	Erosion present on ks. Vegetative int on 20-40% of fifficient to prevent R 60-80% of the ed by sediment. orany/transient in outing to instability, ed channels have ion is present on >	rooting depth, n vertical/underc protection present banks, is not pre Obvious bank sl Erosion/raw bar AND/OR Aggradin than 80% of strean deposition, contrit Multiple thread	ed below average najority of banks but. Vegetative on less than 20% of eventing erosion. oughing present. In the second of the s	C
0			1.4	banks and depositi	ional features which	deposition	is absent.		nean flow.	
Score	3	2	2.4	1	2	1	.6		1	2.4
NOTES>> 2. RIPARIAN	N BUFFERS: Assess both bar	Con	ptimal Low Suboptimal:	gory Mar	ginal Low Marginal: Non-maintained,	Po High Poor:	n may be accepta	NOTES>>		
		Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy	gory Mar	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh >3 inches) present, with <30% tree canopy cover with maintained	Po		•		
2. RIPARIAN	Optimal Tree stratum (dbh > 3 inches) presen with > 60% tree canopy cover and a non-maintained understory. Wetland	Riparian areas with tree stratum (dbh > 3 inches), present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained	nditional Cate ptimal Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory, Recent cutover (dense	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh >3 inches) present, with 30% inches) present, canopy cover with	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non- maintained area, recently seeded and stabilized, or other comparable	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable	•		
2. RIPARIAI	Optimal Tree stratum (dbh > 3 inches) presen with > 60% tree canopy cover and a non-maintained understory. Wetland	High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory.	Ditional Cate ptimal Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation).	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover.	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, right production, production, ponds, open water. If present, tree stratum (dbh >3 inches) present, with <30% tree canopy cover with maintained understory.	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, recently seeded and stabilized, or other comparable condition.	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions.	•		
Riparian Buffers Condition Scores 1. Delineate rips descriptors. 2. Determine so pelow. 3. Enter the % F	Optimal Tree stratum (dbh > 3 inches) present with > 60% tree canopy cover and a non-maintained understory. Wetland located within the riparian areas.	High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2	Description of the control of the co	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh >3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure to of % F	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions.	•		
Riparian Buffers Condition Scores Delineate ripadescriptors. 2. Determine squeledw.	Optimal Tree stratum (dbh > 3 inches) present with > 60% tree canopy cover and a non-maintained understory. Wetland located within the riparian areas. 1.5 arian areas along each stream bar quare footage for each by measuring Riparian Area and Score for each in the strategies of the stream of	High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2	Description of the control of the co	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh >3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure to of % F	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5 he sums tiparian qual 100	NOTES>>		
Riparian Buffers Condition Scores Delineate rips descriptors. Determine so pelow. Below. Condition Scores	Optimal Tree stratum (dbh > 3 inches) present with > 60% tree canopy cover and a non-maintained understory. Wetland located within the riparian areas. 1.5 arian areas along each stream bar quare footage for each by measuring Riparian Area and Score for each 1% Riparian Area 100% Score > 1.2	High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2	Description of the control of the co	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh >3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure to of % F	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5 he sums tiparian qual 100 100%	NOTES>>		
Riparian Buffers Condition Scores Delineate rips lescriptors. Determine squelow.	Optimal Tree stratum (dbh > 3 inches) present with > 60% tree canopy cover and a non-maintained understory. Wetland located within the riparian areas. 1.5 arian areas along each stream bar quare footage for each by measuring Riparian Area and Score for each 1.8 Riparian Area 100%	High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2	Description of the control of the co	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh >3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure to of % F	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5 he sums tiparian qual 100	NOTES>>	Scores*0.01)/2 1.20 1.20	
Riparian Buffers Condition Scores Delineate ripardescriptors. Delineate ripardescriptors. Enter the % F. Right Bank Left Bank INSTREAL	Optimal Tree stratum (dbh > 3 inches) present with > 60% tree canopy cover and a non-maintained understory. Wetland located within the riparian areas. 1.5 arian areas along each stream bar quare footage for each by measuring Riparian Area and Score for each 1% Riparian Area 100% Score > 1.2	Con Subo High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 Ik into Condition Cong or estimating let iparian category in inches in the category in the ca	Ditional Cate ptimal Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Co ongth and width. Co on the blocks below y and depths; wodes.	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85 Addition Scores usional calculators are production of the calculators are production of the calculators are production.	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh > 3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75 ing the production of the product	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure to the comparable condition of the comparable condition of the comparable condition.	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5 he sums tiparian qual 100 100%	NOTES>> CI= (Sum % RA* S Rt Bank CI >	1.20	CI 1.2
Riparian Buffers Condition Scores 1. Delineate ripalescriptors. 2. Determine societow. 3. Enter the % F Right Bank Left Bank 3. INSTREAI	Optimal Tree stratum (dbh > 3 inches) present with > 60% tree canopy cover and a non-maintained understory. Wetland located within the riparian areas. 1.5 arian areas along each stream bar quare footage for each by measuring Riparian Area and Score for each % Riparian Area 100% Score > 1.2 % Riparian Area 100% Score > 1.2 M HABITAT: Varied substrate stroot mats; SAV; riffle poole compiler.	High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree cacappy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 It into Condition C ag or estimating let iparian category in iizes, water velocit exes, stable featur	Description of the blocks below 1.1 altegories and width. Congth and width. Congth and width. Congth and depths; wores. Condition.	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85 Indition Scores using calculators are producted to the canopy cover.	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh >3 inches) present, with <a>30 % tree canopy cover with maintained understory. Low 0.75 Ing the production of the present of the product of the present	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure t of % F Blocks e	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5 he sums tiparian qual 100 100% 100%	NOTES>> Cl= (Sum % RA * S Rt Bank Cl > Lt Bank Cl >	1.20	
Riparian Buffers Condition Scores Delineate riparescriptors. Delineate riparescriptors. Enter the % F. Right Bank Left Bank INSTREAL	Optimal Tree stratum (dbh > 3 inches) present with > 60% tree canopy cover and a non-maintained understory. Wetland located within the riparian areas. 1.5 arian areas along each stream bar quare footage for each by measuring Riparian Area and Score for each by Riparian Area and Score 1.2 % Riparian Area 100% Score 1.2 M HABITAT: Varied substrate s	High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. High 1.2 Ik into Condition C ag or estimating let iparian category in Stable habitat ele present in 30-50 are adequate fo are dequate fo	Ditional Cate ptimal Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation). Low 1.1 ategories and Co ongth and width. Co on the blocks below y and depths; wodes.	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover. High 0.85 Indition Scores using the state of the state	ginal Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh > 3 inches) present, with <30% tree canopy cover with maintained understory. Low 0.75 ing the production of the product	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, recently seeded and stabilized, or other comparable condition. High 0.6 Ensure to the comparable condition to the comparable condition.	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions. Low 0.5 he sums cliparian qual 100 100% 100% 1isted above are stable. Habitat ally present in less	NOTES>> Cl= (Sum % RA * S Rt Bank Cl > Lt Bank Cl >	1.20	

Stream Impact Assessment Form Page 2										
Project #	Applicant		Locality	Cowardin Class.	HUC	Date	Data Point	SAR length	Impact Factor	
								500	1	
	CHANNEL ALTERATION: Stream crossings, riprap, concrete, gabions, or concrete blocks, straightening of channel, channelization, hbankments, spoil piles, constrictions, livestock Conditional Category									
	Negligible	Mii	nor		erate	Ser	vere			
Channel Alteration	Channelization, dredging, alteration, or hardening absent. Stream has an unaltered pattern or has naturalized.	Less than 20% of the stream reach is disrupted by any of the channel alterations listed in the parameter guidelines.	20-40% of the stream reach is disrupted by any of the channel alterations listed in the parameter guidelines.	40 - 60% of reach is disrupted by any of the channel alterations listed in the parameter guidelines. If stream has been channelized, normal stable stream meander pattern has not	60 - 80% of reach is disrupted by any of the channel alterations listed in the parameter guidelines. If stream has been channelized, normal stable stream meander pattern has not	Greater than 80% of by any of the change in the parameter greater section 80% of banks sh	of reach is disrupted nel alterations listed guidelines AND/OR nored with gabion, or cement.			
SCORE	1.5	1.3	1.1	0.9	0.7	0).5			
REACH CONDITION INDEX and STREAM CONDITION UNITS FOR THIS REACH										
NOTE: The Cls and F	RCI should be rounded to 2 decimal places.	The CR should be rour	nded to a whole numb	er.			THE REACH (CONDITION IN	DEX (RCI) >>	

RCI= (Sum of all Cl's)/5

COMPENSATION REQUIREMENT (CR) >>

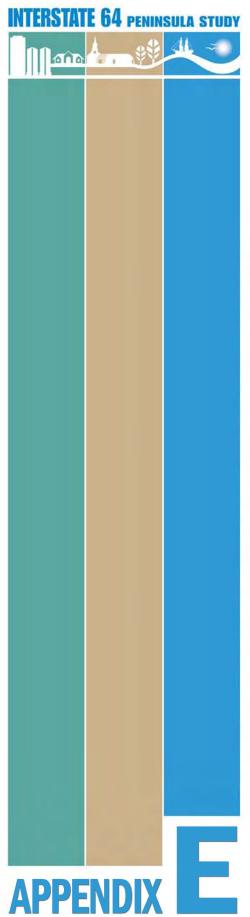
CR = RCI X LF X IF

INSERT PHOTOS:

UPSTREAM



DESCRIBE PROPOSED IMPACT:	



Waters of the United States, Including Wetlands, Summary Tables

Wetland	Location		Cowardin	Acreage in	Domina	nt Vegetation
Number	(Map No.)	HUC	Classification	Study Area	Common Name	Scientific Name
WET 1N Newmarket Creek	43	02080108	E2EM1P	4.19	Common Reed Japanese Honeysuckle Eastern Baccharis	Phragmittes australis Lonicera japonica Baccharis halimifolia
WET 2N	42 / 43	02080108	PSS	0.97	Common Reed Soft Rush Black Willow Goldenrod Eastern Baccharis	Phragmittes austrailis Juncus effusus Salix nigra Solidago sp. Baccharis halimifolia
WET 3N	42 / 43	02080108	PEM	1.64	Broadleaf Cattail Soft Rush Canadian Rush Eastern Baccharis Blunt Spikerush Pennsylvania Smartweed	Typha latifolia Juncus effusus Juncus canadensis Baccharis halimifolia Eleocharis obtusa Polygonum pensylvanicum
WET 5N	42	02080108	PEM	0.19	Black Willow Broadleaf Cattail Common Rush Eastern Baccharis	Salix nigra Typha latifolia Juncus effusus Baccharis halimifolia
WET 9N	40	02080108	PEM	0.13	Blunt Spikerush Deer Tongue Gray's Sedge	Eleocharis obtusa Dichanthelium clandestinum Carex grayi
WET 12N	39	02080108	PEM	0.56	Common Rush Deer Tongue Sweetgum Blunt Spikerush	Juncus effusus Dichanthelium clandestinum Liquidambar styraciflua Eleocharis obtusa
WET 14N	35 /36	02080206	PFO	0.10	Red Maple Willow Oak Sweetgum Poison Ivy Roundleaf Greenbriar	Acer rubrum Quercus phellos Liquidambar styraciflua Toxicodendron radicans Smilax rotundifolia
WET 16N	35	02080206	PEM	2.94	Red Maple Sweetgum Loblolly Pine Black Gum Poison Ivy Roundleaf Greenbriar Common Rush	Acer rubrum Liquidambar styraciflua Pinus taeda Nyssa sylvatica Toxicodendron radicans Smilax rotundifolia Juncus effusus
WET 17N	35	02080206	PFO	0.87	Sweetgum Black Gum Loblolly Pine Red Maple Poison Ivy Willow Oak Roundleaf Greenbriar	Liquidambar styraciflua Nyssa sylvatica Pinus taeda Acer rubrum Toxicodendron radicans Quercus phellos Smilax rotundifolia
WET 18N	35	02080206	PFO	1.65	Sweetgum Black Gum Loblolly Pine Red Maple Poison Ivy Willow Oak Roundleaf Greenbrier Soft Rush	Liquidambar styraciflua Niza sylvatica Pinus taeda Acer rubrum Toxicodendron radicans Quercus phellos Smilax rotundifolia Juncos effusus
WET 19N	34 /35	02080206	PFO	0.04	American Hornbeam Lizard's Tail Red Maple Sweetgum	Carpinus caroliniana Saururus cernuus Acer rubrum Liquidambar styraciflua
WET 20N Newport News/ Lee Hall Reservoir	34	02080206	PFO	0.46	Slippery Elm Red Maple Black Gum Loblolly Pine Poison Ivy	Ulmus rybracyma Acer rubrum Nyssa sylvatica Pinus taeda Toxicodendron radicans
WET 21N Newport News/ Lee Hall	34	02080206	PFO	0.25	Green Ash Sweetgum Red Maple	Fraxinus pennsylvanica Liquidambar styraciflua Acer rubrum

Wetland	Location		Cowardin	Acreage in	Domina	nt Vegetation
Number	(Map No.)	HUC	Classification	Study Area	Common Name	Scientific Name
Reservoir					Loblolly Pine	Pinus taeda
					American Hornbeam	Carpinus caroliniana
					Red Maple American Hornbeam	Acer rubrum Carpinus caroliniana
WET 22N	34	02080206	PFO	0.11	Tuliptree	Liriodendron tulipifera
WEI 221		02000200	110	0.11	Hazel Alder	Alnus serrulata
					Sweetgum	Liquidambar styraciflua
					Red Maple	Acer rubrum
WET 23N	34	02080206	PFO	0.10	Sweetgum Swamp Chestnut Oak	Liquidambar styraciflua Ouercus michauxii
WEI 23IN	34	02080200	FFO	0.10	American Sycamore	Platanus occidentalis
					Roundleaf Greenbriar	Smilax rotundifolia
					Poison Ivy	Toxicodendron radicans
					Red Maple	Acer rubrum
WET 24N	33	02080206	PEM	0.08	Lizard's Tail	Saururus cernuus
					Sweetgum Virginia Creeper	Liquidambar styraciflua Parthenocissus quinquefolii
					Pawpaw	Asimina triloba
WET 25N					Hazel Alder	Alnus serrulata
Tributary to					Red Maple	Acer rubrum
Skiffes Creek	33	02080206	PEM	0.04	Lizard's Tail	Saururus cernuus
Reservoir					Sweetgum Scaldweed	Liquidambar styraciflua
					Poison Ivy	Cuscuta gronovii Toxicodendron radicans
WET 26N					Pawpaw	Asimina triloba
Tributary to	32	02080206	PFO	0.02	Green Ash	Fraxinus pennsylvanica
Skiffes Creek					Red Maple	Acer rubrum
					Broadleaf Cattail	Typha latifolia
WET 27N	31	02000107	DEM	0.96	Lizard's Tail	Saururus cernuus
King Creek	31	02080107	PEM	0.96	Polygonum American Sycamore	Polygonum sp. Platanus occidentalis
					Arrowleaf Tearthumb	Polygonum sagittatum
WET 30N	20	02000107	E2EM1D	2.06	A 111-1 h1	
Queen Creek	29	02080107	E2EM1P	2.96	Alkalai bulrush	Scirpus alterniflora
					Lizard's Tail	Saururus cernuus
					Poison Ivy Christmas Fern	Toxicodendron radicans Polystichum acrostichiodes
					American Holly	Ilex opaca
					American Hornbeam	Carpinus caroliniana
WET 31N	23	02080107	PFO	0.05	Pawpaw	Asmina triloba
77 ET JIN	23	02000107	110	0.03	Spicebush	Lindera benzoin
					Tuliptree	Liriodendron tulipifera
					Red Maple Sweetgum	Acer rubrum Liquidambar styraciflua
					Blackgum	Nyssa sylvatica
					Virginia Creeper	Parthenocissus quinquefolia
					Lizard's Tail	Saururus cernuus
					Shallow Sedge	Carex lurida
					Japanese Stilt Grass Sensitive Fern	Microstegium vimineum Onoclea sensibilis
MIEE CON	22	02000105	DEC	0.00	Golden Ragwort	Senecio aureus
WET 32N	23	02080107	PFO	0.08	Sweetgum	Liquidambar styraciflua
					Hazel Alder	Alnus serrulata
					Red Maple	Acer rubrum
					Black Gum Black Willow	Nyssa sylvatica Salex nigra
					Smallspike False Nettle	Boehmeria cylindrica
					Lizard's Tail	Saururus cernuus
					Japanese Stilt Grass	Microstegium vimineum
WET 33N	23	02080107	PFO	0.31	Christmas Fern	Polystichum acrostichoides
**LI JJI*	23	02000107	110	0.31	Shallow Sedge	Carex lurida
					Golden Ragwort	Senecio aureus
					Pawpaw Red Maple	Asimino triloba Acer rubrum
	1	1			Red Maple	Acer ruorum

Wetland	Location		Cowardin	Acreage in	Domina	nt Vegetation
Number	(Map No.)	HUC	Classification	Study Area	Common Name	Scientific Name
					American Sycamore Poison Ivy	Platanus occidentalis Toxicodendron radicans
WET 34N	23	02080107	PFO	0.07	Japanese Stilt Grass Lizard's Tail Sweetgum Smallspike False Nettle American Hornbeam Red Maple	Microstegium vimineum Saururus cernuus Liquidambar styraciflua Boehmeria cylindrica Carpinus caroliniana Acer rubrum
WET 36N	23	02080107	PEM	0.02	Lizard's Tail Smallspike False Nettle Common Rush Arrowleaf Tearthumb Swamp Smartweed Sensitive Fern American Elderberry	Saururus cernuus Boehmeria cylindrica Juncus effusus Polygonum sagittatum Polygonum hydropiperoides Onoclea sensibilis Sarnbucus canadensis
WET 37N	22	02080107	PFO	0.04	Christmas Fern Lizard's Tail Smallspike False Nettle Jewelweed Tuliptree Pawpaw Spicebush Virginia Creeper Poison Ivy American Holly Red Maple American Sycamore	Polystichum acrostichoides Saururus cernuus Boehmeria cylindrica Impatiens capensis Lirodendron tulipifera Asimina triloba Lindera benzoin Parthenocissus quinquefolia Toxicodendron radicans Ilex opaca Acer rubrum Platanus occidentalis
WET 38N	21	02080206	PEM	0.03	Shallow Sedge Arrowleaf Tearthumb Smallspike False Nettle Common Rush Common Boneset Hazel Alder American Sycamore	Carex lurida Polygonum sagittatum Boehmeria cylindrica Juncus effusus Eupatorium perfoliaturx Alnus serrulata Platanus occidentalis
WET 39N Barnes Swamp	20	02080206	PFO	0.05	Broadleaf Arrowhead Cinnamon Fern Smallspike False Nettle Sensitive Fern Polygonum Sweetgum Red Maple Black Willow American Sycamore Poison Ivy	Sagittaria latifolia Osmunda cinnamomea Boehmeria cylindrica Onoclea sensibilis Polygonum sp. Liquidambar styraciflua Acer rubrum Salix nigra Platanus occidentalis Toxicodendron radicans
WET 40N	20	02080206	PFO	0.03	Lizard's Tail Sensitive Fern Coastal Sweetpepperbush Red Maple Sweetgum Blackgum	Saururus cernuus Onoclea sensibilis Clethra alnifolia Acer rubrum Liquidambar styraciflua Nyssa sylvatica
WET 41N Diascund Creek Reservoir	20	02080206	PFO	0.59		
WET 46N	16	02080206	PFO	0.13	Lizard's Tail Sensitive Fern Arrowleaf Tearthumb Polygonum Hazel Alder Red Maple Blackgum	Saururus cernuus Onoclea sensibilis Polygonum sagittatum Polygonum sp. Alnus serrulata Acer rubrum Nyssa sylvatica
WET 48N Rumley Marsh	14	02080206	PFO	1.81	Lizard's Tail Green Arrow Arum Japanese Stilt Grass	Saururus cernuus Peltandra virginica Microstegium vimineum

Wetland	Location		Cowardin	Acreage in	Domina	nt Vegetation
Number	(Map No.)	HUC	Classification	Study Area	Common Name	Scientific Name
					Red Maple Blackgum	Acer rubrum Nyssa sylvatica
WET 55N Higgins Swamp	9	02080206	PEM	0.51	Smallspike False Nettle Common Rush Green Arrow Arum Common Buttonbush Red Maple Sensitive Fern	Boehmeria cylindrica Juncus effusus Peltandra virginica Cephalanthus occidentalis Acer rubrum Onoclea sensibilis
WET 56N	9	02080206	PFO	0.09	Red Maple Willow Oak Blackgum Sweetgum	Acer rubrum Quercus phellos Nyssa sylvatica Liquidambar styraciflua
WET 57N Chickahominy River	9	02080206	PFO	2.10	Red Maple Blackgum	Acer rubrum Nyssa sylvatica
WET 58N	6	02080206	PEM	0.17	Common Rush Broadleaf Cattail	Juncus effusus Typha latifolia
WET 60N	6	02080206	PEM	0.10	Lizard's Tail Cinnamon Fern Deertongue	Saururus cernuus Osmunda cinnamomea Dichanthelium clandestinum
WET 62N	5	02080206	PFO	0.10	Sedge Eastern Baccharis Possumhaw Red Maple Blackgum	Carex sp. Baccharis halimifolia Viburnum nudum Acer rubrum Nyssa sylvatica
WET 63N	5	02080206	PFO	1.34	Sedge Sensitive Fern Red Maple Willow Oak Loblolly Pine Sweetgum Blackgum	Carex sp. Onoclea sensibilis Acer rubrum Quercus phellos Pinus taeda Liquidambar styraciflua Nyssa sylvatica
WET 64N Tributary to Gillies Creek	4	02080206	PEM	0.05	Deertongue Pennsylvania Smartweed Japanese Stilt Grass Common Rush Willow Oak	Dichanthelium clandestinum Polygonum pensylvanicum Microstegium vimineum Juncus effusus Quercus phellos
WET 110N	30	02080107	PFO	0.28	Red Maple Willow Oak Sweetgum Blackgum	Acer rubrum Quercus phellos Liquidambar styraciflua Nyssa sylvatica
WET117N	12	02080206	PFO	0.01	Red Maple Sycamore Lizards Tail Sweetgum Sensitive Fern	Acer rubrum Platanus occidentalis Saururus cernuus Liquidambar styraciflua Onoclea sensibilis
WET118N	9	02080206	PFO	0.21	Netted-Veined Chain Fern Sensitive Fern Soft Rush Coastal Sweetpepperbush Sweetgum Red Maple	Woodwardia areolata Onoclea sensibilis Juncus effuses Clethra alnifolia Liquidambar styraciflua Acer rubrum
WET119N	9	02080206	PEM	0.53	Soft Rush Willow Oak Green Ash Sensitive Fern Woolgrass Smallspike False Nettle	Juncus effuses Quercus phellos Fraxinus pennsylvanica Onoclea sensibilis Scirpus cyperinus Boehmeria cylindrica
WET120N	7	02080206	PEM	0.21	Soft Rush Smallspike False Nettle Woolgrass	Juncus effuses Boehmeria cylindrica Scirpus cyperinus
WET121N	7	02080206	PSS	1.09	Pin Oak Button Bush Soft Rush	Quercus palustris Cephalanthus occidentalis Juncus effusus

Wetland	Location		Cowardin	Acreage in	Dominar	nt Vegetation
Number	(Map No.)	HUC	Classification	Study Area	Common Name	Scientific Name
					River Birch Woolgrass Jewelweed Smooth Alder Coastal Sweetpepperbush	Betula nigra Scirpus cyperinus Impatiens capensis Alnus serrulata Clethra alnifolia
WET122N	7	02080206	PEM	0.06	Boradleaf Cattail Soft Rush	Typha latifolia Juncus effusus
WET126N Old Mill Pond	25	02080107	PSS	0.46	Red Maple Broad-leaved Cattail River Birch Smooth Alder False Nettle	Acer rubrum Typha latifolia Betula nigra Alnus serrulata Boehmeria cylindrica
WET128N Diascund Creek	15	02080206	PEM	0.03	Woolgrass Halberd Leaved Tearthumb Fringed Sedge	Scirpus cyperinus Polygonum arifolium Carex crinita
WET129N Tributary to Chickahominy River	10	02080206	PEM	0.08	Woolgrass Soft Rush Japanese Stiltgrass False Nettle Northern Bugleweed	Scirpus cyperinus Juncus effuses Microstegium vimineum Boehmeria cylindrical Lycopus uniflorus
WET130N Tributary to Chickahominy River	10	02080206	PSS	0.22	River Birch Red Maple Smooth Alder	Betula nigra Acer rubrum Alnus serrulata
WET131N Tributary to Chickahominy River	6	02080206	PFO	0.05	Red Maple Black Willow	Acer rubrum Nyssa sylvatica
WET132N Whiteman Swamp	30	02080107	PEM	0.65	Broadleaved Cattail Japanese Stiltgrass Woolgrass	Typha latifolia Microstegium vimineum Scirpus cyperinus
WET 136N	5	02080206	PEM	0.24		
WET 137N	5	02080206	PFO	1.90		
WET 138N	18	02080206	PFO	0.08		
WET 139N	30	02080107	PFO	0.32		
WET 140N	30	02080107	PFO	0.67		
WET 141N	30	02080107	PEM	0.38		
WET 150N	40	02080108	PFO	0.41		
WET 151N	39	02080108	PEM	2.10		

					Dominar	nt Vegetation
Wetland Number	Location (Map No.)	HUC	Cowardin Classification	Acreage within Study Area	Common Name	Scientific Name
WET 14M	36	02080 206	PFO	0.14	Red Maple Willow Oak Sweetgum Poison Ivy	Acer rubrum Quercus phellos Liquidambar styraciflua Toxicodendron radicans
WET 50M Boar Swamp	8/9	02080 206	PEM	0.22	Broadleaf Cattail Woolgrass	Typha latifolia Scirpus cyperinus
WET 51M	11	02080 206	PFO	0.30	Net-Veined Chain Fern Sensitive Fern Spicebush Common Elderberry Lizard's Tail Cinnamon Fern Hornbeam	Woodwardia areolata Onoclea sensibilis Lindera benzoin Sambucus Canadensis Saururus cernuus Osmunda cinnamomea Carpinus caroliniana
WET 52M Tributary to Toe Ink Swamp	11	02080 206	PFO	0.51	Water Smartweed Red Maple Spicebush Lizard's Tail Slippery Elm Sensitive Fern False Nettle River Birch Common Elderberry	Polygonum amphibium Acer rubrum Lindera benzoin Saururus cernuus Ulmus rubra Onoclea sensibilis Boehmeria cylindrica Betula nigra Sambucus canadensis
WET 53M Toe Ink Swamp	12	02080 206	PFO	0.10	Net-Veined Chain Fern Red Maple False Nettle Sweetgum Sycamore	Woodwardia areolata Acer rubrum Boehmeria cylindrica Liquidambar styraciflua Platanus occidentalis
WET 54M	13	02080 206	PFO	0.01	Sensitive Fern Cinnamon Fern Highbush Blueberry Ironwood American Sycamore Slippery Elm Spicebush	Onoclea sensibilis Osmunda cinnamomea Vaccinium corymbosum Carpinus caroliana Platanus occidentalis Ulmus rubra Lindera benzoin
WET 55M	13	02080 206	PFO	0.04	Sensitive Fern Net-Veined Chain Fern Highbush Blueberry Cinnamon Fern Red Maple Sweet Bay Sycamore	Onoclea sensibilis Woodwardia areolata Vaccinium coryumbosum Osmunda cinnamomea Acer rubrum Magnolia virginiana Platanus occidentalis
WET 56M Schiminoe Creek	13	02080 206	PFO	0.36	Royal Fern Red Maple Sensitive Fern Sweetgum Net-Veined Chain Fern Green Ash Lizard's Tail	Osumunda regalis Acer rubrum Onoclea sensibilis Liquidambar styraciflua Woodwardia areolata Fraxinus pennsylvanica Saururus cernuus
WET 57M Rumley Marsh	14	02080 206	PFO – 50% PSS – 50%	1.28	Sensitive Fern Lizard's Tail Royal Fern Red Maple Sweet Bay Buttonbush Rice Cutgrass Sycamore Ironwood Highbush Blueberry Silky Dogwood	Onoclea sensibilis Saururus cernuus Osmunda regalis Acer rubrum Magnolia virginiana Cephalanthus occidentalis Leersia oryzoides Platanus occidentalis Carpinus caroliniana Vaccinium corymbosum Cornus amomum
WET 58M Tributary to Rumley Marsh	14	02080 206	PFO	0.07	Net-Veined Chain Fern Sensitive Fern False Nettle Red Maple Royal Fern	Woodwardia areolata Onoclea sensibilis Boehmeria cylindrica Acer rubrum Osmunda regalis

			G 11		Dominan	t Vegetation
Wetland Number	Location (Map No.)	HUC	Cowardin Classification	Acreage within Study Area	Common Name	Scientific Name
					Highbush Blueberry Sweetgum	Vaccinium corymbosum Liquidambar styraciflua
WET 59M	15	02080 206	PFO	0.09	Sensitive Fern Net-Veined Chain Fern Red Maple	Onoclea sensibilis Woodwardia areolata Acer rubrum
WET 60M	17	02080 206	PFO	0.07	Sensitive Fern Royal Fern Red Maple Marsh Marigold Highbush Blueberry Spicebush Common Elderberry	Onoclea sensibilis Osmunda regalis Acer rubrum Caltha palustris Vaccinium corymbosum Lindera benzoin Sambucus canadensis
WET 61M	18	02080 206	PFO	0.16	Coastal Sweetpepperbush Sensitive Fern Red Maple Ironwood Royal Fern Blackgum	Clethra alnifolia Onoclea sensibilis Acer rubrum Carpinus caroliniana Osmunda regalis Nyssa sylvatica
WET 63M	18	02080 206	PFO	0.10	Sensitive Fern River Birch Royal Fern	Onoclea sensibilis Betula nigra Osmunda regalis
WET 64M	18	02080 206	PFO	3.90	Sycamore Silky Dogwood Ironwood Sweetgum Sensitive Fern Lizard's Tail Coastal Sweetpepperbush	Platanus occidentalis Cornus amomum Carpinus caroliniana Liquidambar styraciflua Onoclea sensibilis Saururus cernuus Clethra alnifolia
WET 65M	18	02080 206	PSS	0.06	Sensitive Fern Coastal Sweetpepperbush Ironwood Spicebush	Onoclea sensibilis Clethra alnifolia Carpinus caroliniana Lindera benzoin
WET 66M	18	02080 206	PFO	0.28	Lizard's Tail Sensitive Fern Red Maple Spicebush Cinnamon Fern Royal Fern Ironwood	Saururus cernuus Onoclea sensibilis Acer rubrum Lindera benzoin Osmunda cinnamomea Osmunda regalis Carpinus caroliniana
WET 67M	18	02080 206	PFO	0.12	Ironwood Sensitive Fern Highbush Blueberry Red Maple Sweetgum	Carpinus caroliniana Onoclea sensibilis Vaccinium corymbosum Acer rubrum Liquidambar styraciflua
WET 68M Beaver Dam Creek	18 / 19	02080 206	PFO	2.27	Lizard's Tail River Birch Sycamore Red Maple Ironwood Highbush Blueberry Sensitive Fern	Saururus cernuus Betula nigra Platanus occidentalis Acer rubrum Carpinus caroliniana Vaccinium corymbosum Onoclea sensibilis
WET 69M	18	02080 206	PFO	0.37	Royal Fern Sensitive Fern Ironwood Sycamore Cinnamon Fern Red Maple River Birch Highbush Blueberry	Osmunda regalis Onoclea sensibilis Carpinus caroliniana Platanus occidentalis Osmunda cinnamomea Acer rubrum Betula nigra Vaccinium corymbosum
WET 70M	19	02080 206	PFO	0.19	River Birch Sycamore Red Maple Sensitive Fern Ironwood	Betula nigra Platanus occidentalis Acer rubrum Onoclea sensibilis Carpinus caroliniana

XX - 41 1	T4!		C1'		Dominan	t Vegetation
Wetland Number	Location (Map No.)	HUC	Cowardin Classification	Acreage within Study Area	Common Name	Scientific Name
					Virginia Knotweed	Polygonum virginianum
WET 71M Wahrani Swamp	19	02080 206	PFO	0.45	Sycamore Lizard's Tail Marsh Marigold Virginia Knotweed Red Maple Sensitive Fern Royal Fern Highbush Blueberry	Platanus occidentalis Saururus cernuus Caltha palustris Polygonum virginianum Acer rubrum Onoclea sensibilis Osmunda regalis Vaccinium corymbosum
WET 72M	19	02080 206	PFO	0.03	Sensitive Fern River Birch Ironwood Slippery Elm Green Ash Sweetgum	Onoclea sensibilis Betula nigra Carpinus caroliniana Ulmus rubra Fraxinus pennsylvanica Liduidambar styraciflua
WET 73M	19	02080 206	PFO	0.08	Red Maple Ironwood Slippery Elm Green Ash Sensitive Fern	Acer rubrum Carpinus caroliniana Ulmus rubra Fraxinus pennsylvanica Onoclea sensibilis
WET 74M	19	02080 206	PFO	0.01	Lizard's Tail Sensitive Fern Ironwood Red Maple	Saururus cernuus Onoclea sensibilis Carpinus caroliniana Acer rubrum
WET 75M	19	02080 206	PFO	0.03	Sensitive Fern Red Maple Blackgum Sweetgum Cinnamon Fern Ironwood	Onoclea sensibilis Acer rubrum Nyssa sylvatica Liquidambar styraciflua Osmunda cinnamomea Carpinus caroliniana
WET 76M	20	02080 206	PFO	0.08	River Birch Coastal Sweetpepperbush Sensitive Fern Ironwood Red Maple Highbush Blueberry	Betula nigra Clethra alnifolia Onoclea sensibilis Carpinus caroliniana Acer rubrum Vaccinium corymbosum
WET 77M Diascund Creek Reservoir	20	02080 206	PFO	0.46	River Birch Black Willow Sensitive Fern Royal Fern Smooth Alder Red Maple Lizard's Tail	Betula nigra Salix nigra Onoclea sensibilis Osmunda regalis Alnus serrulata Acer rubrum Saururus cernuus
WET 78M	20	02080 206	PFO	1.64	Lizard's Tail River Birch Highbush Blueberry Cinnamon Fern Sycamore Royal Fern Red Maple	Saururus cernuus Betula nigra Vaccinium corymbosum Osmunda cinnamomea Platanus occidentalis Osmunda regalis Acer rubrum
WET 79M	20	02080 206	PFO	0.10	Sphagnum Moss Coastal Sweetpepperbush Red Maple Sensitive Fern Royal Fern Lizard's Tail	Sphagnum Clethra alnifolia Acer rubrum Onoclea sensibilis Osmunda regalis Saururus cernuus
WET 80M	20	02080 206	PFO	0.05	River Birch Coastal Sweetpepperbush Red Maple Sweetgum Ironwood	Betula nigra Clethra alnifolia Acer rubrum Liquidambar styraciflua Carpinus caroliniana
WET 81M	20	02080	PFO	0.24	Sensitive Fern Ironwood	Onoclea sensibilis Carpinus caroliniana

XX7-41	T - 4*		G. P		Dominant	Vegetation
Wetland Number	Location (Map No.)	HUC	Cowardin Classification	Acreage within Study Area	Common Name	Scientific Name
		206			Red Maple	Acer rubrum
					Lizard's Tail	Saururus cernuus
					Common Elderberry Sweetgum	Sambucus Canadensis Liquidambar styraciflua
					Net-Veined Chain Fern	Woodwardia areolata
					Cinnamon Fern	Osmunda cinnamomea
					Lizard's Tail	Saururus cernuus
					Sweetgum	Liquidambar styraciflua
WIETE 001 /	20	02080	DEC	0.17	Sensitive Fern	Onoclea sensibilis
WET 82M	20	206	PFO	0.17	Cinnamon Fern	Osmunda cinnamomea
		200			Red Maple	Acer rubrum
					Royal Fern	Osmunda regalis
					River Birch	Betula nigra
					Net-Veined Chain Fern	Woodwardia areolata
WET 83M		02080			Sensitive Fern	Onoclea sensibilis
Barnes	20		PFO	0.41	Royal Fern	Osmunda regalis
Swamp		206			Lizard's Tail	Saururus cernuus
Swamp					Red Maple	Acer rubrum
					Highbush Blueberry	Vaccinium corymbosum
					Lizard's Tail	Saururus cernuus
					Halberd Leaved Tearthumb	Polygonum arifolium
					Ironwood	Carpinus caroliniana
WET 84M	21	02080	PFO	0.13	American Sycamore	Platanus occidentalis
W E 1 04W1	21	206	110	0.13	Sensitive Fern	Onoclea sensibilis
					Highbush Blueberry	Vaccinium corymbosum
					Smooth Alder	Alnus serrulata
					Wax Myrtle	Morella cerifera
WET 85M					Ironwood	Carpinus caroliniana
Tributary to					Spice bush	Lindera benzoin
•	2.1	02080	PEO	0.5	Sensitive fern	Onoclea sensibilis
Diascund	21	206	PFO	0.67	Red maple	Acer rubrum
Creek		200			Green ash	Fraxinus pennsylvanica
Reservoir					Marsh marigold	Caltha palustris
					Ironwood	Carpinus caroliniana
					Ironwood	Carpinus caroliniana Lindera benzoin
		02080			Spicebush Sensitive Fern	Onoclea sensibilis
WET 86M	21		PFO	0.19	Lizard's Tail	Saururus cernuus
		206			Sweetgum	Liquidambar styraciflua
					American Sycamore	Platanus occidentalis
					Ironwood	Carpinus caroliniana
					Blackgum	Nyssa sylvatica
		02080			Highbush Blueberry	Vaccinium corymbosum
WET 87M	22	107	PFO	0.06	Red Maple	Acer rubrum
		107			Sensitive Fern	Onoclea sensibilis
					Net-Veined Chain Fern	Woodwardia areolata
					Sensitive Fern	Onoclea sensibilis
					Net-Veined Chain Fern	Woodwardia areolata
					Green Ash	Fraxinus pennsylvanica
		02080			Lizard's Tail	Saururus cernuus
WET 88M	22		PFO	0.12	Ironwood	Carpinus caroliniana
	= -	107		~ · • •	Spicebush	Lindera benzoin
					Red Maple	Acer rubrum
					Marsh Marigold	Caltha palustris
					Common Elderberry	Sambucus Canadensis
					Sensitive Fern	Onoclea sensibilis
					Net-Veined Chain Fern	Woodwardia areolata
					Green Ash	Fraxinus pennsylvanica
		02080			Lizard's Tail	Saururus cernuus
WET 89M	23		PFO	0.18	Ironwood	Carpinus caroliniana
	-	107			Spicebush	Lindera benzoin
					Red Maple	Acer rubrum
					Marsh Marigold	Caltha palustris
		1			Common Elderberry	r

					Dominar	nt Vegetation
Wetland Number	(Map No.)	HUC	Cowardin Classification	Acreage within Study Area	Common Name	Scientific Name
WET 90M	23	02080 107	PFO	0.80	Lizard's Tail Marsh Marigold Seed Box Red Maple False Nettle Sweetgum Black Willow Green Ash Slippery Elm Water Smartweed	Saururus cernuus Caltha palustris Ludwigia alternifolia Acer rubrum Boehmeria cylindrica Liquidambar styraciflua Salix nigra Fraxinus pennsylvanica Ulmus rubra Polygonum amphibium
WET 91M	23	02080 107	PFO	0.06	Lizard's Tail Sensitive Fern Red Maple Net-Veined Chain Fern Spice Bush Sweetgum	Saururus cernuus Onoclea sensibilis Acer rubrum Woodwardia areolata Lindera benzoin Liquidambar styraciflua
WET 92M	23	02080 107	PFO	0.23	Slippery Elm Sensitive Fern Royal Fern Ironwood Lizard's tail Green Ash Marsh Marigold	Ulmus rubra Onoclea sensibilis Osmunda regalis Carpinus caroliniana Saururus cernuus Fraxinus pennsylvanica Caltha palustris
WET 93M	23	02080 107	PFO	0.11	Marsh Marigold Lizard's Tail False Nettle Cinnamon Fern Sensitive Fern Red Maple Slippery Elm	Caltha palustris Saururus cernuus Boehmeria cylindrica Osmunda cinnamomea Onoclea sensibilis Acer rubrum Lumus rubra
WET 94M	23	02080 107	PFO	0.17	River Birch Net-Veined Chain Fern Sensitive Fern Lizard's Tail Common Elderberry Red Maple False Nettle Ironwood	Betula nigra Woodwardia areolata Onoclea sensibilis Saururus cernuus Sambucus Canadensis Acer rubrum Boehmeria cylindrica Carpinus caroliniana
WET 95M France Swamp	23	02080 107	PFO	0.22	Red Maple Sweetgum Sycamore Green Ash Water Smartweed River Birch	Acer rubrum Liquidambar syraciflua Platanus occidnetalis Fraxinus pennsylvanica Polygonum amphibium Betula nigra
WET 134M Queen Creek	29	02080 107	E2EM1P	0.66	Alkalai bulrush	Scirpus alterniflora
WET 135M	36	02080 107	PFO	0.12	Red Maple Willow Oak Sweetgum Poison Ivy	Acer rubrum Quercus phellos Liquidambar styraciflua Toxicodendron radicans

Wetland	Location		Cowardin	Acreage in	Domir	nant Vegetation
Number	(Map No.)	HUC	Classification	Study Area	Common Name	Scientific Name
WET 1S Tributary to Gillies Creek	4	02080206	PEM	0.20	Soft Rush Rice Cutgrass Skunk Cabbage Royal Fern Broad Leaved Cattail	Juncus effusus Leersia oryzoides Symplocarpus foetidus Osmunda regalis Typha latifolia
WET 2S	5	02080206	PEM	0.04	Rice Cutgrass	Leersia oryzoides
WET 3S	6	02080206	PFO	0.20	Red Maple Sweetgum Lizard's Tail False Nettle Fringed Sedge Bladder Sedge	Acer rubrum Liquidambar styraciflua Saururus cernuus Boehmeria cylindrica Carex crinita Carex intumescens
WET 4S Tributary to Chickahominy River	6	02080206	PSS	0.38	Willow Oak Soft Rush Woolgrass Hazel Alder Water Tupelo	Quercus phellos Juncus effusus Scripus cyperinus Alnus serrulata Nyssa aquatica
WET 5S	8/9	02080206	PFO	0.08	Highbush Blueberry Common Boneset Soft Rush Red Maple Sweetgum Fringed Sedge Poison Ivy Sensitive Fern	Vaccinium corymbosum Eupatorium perfoliatum Juncus effusus Acer Rubrum Liquidambar styraciflua Carex crinita Toxicodendron radicans Onoclea sensibilis
WET 6S Chickahominy River	9	02080206	PFO	1.06	Rice Cutgrass Red Maple Japanese Stilt Grass False Nettle Bladder Sedge Poison Ivy Black Gum	Leersia oryzoides Acer rubrum Microstegium vimineum Boehmeria cylindrica Carex intumescens Toxicodendron radicans Nyssa sylvatica
WET 7S	9	02080206	PFO	0.10	Rice Cutgrass False Nettle Sweetgum Red Maple Poison Ivy Sensitive Fern Royal Fern Muscle Wood	Leersia oryzoides Boehmeria cylindrica Liquidambar styraciflua Acer rubrum Toxicodendron radicans Onoclea sensibilis Osmunda regalis Carpinus caroliniana
WET 8S Higgins Swamp	9	02080206	PSS	0.98	Willow Oak Black Willow Water Tupelo Duck Weed Buttonbush Red Maple False Nettle Yellow Pond Lily	Quercus phellos Salix nigra Nyssa aquatica Lemna minor Cephalanthus occidentalis Acer rubrum Boehmeria cylindrica Nuphar lutea
WET 9S Crump Swamp	11	02080206	PSS	0.08	Lizard's Tail Broadleaf Cattail False Nettle Sensitive Fern Hazel Alder Rice Cutgrass Sweetgum Red Maple Soft Rush	Saururus cernuus Typha Latifolia Boehmeria cylindrica Onoclea sensibilis Alnus serrulata Leersia oryzoides Liquidambar styraciflua Acer rubrum Juncus effusus
WET 10S Tributary to Toe Ink Swamp	11	02080206	PFO	0.54	Lizard's Tail Fringed Sedge Japanese Stilt Grass Red Maple American Sycamore Spice Bush False Nettle	Saururus cernuus Carex crinita Microstegium vimineum Acer rubrum. Platanus occidentalis Lindera benzoin. Boehmeria cylindrica

Wetland	Location		Cowardin	Acreage in	Domin	ant Vegetation
Number	(Map No.)	HUC	Classification	Study Area	Common Name	Scientific Name
					Sensitive Fern Soft Rush River Birch Bristlebract Sedge	Onoclea sensibilis Juncus effusus Betula nigra Carex tribuloides
WET 12S Schiminoe Creek	13	02080206	PFO	0.06	Red Maple Japanese Stilt Grass Sweetgum Lizard's Tail Highbush Blueberry Sensitive Fern Jewel Weed	Acer rubrum Microstegium vimineum Liquidambar styraciflua Saururus cernuus Vaccinium corymbosum Onoclea sensibilis Impatiens capensis
WET 13S Rumley Marsh	14	02080206	PFO	0.30	Sensitive Fern False Nettle Red Maple Lizard's Tail Bladder Sedge	Onoclea sensibilis Boehmeria cylindrica Acer rubrum Saururus cernuus Carex intumescens
WET 14S	18	02080206	PFO	0.01	Lizard's Tail Red Maple Royal Fern Sensitive Fern Poison Ivy	Saururus cernuus Acer rubrum Osmunda regalis Onoclea sensibilis Toxicodendron radicans
WET 15S	18 / 19	02080206	PFO	0.14	False Nettle Sensitive Fern Red Maple Japanese Stilt Grass	Boehmeria cylíndrica Onoclea sensibilis Acer rubrum Microstegium vimineum
WET 17S	19	02080206	PFO	0.03	Lizard's Tail Red Maple Sensitive Fern Green Ash	Saururus cernuus Acer Rubrum Onoclea sensibilis Fraxinus pennsylvanica
WET 18S	20	02080206	PEM	0.14	Lizard's Tail False Nettle Halberd Leaved Tearthumb	Saururus cernuus Boehmeria cylindrica Polygonum arifolium
WET 19S	20	02080206	PFO	0.15	Lizard's Tail Sensitive Fern Cinnamon Fern Red Maple Marsh Marigold Highbush Blueberry Green Ash	Saururus cernuus Onoclea sensibilis Osmunda cinnamomea Acer rubrum Caltha palustres Vaccinium corymbosum Fraxinus pennsylvanica
WET 20S	22	02080107	PFO	0.08	Lizard's Tail False Nettle Rice Cutgrass Sensitive Fern Red Maple Marsh Marigold	Saururus cernuus Boehmeria cylindrica Leersia oryzoides Onoclea sensibilis Acer rubrum Caltha palustris
WET 21S	22	02080107	PEM	0.03	Lizard's Tail False Nettle Japanese Stilt Grass	Saururus cernuus Boehmeria cylindrica Microstegium vimineum
WET 22S	23	02080107	PEM	0.49	Rice Cutgrass Red Maple Green Ash Black Willow American Sycamore Sensitive Fern Soft Rush False Nettle	Leersia oryzoides Acer rubrum Fraxinus pennsylvanica Salix nigra Platanus occidentalis Onoclea sensibilis Juncus effusus Boehmeria cylindrica
WET 23S	23	02080107	PFO	0.06	Lizard's Tail American Sycamore Spicebush Green Ash Red Maple	Saururus cernuus Platanus occidentalis Lindera benzoin Fraxinus pennsylvanica Acer rubrum
WET 24S	23	02080107	PFO	0.02	Lizard's Tail Marsh Marigold Japanese Stilt Grass Sensitive Fern	Saururus cernuus Caltha palustris Microstegium vimineum Onoclea sensibilis

Wetland	Location		Cowardin	Acreage in	Domir	nant Vegetation
Number	(Map No.)	HUC	Classification	Study Area	Common Name	Scientific Name
WET 25S	23	02080107	PFO	0.14	Sensitive Fern Poison Ivy Marsh Marigold Red Maple Cinnamon Fern Lizard's Tail	Onoclea sensibilis Toxicodendron radicans Caltha palustris Acer rubrum Osmunda cinnamomea Saururus cernuus
WET 26S	34	02080206	PFO	0.19	Rough Horsetail Lizard's Tail False Nettle	Equisetum hymale Saururus cernuus Boehmeria cylindrica
WET 27S	39	02080108	PFO	0.14	Red Maple Lizard's Tail False Nettle Poison Ivy Japanese Stilt Grass Green Ash Marsh Marigold	Acer rubrum Saururus cernuus Boehmeria cylindrica Toxicodendron radicans Microstegium vimineum Fraxinus pennsylvanica Caltha palustris
WET 28S	42	02080108	PEM	1.32		
WET 29S Newmarket Creek	43	02080108	E2EM1P	11.03	Common Reed	Phragmites australis
WET 30S Newmarket Creek	43	02080108	E2EM1P	9.25	Common Reed	Phragmites australis
WET 31S	28	02080107	PFO	0.19	Red Maple Lizard's Tail Spicebush Royal Fern Ironwood	Acer rubrum Saururus cernuus Linder benzoin Osmunda regalis Carpinus caroliniana
WET 32S Blows Mill Run	33	02080206	PEM	5.16	Red Maple Lizard's Tail Spicebush Royal Fern Ironwood Sweetgum Rice Cutgrass Common Elderbery Sensitive Fern Broad Leaved Cattail Highbush Blueberry	Acer rubrum Saururus cernuus Linder benzoin Osmunda regalis Carpinus caroliniana Liquidambar styraciflua Leersia oryzoides Sambucus Canadensis Onoclea sensibilis Typha latifolia Vaccinium corymbosum
WET 33S Queen Creek	28 / 29	02080107	E2EM1P	1.45	Alkalai bulrush	Scirpus alterniflora
WET 34S	6	02080206	PEM	0.15	Red Maple False Nettle Sensitive Fern Japanese Stiltgrass Sweet Pepper Bush	Acer rubrum Boehmeria cylindrical Onoclea sensibilis Microstegium vimineum Clethra alnifolia
WET 35S	13	02080206	PFO	0.11	Red Maple Lizard's Tail Ironwood Sensitive Fern False Nettle Cinnamon Fern Sweetgum Soft Rush	Acer rubrum Saururus cernuus Carpinus caroliniana Onoclea sensibilis Boehmeria cylindrica Osmunda cinnamomea Liquidambar styraciflua Juncus effuses
WET 36S	19	02080206	PFO	0.03	Cinnamon Fern Royal Fern Sensitive Fern Red Maple Sweet Pepper Bbush Marsh Marigold	Osmunda cinnamomea Osmunda regalis Onoclea sensibilis Acer rubrum Clethra alnifolia Caltha palustris

Wetland	Location		Cowardin	Acreage in	Domin	ant Vegetation
Number	(Map No.)	HUC	Classification	Study Area	Common Name	Scientific Name
WET 37S	19	02080206	PFO	0.01	Cinnamon Fern Royal Fern Sensitive Fern Red Maple Lizard's Tail	Osmunda cinnamomea Osmunda regalis Onoclea sensibilis Acer rubrum Saururus cernuus
WET 38S	19	02080206	PFO	0.03	Cinnamon Fern Royal Fern Sensitive Fern Red Maple Sycamore	Osmunda cinnamomea Osmunda regalis Onoclea sensibilis Acer rubrum Platanus occidentalis
WET 39S	19	02080206	PFO	0.10	Royal Fern Sensitive Fern Red Maple Soft Rush Sweet Pepper Bush False Nettle	Osmunda regalis Onoclea sensibilis Acer rubrum Juncus effuses Clethra alnifolia Boehmeria cylindrica
WET 41S	23	02080107	PFO	0.01	Red Maple Lizard's Tail Sensitive Fern Marsh Marigold Highbush Blueberry	Acer rubrum Saururus cernuus Onoclea sensibilis Caltha palustris Vaccinium corymbosum
WET 43S	37	02080206	PFO	0.01	Rice Cutgrass	Leersia oryzoides
WET 56S	20	02080206	PEM	0.03	Lizard's Tail False Nettle Halberd Leaved Tearthumb	Saururus cernuus Boehmeria cylindrica Polygonum arifolium
WET 96S Tributary to Chickahominy River	10	02080206	PSS	0.39	Red Maple River Birch Smooth Alder	Acer rubrum Betula nigra Alnus serrulata
WET 97S Schiminoe Creek	13	02080206	PFO	0.08	Red Maple Sweetgum False Nettle Soft Rush Royal Fern Common Elderberry	Acer rubrum Liquidambar styraciflua Boehmeria cylindrica Juncus ffuses Osmunda regalis Sambucus Canadensis
WET 98S Tributary to Rumley Marsh	14	02080206	PEM	0.08	Deertongue Soft Rush Sensitive Fern Net-Veined Chain Fern False Nettle Wax Myrtle	Dichanthelium clandestinium Juncus effuses Onoclea sensibilis Woodwardia areolata Boehmeria cylindrical Morella cerifera
WET 99S	16	02080206	PFO	0.05	Sensitive Fern Sweetgum Red Maple Deer Tongue Marsh Marigold Wax Myrtle Halberd Leaved Tearthumb	Onoclea sensibilis Liquidambar styraciflua Acer rubrum Dichanthelium clandestinum Caltha palustris Morella cerifera Polygonum arifolium
WET 100S Tributary to Diascund Creek	16	02080206	PSS	0.04	Royal Fern Soft Rush Sensitive Fern Wax Myrtle Smooth Alder Slippery elm	Osmunda regalis Juncus effuses Onoclea sensibilis Morella cerifera Alnus serrulata Ulmus rubra
WET 101S	17	02080206	PSS	0.04	Broadleaf Cattail Soft Rush Black Willow	Typha latifolia Juncus effuses Saliy piara
WET 102S	19	02080206	PFO	0.24	False Nettle Sensitive Fern Soft Rush Sycamore Red Maple Sweetgum	Salix nigra Boehmeria cylindrical Onoclea sensibilis Juncus effuses Platanus occidentalis Acer rubrum Liquidambar styraciflua

Wetland	Location	ation	Cowardin	Acreage in	Domin	Dominant Vegetation		
Number	(Map No.)	HUC	Classification	Study Area	Common Name	Scientific Name		
WET 103S Wahrani Swamp	19	02080206	PFO	0.30	Marsh Marigold River Birch Sycamore Red Maple Sensitive Fern	Caltha palustris Betula nigra Platanus occidentalis Acer rubrum Onoclea sensibilis		
WET 104S	20	02080206	PEM	0.02	Fringed Sedge Lizards Tail	Carex crinita Saururus cernuus		
WET 105S Barnes Swamp	20	02080206	PFO	0.16	River Birch Sycamore Deer Tongue Sensitive Fern Royal Fern Red Maple	Betula nigra Platanus occidentalis Dichanthelium clandestinum Onoclea sensibilis Osmunda regalis Acer rubrum		
WET 106S Tributary to Diascund Creek Reservoir	21	02080206	PFO	0.66	Spicebush Marsh Marigold Sensitive Fern Red Maple Ironwood Lizards Tail	Linder benzoin Caltha palustris Onoclea sensibilis Acer rubrum Carpinus caroliniana Saururus cernuus		
WET 107S Edwards Swamp	21	02080206	PFO	0.03	Black Willow Red Maple Deer Tongue Soft Rush Sycamore Sweetgum	Salix nigra Acer rubrum Dichanthelium clandestinum Juncus ffuses Platanus occidentalis Liquidambar styraciflua		
WET 108S	22	02080107	PEM	0.11	False Nettle Deer Tongue Japanese Stiltgrass	Boehmeria cylindrical Dichanthelium clandestinum Microstegium vimineum		
WET 109S	24	02080107	PEM	0.06	Sensitive Fern	Onoclea sensibilis		
WET 111S	22	02080107	PEM	0.04	False Nettle Fringed Sedge Deer Tongue Japanese Stiltgrass	Boehmeria cylindrical Carex crinita Dichanthelium clandestinum Microstegium viminuem		
WET 112S France Swamp	23	02080107	PFO	0.26	Red Maple Sycamore False Nettle Sweetgum	Acer rubrum Platanus occidentalis Boehmeria cylindrica Liquidambar styraciflua		
WET 113S	25	02080107	PFO	0.08	Sycamore River Birch	Platanus occidentalis Betula nigra		
WET 115S	29	02080107	PFO	0.14	Green Ash Sycamore Lizards Tail Sensitive Fern Marsh Marigold Ironwood False Nettle	Fraxinus pennsylvanica Platanus occidentalis Saururus cernuus Onoclea sensibilis Caltha palustris Carpinus caroliniana Boehmeria cylindrica		
WET 116S Whiteman Swamp	30	02080107	PEM	0.63	Common Reed	Phragmites australis		
WET 123S Tributary to Newport News/ Lee Hall Reservoir	35	02080206	PFO	0.21	Sweetgum Red Maple	Liquidambar styraciflua Acer rubrum		
WET 124S	35	02080206	PFO	0.20	Fringed Sedge Red Maple Green Ash Wool Grass	Carex crinita Acer rubrum Fraxinus pennsylvanica Scirpus cyperinus		
WET 125S	36	02080206	PFO	0.06	Fringed Sedge Wool Grass Green Ash	Carex crinita Scirpus cyperinus Fraxinus pennsylvanica		

Wetland	Location		Cowardin	Acreage in	Domir	nant Vegetation
Number	(Map No.)	HUC	Classification	Study Area	Common Name Scientific Name	
					Red Maple	Acer rubrum
WET 133S Newport News/ Lee Hall Reservoir	34	02080206	PFO	0.88	Green Ash Red Maple False Nettle American Sycamore	Fraxinus pennsylvanica Acer rubrum Boehmeria cylindrica Platanus occidentalis
WET 142S	31	02080107	PEM	0.14		
WET 143S	34 / 35	02080206	PFO	0.05		
WET 144S	35	02080206	PFO	0.96		
WET 145S	35	02080206	PEM	0.57		
WET 146S	35	02080206	PFO	0.28		
WET 147S	38 / 39	02080108	PFO	2.18		
WET 148S	39	02080108	PEM	2.06		
WET 149S	40	02080108	PFO	0.47		

WUS Number	Location (Map No.)	HUC	Cowardin Classification	Linear Feet in Study Area	Unified Stream Methodology Reach Condition Index
WUS 1N Newmarket Creek	43	02080108	R1UB2	4073	1.45
WUS 2N	43	02080108	R2UB3	3181	0.87
WUS 3N	43	02080108	R2UB2	791	0.83
WUS 4N Tributary to Newmarket Creek	41	02080108	R2UB2	1068	0.84
WUS 5N	41	02080108	R2UB2	290	0.95
WUS 6N	41	02080108	R2UB2	114	0.84
WUS 7N	40 / 41	02080108	R2UB2	9869	0.88
WUS 8N	40	02080108	R2UB2	4524	0.85
WUS 9N	39	02080108	R2UB2	786	1.05
WUS 10N	39	02080108	R2UB2	266	1.00
WUS 11N	38	02080108	R2UB2	244	-
WUS 12N	37	02080206	R2UB2	708	0.92
WUS 13N	36	02080206	R2UB2	97	0.85
WUS 14N Stony Run	36	02080206	R2UB2	782	0.85
WUS 15N	36	02080206	R2UB2	500	0.99
WUS 16N	35	02080206	R2UB2	2314	0.68
WUS 17N	35	02080206	R2UB2	42	1.18
WUS 18N	35	02080206	R2UB2	1203	0.96
WUS 19N	34	02080206	R2UB2	22	1.12
WUS 20N	34	02080206	R2UB2	43	0.96
WUS 23N	33	02080206	R2UB2	81	0.84
WUS 24N Tributary to Skiffes Creek Reservoir	33	02080206	R2UB2	92	1.38
WUS 27N King Creek	31	02080107	R2UB2	509	1.37
WUS 28N	30	02080107	R2UB2	158	1.03
WUS 31N	29	02080107	R2UB2	13	-

WUS Number	Location (Map No.)	HUC	Cowardin Classification	Linear Feet in Study Area	Unified Stream Methodology Reach Condition Index
WUS 34N Queen Creek	29	02080107	R1UB2	176	-
WUS 35N Tributary to Queen Creek	28	02080107	R2UB2	343	1.03
WUS 39N	23	02080107	R2UB2	155	1.35
WUS 40N France Swamp	23	02080107	R2UB2	29	-
WUS 42N	23	02080107	R2UB2	12	1.00
WUS 47N	20	02080206	R4UB2	61	1.34
WUS 48N	19	02080206	R2UB2	65	1.30
WUS 49N	19	02080206	R2UB2	19	1.18
WUS 50N	19	02080206	R2UB2	308	0.99
WUS 53N Beaver Dam Creek	18/19	02080206	R2UB2	102	-
WUS 54N	18	02080206	R2UB2	54	1.30
WUS 57N	16	02080206	R2UB2	87	1.33
WUS 59N	13	02080206	R2UB2	218	1.29
WUS 60N	13	02080206	R2UB2	19	1.32
WUS 62N	12	02080206	R2UB2	77	1.37
WUS 64N	11	02080206	R2UB2	215	1.23
WUS 66N	10	02080206	R2UB2	779	1.32
WUS 68N	5/6	02080206	R4UB2	5375	0.81
WUS 69N	5	02080206	R2UB2	1092	1.06
WUS 70N	5	02080206	R2UB2	156	1.38
WUS 72N	4	02080206	R2UB2	299	1.42
WUS 73N	4	02080206	R2UB2	388	0.92
WUS 197N	30	02080107	R4UB2	332	-
WUS 214N	24	02080107	R2UB2	203	-
WUS 215N	24	02080107	R4UB2	669	-
WUS 216N	12	02080206	R2UB2	24	-

WUS Number	Location (Map No.)	HUC	Cowardin Classification	Linear Feet in Study Area	Unified Stream Methodology Reach Condition Index
WUS 220N Tributary to Boar Swamp	7	02080206	R2UB2	34	-
WUS 221N	7	02080206	R4UB2	367	-
WUS 222N	7	02080206	EPHEMERAL	52	-
WUS 223N	7	02080206	R2UB2	735	-
WUS 224N	7	02080206	R2UB2	44	-
WUS 231N	39	02080108	R4UB2	29	-
WUS 232N	30	02080107	R2UB2	129	-
WUS 233N	30	02080107	R2UB2	97	-
WUS 236N	29	02080107	R2UB2	1	-
WUS 237N Skimino Creek	25	02080107	R2UB2	80	-
WUS 238N Old Mill Pond	25	02080107	R2UB2	64	-
WUS 239N	23	02080107	R2UB2	223	-
WUS 240N	22	02080107	R4UB2	22	-
WUS 241N Tributary to Diascund Creek Reservoir	21	02080206	R2UB2	81	-
WUS 242N Wahrani Swamp	19	02080206	R2UB2	56	-
WUS 243N	19	02080206	R2UB2	102	-
WUS 245N Tributary to Diascund Creek	16	02080206	R2UB2	2	-
WUS 246N Tributary to Diascund Creek	16	02080206	R2UB2	30	-
WUS 247N	8	02080206	R2UB2	35	-
WUS 248N	7 / 8	02080206	R2UB2	475	-
WUS 249N Gillies Creek	3	02080206	R2UB2	26	-
WUS 250N	3	02080206	R2UB2	155	-
WUS 251N	3	02080206	R2UB2	338	-
WUS 252N	3	02080206	R2UB2	137	-

WUS Number	Location (Map No.)	HUC	Cowardin Classification	Linear Feet in Study Area	Unified Stream Methodology Reach Condition Index
WUS 253N	3	02080206	R2UB2	262	-
WUW 254N	15	02080206	R2UB2	2	-
WUS 255N Schiminoe Creek	13	02080206	R2UB2	24	-
WUS 256N	13	02080206	R2UB2	8	-
WUS 257N Toe Ink Swamp	12	02080206	R2UB2	20	-
WUS 258N	12	02080206	R2UB2	23	-
WUS 259N	11	02080206	R2UB2	19	-
WUS 260N Crump Swamp	11	02080206	R2UB2	31	-
WUS 262N Tributary to Chickahominy River	10	02080206	R2UB2	39	-
WUS 263N	4	02080206	R2UB2	110	-
WUS 264N	4	02080206	R4UB2	24	-
WUS 265N	3	02080206	R2UB2	46	-
WUS 266N	3	02080206	R2UB2	953	-
WUS 267N	4	02080206	R4UB3	67	-
WUS 268N Tributary to Rumley Marsh	14	02080206	R2UB2	39	-
WUS 269N	21 / 22	02080206	R2UB2	4	-
WUS 270N Whiteman Swamp	30	02080107	R2UB2	152	-
WUS 271N Curtis Run	34	02080206	R2UB2	59	-
WUS 272N Tributary to Newport News/ Lee Hall Reservoir	35	02080206	R2UB2	34	-
WUS 273N Skiffes Creek	32	02080206	R2UB2	43	-
WUS 276N Shockhoe Creek	2	02080206	R2UB2	315	-
WUS 281N	41 / 42	02080108	R2UB2	1262	-
WUS 282N	42	02080108	R2UB2	236	-
WUS 283N	39	02080108	R2UB2	4627	-

WUS Number	Location (Map No.)	HUC	Cowardin Classification	Linear Feet in Study Area	Unified Stream Methodology Reach Condition Index
WUS 284N	42	02080108	R2UB2	2523	-
WUS 285N	38 / 39	02080108	R2UB2	5110	-
WUS 286N	37	02080206	R2UB2	1234	-
WUS 287N	5	02080206	R2UB2	337	-
WUS 289N Diascund Creek	15	02080206	R2UB2	72	-
WUS 290N	18	02080206	R2UB2	306	-
WUS 291N	18	02080206	R2UB2	129	-
WUS 292N	26	02080107	R4UB2	36	-
WUS 293N	26	02080107	EPHEMERAL	252	-
WUS 294N	26	02080107	R4UB2	281	-
WUS 295N	26	02080107	R4UB2	32	-
WUS 296N	30	02080107	R2UB2	48	-
WUS 298N	31	02080107	R4UB2	610	-
WUS 300N	33	02080206	EPHEMERAL	22	-
WUS 307N Tributary to Newport News/ Lee Hall Reservoir	35	02080206	R2UB2	82	-
WUS 308N Lukas Creek	37	02080206	R2UB1	26	-
WUS 312N	39	02080108	R2UB1	125	-
WUS 313N Brick Kiln Creek	39	02080108	R2UB1	381	-
WUS 314N Newmarket Creek	40	02080108	R2UB1	28	-

WUS Number	Location (Map No.)	HUC	Cowardin Classification	Linear Feet in Study Area	Unified Stream Methodology Reach Condition Index
WUS 14M Stony Run	36	02080206	R2UB2	39	-
WUS 70M Chickahominy River	9	02080206	R2UB2	76	1.50
WUS 71M	9	02080206	R2UB2	57	1.13
WUS 72M Higgins Swamp	9	02080206	R2UB2	79	1.38
WUS 73M	9	02080206	R2UB2	64	0.84
WUS 74M	11	02080206	R2UB2	68	1.32
WUS 75M Crump Swamp	11	02080206	R2UB3	65	1.20
WUS 76M	11	02080206	R2UB2	79	1.00
WUS 77M	11	02080206	R2UB3	32	1.00
WUS 78M	11	02080206	R2UB2	105	1.10
WUS 79M Tributary to Toe Ink Swamp	11	02080206	R2UB2	69	1.40
WUS 80M Toe Ink Swamp	12	02080206	R2UB3	83	1.34
WUS 81M	13	02080206	R2UB2	28	1.34
WUS 82M	13	02080206	R2UB2	30	1.14
WUS 83M	13	02080206	R4UB2	102	0.89
WUS 84M	13	02080206	R2UB3	101	1.24
WUS 85M Schiminoe Creek	14	02080206	R2UB2	157	1.10
WUS 86M Rumley Marsh	14	02080206	R2UB2	136	1.24
WUS 87M Tributary to Rumley Marsh	14	02080206	R2UB2	112	1.36
WUS 88M	14	02080206	EPHEMERAL	151	0.50
WUS 89M Diascund Creek	15	02080206	R2UB3	72	1.18
WUS 90M	15	02080206	R4UB2	106	0.79
WUS 91M	16	02080206	R4UB2	113	0.82
WUS 92M	17	02080206	R4UB2	42	1.02
WUS 93M	17	02080206	R2UB3	70	0.84

WUS Number	Location (Map No.)	HUC	Cowardin Classification	Linear Feet in Study Area	Unified Stream Methodology Reach Condition Index
WUS 94M	17	02080206	R2UB2	56	-
WUS 95M	17	02080206	EPHEMERAL	179	0.60
WUS 96M	17	02080206	R2UB2	60	1.18
WUS 97M	17	02080206	EPHEMERAL	134	0.60
WUS 98M	17	02080206	EPHEMERAL	219	0.60
WUS 99M	18	02080206	R2UB2	267	0.96
WUS 100M	18	02080206	R2UB2	804	1.02
WUS 101M	18	02080206	R2UB2	78	0.88
WUS 102M	18	02080206	R2UB2	275	0.88
WUS 103M	18	02080206	R2UB2	78	0.88
WUS 104M	18	02080206	R2UB2	1165	1.36
WUS 105M	18	02080206	R2UB2	188	1.36
WUS 106M	18	02080206	R2UB3	77	1.34
WUS 107M	18	02080206	R2UB2	182	1.36
WUS 108M	18	02080206	R2UB2	398	1.04
WUS 109M	18	02080206	R2UB2	189	1.18
WUS 110M	18	02080206	R2UB2	1382	1.23
WUS 111M Beaver Dam Creek	19	02080206	R2UB2	298	1.46
WUS 112M	19	02080206	R2UB2	98	1.02
WUS 113M	19	02080206	R2UB2	47	0.89
WUS 114M Wahrani Swamp	19	02080206	R2UB2	109	1.24
WUS 115M	19	02080206	R4UB2	333	1.13
WUS 116M	19	02080206	R2UB2	111	1.16
WUS 117M	19	02080206	R2UB2		
WUS 118M	19	02080206	R2UB2	188 0.52	
WUS 119M	19	02080206	R2UB2	265	1.30
WUS 120M	20	02080206	R2UB2	195	1.40

WUS Number	Location (Map No.)	HUC	Cowardin Classification	Linear Feet in Study Area	Unified Stream Methodology Reach Condition Index
WUS 121M Diascund Creek Reservoir	20	02080206	R2UB2	365	1.50
WUS 122M	20	02080206	R2UB2	1633	1.26
WUS 123M	20	02080206	R2UB2	141	1.34
WUS 124M	20	02080206	R2UB2	472	1.14
WUS 125M	20	02080206	R2UB2	443	1.22
WUS 126M Barnes Swamp	20	02080206	R2UB2	118	1.20
WUS 127M	20	02080206	R2UB2	294	0.87
WUS 128M	20	02080206	R2UB2	165	1.00
WUS 129M	20 / 21	02080206	R2UB2	91	1.00
WUS 130M	20	02080206	R4UB2	142	0.93
WUS 131M	21	02080206	R2UB2	143	1.18
WUS 132M Tributary to Diascund Creek Reservoir	21	02080206	R2UB2	724	1.09
WUS 133M	21	02080206	R2UB2	48	1.04
WUS 134M	21	02080206	R4UB2	39	0.96
WUS 135M	21	02080206	R4UB2	148	1.16
WUS 136M	21	02080206	R2UB2	744	2.13
WUS 137M	22	02080107	R2UB2	691	0.69
WUS 138M	22	02080107	R2UB2	126	1.28
WUS 139M	22	02080107	R2UB2	129	1.24
WUS 140M	22	02080107	R4UB2	175	1.16
WUS 141M	22 / 23	02080107	R2UB2	182	1.26
WUS 142M	23	02080107	R2UB2	326	1.24
WUS 143M	23	02080107	R2UB2	252	1.08
WUS 144M	23	02080107	R2UB2	206	1.20
WUS 145M	23	02080107	R2UB2	229	1.30

WUS Number	Location (Map No.)	нис	Cowardin Classification	Linear Feet in Study Area	Unified Stream Methodology Reach Condition Index
WUS 146M	23	02080107	R2UB2	118	1.12
WUS 147M	23	02080107	R2UB2	283	-
WUS 148M	23	02080107	R2UB2	484	1.36
WUS 149M	23	02080107	R2UB2	97	1.24
WUS 150M France Swamp	23	02080107	R2UB2	118	1.20
WUS 151M	30	02080107	R2UB2	36	0.96
WUS 152M	30	02080107	R2UB2	123	0.77
WUS 153M	30	02080107	R2UB2	19	0.97
WUS 277M Shockhoe Creek	2	02080206	R2UB1	27	-
WUS 278M Newport News/ Lee Hall Reservoir	34	02080206	L2UBHh	115	-
WUS 279M Queen Creek	29	02080107	R1UB2	98	-

WUS Number	Location (Map No.)	HUC	Cowardin Classification	Linear Feet (in Study Area)	Unified Stream Methodology Reach Condition Index	
WUS 1S	2/3	02080206	R2UB1	1388	0.66	
WUS 2S	3	02080206	R2UB1	41	0.66	
WUS 3S	4	02080206	R2UB1	39	1.00	
WUS 4S Tributary to Gilles Creek	4	02080206	R2UB3	65	1.11	
WUS 5S	7 / 8	02080206	R2UB1	157	1.16	
WUS 6S	8	02080206	R2UB1	41	1.16	
WUS 7S Chickahominy River	9	02080206	R2UB3	70	1.46	
WUS 8S	9	02080206	R2UB1	443	1.06	
WUS 9S	11	02080206	R2UB3	44	1.08	
WUS 10S	11	02080206	R2UB3	161	0.60	
WUS 11S	13	02080206	R2UB2	35	1.14	
WUS 12S Rumley Marsh	14	02080206	R2UB3	65	1.46	
WUS 13S	18	02080206	R2UB2	599	1.08	
WUS 14S	18	02080206	R2UB2	36	1.26	
WUS 15S	18	02080206	R2UB2	54	1.26	
WUS 16S	18	02080206	R2UB2	91	0.84	
WUS 17S	19	02080206	R2UB2	108	0.88	
WUS 18S	20	02080206	R2UB2	75	1.12	
WUS 19S	20	02080206	R2UB2	122	0.88	
WUS 20S	20 / 21	02080206	R2UB2	43	1.08	
WUS 21S	22	02080107	R2UB2	69	0.92	
WUS 22S	22 / 23	02080107	R2UB2	129	1.14	
WUS 23S	23	02080107	R2UB2	115	1.12	
WUS 24S	23	02080107	R2UB2	86	1.00	
WUS 25S Queen Creek	29	02080107	R1UB2	120	1.50	

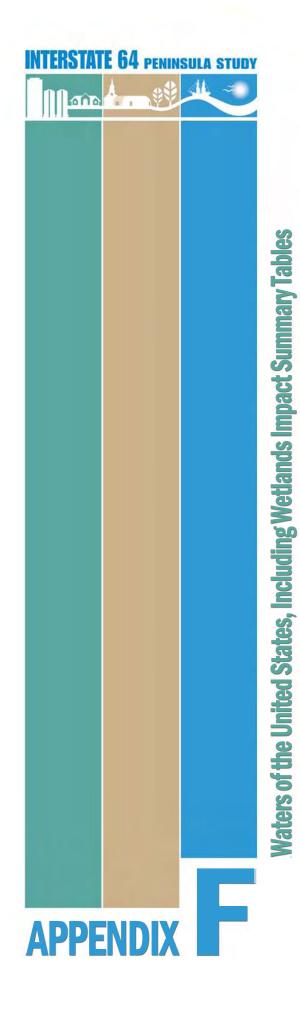
WUS Number	Location (Map No.)	HUC	Cowardin Classification	Linear Feet (in Study Area)	Unified Stream Methodology Reach Condition Index
WUS 26S	30 / 31	02080107	R2UB3	931	1.11
WUS 27S	33	02080206	R2UB2	79	0.97
WUS 28S	33	02080206	R2UB2	352	1.50
WUS 29S	34	02080206	R2UB2	748	0.96
WUS 30S	34	02080206	R2UB2	557	1.04
WUS 33S Stony Run	36	02080206	R2UB2	124	1.06
WUS 34S	38	02080108	R2UB1	59	0.76
WUS 35S	38	02080108	R2UB2	949	0.75
WUS 36S	41	02080108	R2UB2	465	0.79
WUS 37S Tributary to Newmarket Creek	41	02080108	R2UB2	562	0.79
WUS 38S	41	02080108	R2UB2	613	0.75
WUS 40S	39	02080108	R2UB2	209	0.80
WUS 41S	39	02080108	R2UB1	628	0.64
WUS 42S	39	02080108	R2UB2	3679	0.64
WUS 43S	40 / 41	02080108	R2UB2	14596	0.73
WUS 44S	42	02080108	R2UB3	3577	0.89
WUS 46S	42	02080108	R2UB3	3230	0.68
WUS 47S	42 / 43	02080108	R2UB1	956	0.64
WUS 49S Tide Mill Creek	43	02080108	R2UB3	1921	0.71
WUS 50S	15	02080206	R2UB2	54	-
WUS 51S Skiffes Creek	32	02080206	R2UB1	37	0.85
WUS 52S	19	02080206	EPHEMERAL	92	0.83
WUS 53S	19	02080206	EPHEMERAL	94	-
WUS 54S	20	02080206	R2UB2	606	-
WUS 56S	23	02080107	R2UB2	76	-
WUS 57S	33	02080206	EPHEMERAL	79	-

WUS Number	Location (Map No.)	HUC	Cowardin Classification	Linear Feet (in Study Area)	Unified Stream Methodology Reach Condition Index
WUS 58S	36	02080206	R2UB2	569	-
WUS 59S	36	02080206	EPHEMERAL	1219	-
WUS 60S	36	02080206	EPHEMERAL	115	-
WUS 61S	36	02080206	EPHEMERAL	239	-
WUS 154S	30	02080107	R2UB2	474	1.00
WUS 155S	30	02080107	R2UB2	53	1.01
WUS 156S	3	02080206	R2UB1	85	0.85
WUS 157S Gillies Creek	3	02080206	R2UB2	49	0.92
WUS 158S Tributary to Gillies Creek	5	02080206	R2UB2	182	1.00
WUS 159S	6	02080206	R2UB2	97	1.08
WUS 160S	8	02080206	R2UB2	42	1.22
WUS 161S Tibutary to Chickahominy River	10	02080206	R2UB2	58	-
WUS 162S	11	02080206	R2UB2	41	1.19
WUS 163S Tributary to Toe Ink Swamp	11	02080206	R2UB2	77	1.44
WUS 164S Allen's Run	12	02080206	R2UB2	33	1.44
WUS 165S	12	02080206	R2UB2	17	1.50
WUS 166S Toe Ink Swamp	12	02080206	R2UB2	43	1.50
WUS 167S	13	02080206	R2UB2	34	1.44
WUS 168S Schiminoe Creek	13	02080206	R2UB2	52	1.38
WUS 169S	13	02080206	R2UB2	542	0.62
WUS 170S Tributary to Rumley Marsh	14	02080206	R2UB2	62	1.50
WUS 171S Diascund Creek	15	02080206	R2UB2	108 1.20	
WUS 172S	15	02080206	R4UB2	338	0.53
WUS 173S	16	02080206	R2UB2	47	1.50

WUS Number	Location (Map No.)	HUC	Cowardin Classification	Linear Feet (in Study Area)	Unified Stream Methodology Reach Condition Index
WUS 174S Tributary to Gillies Creek	5	02080206	R2UB1	2743	0.75
WUS 175S	9	02080206	R2UB2	72	1.44
WUS 177S Tributary to Diascund Creek	16	02080206	R2UB2	47	1.50
WUS 178S Tributary to Diascund Creek	16	02080206	R2UB2	23	1.50
WUS 179S	17	02080206	R2UB2	10	0.70
WUS 180S	17	02080206	R2UB2	51	0.99
WUS 183S Beaver Dam Creek	19	02080206	R2UB2	97	1.50
WUS 184S	19	02080206	R2UB2	104	1.08
WUS 185S Wahrani Swamp	19	02080206	R2UB2	89	1.28
WUS 187S Barnes Swamp	20	02080206	R2UB2	100	1.50
WUS 188S	21	02080206	R2UB2	76	1.28
WUS 189S Tibutary to Diascund Creek Reservoir	21	02080206	R2UB2	379	1.24
WUS 190S	21	02080206	R4UB2	111	1.08
WUS 191S Edwards Swamp	21	02080206	R2UB2	36	1.40
WUS 192S	22	02080107	R2UB2	72	1.34
WUS 193S	28	02080107	EPHEMERAL	46	0.60
WUS 195S	22	02080107	R4UB2	83	1.24
WUS 196S	22	02080107	R4UB2	79	1.10
WUS 197S	23	02080107	R2UB2	182	1.32
WUS 198S	23	02080107	R2UB2	65	1.28
WUS 199S France Swamp	23	02080107	R2UB2	104	1.50
WUS 200S	28	02080107	EPHEMERAL 37		0.60
WUS 204S	29	02080107	R2UB2	36	1.16
WUS 205S	29	02080107	R2UB2	47	-

WUS Number	Location (Map No.)	HUC	Cowardin Classification	Linear Feet (in Study Area)	Unified Stream Methodology Reach Condition Index	
WUS 206S	29	02080107	R2UB2	94	-	
WUS 207S	29	02080107	R2UB2	186	-	
WUS 208S	30	02080107	R2UB2	67	-	
WUS 209S	30	02080107	R2UB2	178	-	
WUS 210S Whiteman Swamp	30 / 31	02080107	R2UB2	238	-	
WUS 211S	33	02080206	R2UB2	51	-	
WUS 212S	33	02080206	R2UB2	42	-	
WUS 213S Curtis Run	34	02080206	R2UB2	85	-	
WUS 225S Tributary to Newport News/ Lee Hall Reservoir	35	02080206	R2UB2	66	-	
WUS 227S Lukas Creek	37	02080206	R2UB2	120	-	
WUS 228S Tributary to Lukas Creek	37	02080206	R2UB2	110	-	
WUS 229S	39	02080108	R2UB3	126	-	
WUS 230S Tributary to Brick Kiln Creek	39	02080108	R2UB3	168	-	
WUS 267S	4	02080206	R4UB3	67	-	
WUS 274S Tributary to Chickahominy River	10	02080206	R2UB2	55	-	
WUS 275S Shockhoe Creek	2	02080206	R2UB2	384	-	
WUS 278S Diascund Creek Reservoir	20	02080206	R2UB2	119	-	
WUS 280S Newport News/ Lee Hall Reservoir	34	02080206	L2UBHh	57	-	
WUS 288S	6	02080206	R2UB2	435	-	
WUS 297S	30	02080107	R2UB2	725	725 -	
WUS 299S	31	02080107	R4UB2	150	-	
WUS 302S	34 / 35	02080206	R4UB2	261	-	

WUS Number	Location (Map No.)	HUC	Cowardin Classification	Linear Feet (in Study Area)	Unified Stream Methodology Reach Condition Index
WUS 303S	35	02080206	R4UB2	108	-
WUS 304S	35	02080206	R4UB2	288	-
WUS 305S Tributary to Newport News/ Lee Hall Reservoir	35	02080206	R2UB2	65	-
WUS 306S	35	02080206	R4UB2	889	-
WUS 309S	39	02080108	R4UB2	1412	-
WUS 310S	39	02080108	EPHEMERAL	870	-
WUS 315S Newmarket Creek	40	02080108	R2UB1	14	-



Surface Water Impact Summary Table - Wetlands (North)

Resource ID	Cowardin Classification	HUC	Acreage in Study Area	Acreage Impacted by Alternatives 1A/2A	Acreage Impacted by Alternatives 1B/2B	Acreage Impacted by Alternative 3	Map Number
WET 1 N	E2EM1P	2080108	4.19	4.10	4.08	4.08	43
WET 2 N	PSS	2080108	0.97	0.97	0.97	0.97	42
WET 3 N	PEM	2080108	1.64	1.64	1.64	1.64	42
WET 5 N	PEM	2080108	0.19	0.19	0.19	0.19	42
WET 9 N	PEM	2080108	0.13	0.13	0.13	0.13	40
WET 12 N	PEM	2080108	0.56	0.56	0.56	0.56	39
WET 14 N	PFO	2080206	0.10	0.00	0.00	0.00	35
WET 16 N	PEM	2080206	2.94	2.94	2.94	2.94	35
WET 17 N	PFO	2080206	0.87	0.87	0.87	0.87	35
WET 18 N	PFO	2080206	1.65	1.65	1.65	1.65	35
WET 19 N	PFO	2080206	0.04	0.04	0.04	0.04	34
WET 20 N	PFO	2080206	0.46	0.46	0.46	0.46	34
WET 21 N	PFO	2080206	0.25	0.25	0.25	0.25	34
WET 22 N	PFO	2080206	0.11	0.00	0.00	0.00	34
WET 23 N	PFO	2080206	0.10	0.01	0.00	0.01	34
WET 24 N	PEM	2080206	0.08	0.00	0.00	0.00	33
WET 25 N	PEM	2080206	0.04	0.00	0.00	0.00	33
WET 26 N	PFO	2080206	0.02	0.00	0.00	0.00	32
WET 27 N	PEM	2080107	0.96	0.96	0.96	0.96	31
WET 30 N	E2EM1P	2080107	2.96	2.96	2.96	2.96	29
WET 31 N	PFO	2080107	0.05	0.00	0.00	0.00	23
WET 32 N	PFO	2080107	0.08	0.00	0.00	0.00	23
WET 33 N	PFO	2080107	0.31	0.00	0.00	0.00	23
WET 34 N	PFO	2080107	0.07	0.00	0.00	0.00	23
WET 35 N	PFO	2080107	0.00	0.00	0.00	0.00	23
WET 36 N	PEM	2080107	0.02	0.00	0.00	0.00	23
WET 37 N	PFO	2080107	0.04	0.00	0.00	0.00	22
WET 38 N	PEM	2080206	0.03	0.00	0.00	0.00	21
WET 39 N	PFO	2080206	0.05	0.00	0.00	0.00	20
WET 40 N	PFO	2080206	0.03	0.00	0.00	0.00	20
WET 41 N	PFO	2080206	0.59	0.00	0.06	0.08	20

Surface Water Impact Summary Table - Wetlands (North)

Resource ID	Cowardin Classification	HUC	Acreage in Study Area	Acreage Impacted by Alternatives 1A/2A	Acreage Impacted by Alternatives 1B/2B	Acreage Impacted by Alternative 3	Map Number
WET 46 N	PFO	2080206	0.13	0.00	0.00	0.00	16
WET 48 N	PFO	2080206	1.81	0.00	0.00	0.00	14
WET 55 N	PEM	2080206	0.51	0.00	0.00	0.00	9
WET 56 N	PFO	2080206	0.09	0.00	0.00	0.00	9
WET 57 N	PFO	2080206	2.10	0.25	0.12	0.22	9
WET 58 N	PEM	2080206	0.17	0.00	0.00	0.00	6
WET 60 N	PEM	2080206	0.10	0.00	0.00	0.05	6
WET 62 N	PFO	2080206	0.10	0.10	0.10	0.10	5
WET 63 N	PFO	2080206	1.34	1.34	1.34	1.34	5
WET 64 N	PEM	2080206	0.05	0.00	0.00	0.00	4
WET 110 N	PFO	2080107	0.28	0.28	0.28	0.28	30
WET 117 N	PFO	2080206	0.01	0.00	0.00	0.00	12
WET 118 N	PFO	2080206	0.21	0.21	0.21	0.21	9
WET 119 N	PEM	2080206	0.53	0.00	0.00	0.00	9
WET 120 N	PEM	2080206	0.21	0.00	0.00	0.00	7
WET 121 N	PSS	2080206	1.09	1.09	1.09	1.09	7
WET 122 N	PEM	2080206	0.06	0.00	0.00	0.00	7
WET 126 N	PSS	2080107	0.46	0.11	0.00	0.07	25
WET 128 N	PEM	2080206	0.03	0.00	0.00	0.00	15
WET 129 N	PEM	2080206	0.08	0.00	0.00	0.00	10
WET 130 N	PSS	2080206	0.22	0.00	0.00	0.00	10
WET 131 N	PFO	2080206	0.05	0.00	0.00	0.00	6
WET 132 N	PEM	2080107	0.65	0.65	0.65	0.65	30
WET 136 N	PEM	2080206	0.24	0.24	0.24	0.24	5
WET 137 N	PFO	2080206	1.90	1.90	1.90	1.90	5
WET 138 N	PFO	2080206	0.08	0.00	0.00	0.00	18
WET 139 N	PFO	2080107	0.32	0.32	0.32	0.32	30
WET 140 N	PFO	2080107	0.67	0.67	0.67	0.67	30
WET 141 N	PEM	2080107	0.38	0.38	0.38	0.38	30
WET 150 N	PFO	2080108	0.41	0.39	0.39	0.33	40
WET 151 N	PEM	2080108	2.01	2.01	2.01	2.01	39

Surface Waters Impacts Summary Table - Wetlands (Median)

Resource ID	Cowardin Classification	HUC	Acreage in Study Area	Acreage Impacted by Alternatives 1A/2A	Acreage Impacted by Alternatives 1B/2B	Acreage Impacted by Alternative 3	Map Number
WET 14 M	PFO	2080206	0.14	0.14	0.14	0.14	36
WET 50 M	PEM	2080206	0.22	0.22	0.22	0.22	8
WET 51 M	PFO	2080206	0.30	0.00	0.00	0.01	11
WET 52 M	PFO	2080206	0.51	0.00	0.06	0.12	11
WET 53 M	PFO	2080206	0.10	0.10	0.10	0.10	12
WET 54 M	PFO	2080206	0.01	0.00	0.00	0.00	13
WET 55 M	PFO	2080206	0.04	0.00	0.00	0.00	13
WET 56 M	PFO	2080206	0.36	0.00	0.06	0.13	13
WET 57 M	PFO	2080206	1.28	0.00	0.09	0.16	14
WET 58 M	PFO	2080206	0.07	0.07	0.07	0.07	14
WET 59 M	PFO	2080206	0.09	0.00	0.00	0.02	15
WET 60 M	PFO	2080206	0.07	0.00	0.00	0.00	17
WET 61 M	PFO	2080206	0.16	0.16	0.16	0.16	18
WET 63 M	PFO	2080206	0.10	0.10	0.10	0.10	18
WET 64 M	PFO	2080206	3.90	3.90	3.90	3.90	18
WET 65 M	PSS	2080206	0.06	0.06	0.06	0.06	18
WET 66 M	PFO	2080206	0.28	0.00	0.13	0.08	18
WET 67 M	PFO	2080206	0.12	0.00	0.00	0.00	18
WET 68 M	PFO	2080206	2.27	0.11	0.30	0.43	18
WET 69 M	PFO	2080206	0.37	0.00	0.02	0.06	18
WET 70 M	PFO	2080206	0.19	0.00	0.04	0.06	19
WET 71 M	PFO	2080206	0.45	0.00	0.18	0.25	19
WET 72 M	PFO	2080206	0.03	0.00	0.00	0.00	19
WET 73 M	PFO	2080206	0.08	0.00	0.01	0.01	19
WET 74 M	PFO	2080206	0.01	0.00	0.00	0.00	19
WET 75 M	PFO	2080206	0.03	0.00	0.00	0.00	19
WET 76 M	PFO	2080206	0.08	0.00	0.00	0.00	20
WET 77 M	PFO	2080206	0.46	0.00	0.06	0.08	20
WET 78 M	PFO	2080206	1.64	0.00	0.00	0.00	20
WET 79 M	PFO	2080206	0.10	0.00	0.03	0.04	20
WET 80 M	PFO	2080206	0.05	0.00	0.00	0.00	20

Surface Waters Impacts Summary Table - Wetlands (Median)

Resource ID	Cowardin Classification	HUC	Acreage in Study Area	Acreage Impacted by Alternatives 1A/2A	Acreage Impacted by Alternatives 1B/2B	Acreage Impacted by Alternative 3	Map Number
WET 81 M	PFO	2080206	0.24	0.00	0.01	0.02	20
WET 82 M	PFO	2080206	0.17	0.00	0.00	0.00	20
WET 83 M	PFO	2080206	0.41	0.00	0.00	0.00	20
WET 84 M	PFO	2080206	0.13	0.00	0.00	0.00	21
WET 85 M	PFO	2080206	0.67	0.01	0.15	0.23	21
WET 86 M	PFO	2080206	0.19	0.00	0.00	0.00	21
WET 87 M	PFO	2080107	0.06	0.00	0.00	0.00	22
WET 88 M	PFO	2080107	0.12	0.00	0.00	0.00	22
WET 89 M	PFO	2080107	0.18	0.00	0.00	0.00	23
WET 90 M	PFO	2080107	0.80	0.00	0.02	0.05	23
WET 91 M	PFO	2080107	0.06	0.00	0.00	0.00	23
WET 92 M	PFO	2080107	0.23	0.00	0.00	0.00	23
WET 93 M	PFO	2080107	0.11	0.00	0.00	0.00	23
WET 94 M	PFO	2080107	0.17	0.00	0.02	0.03	23
WET 95 M	PFO	2080107	0.22	0.05	0.08	0.10	23
WET 134 M	E2EM1P	2080107	0.66	0.66	0.66	0.66	29
WET 135 M	PFO	2080206	0.12	0.12	0.12	0.12	36

${\bf Surface\ Waters\ Impacts\ Summary\ Table\ -\ Wetlands\ (South)}$

Resource ID	Cowardin Classification	HUC	Acreage in Study Area	Acreage Impacted by Alternatives 1A/2A	Acreage Impacted by Alternatives 1B/2B	Acreage Impacted by Alternative 3	Map Number
WET 1 S	PEM	2080206	0.20	0.02	0.00	0.01	4
WET 2 S	PEM	2080206	0.04	0.04	0.04	0.04	5
WET 3 S	PFO	2080206	0.20	0.04	0.00	0.09	6
WET 4 S	PSS	2080206	0.38	0.02	0.00	0.07	6
WET 5 S	PFO	2080206	0.08	0.03	0.00	0.00	8
WET 6 S	PFO	2080206	1.06	0.49	0.00	0.03	9
WET 7 S	PFO	2080206	0.10	0.05	0.00	0.02	9
WET 8 S	PSS	2080206	0.98	0.61	0.04	0.42	9
WET 9 S	PSS	2080206	0.08	0.00	0.00	0.00	11
WET 10 S	PFO	2080206	0.54	0.00	0.00	0.00	11
WET 11 S	PFO	2080206	0.00	0.00	0.00	0.00	11
WET 12 S	PFO	2080206	0.06	0.00	0.00	0.00	13
WET 13 S	PFO	2080206	0.30	0.00	0.00	0.00	14
WET 14 S	PFO	2080206	0.01	0.00	0.00	0.00	18
WET 15 S	PFO	2080206	0.14	0.02	0.00	0.01	18
WET 17 S	PFO	2080206	0.03	0.00	0.00	0.00	19
WET 18 S	PEM	2080206	0.14	0.00	0.00	0.00	20
WET 19 S	PFO	2080206	0.15	0.00	0.00	0.00	20
WET 20 S	PFO	2080107	0.08	0.00	0.00	0.00	22
WET 21 S	PEM	2080107	0.03	0.00	0.00	0.00	22
WET 22 S	PEM	2080107	0.49	0.00	0.00	0.00	23
WET 23 S	PFO	2080107	0.06	0.00	0.00	0.00	23
WET 24 S	PFO	2080107	0.02	0.00	0.00	0.00	23
WET 25 S	PFO	2080107	0.14	0.00	0.00	0.00	23
WET 26 S	PFO	2080206	0.19	0.11	0.04	0.06	34
WET 27 S	PFO	2080108	0.14	0.14	0.14	0.14	39
WET 28 S	PEM	2080108	1.32	1.32	1.32	1.32	42
WET 29 S	E2EM1P	2080108	11.03	10.41	11.03	11.03	43
WET 30 S	E2EM1P	2080108	9.25	9.25	8.64	8.64	43
WET 31 S	PFO	2080107	0.19	0.06	0.01	0.03	28
WET 32 S	PEM	2080206	5.16	0.41	0.13	0.21	33

${\bf Surface\ Waters\ Impacts\ Summary\ Table\ -\ Wetlands\ (South)}$

Resource ID	Cowardin Classification	HUC	Acreage in Study Area	Acreage Impacted by Alternatives 1A/2A	Acreage Impacted by Alternatives 1B/2B	Acreage Impacted by Alternative 3	Map Number
WET 33 S	E2EM1P	2080107	1.45	0.63	0.40	0.46	29
WET 34 S	PEM	2080206	0.15	0.11	0.01	0.15	6
WET 35 S	PFO	2080206	0.11	0.00	0.00	0.00	13
WET 36 S	PFO	2080206	0.03	0.00	0.00	0.00	19
WET 37 S	PFO	2080206	0.01	0.00	0.00	0.00	19
WET 38 S	PFO	2080206	0.03	0.00	0.00	0.00	19
WET 39 S	PFO	2080206	0.10	0.00	0.00	0.00	19
WET 41 S	PFO	2080107	0.01	0.00	0.00	0.00	23
WET 43 S	PFO	2080206	0.01	0.01	0.00	0.01	37
WET 56 S	PEM	2080206	0.03	0.00	0.00	0.00	20
WET 96 S	PSS	2080206	0.39	0.24	0.24	0.24	10
WET 97 S	PFO	2080206	0.08	0.00	0.00	0.00	13
WET 98 S	PEM	2080206	0.08	0.00	0.00	0.00	14
WET 99 S	PFO	2080206	0.05	0.00	0.00	0.00	16
WET 100 S	PSS	2080206	0.04	0.00	0.00	0.00	16
WET 101 S	PSS	2080206	0.04	0.00	0.00	0.00	17
WET 102 S	PFO	2080206	0.24	0.00	0.00	0.00	19
WET 103 S	PFO	2080206	0.30	0.00	0.00	0.00	19
WET 104 S	PEM	2080206	0.02	0.00	0.00	0.00	20
WET 105 S	PFO	2080206	0.16	0.00	0.00	0.00	20
WET 106 S	PFO	2080206	0.66	0.00	0.00	0.00	21
WET 107 S	PFO	2080206	0.03	0.03	0.03	0.03	21
WET 108 S	PEM	2080107	0.11	0.00	0.00	0.00	22
WET 109 S	PEM	2080107	0.06	0.06	0.06	0.06	24
WET 111 S	PEM	2080107	0.04	0.00	0.00	0.00	22
WET 112 S	PFO	2080107	0.26	0.00	0.00	0.00	23
WET 113 S	PFO	2080107	0.08	0.02	0.00	0.00	25
WET 115 S	PFO	2080107	0.14	0.03	0.00	0.00	29
WET 116 S	PEM	2080107	0.63	0.63	0.63	0.63	30
WET 123 S	PFO	2080206	0.21	0.21	0.21	0.21	35
WET 124 S	PFO	2080206	0.20	0.20	0.20	0.20	35

$Surface\ Waters\ Impacts\ Summary\ Table\ -\ Wetlands\ (South)$

Resource ID	Cowardin Classification	HUC	Acreage in Study Area	Acreage Impacted by Alternatives 1A/2A	Acreage Impacted by Alternatives 1B/2B	Acreage Impacted by Alternative 3	Map Number
WET 125 S	PFO	2080206	0.06	0.00	0.00	0.00	36
WET 133 S	PFO	2080206	0.88	0.88	0.88	0.88	34
WET 142 S	PEM	2080107	0.14	0.14	0.14	0.14	31
WET 143 S	PFO	2080206	0.05	0.05	0.05	0.05	34
WET 144 S	PFO	2080206	0.96	0.96	0.96	0.96	35
WET 145 S	PEM	2080206	0.57	0.57	0.57	0.57	35
WET 146 S	PFO	2080206	0.28	0.28	0.28	0.28	35
WET 147 S	PFO	2080108	2.18	2.18	2.18	2.18	38
WET 148 S	PEM	2080108	2.06	2.06	2.06	2.06	39
WET 149 S	PFO	2080108	0.47	0.47	0.47	0.47	40

Resource ID	Cowardin Classification	HUC	Linear Feet in Study Area	Linear Feet Impacted by Alternatives 1A/2A	Linear Feet Impacted by Alternatives 1B/2B	Linear Feet Impacted by Alternative 3	Map Number
WUS 1 N	R1UB2	2080108	4073	2657	2594	2594	43
WUS 2 N	R2UB3	2080108	3181	3181	3181	3181	43
WUS 3 N	R2UB2	2080108	791	790	790	163	43
WUS 4 N	R2UB2	2080108	1068	1068	1068	1068	41
WUS 5 N	R2UB2	2080108	290	290	290	290	41
WUS 6 N	R2UB2	2080108	114	114	114	114	41
WUS 7 N	R2UB2	2080108	9869	9869	9869	9242	40
WUS 8 N	R2UB2	2080108	4524	4524	4524	4524	40
WUS 9 N	R2UB2	2080108	786	786	786	786	39
WUS 10 N	R2UB2	2080108	266	266	266	266	39
WUS 11 N	R2UB2	2080108	244	244	244	244	38
WUS 12 N	R2UB2	2080206	708	708	708	708	37
WUS 13 N	R2UB2	2080206	97	0	0	0	36
WUS 14 N	R2UB2	2080206	782	16	0	14	36
WUS 15 N	R2UB2	2080206	500	0	0	0	36
WUS 16 N	R2UB2	2080206	2314	2314	2314	2314	35
WUS 17 N	R2UB2	2080206	42	42	42	42	35
WUS 18 N	R2UB2	2080206	1203	1203	1203	1203	35
WUS 19 N	R2UB2	2080206	22	0	0	0	34
WUS 20 N	R2UB2	2080206	43	0	0	0	34
WUS 23 N	R2UB2	2080206	81	0	0	0	33
WUS 24 N	R2UB2	2080206	92	0	0	0	33
WUS 27 N	R2UB2	2080107	509	484	484	484	31
WUS 28 N	R2UB2	2080107	158	158	158	158	30
WUS 31 N	R2UB2	2080107	13	0	0	0	29
WUS 34 N	R1UB2	2080107	176	176	176	176	29
WUS 35 N	R2UB2	2080107	343	343	343	343	28
WUS 39 N	R2UB2	2080107	155	0	0	0	23
WUS 40 N	R2UB2	2080107	29	0	0	0	23
WUS 42 N	R2UB2	2080107	12	0	0	0	23
WUS 47 N	R4UB2	2080206	61	0	0	0	20

Resource ID	Cowardin Classification	HUC	Linear Feet in Study Area	Linear Feet Impacted by Alternatives 1A/2A	Linear Feet Impacted by Alternatives 1B/2B	Linear Feet Impacted by Alternative 3	Map Number
WUS 48 N	R2UB2	2080206	65	0	0	0	19
WUS 49 N	R2UB2	2080206	19	0	0	0	19
WUS 50 N	R2UB2	2080206	308	0	0	0	19
WUS 53 N	R2UB2	2080206	102	102	84	102	18
WUS 54 N	R2UB2	2080206	54	0	0	0	18
WUS 57 N	R2UB2	2080206	87	0	0	0	16
WUS 59 N	R2UB2	2080206	218	0	0	0	13
WUS 60 N	R2UB2	2080206	19	0	0	0	13
WUS 62 N	R2UB2	2080206	77	0	0	0	12
WUS 64 N	R2UB2	2080206	215	0	0	0	11
WUS 66 N	R2UB2	2080206	779	494	494	494	10
WUS 68 N	R4UB2	2080206	5375	3553	3530	3832	5
WUS 69 N	R2UB2	2080206	1092	1092	1092	1092	5
WUS 70 N	R2UB2	2080206	156	156	156	156	5
WUS 72 N	R2UB2	2080206	299	263	263	263	4
WUS 73 N	R2UB2	2080206	388	388	388	388	4
WUS 197 N	R2UB2	2080107	332	332	332	332	30
WUS 214 N	R2UB2	2080107	203	203	203	203	24
WUS 215 N	R4UB2	2080107	669	669	669	669	24
WUS 216 N	R2UB2	2080206	24	4	4	4	12
WUS 220 N	R2UB2	2080206	34	0	0	0	7
WUS 221 N	R4UB2	2080206	367	340	340	340	7
WUS 222 N	EPHEMERAL	2080206	52	52	52	52	7
WUS 223 N	R2UB2	2080206	735	652	652	652	7
WUS 224 N	R2UB2	2080206	44	0	0	0	7
WUS 231 N	R4UB2	2080108	29	29	29	29	39
WUS 232 N	R2UB2	2080107	129	129	129	129	30
WUS 233 N	R2UB2	2080107	97	97	97	97	30
WUS 236 N	R2UB2	2080107	1	0	0	0	29
WUS 237 N	R2UB2	2080107	80	9	9	2	25
WUS 238 N	R2UB2	2080107	64	5	0	0	25

Resource ID	Cowardin Classification	HUC	Linear Feet in Study Area	Linear Feet Impacted by Alternatives 1A/2A	Linear Feet Impacted by Alternatives 1B/2B	Linear Feet Impacted by Alternative 3	Map Number
WUS 239 N	R2UB2	2080107	223	0	0	0	23
WUS 240 N	R4UB2	2080107	22	0	0	0	22
WUS 241 N	R2UB2	2080206	81	0	0	0	21
WUS 242 N	R2UB2	2080206	56	0	0	0	19
WUS 243 N	R2UB2	2080206	102	0	0	0	19
WUS 245 N	R2UB2	2080206	2	0	0	0	16
WUS 246 N	R2UB2	2080206	30	0	0	0	16
WUS 247 N	R2UB2	2080206	35	0	0	0	8
WUS 248 N	R2UB2	2080206	475	0	0	0	7
WUS 249 N	R2UB2	2080206	26	0	0	0	3
WUS 250 N	R2UB2	2080206	155	0	0	0	3
WUS 251 N	R2UB2	2080206	338	338	338	338	3
WUS 252 N	R2UB2	2080206	137	137	137	137	3
WUS 253 N	R2UB2	2080206	262	262	262	262	3
WUS 254 N	R2UB2	2080206	2	0	0	0	15
WUS 255 N	R2UB2	2080206	24	0	0	0	13
WUS 256 N	R2UB2	2080206	8	0	0	0	13
WUS 257 N	R2UB2	2080206	20	0	0	0	12
WUS 258 N	R2UB2	2080206	23	0	0	0	12
WUS 259 N	R2UB2	2080206	19	0	0	0	11
WUS 260 N	R2UB2	2080206	31	0	0	0	11
WUS 262 N	R2UB2	2080206	39	0	0	0	10
WUS 263 N	R2UB2	2080206	110	110	110	110	4
WUS 264 N	R4UB2	2080206	24	0	0	0	4
WUS 265 N	R2UB2	2080206	46	0	0	10	3
WUS 266 N	R2UB2	2080206	953	953	953	953	3
WUS 267 N	R4UB3	2080206	67	0	0	0	4
WUS 268 N	R2UB2	2080206	39	0	0	0	14
WUS 269 N	R2UB2	2080206	4	0	0	0	21
WUS 270 N	R2UB2	2080107	152	152	152	152	30
WUS 271 N	R2UB2	2080206	59	28	11	28	34

Resource ID	Cowardin Classification	HUC	Linear Feet in Study Area	Linear Feet Impacted by Alternatives 1A/2A	Linear Feet Impacted by Alternatives 1B/2B	Linear Feet Impacted by Alternative 3	Map Number
WUS 272 N	R2UB2	2080206	34	34	34	34	35
WUS 273 N	R2UB2	2080206	43	0	0	0	32
WUS 276 N	R2UB2	2080206	315	315	315	315	2
WUS 281 N	R2UB2	2080108	1262	1262	1262	1262	41
WUS 282 N	R2UB2	2080108	236	236	236	236	42
WUS 283 N	R2UB2	2080108	4627	4627	4627	4627	39
WUS 284 N	R2UB2	2080108	2523	2375	2375	2375	42
WUS 285 N	R2UB2	2080108	5110	5110	5110	5110	38
WUS 286 N	R2UB2	2080206	1234	0	0	0	37
WUS 287 N	R2UB2	2080206	337	337	337	337	5
WUS 289 N	R2UB2	2080206	72	0	0	0	15
WUS 290 N	R2UB2	2080206	306	0	0	0	18
WUS 291 N	R2UB2	2080206	129	0	0	0	18
WUS 292 N	R4UB2	2080107	36	36	36	36	26
WUS 293 N	EPHEMERAL	2080107	252	252	252	252	26
WUS 294 N	R4UB2	2080107	281	281	281	281	26
WUS 295 N	R4UB2	2080107	32	32	32	32	26
WUS 296 N	R2UB2	2080107	48	48	48	48	30
WUS 298 N	R4UB2	2080107	610	610	610	610	31
WUS 300 N	EPHEMERAL	2080206	22	22	8	21	33
WUS 307 N	R2UB2	2080206	82	82	82	82	35
WUS 308 N	R2UB1	2080206	26	0	0	6	37
WUS 312 N	R2UB1	2080108	125	125	125	125	39
WUS 313 N	R2UB1	2080108	381	381	381	381	39
WUS 314 N	R2UB1	2080108	28	28	28	24	40

Resource ID	Cowardin Classification	HUC	Linear Feet in Study Area	Linear Feet Impacted by Alternatives 1A/2A	Linear Feet Impacted by Alternatives 1B/2B	Linear Feet Impacted by Alternative 3	Map Number
WUS 14 M	R2UB2	2080206	39	39	39	39	36
WUS 70 M	R2UB2	2080206	76	76	76	0	9
WUS 71 M	R2UB2	2080206	57	57	57	57	9
WUS 72 M	R2UB2	2080206	79	79	79	79	9
WUS 73 M	R2UB2	2080206	64	64	64	64	9
WUS 74 M	R2UB2	2080206	68	0	0	2	11
WUS 75 M	R2UB3	2080206	65	0	0	4	11
WUS 76 M	R2UB2	2080206	79	0	3	17	11
WUS 77 M	R2UB3	2080206	32	0	0	0	11
WUS 78 M	R2UB2	2080206	105	0	0	0	11
WUS 79 M	R2UB2	2080206	69	0	0	0	11
WUS 80 M	R2UB3	2080206	83	83	83	83	12
WUS 81 M	R2UB2	2080206	28	0	0	6	13
WUS 82 M	R2UB2	2080206	30	0	1	9	13
WUS 83 M	R4UB2	2080206	102	0	0	0	13
WUS 84 M	R2UB3	2080206	101	13	37	46	13
WUS 85 M	R2UB2	2080206	157	0	4	17	14
WUS 86 M	R2UB2	2080206	136	0	28	37	14
WUS 87 M	R2UB2	2080206	112	112	112	112	14
WUS 88 M	EPHEMERAL	2080206	151	151	151	151	14
WUS 89 M	R2UB3	2080206	72	0	42	58	15
WUS 90 M	R4UB2	2080206	106	0	41	59	15
WUS 91 M	R4UB2	2080206	113	11	19	29	16
WUS 92 M	R4UB2	2080206	42	0	0	0	17
WUS 93 M	R2UB3	2080206	70	0	0	7	17
WUS 94 M	R2UB2	2080206	56	0	0	0	17
WUS 95 M	EPHEMERAL	2080206	179	11	29	39	17
WUS 96 M	R2UB2	2080206	60	0	0	0	17
WUS 97 M	EPHEMERAL	2080206	134	0	0	0	17
WUS 98 M	EPHEMERAL	2080206	219	219	219	219	17
WUS 99 M	R2UB2	2080206	267	267	267	267	18

Resource ID	Cowardin Classification	HUC	Linear Feet in Study Area	Linear Feet Impacted by Alternatives 1A/2A	Linear Feet Impacted by Alternatives 1B/2B	Linear Feet Impacted by Alternative 3	Map Number
WUS 100 M	R2UB2	2080206	804	804	804	804	18
WUS 101 M	R2UB2	2080206	78	78	78	78	18
WUS 102 M	R2UB2	2080206	275	275	275	275	18
WUS 103 M	R2UB2	2080206	78	78	78	78	18
WUS 104 M	R2UB2	2080206	1165	1165	1165	1165	18
WUS 105 M	R2UB2	2080206	188	188	188	188	18
WUS 106 M	R2UB3	2080206	77	77	77	77	18
WUS 107 M	R2UB2	2080206	182	182	182	182	18
WUS 108 M	R2UB2	2080206	398	398	398	398	18
WUS 109 M	R2UB2	2080206	189	0	12	20	18
WUS 110 M	R2UB2	2080206	1382	0	589	669	18
WUS 111 M	R2UB2	2080206	298	61	89	114	18
WUS 112 M	R2UB2	2080206	98	0	17	26	19
WUS 113 M	R2UB2	2080206	47	0	47	47	19
WUS 114 M	R2UB2	2080206	109	0	54	67	19
WUS 115 M	R4UB2	2080206	333	79	333	333	19
WUS 116 M	R2UB2	2080206	111	0	31	42	19
WUS 117 M	R2UB2	2080206	326	0	92	177	19
WUS 118 M	R2UB2	2080206	188	0	0	9	19
WUS 119 M	R2UB2	2080206	265	0	15	25	19
WUS 120 M	R2UB2	2080206	195	0	0	0	20
WUS 121 M	R2UB2	2080206	365	33	125	143	20
WUS 122 M	R2UB2	2080206	1633	0	0	0	20
WUS 123 M	R2UB2	2080206	141	4	16	25	20
WUS 124 M	R2UB2	2080206	472	149	249	259	20
WUS 125 M	R2UB2	2080206	443	7	22	30	20
WUS 126 M	R2UB2	2080206	118	0	0	0	20
WUS 127 M	R2UB2	2080206	294	0	0	0	20
WUS 128 M	R2UB2	2080206	165	0	0	0	20
WUS 129 M	R2UB2	2080206	91	0	0	0	20
WUS 130 M	R4UB2	2080206	142	0	0	0	20

Resource ID	Cowardin Classification	HUC	Linear Feet in Study Area	Linear Feet Impacted by Alternatives 1A/2A	Linear Feet Impacted by Alternatives 1B/2B	Linear Feet Impacted by Alternative 3	Map Number
WUS 131 M	R2UB2	2080206	143	0	0	0	21
WUS 132 M	R2UB2	2080206	724	27	223	240	21
WUS 133 M	R2UB2	2080206	48	0	24	33	21
WUS 134 M	R4UB2	2080206	39	0	0	0	21
WUS 135 M	R4UB2	2080206	148	0	0	0	21
WUS 136 M	R2UB2	2080206	744	1	19	27	21
WUS 137 M	R2UB2	2080107	691	691	691	691	22
WUS 138 M	R2UB2	2080107	126	0	0	0	22
WUS 139 M	R2UB2	2080107	129	0	0	8	22
WUS 140 M	R4UB2	2080107	175	0	35	44	22
WUS 141 M	R2UB2	2080107	182	0	3	13	22
WUS 142 M	R2UB2	2080107	326	0	23	37	23
WUS 143 M	R2UB2	2080107	252	0	0	0	23
WUS 144 M	R2UB2	2080107	206	0	11	19	23
WUS 145 M	R2UB2	2080107	229	0	0	3	23
WUS 146 M	R2UB2	2080107	118	0	3	11	23
WUS 147 M	R2UB2	2080107	283	0	0	0	23
WUS 148 M	R2UB2	2080107	484	44	255	264	23
WUS 149 M	R2UB2	2080107	97	0	14	22	23
WUS 150 M	R2UB2	2080107	118	32	49	59	23
WUS 151 M	R2UB2	2080107	36	36	36	36	30
WUS 152 M	R2UB2	2080107	123	123	123	123	30
WUS 153 M	R2UB2	2080107	19	19	19	19	30
WUS 277 M	R2UB1	2080206	27	27	27	27	2
WUS 278 M	L2UBHh	2080206	115	115	115	115	34
WUS 279 M	R1UB2	2080107	98	98	98	98	29

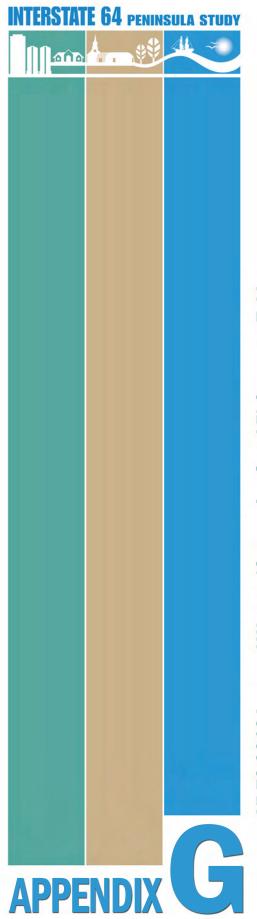
Resource ID	Cowardin Classification	HUC	Linear Feet in Study Area	Linear Feet Impacted by Alternatives 1A/2A	Linear Feet Impacted by Alternatives 1B/2B	Linear Feet Impacted by Alternative 3	Map Number
WUS 1 S	R2UB1	2080206	1388	1388	1388	1388	2
WUS 2 S	R2UB1	2080206	1911	1911	1911	1911	3
WUS 3 S	R2UB1	2080206	39	13	13	39	4
WUS 4 S	R2UB3	2080206	65	19	0	18	4
WUS 5 S	R2UB1	2080206	157	0	0	0	7
WUS 6 S	R2UB1	2080206	41	0	0	0	8
WUS 7 S	R2UB3	2080206	70	49	26	31	9
WUS 8 S	R2UB1	2080206	443	433	433	433	9
WUS 9 S	R2UB3	2080206	44	0	0	0	11
WUS 10 S	R2UB3	2080206	161	0	0	0	11
WUS 11 S	R2UB2	2080206	35	0	0	0	13
WUS 12 S	R2UB3	2080206	65	0	0	0	14
WUS 13 S	R2UB2	2080206	599	534	534	534	18
WUS 14 S	R2UB2	2080206	36	0	0	0	18
WUS 15 S	R2UB2	2080206	54	0	0	0	18
WUS 16 S	R2UB2	2080206	91	14	0	0	18
WUS 17 S	R2UB2	2080206	108	0	0	0	19
WUS 18 S	R2UB2	2080206	75	0	0	0	20
WUS 19 S	R2UB2	2080206	122	0	0	0	20
WUS 20 S	R2UB2	2080206	43	0	0	0	20
WUS 21 S	R2UB2	2080107	69	0	0	0	22
WUS 22 S	R2UB2	2080107	129	0	0	0	22
WUS 23 S	R2UB2	2080107	115	8	0	0	23
WUS 24 S	R2UB2	2080107	86	0	0	0	23
WUS 25 S	R1UB2	2080107	120	81	65	68	29
WUS 26 S	R2UB3	2080107	931	931	931	931	30
WUS 27 S	R2UB2	2080206	79	0	0	0	33
WUS 28 S	R2UB2	2080206	352	0	0	0	33
WUS 29 S	R2UB2	2080206	748	700	680	687	34
WUS 30 S	R2UB2	2080206	557	557	557	557	34
WUS 33 S	R2UB2	2080206	124	53	15	39	36

Resource ID	Cowardin Classification	HUC	Linear Feet in Study Area	Linear Feet Impacted by Alternatives 1A/2A	Linear Feet Impacted by Alternatives 1B/2B	Linear Feet Impacted by Alternative 3	Map Number
WUS 34 S	R2UB1	2080108	59	59	59	59	38
WUS 35 S	R2UB2	2080108	5911	5911	5911	5911	38
WUS 36 S	R2UB2	2080108	465	465	465	465	41
WUS 37 S	R2UB2	2080108	562	562	562	562	41
WUS 38 S	R2UB2	2080108	613	613	613	613	41
WUS 40 S	R2UB2	2080108	209	209	209	209	39
WUS 41 S	R2UB1	2080108	628	628	628	628	39
WUS 42 S	R2UB2	2080108	3679	3679	3679	3679	39
WUS 43 S	R2UB2	2080108	14596	13940	13940	13509	40
WUS 44 S	R2UB3	2080108	3577	2362	2362	1992	41
WUS 46 S	R2UB3	2080108	3230	1422	1422	905	42
WUS 47 S	R2UB1	2080108	956	0	0	0	42
WUS 49 S	R2UB3	2080108	1921	1638	1654	1654	43
WUS 50 S	R2UB2	2080206	54	0	0	0	15
WUS 51 S	R2UB1	2080206	37	9	0	0	32
WUS 52 S	EPHEMERAL	2080206	92	0	0	0	19
WUS 53 S	EPHEMERAL	2080206	94	0	0	0	19
WUS 54 S	R2UB2	2080206	606	0	0	0	20
WUS 56 S	R2UB2	2080107	76	0	0	0	23
WUS 57 S	EPHEMERAL	2080206	79	0	0	0	33
WUS 58 S	R2UB2	2080206	569	441	369	408	36
WUS 59 S	EPHEMERAL	2080206	1219	1219	1219	1219	36
WUS 60 S	EPHEMERAL	2080206	115	68	0	39	36
WUS 61 S	EPHEMERAL	2080206	239	239	239	239	36
WUS 154 S	R2UB2	2080107	474	474	474	474	30
WUS 155 S	R2UB2	2080107	53	53	53	53	30
WUS 156 S	R2UB1	2080206	85	34	34	45	3
WUS 157 S	R2UB2	2080206	49	0	0	49	3
WUS 158 S	R2UB2	2080206	182	182	182	182	5
WUS 159 S	R2UB2	2080206	97	38	18	52	6
WUS 160 S	R2UB2	2080206	42	34	0	26	8

Resource ID	Cowardin Classification	HUC	Linear Feet in Study Area	Linear Feet Impacted by Alternatives 1A/2A	Linear Feet Impacted by Alternatives 1B/2B	Linear Feet Impacted by Alternative 3	Map Number	
WUS 161 S	R2UB2	2080206	58	58	58	58	10	
WUS 162 S	R2UB2	2080206	41	0	0	0	11	
WUS 163 S	R2UB2	2080206	77	0	0	0	11	
WUS 164 S	R2UB2	2080206	33	0	0	0	12	
WUS 165 S	R2UB2	2080206	17	0	0	0	12	
WUS 166 S	R2UB2	2080206	43	0	0	0	12	
WUS 167 S	R2UB2	2080206	34	0	0	0	13	
WUS 168 S	R2UB2	2080206	52	0	0	0	13	
WUS 169 S	R2UB2	2080206	542	0	0	0	13	
WUS 170 S	R2UB2	2080206	62	0	0	0	14	
WUS 171 S	R2UB2	2080206	108	0	0	0	15	
WUS 172 S	R4UB2	2080206	338	0	0	0	15	
WUS 173 S	R2UB2	2080206	47	0	0	0	16	
WUS 174 S	R2UB1	2080206	2743	2743	2743	2743	5	
WUS 175 S	R2UB2	2080206	72	7	0	0	9	
WUS 177 S	R2UB2	2080206	47	0	0	0	16	
WUS 178 S	R2UB2	2080206	23	0	0	0	16	
WUS 179 S	R2UB2	2080206	10	0	0	0	17	
WUS 180 S	R2UB2	2080206	51	0	0	0	17	
WUS 183 S	R2UB2	2080206	97	33	17	23	19	
WUS 184 S	R2UB2	2080206	104	0	0	0	19	
WUS 185 S	R2UB2	2080206	89	0	0	0	19	
WUS 187 S	R2UB2	2080206	100	0	0	0	20	
WUS 188 S	R2UB2	2080206	76	0	0	0	21	
WUS 189 S	R2UB2	2080206	379	8	0	2	21	
WUS 190 S	R4UB2	2080206	111	17	3	6	21	
WUS 191 S	R2UB2	2080206	36	36	36	36	21	
WUS 192 S	R2UB2	2080107	72	0	0	0	22	
WUS 193 S	EPHEMERAL	2080107	46	0	0	0	28	
WUS 195 S	R4UB2	2080107	83	0	0	0	22	
WUS 196 S	R4UB2	2080107	79	0	0	0	22	

Resource ID	Cowardin Classification	HUC	Linear Feet in Study Area	Linear Feet Impacted by Alternatives 1A/2A	Linear Feet Impacted by Alternatives 1B/2B	Linear Feet Impacted by Alternative 3	Map Number
WUS 197 S	R2UB2	2080107	182	0	0	0	23
WUS 198 S	R2UB2	2080107	65	0	0	0	23
WUS 199 S	R2UB2	2080107	104	0	0	0	23
WUS 200 S	EPHEMERAL	2080107	37	37	37	37	28
WUS 204 S	R2UB2	2080107	36	20	0	0	29
WUS 205 S	R2UB2	2080107	47	3	0	0	29
WUS 206 S	R2UB2	2080107	94	41	0	0	29
WUS 207 S	R2UB2	2080107	186	50	0	0	29
WUS 208 S	R2UB2	2080107	67	43	25	25	30
WUS 209 S	R2UB2	2080107	100	98	99	100	30
WUS 210 S	R2UB2	2080107	238	238	238	238	30
WUS 211 S	R2UB2	2080206	51	44	30	33	33
WUS 212 S	R2UB2	2080206	42	23	5	10	33
WUS 213 S	R2UB2	2080206	85	59	36	40	34
WUS 225 S	R2UB2	2080206	66	66	66	66	35
WUS 227 S	R2UB2	2080206	120	0	0	14	37
WUS 228 S	R2UB2	2080206	110	110	110	110	37
WUS 229 S	R2UB3	2080108	126	126	126	126	39
WUS 230 S	R2UB3	2080108	168	168	168	168	39
WUS 274 S	R2UB2	2080206	55	0	0	0	10
WUS 275 S	R2UB2	2080206	384	384	384	384	2
WUS 278 S	R2UB2	2080206	119	12	22	28	20
WUS 280 S	L2UBHh	2080206	57	57	57	57	34
WUS 288 S	R2UB2	2080206	435	74	0	311	6
WUS 297 S	R2UB2	2080107	725	725	725	725	30
WUS 299 S	R4UB2	2080107	150	150	150	150	31
WUS 302 S	R4UB2	2080206	261	261	261	261	34
WUS 303 S	R4UB2	2080206	108	108	108	108	35
WUS 304 S	R4UB2	2080206	288	288	288	288	35
WUS 305 S	R2UB2	2080206	65	65	65	65	35
WUS 306 S	R4UB2	2080206	889	889	889	889	35

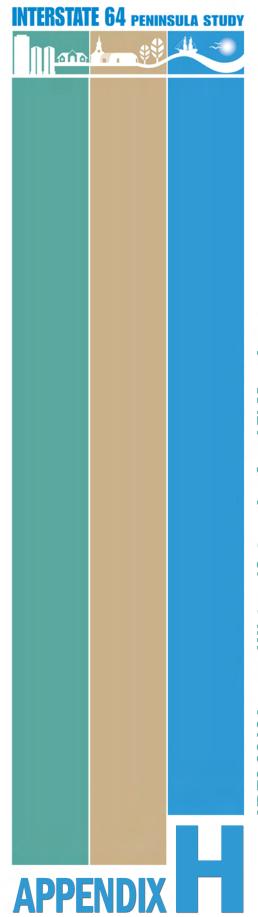
Resource ID	Cowardin Classification	HUC	Linear Feet in Study Area	Linear Feet Impacted by Alternatives 1A/2A	Linear Feet Impacted by Alternatives 1B/2B	Linear Feet Impacted by Alternative 3	Map Number
WUS 309 S	R4UB2	2080108	1412	1412	1412	1412	38
WUS 310 S	EPHEMERAL	2080108	870	870	870	870	39
WUS 315 S	R2UB1	2080108	14	0	0	0	40



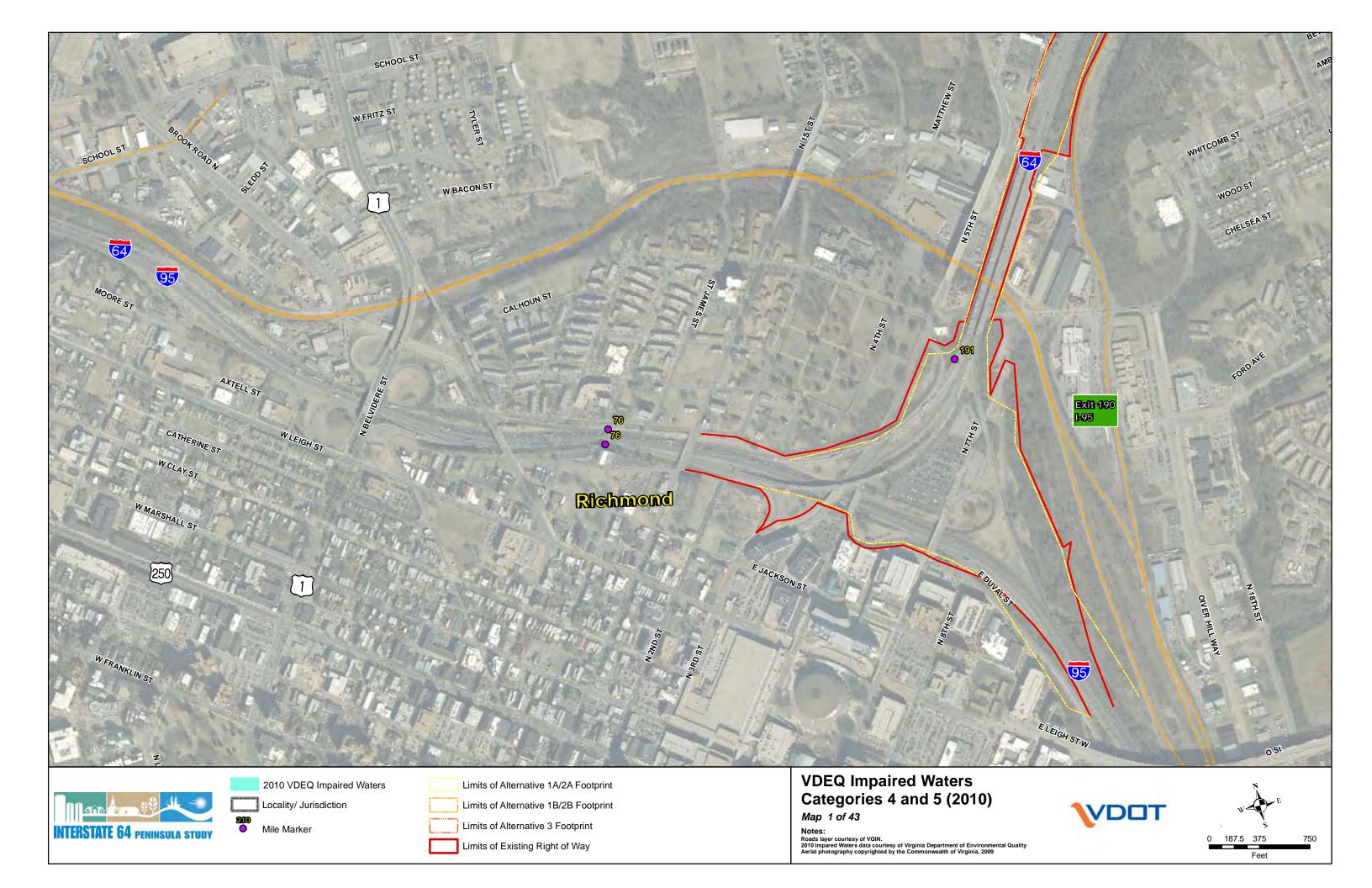
VDEQ 2010 Impared Waters (Categories 4 and 5) Summary Tables

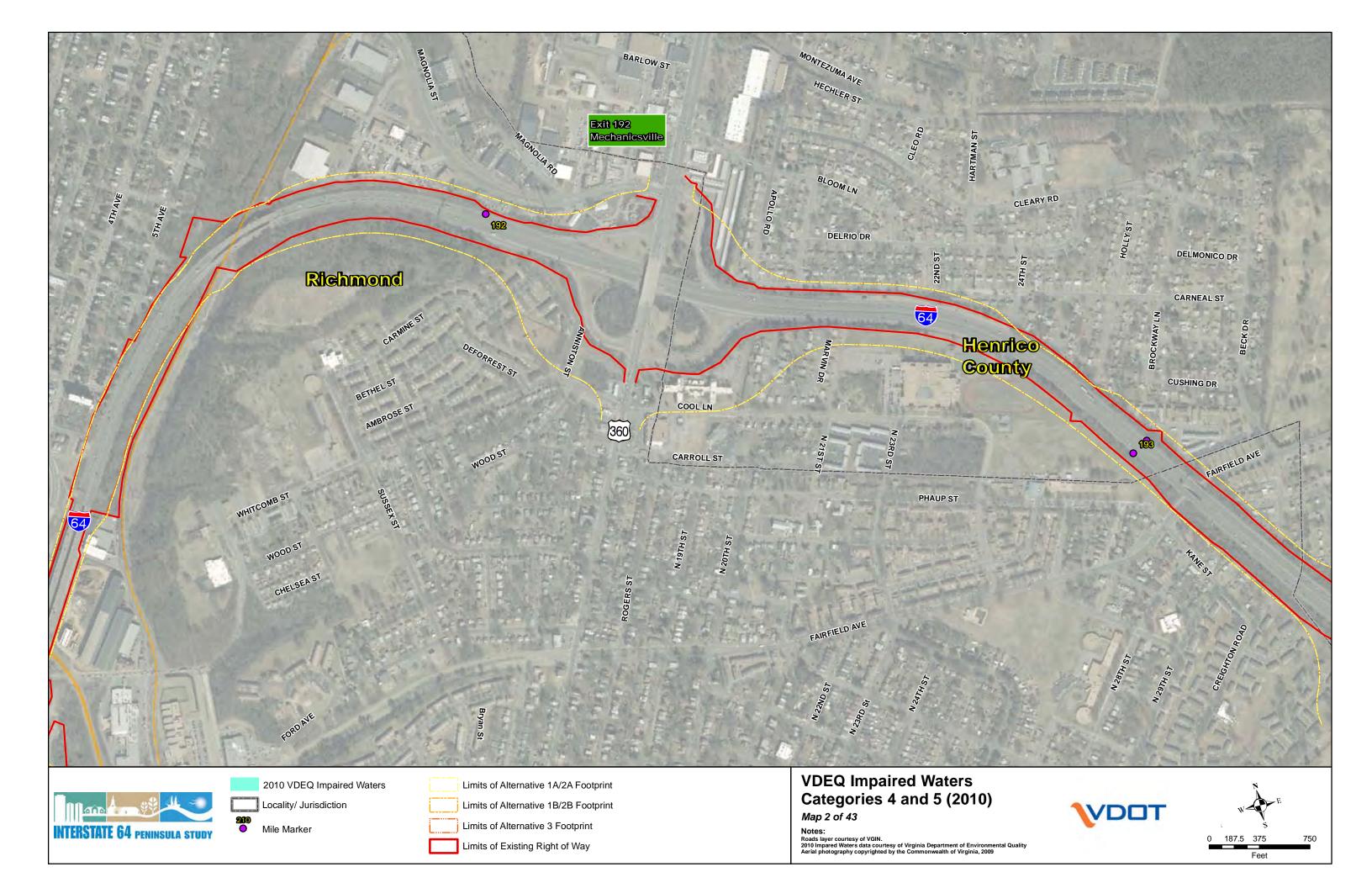
VDEQ 2010 Impaired Waters (Categories 4 and 5) Summary Table

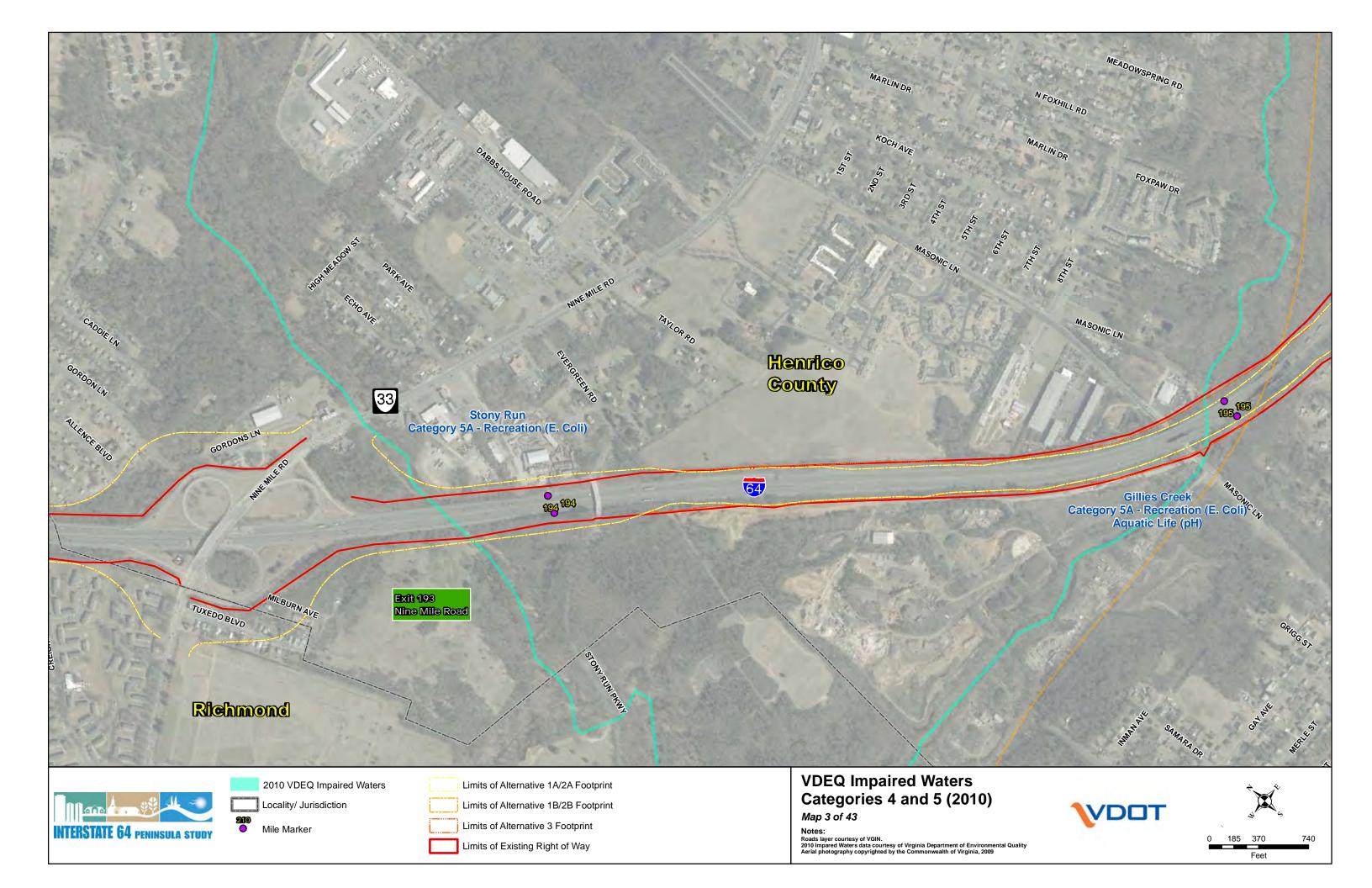
Map Sheet	Project Corridor Locality	Basin	Water Name	Cause Group Code	Designated Use	Cause Category	Cause Name	Impairment Source(s)	Cycle First Listed	TMDL Schedule
3	Henrico	James	Gillies Creek	G01R-06-BAC	Recreation	5A	Escherichia coli	Unknown; Combined Sewer Overflows	2008	2016
3	Hennico	Janies	Gillies Creek	G01R-06-PH	Aquatic Life	5A	рН	Unknown	2004	2016
3 & 4	Henrico	James	Stony Run	G01R-19-BAC	Recreation	5A	Escherichia coli	Unknown	2008	2020
4.4	Name Idana		D. malas Manak	G07R-02-DO	Aquatic Life	5C	Dissolved Oxygen	Natural Conditions - Water Quality Standards Use Attainability Analyses Needed	2002	2014
14	New Kent	James	Rumley Marsh	G07R-02-PH	Aquatic Life	5C	рН	Natural Conditions - Water Quality Standards Use Attainability Analyses Needed	2010	2022
				G09R-02-BAC	Recreation	5A	Escherichia coli	Unknown	2008	2020
15 & 16	New Kent	James	Diascund Creek	G09R-02-DO	Aquatic Life	5C	Dissolved Oxygen	Natural Conditions - Water Quality Standards Use Attainability Analyses Needed	2008	2020
18 & 19	New Kent	James	Beaverdam Creek	G09R-01-DO	Aquatic Life	5C	Dissolved Oxygen	Natural Conditions - Water Quality Standards Use Attainability Analyses Needed	2002	2014
				F26E-01-PCB	Fish Consumption	5A	PCB in Fish Tissue	Unknown	2006	2018
				F26E-03-BAC	Recreation	4A	Enterococcus	Unknown	2002	2010
				F26E-16-SF	Shellfishing	4A	Fecal Coliform	Unknown	1998	2010
28 & 29	York	York	Queen Creek	YRKMH-DO-BAY	Aquatic Life; Open- Water Aquatic Life	5A	Dissolved Oxygen	Sources Outside State Jurisdiction or Borders; Internal Nutrient Recycling; Municipal Point Source Discharges; Atmospheric Deposition - Nitrogen; Agriculture; Loss of Riparian Habitat; Wet Weather Discharges (Non-Point Source; Point Source & Combination of Stormwater, SSO or CSO); Industrial Point Source Discharge	1998	2010
					YRKMH-SAV-BAY	Aquatic Life; Shallow- Water SAV	5A	Aquatic Plants (Macrophytes)	Loss of Riparian Habitat; Atmospheric Deposition - Nitrogen; Internal Nutrient Recycling; Industrial Point Source Discharge; Agriculture; Sediment Resuspension (Clean Sediment); Wet Weather Discharges (Non-Point Source; Point Source & Combination of Stormwater, SSO or CSO); Clean Sediments; Municipal Point Source Discharges; Sources Outside State Jurisdiction or Borders	2006
				G11L-01-CU	Aquatic Life	5A	Copper	Unknown	2004	2016
			Lee Hall Reservoir (Newport News Reservoir)	G11L-01-C0	Wildlife	5A	Copper	Unknown	2004	2016
34 & 35	1 & 35 Newport News James			G11L-01-DO	Aquatic Life	5A	Dissolved Oxygen	Unknown	2006	2018
				G11L-01-HG	Fish Consumption	5A	Mercury in Fish Tissue	Unknown	2010	2022
				G11L-01-PCB	Fish Consumption	5A	PCB in Fish Tissue	Unknown	2010	2022
		Chesapeake Bay / on Atlantic / Small Coastal	lantic / Small Newmarket Creek -	MOBPH-DO-BAY	Aquatic Life; Open- Water Aquatic Life	5A	Dissolved Oxygen	Wet Weather Discharges (Non-Point Source; Point Source & Combination of Stormwater, SSO or CSO); Industrial Point Source Discharge; Sources Outside State Jurisdiction or Borders; Loss of Riparian Habitat; Municipal Point Source Discharges; Atmospheric Deposition - Nitrogen; Internal Nutrient Recycling; Agriculture	2004	2010
43				MOBPH-SAV-BAY	Aquatic Life; Shallow- Water SAV	5A	Aquatic Plants (Macrophytes)	Clean Sediments; Sources Outside State Jurisdiction or Borders; Sediment Resuspension (Clean Sediment); Internal Nutrient Recycling; Atmospheric Deposition - Nitrogen; Agriculture; Municipal Point Source Discharges; Wet Weather Discharges (Non-Point Source; Point Source & Combination of Stormwater, SSO or CSO); Industrial Point Source Discharge; Loss of Riparian Habitat	2006	2010
				C07E-01-PCB	Fish Consumption	5A	PCB in Fish Tissue	Unknown	2006	2018
				C07E-02-BAC	Recreation	4A	Enterococcus	Unknown	2006	2010
				C07E-22-SF	Shellfishing	4A	Fecal Coliform	Discharges from Municipal Separate Storm Sewer Systems (MS4); Unknown	1998	2010
	43 Hampton	Chesapeake Bay / Atlantic / Small Coastal		MOBPH-DO-BAY	Aquatic Life; Open- Water Aquatic Life	5A	Dissolved Oxygen	Wet Weather Discharges (Non-Point Source; Point Source & Combination of Stormwater, SSO or CSO); Industrial Point Source Discharge; Sources Outside State Jurisdiction or Borders; Loss of Riparian Habitat; Municipal Point Source Discharges; Atmospheric Deposition - Nitrogen; Internal Nutrient Recycling; Agriculture	2004	2010
43			Newmarket Creek - Upper	MOBPH-SAV-BAY	Aquatic Life; Shallow- Water SAV	5A	Aquatic Plants (Macrophytes)	Clean Sediments; Sources Outside State Jurisdiction or Borders; Sediment Resuspension (Clean Sediment); Internal Nutrient Recycling; Atmospheric Deposition - Nitrogen; Agriculture; Municipal Point Source Discharges; Wet Weather Discharges (Non-Point Source; Point Source & Combination of Stormwater, SSO or CSO); Industrial Point Source Discharge; Loss of Riparian Habitat	2006	2010
					Fish Consumption	5A	PCB in Fish Tissue	Unknown	2006	2018
				C07E-02-BAC	Recreation	4A	Enterococcus	Unknown	2006	2010
				C07E-22-SF	Shellfishing	4A	Fecal Coliform	Discharges from Municipal Separate Storm Sewer Systems (MS4); Unknown	1998	2010
				C07E-01-PCB	Fish Consumption	5A	PCB in Fish Tissue	Unknown	2006	2018

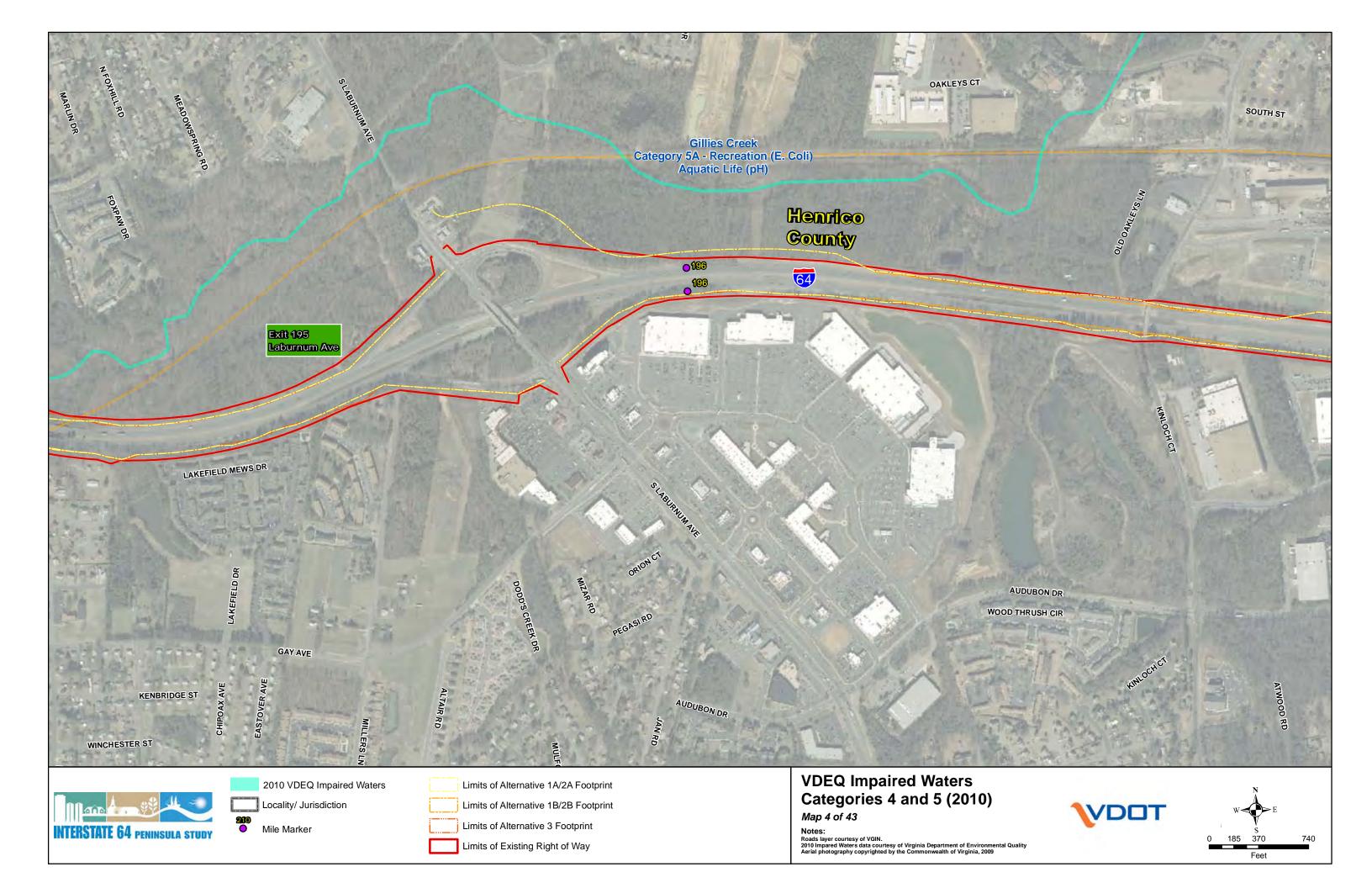


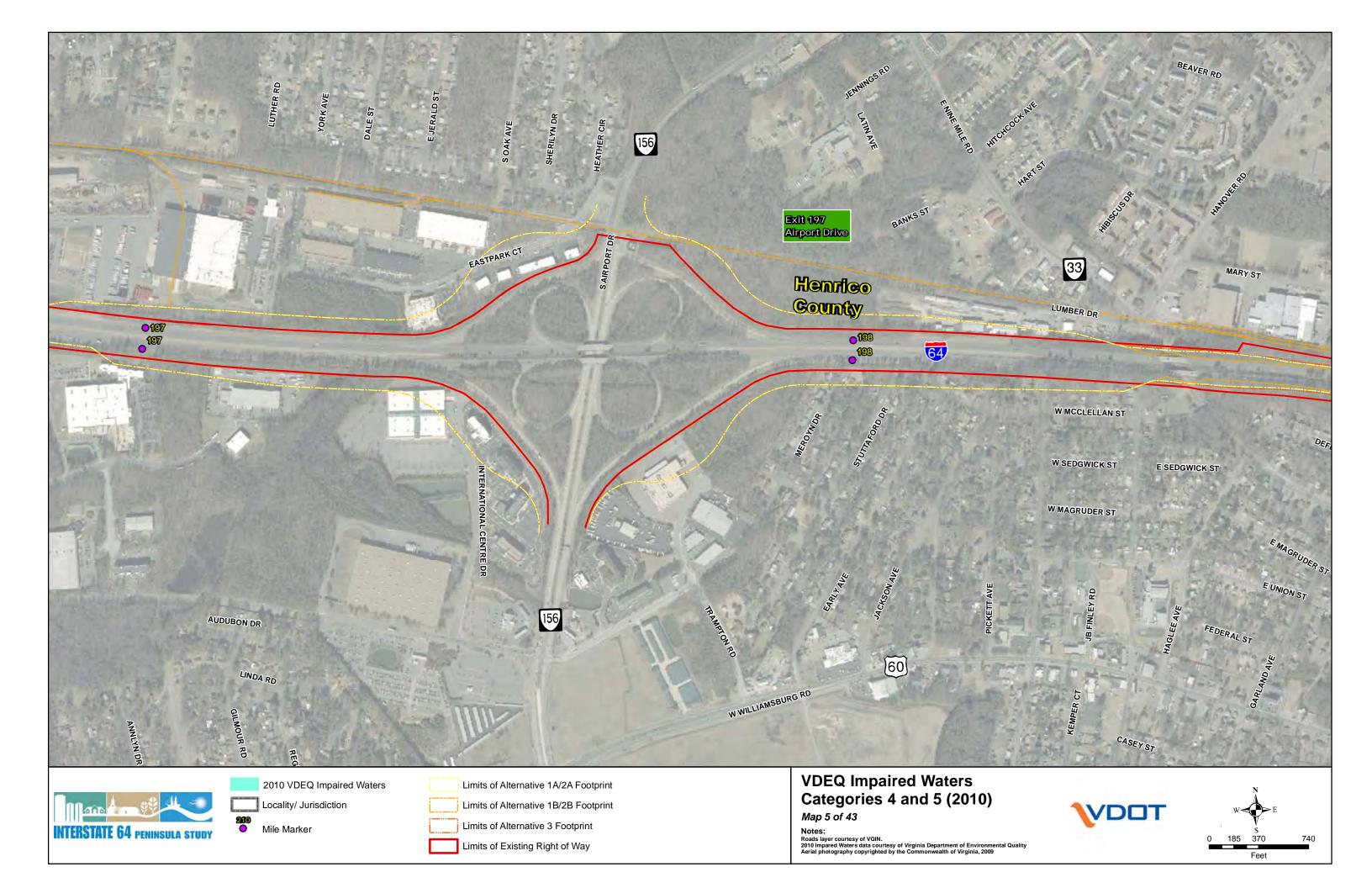
VDEQ 2010 Impared Waters (Categories 4 and 5) Mapping

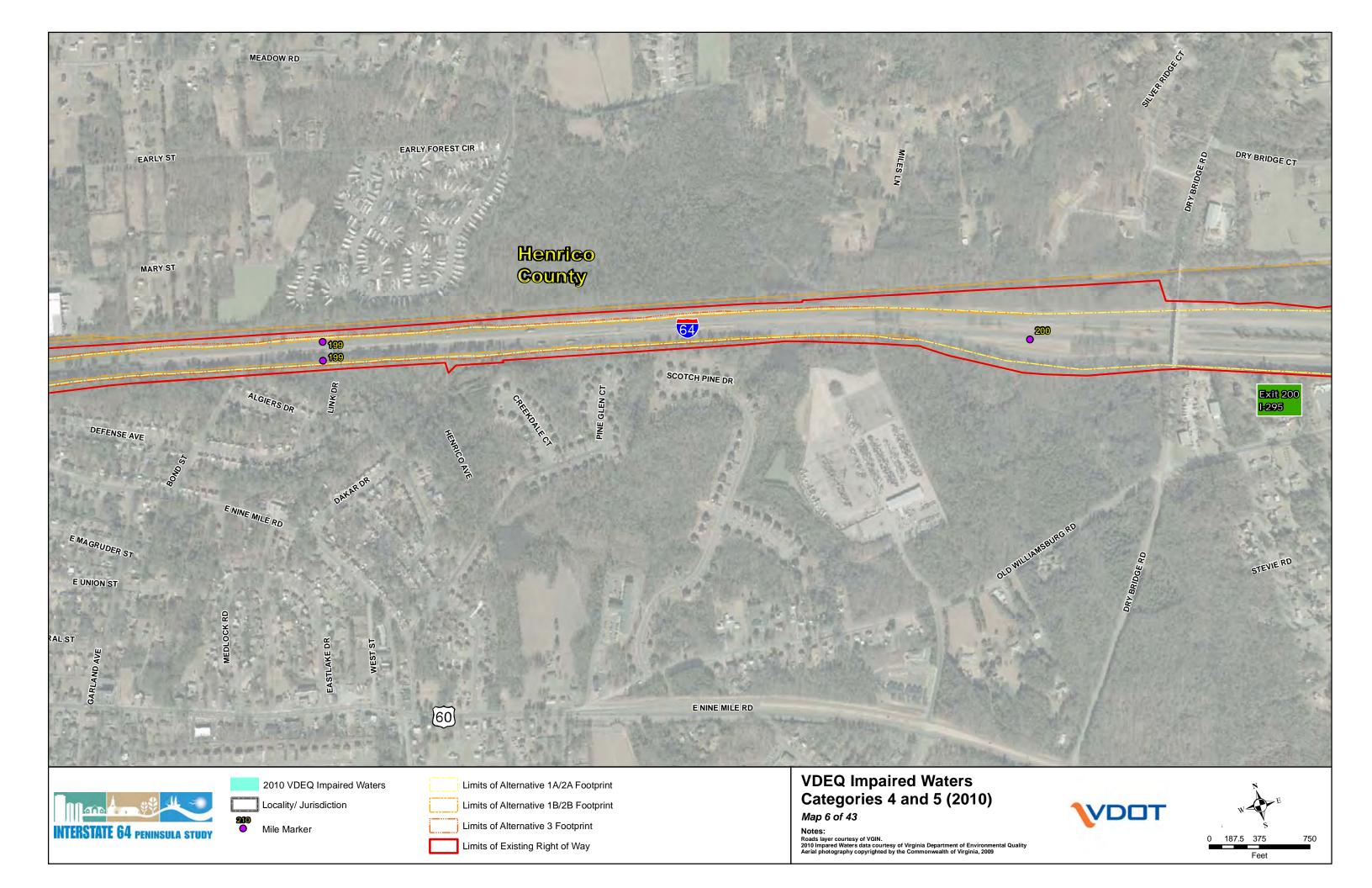


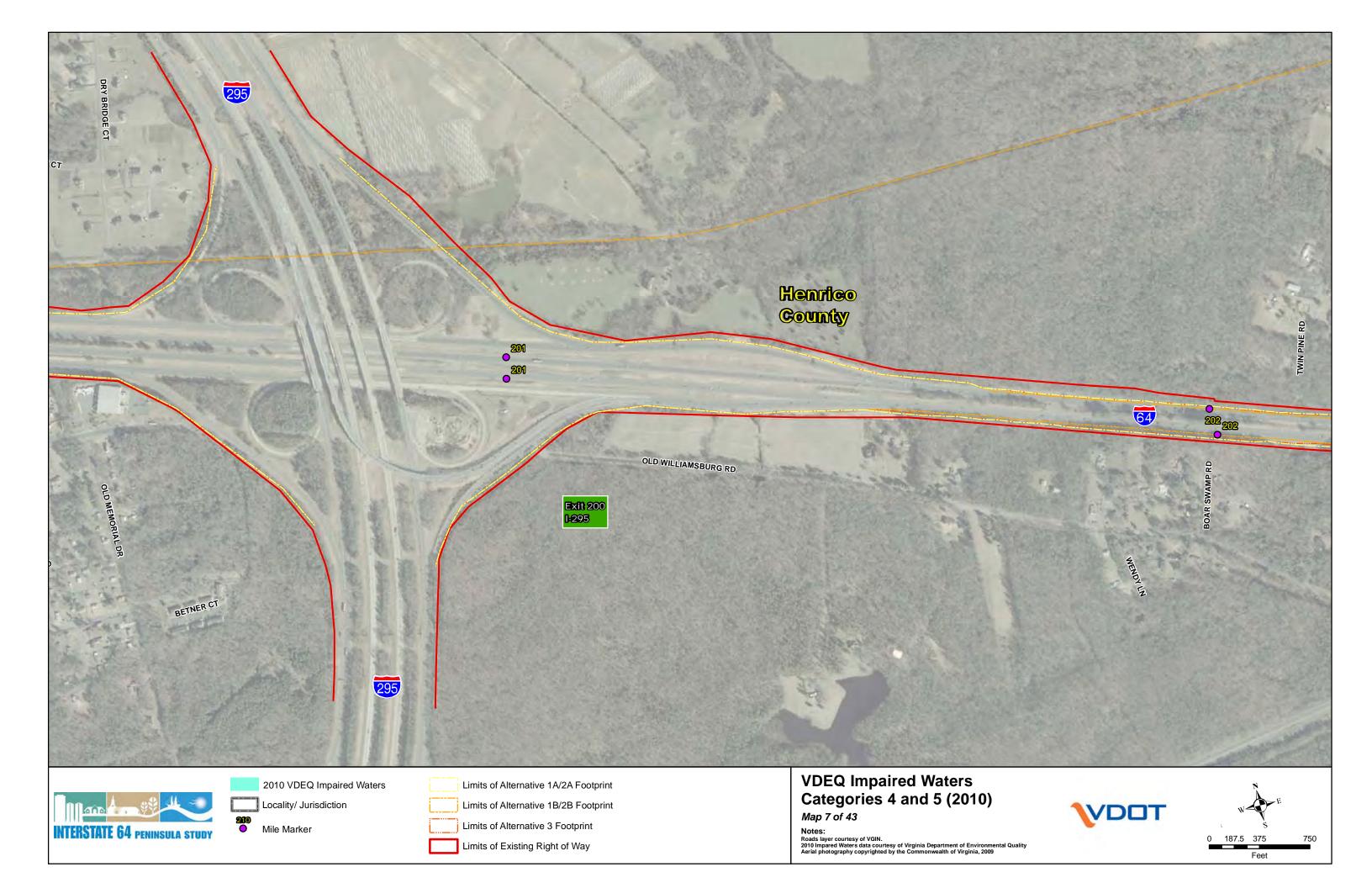


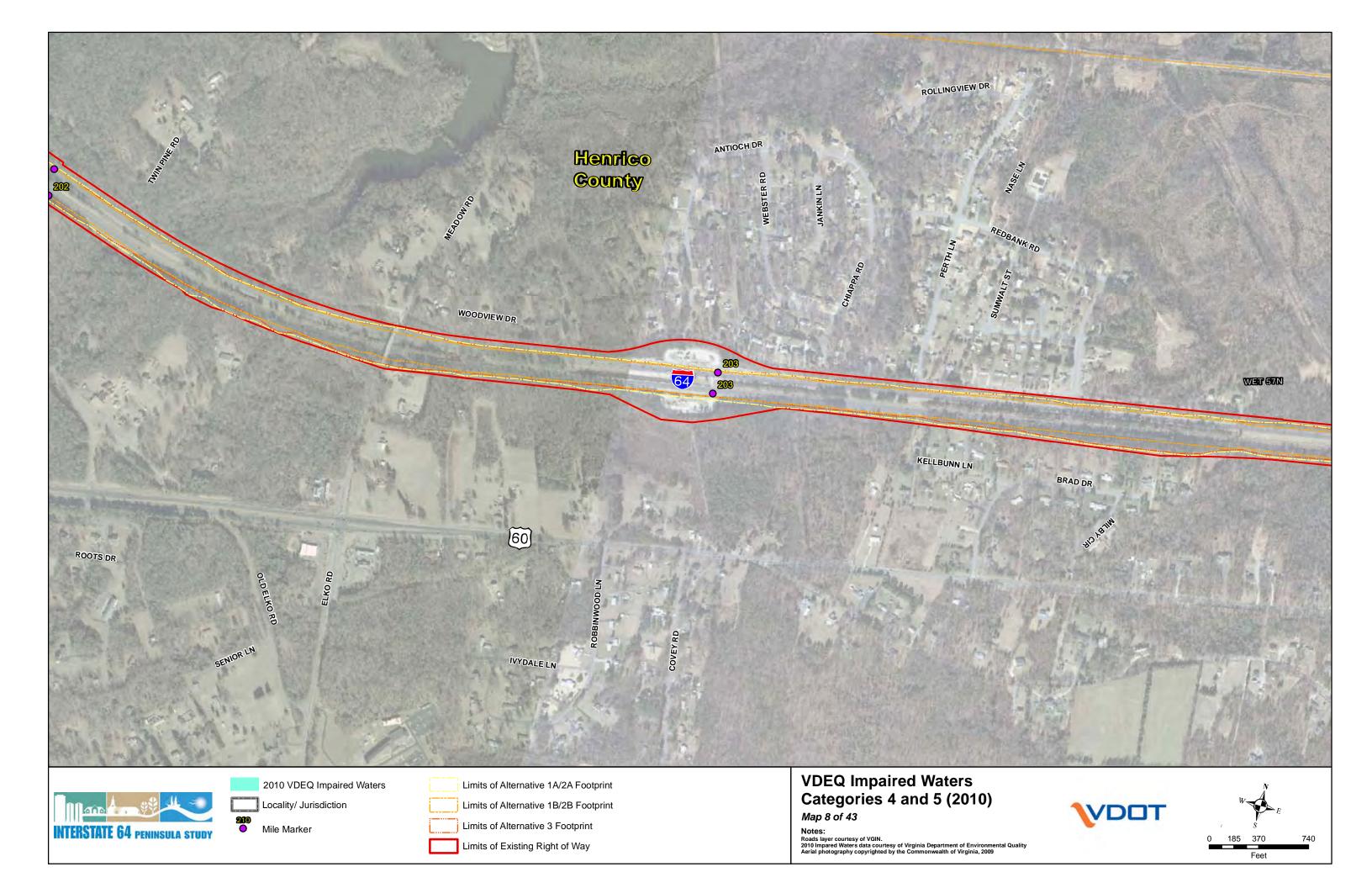


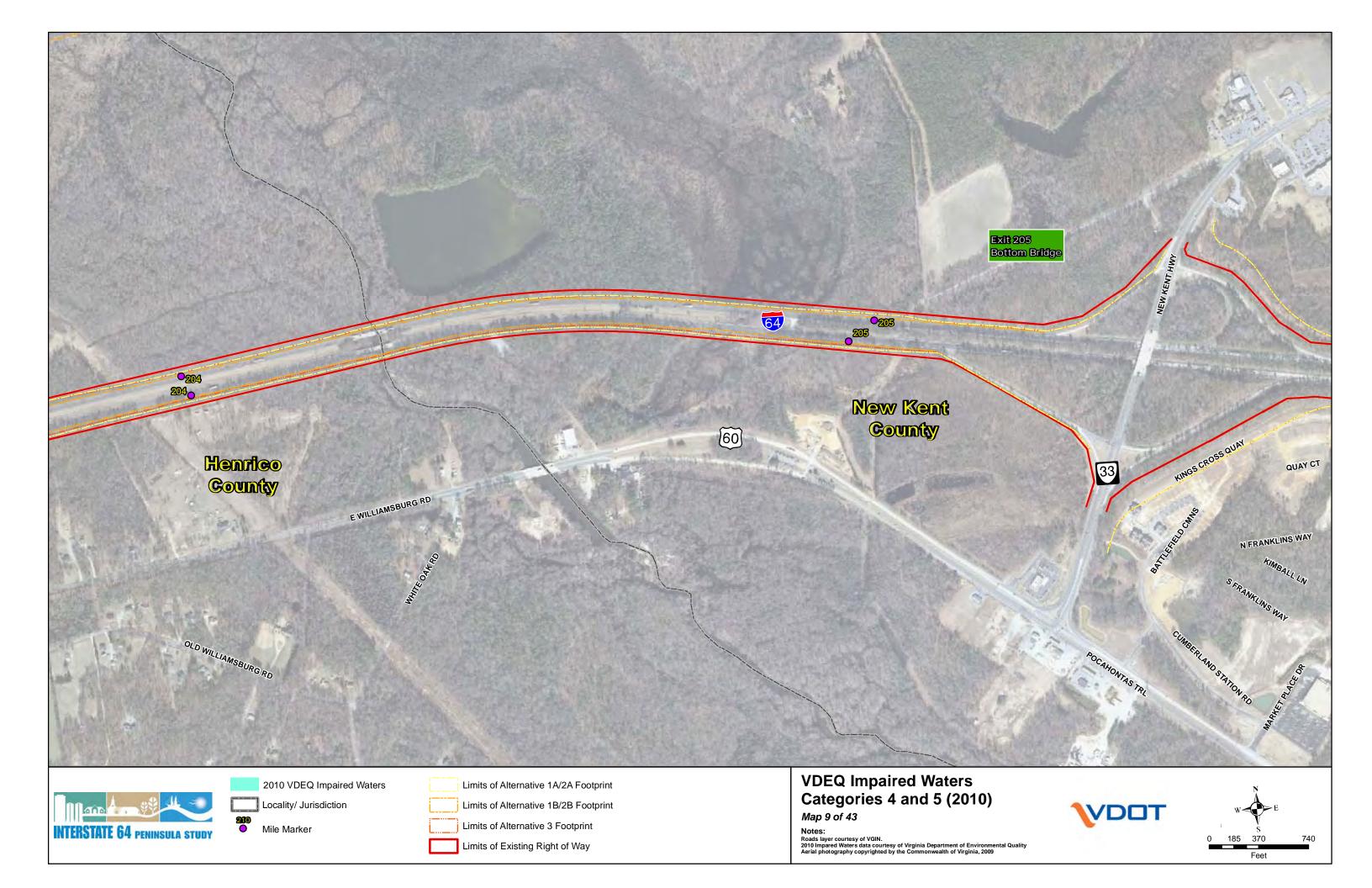


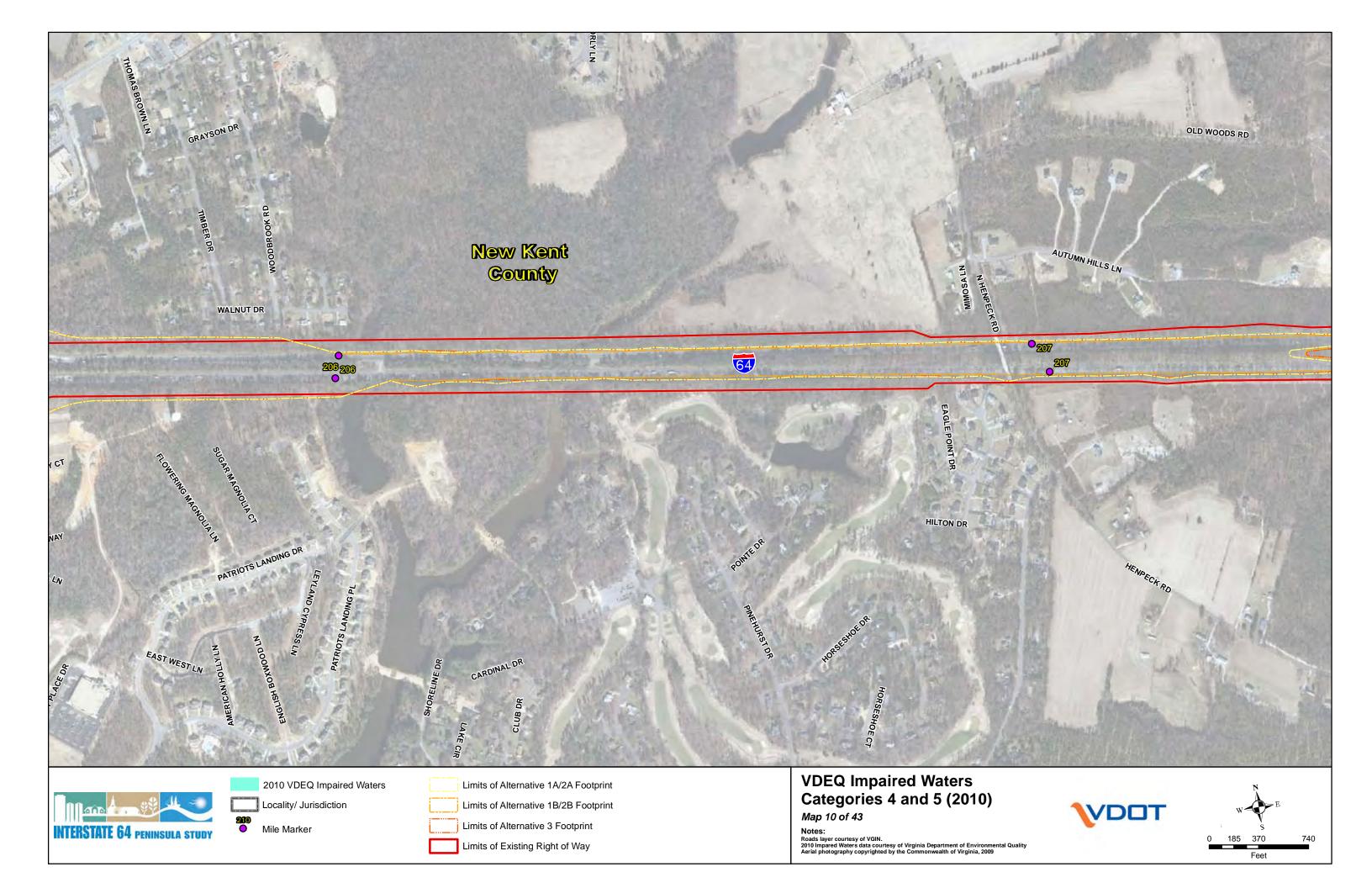


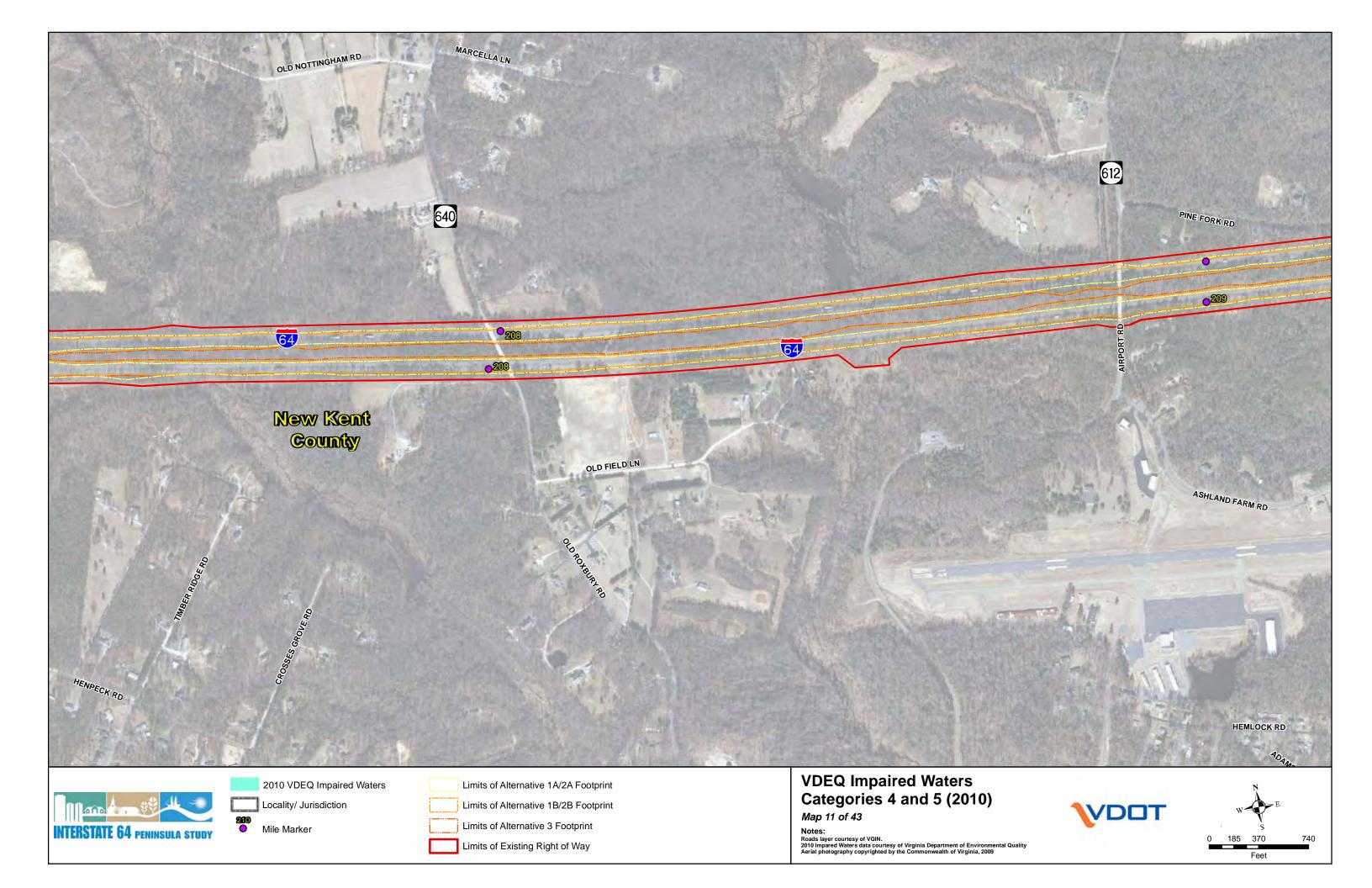


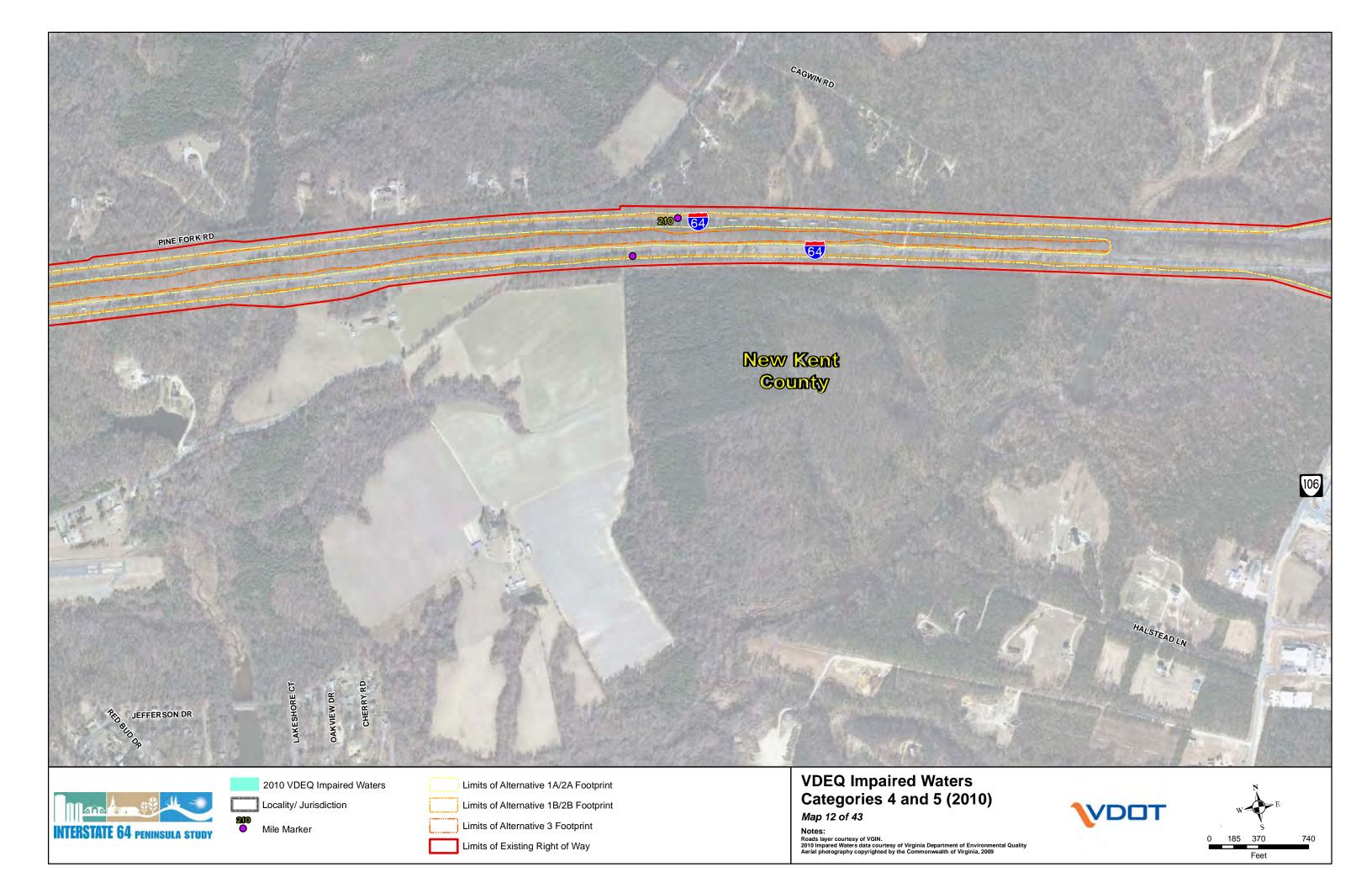


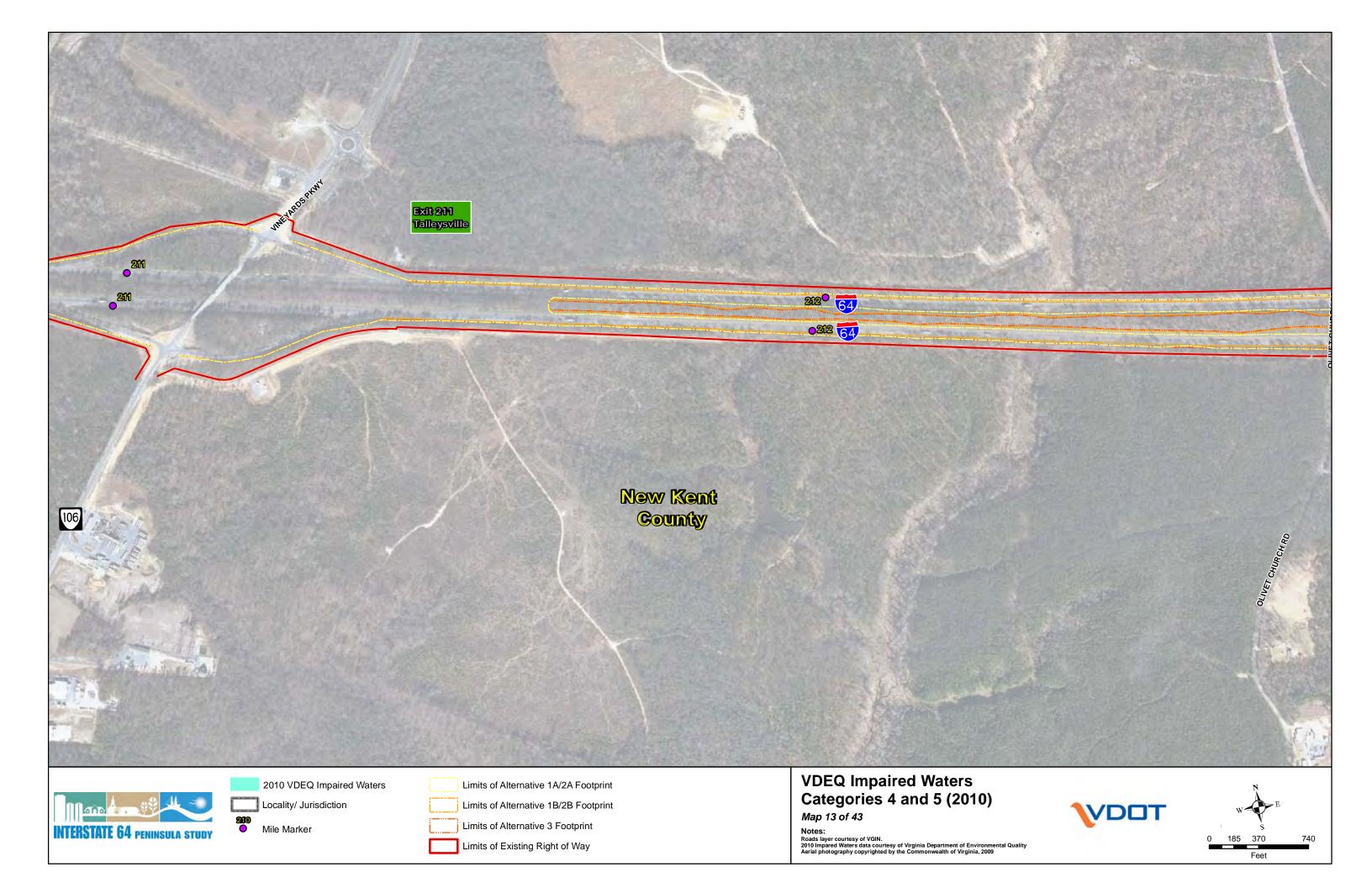


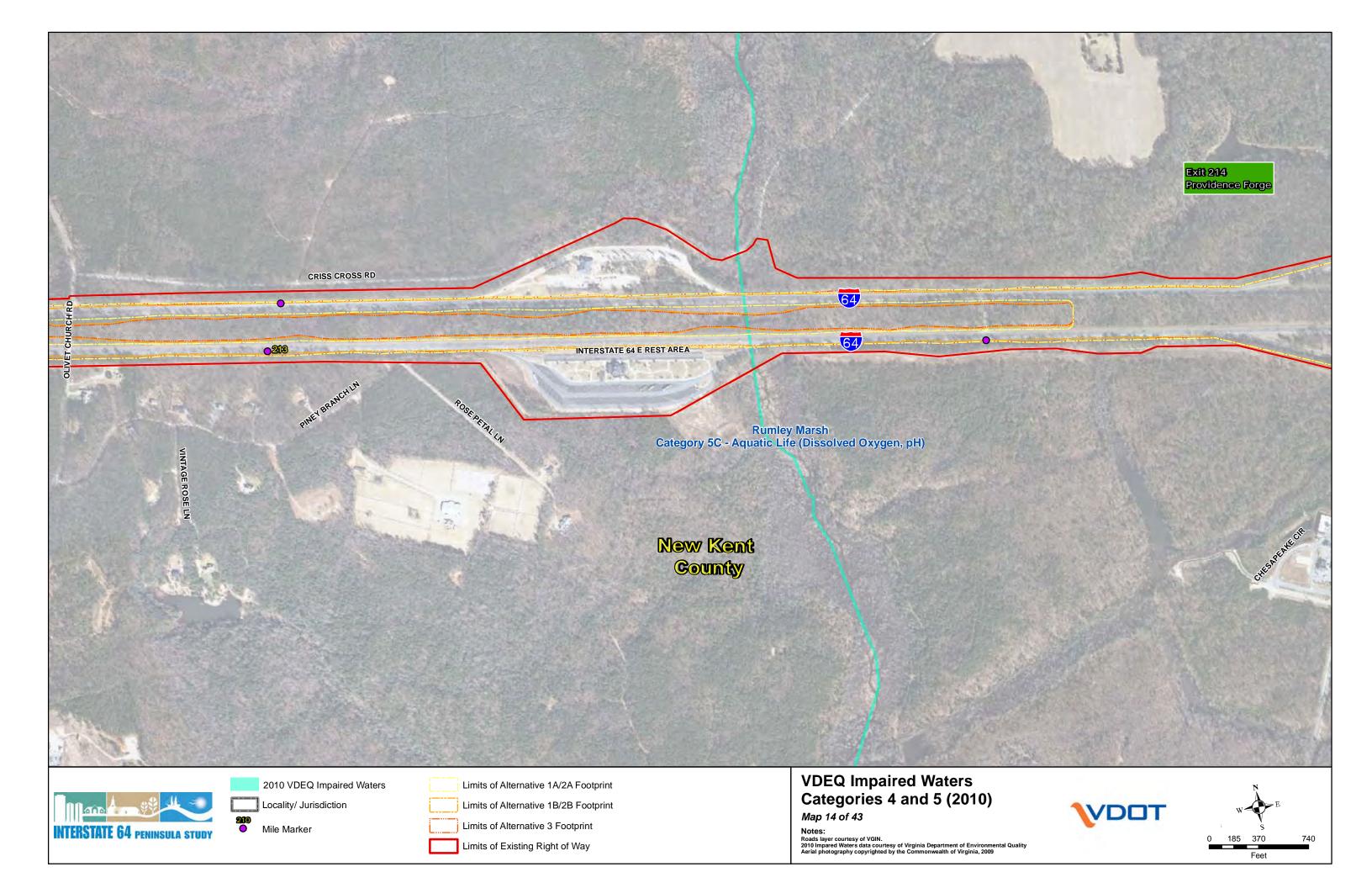


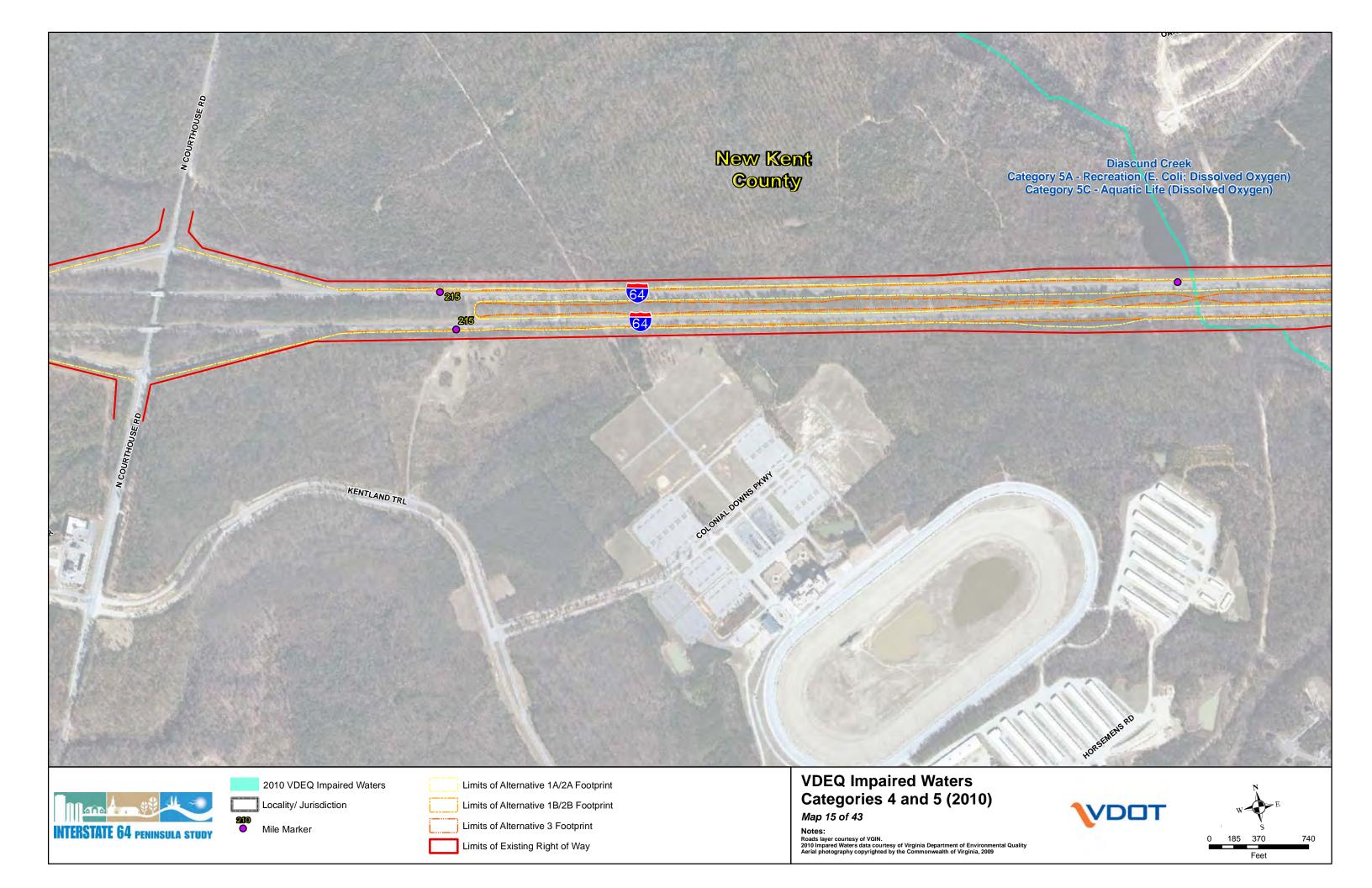


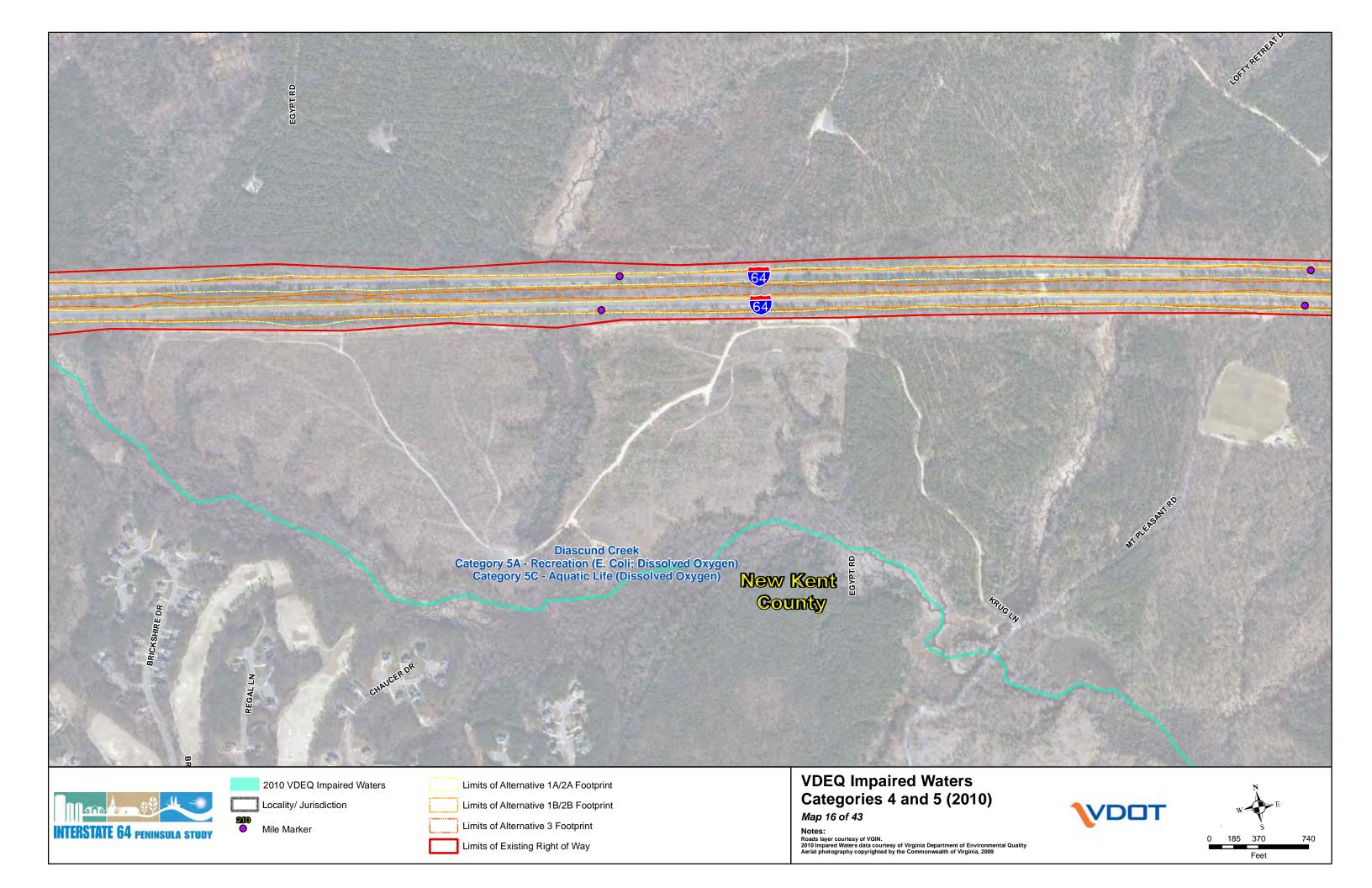


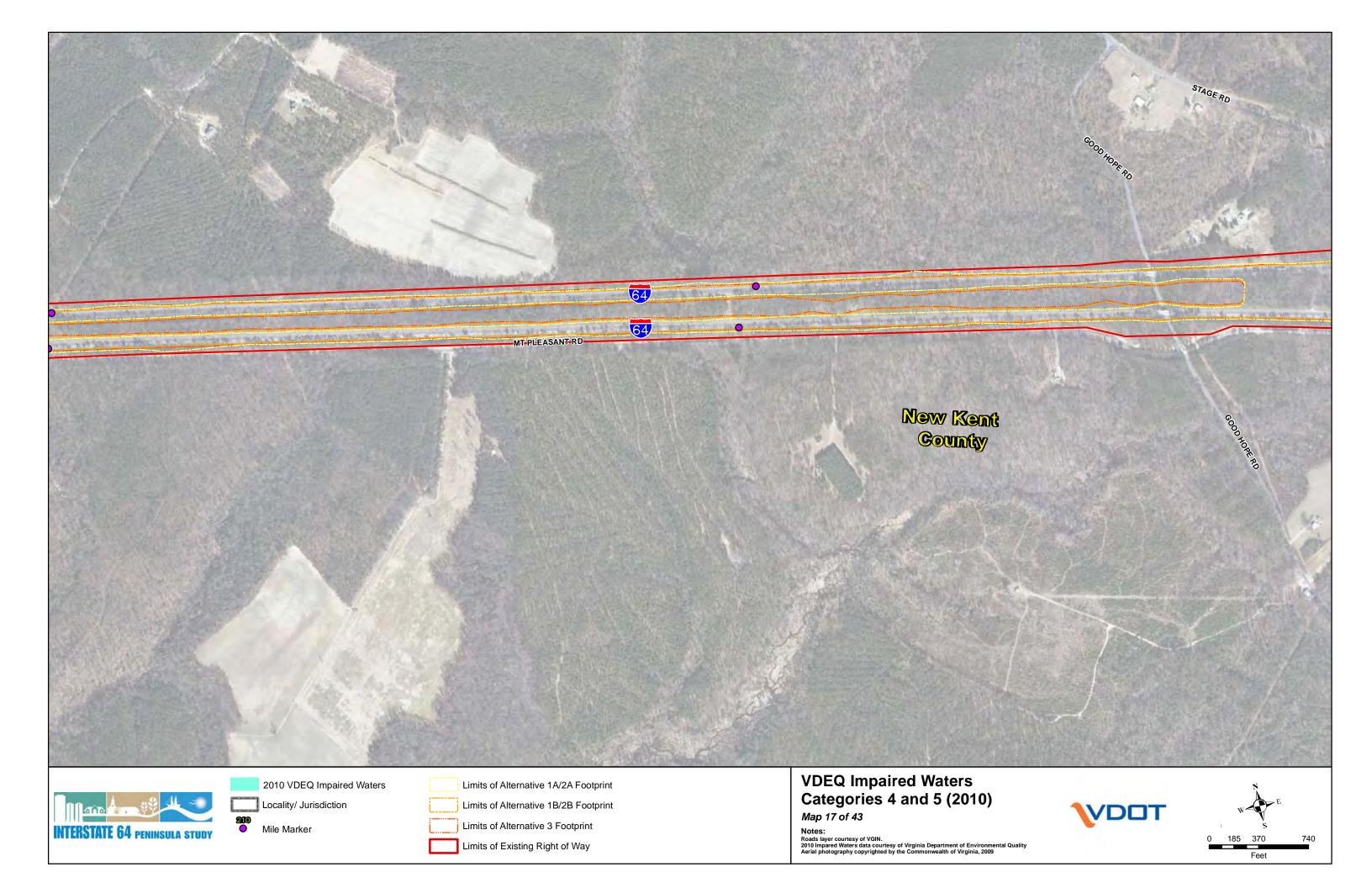


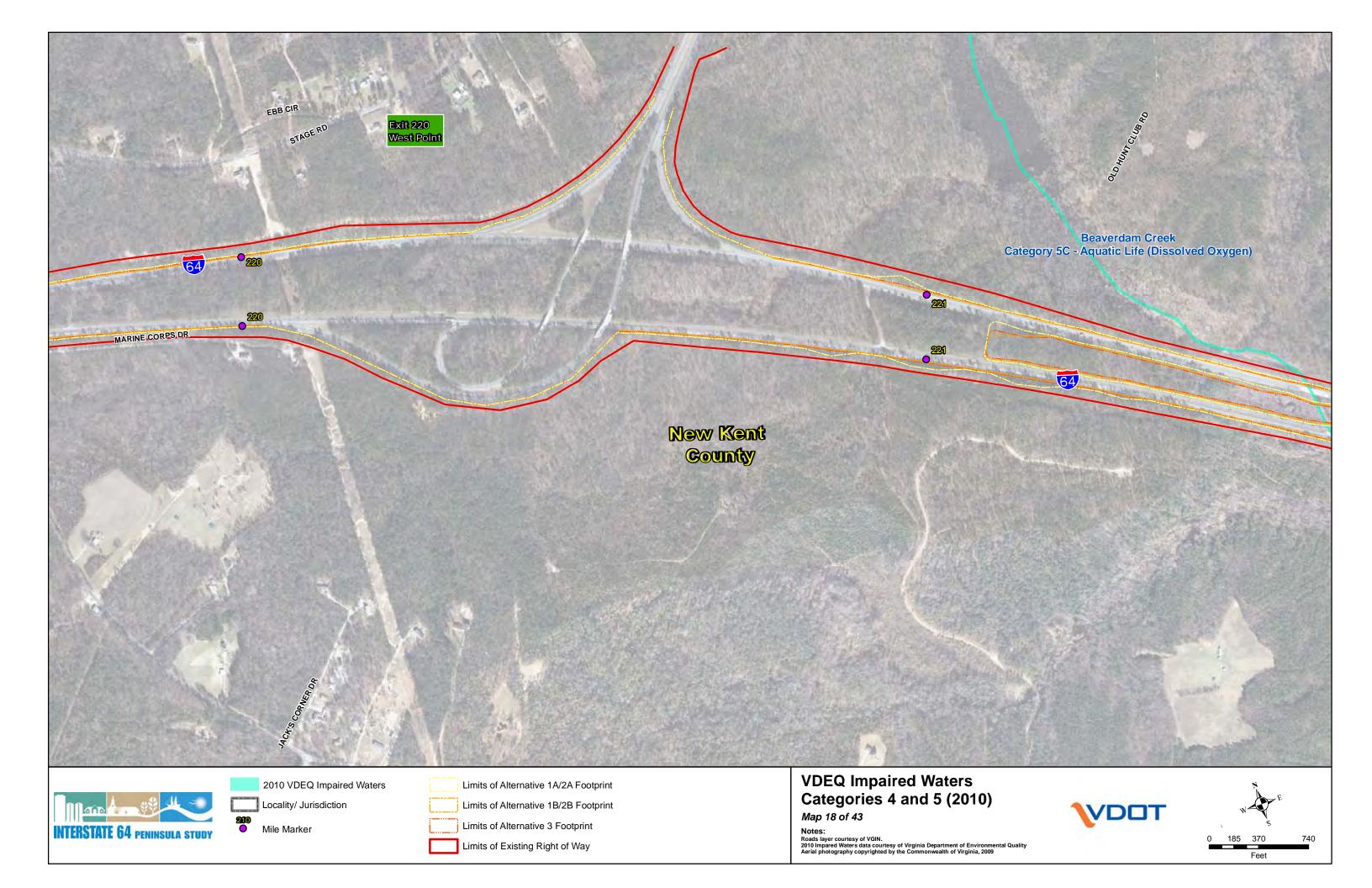


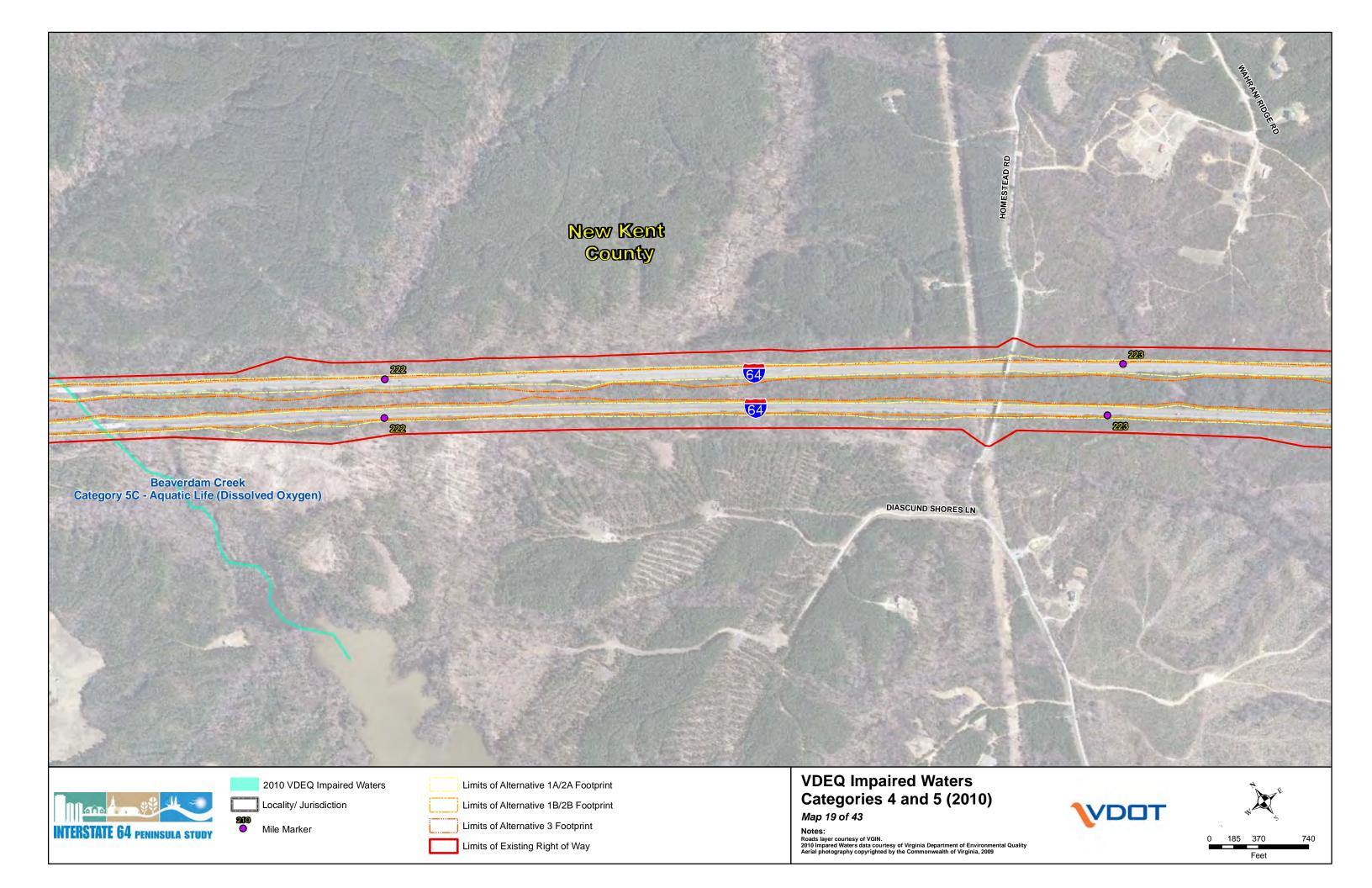


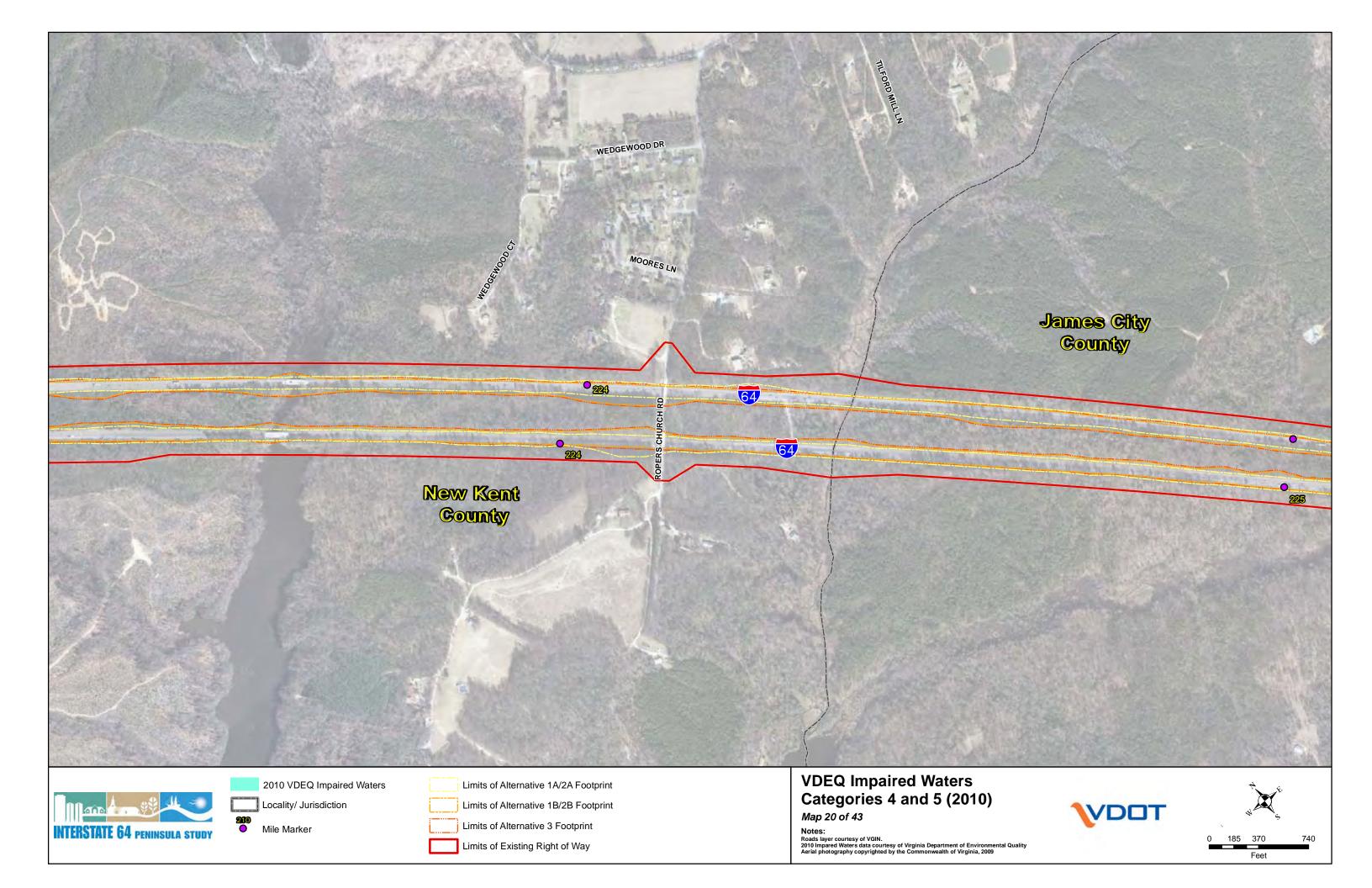


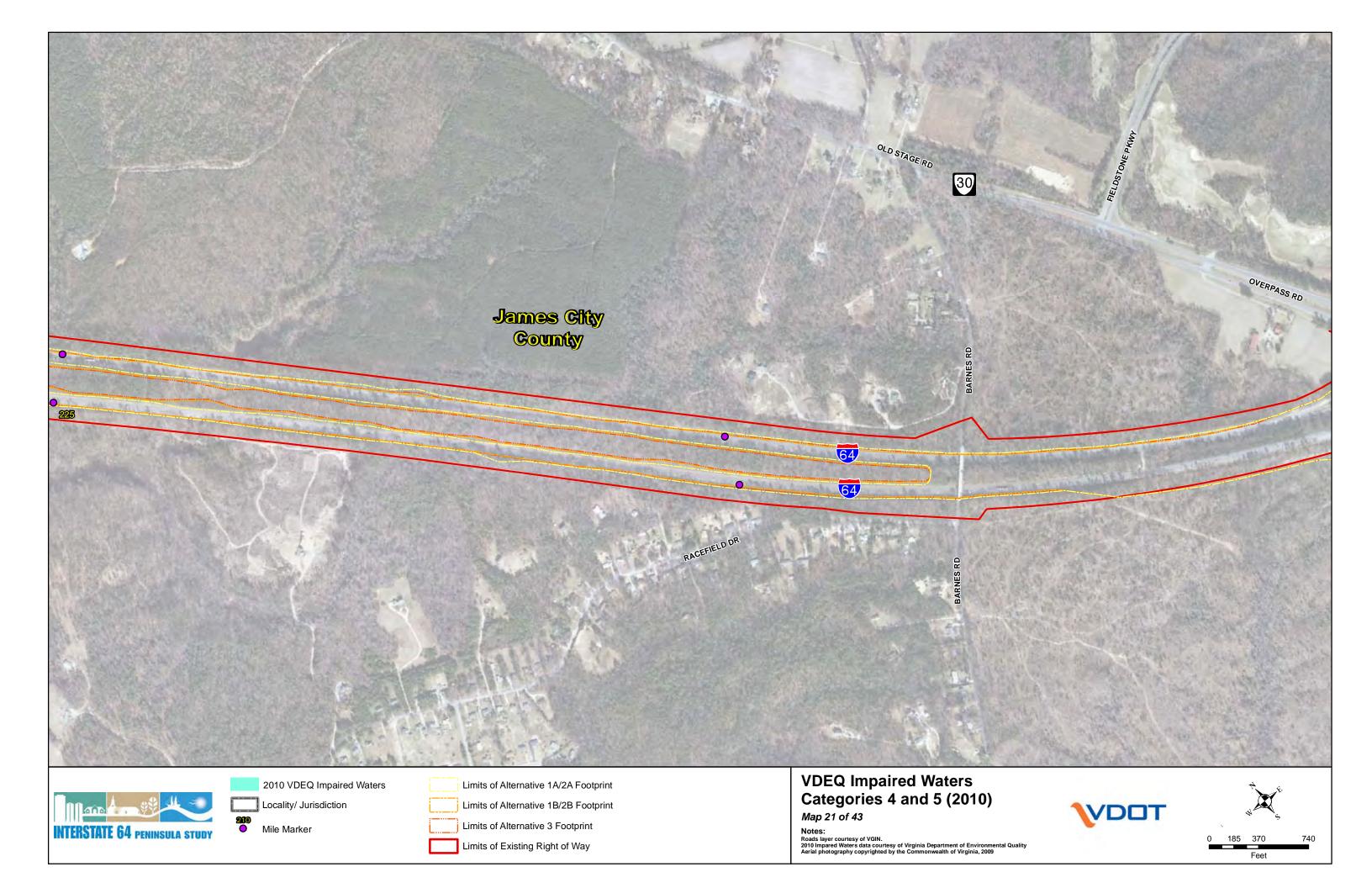


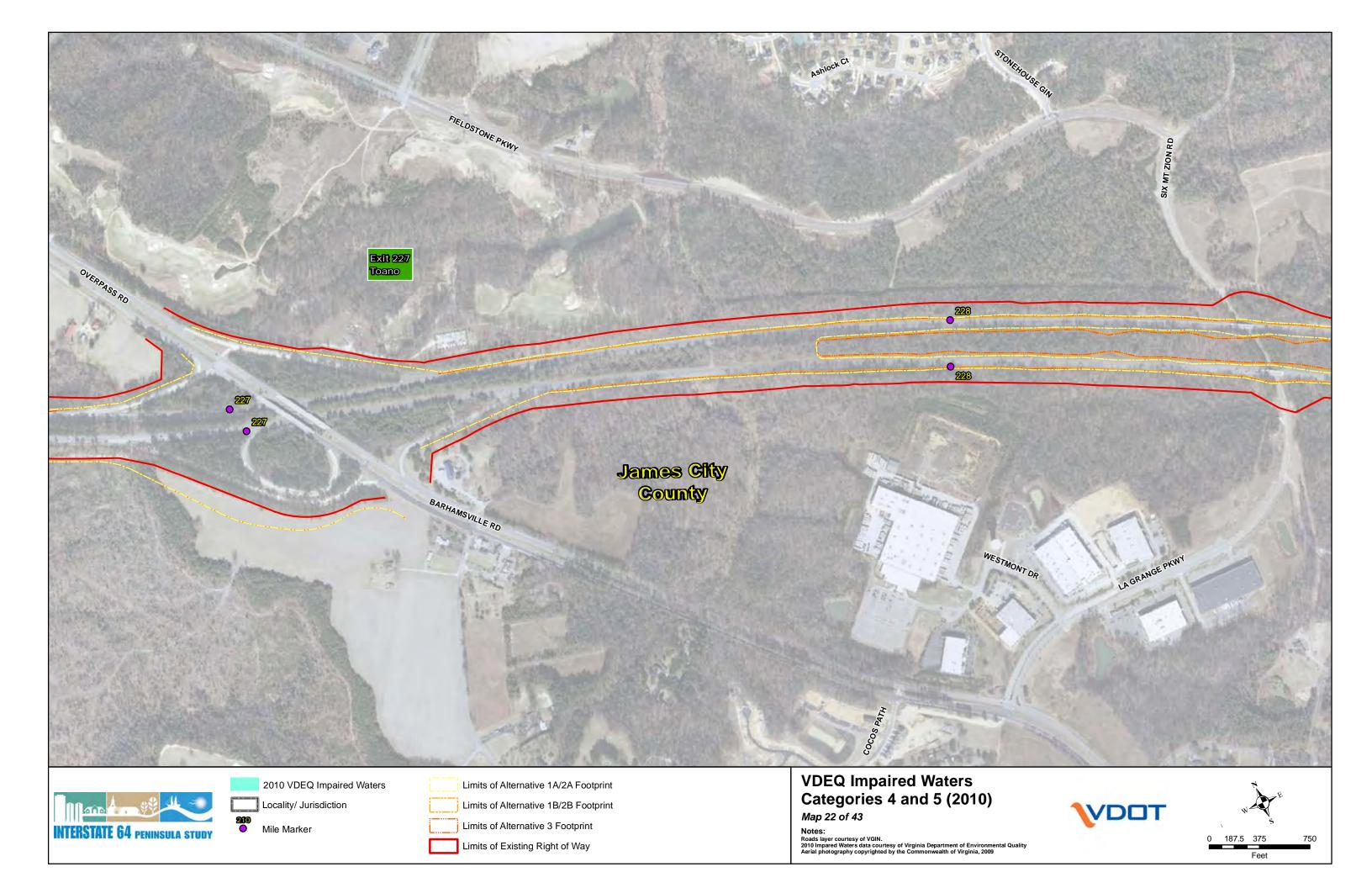


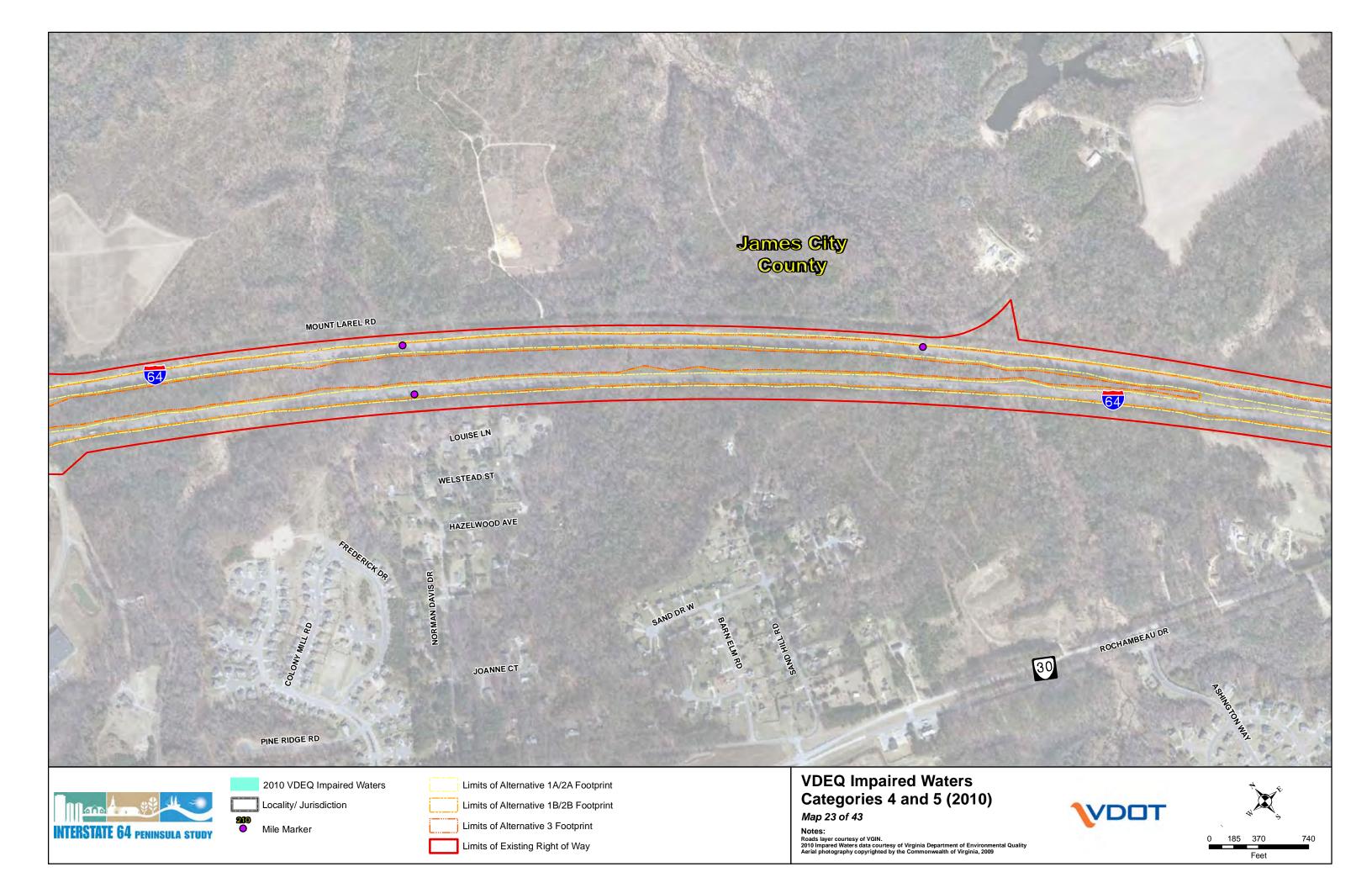


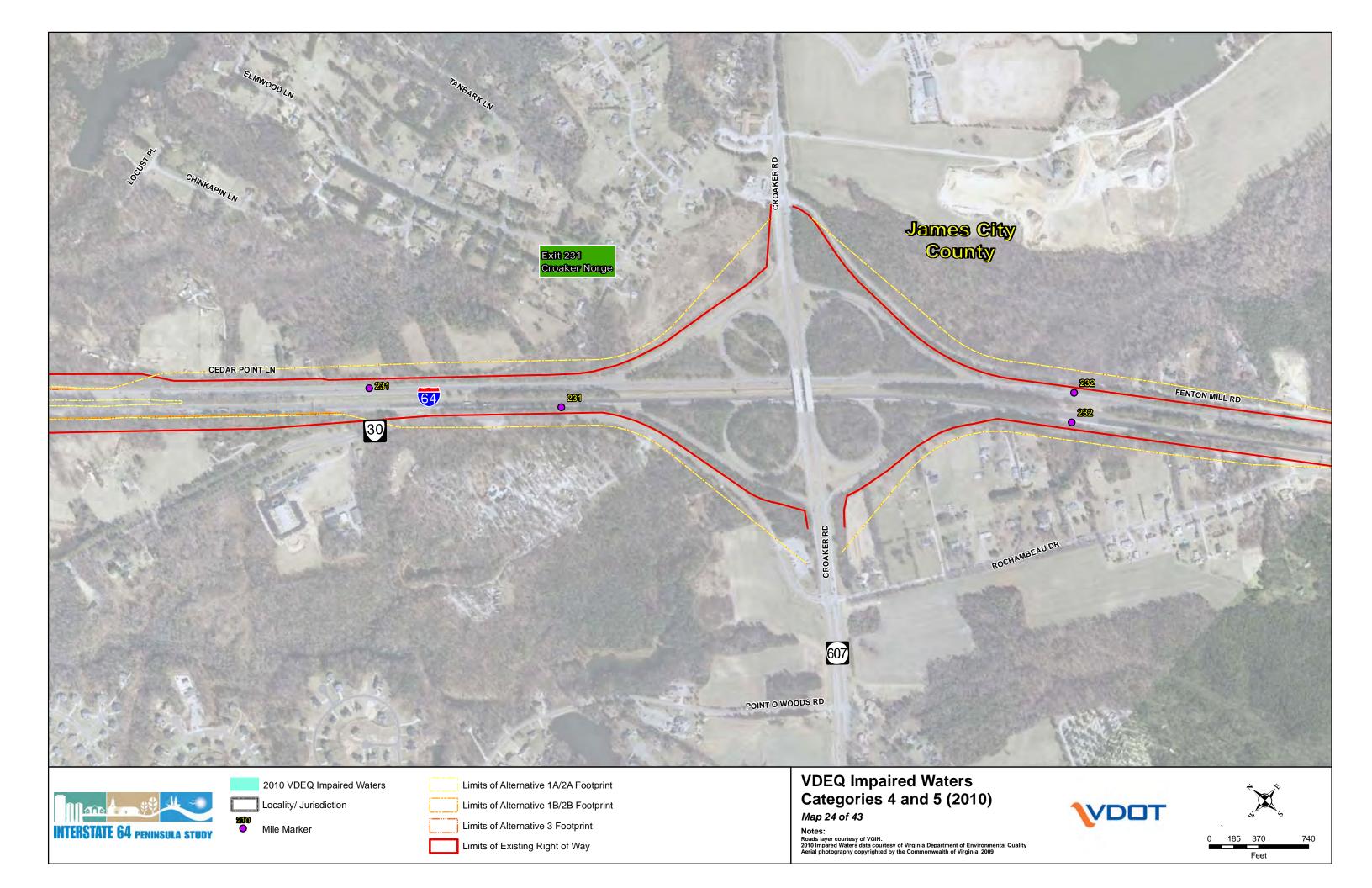


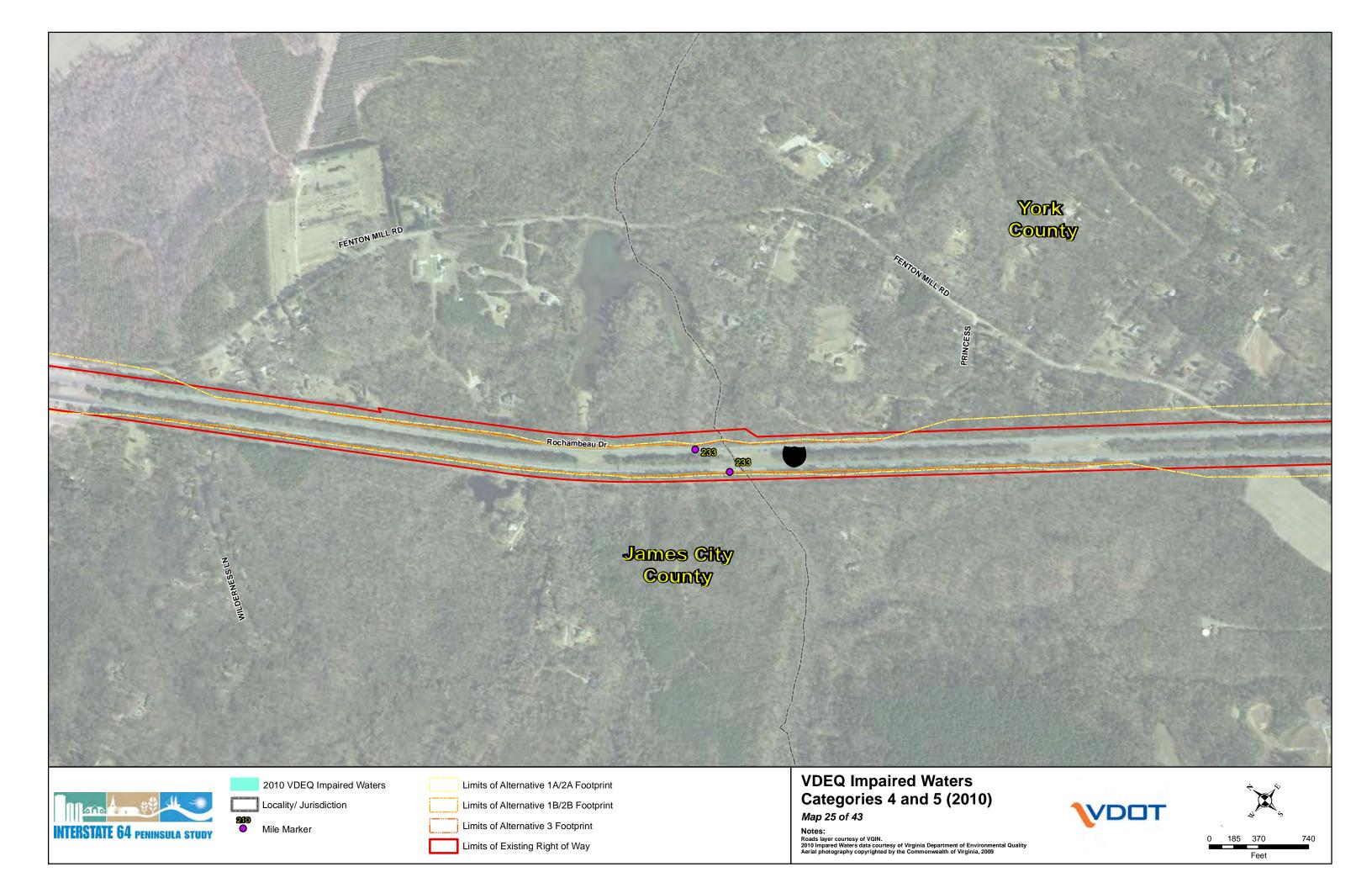


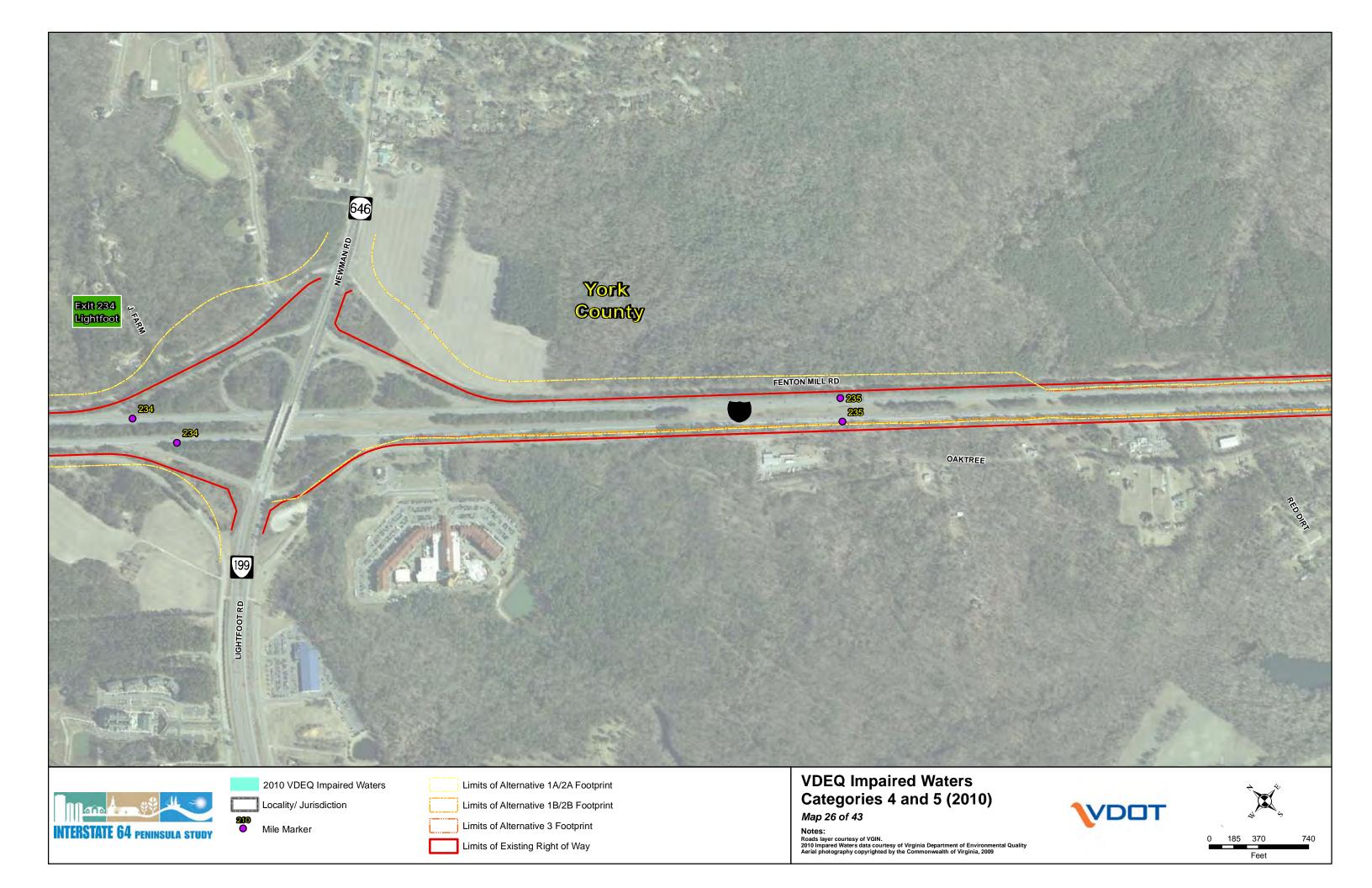


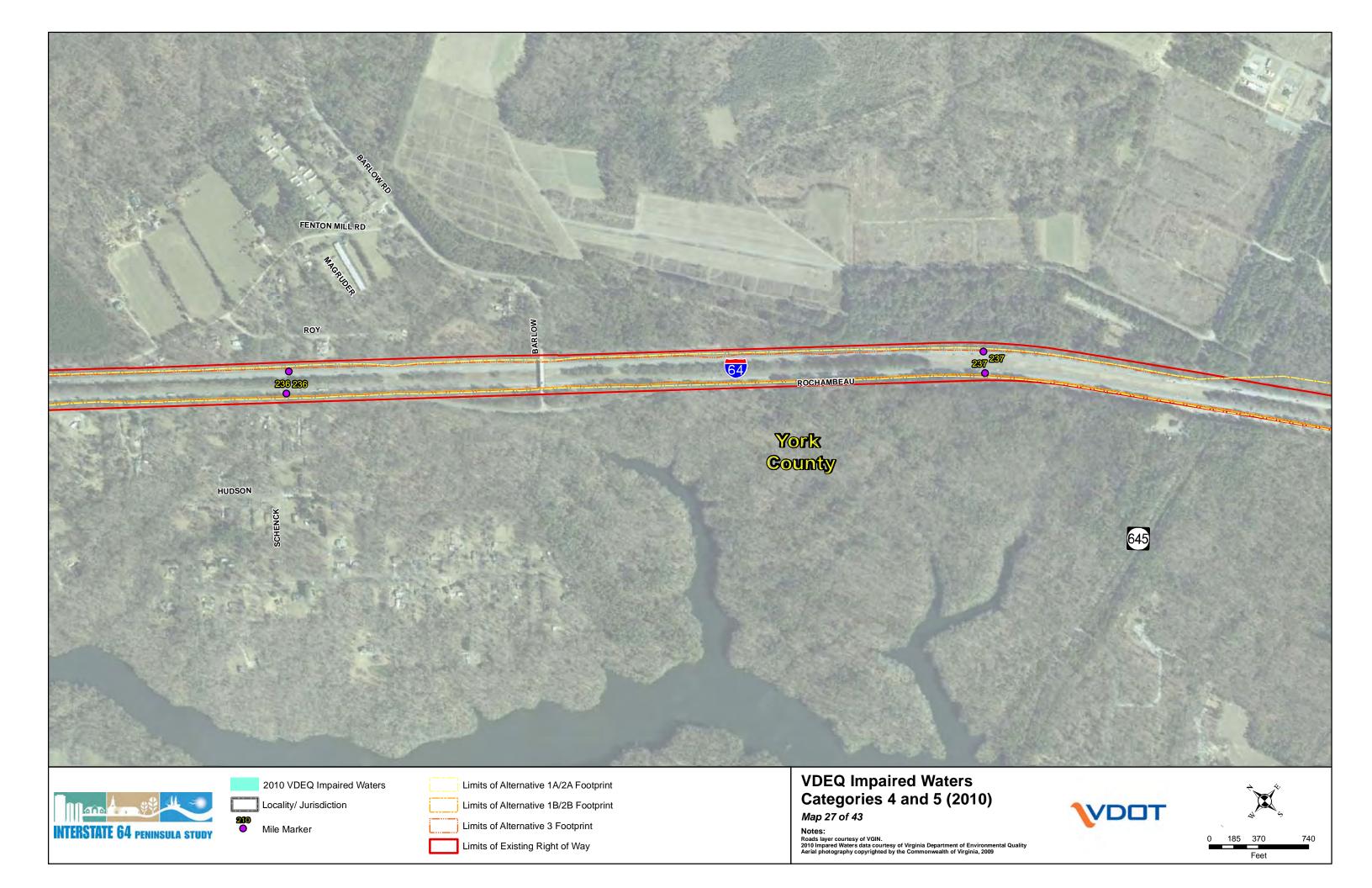


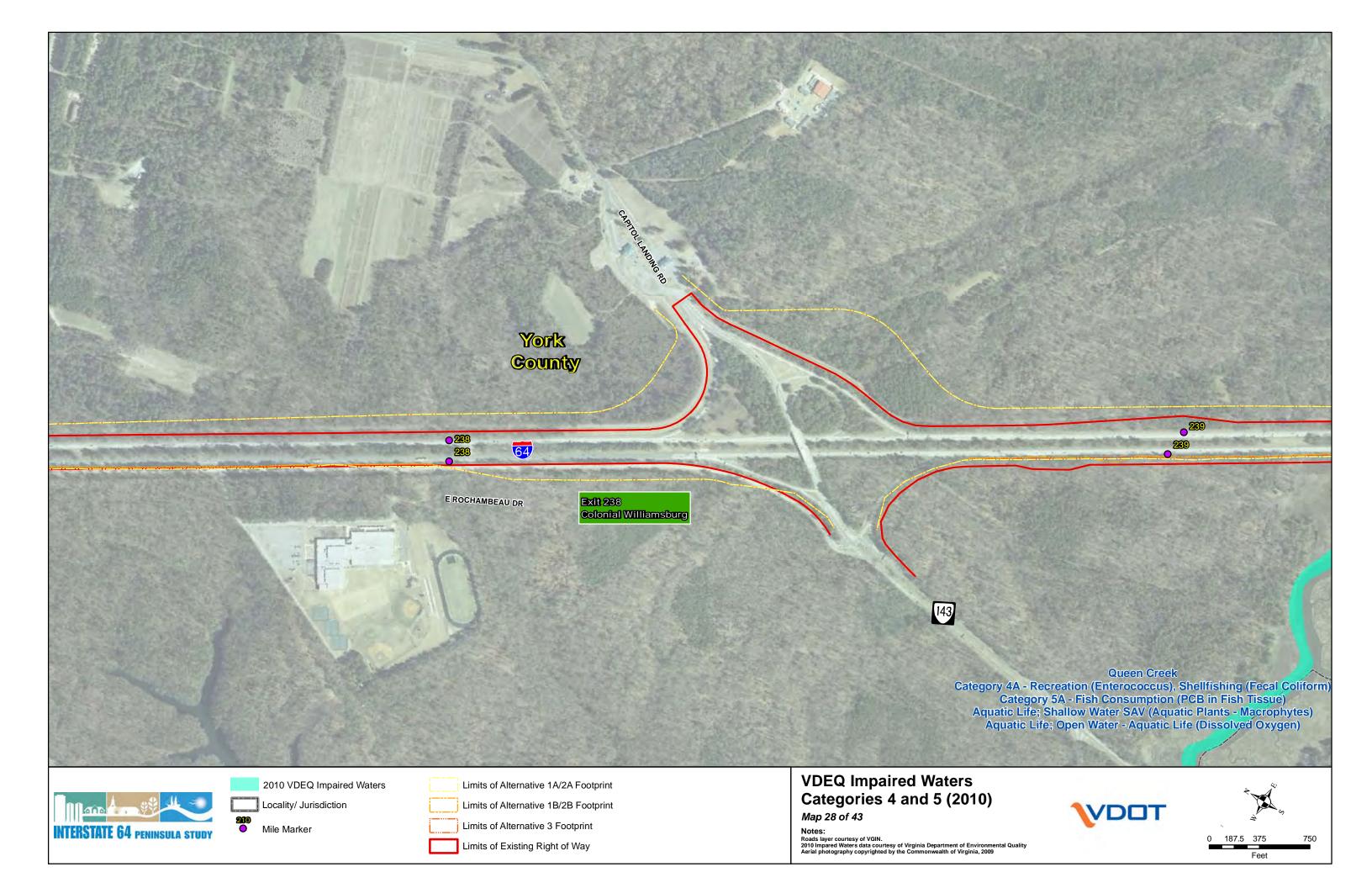


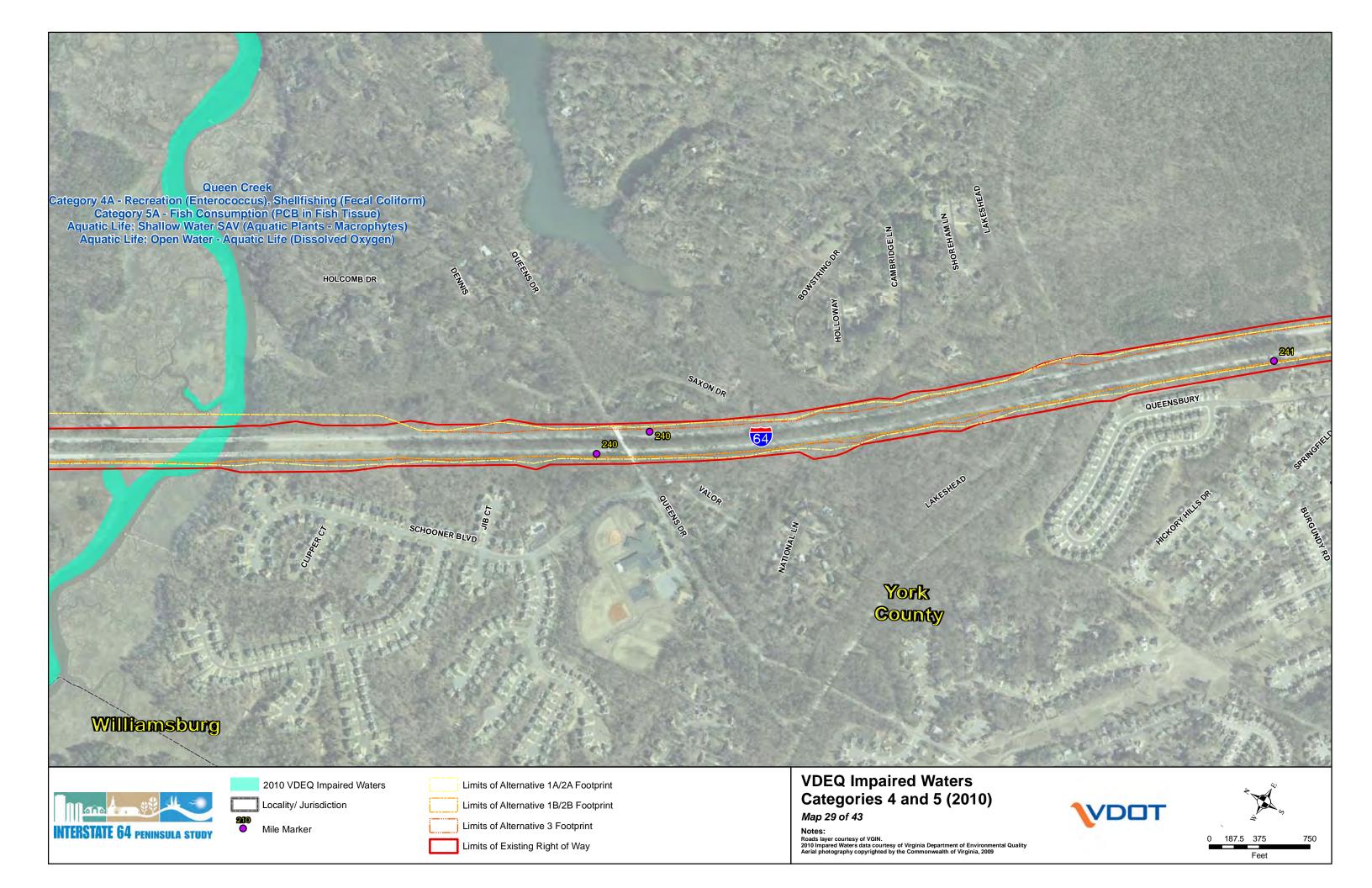


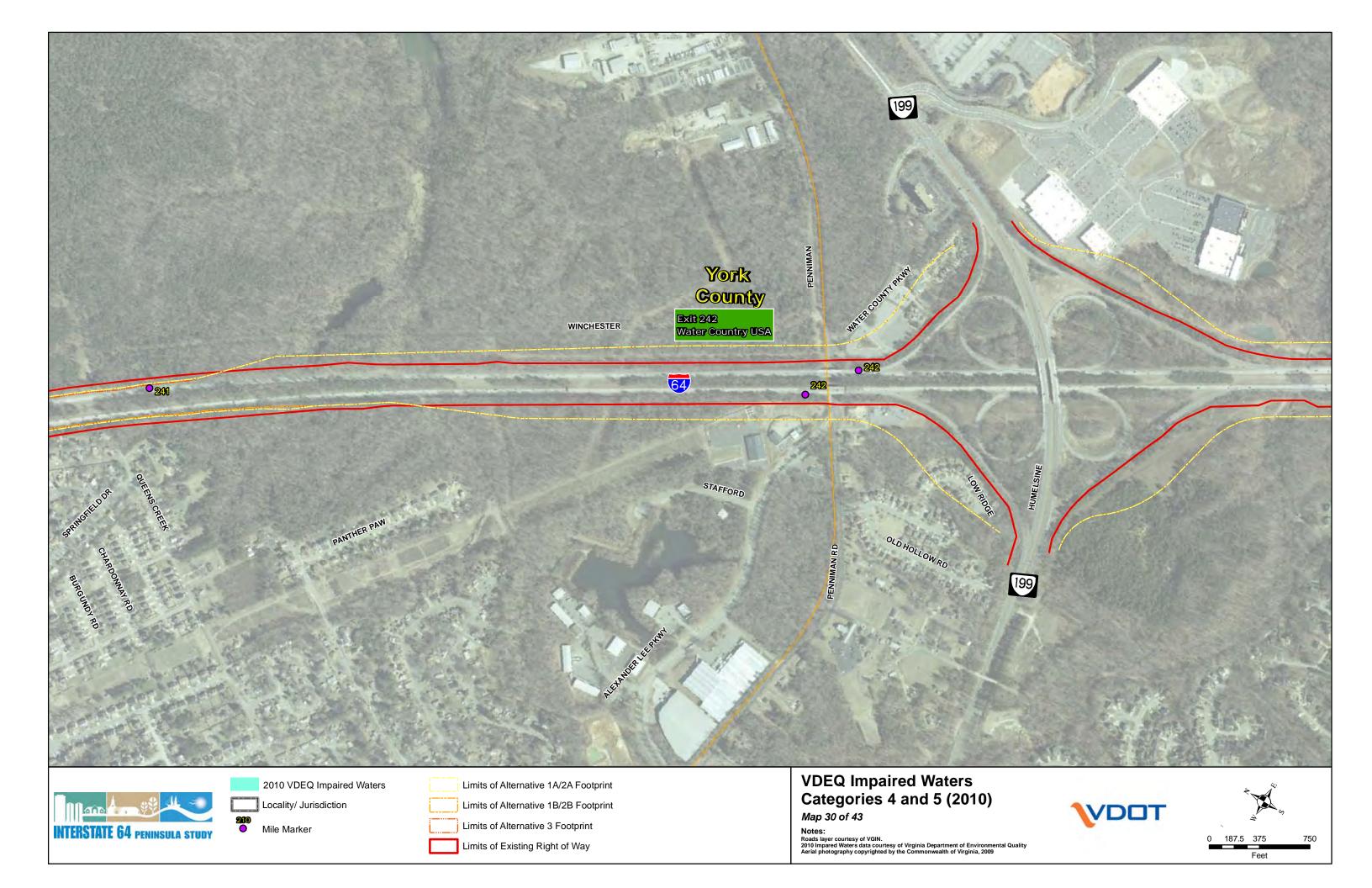


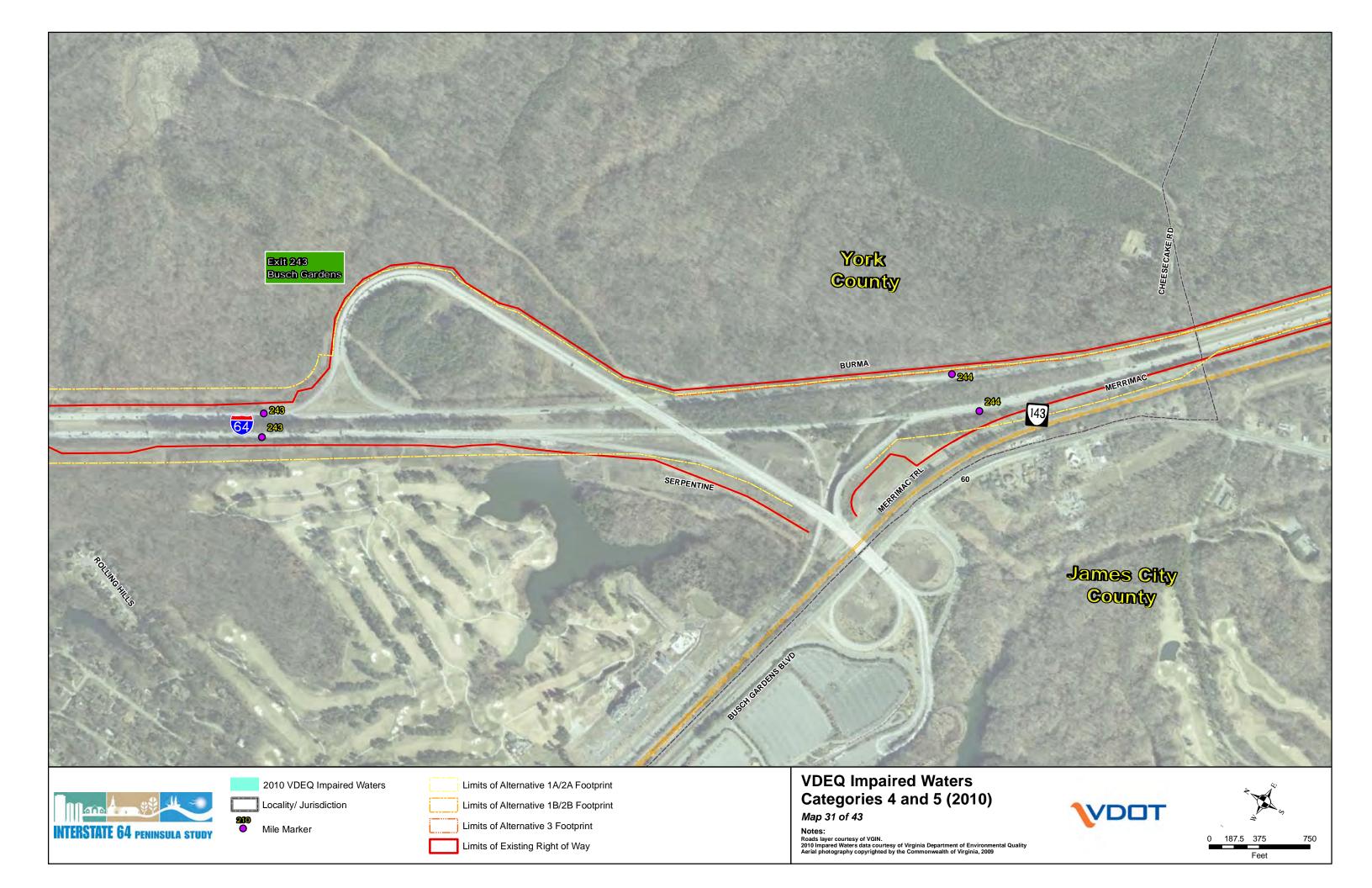


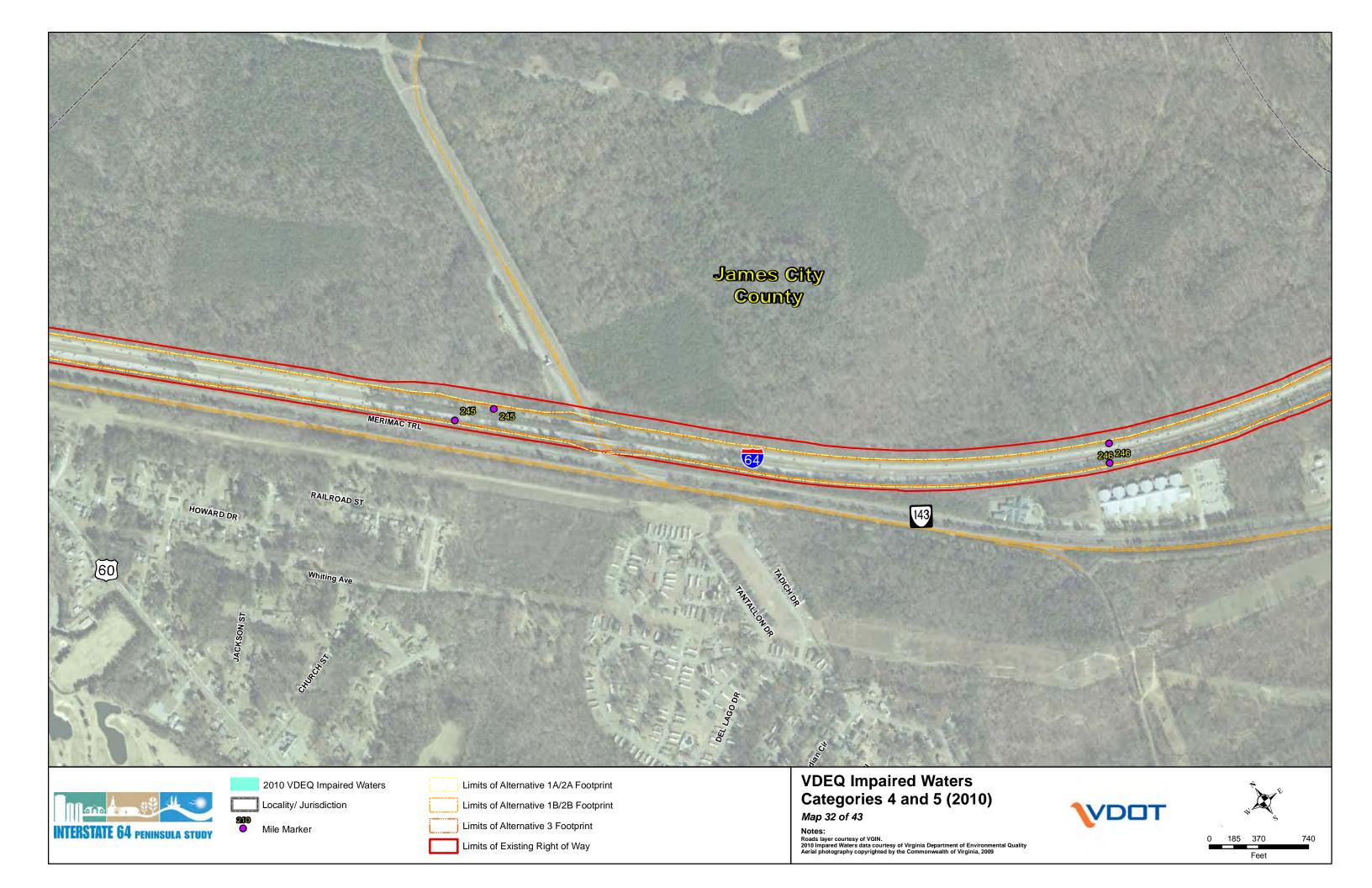


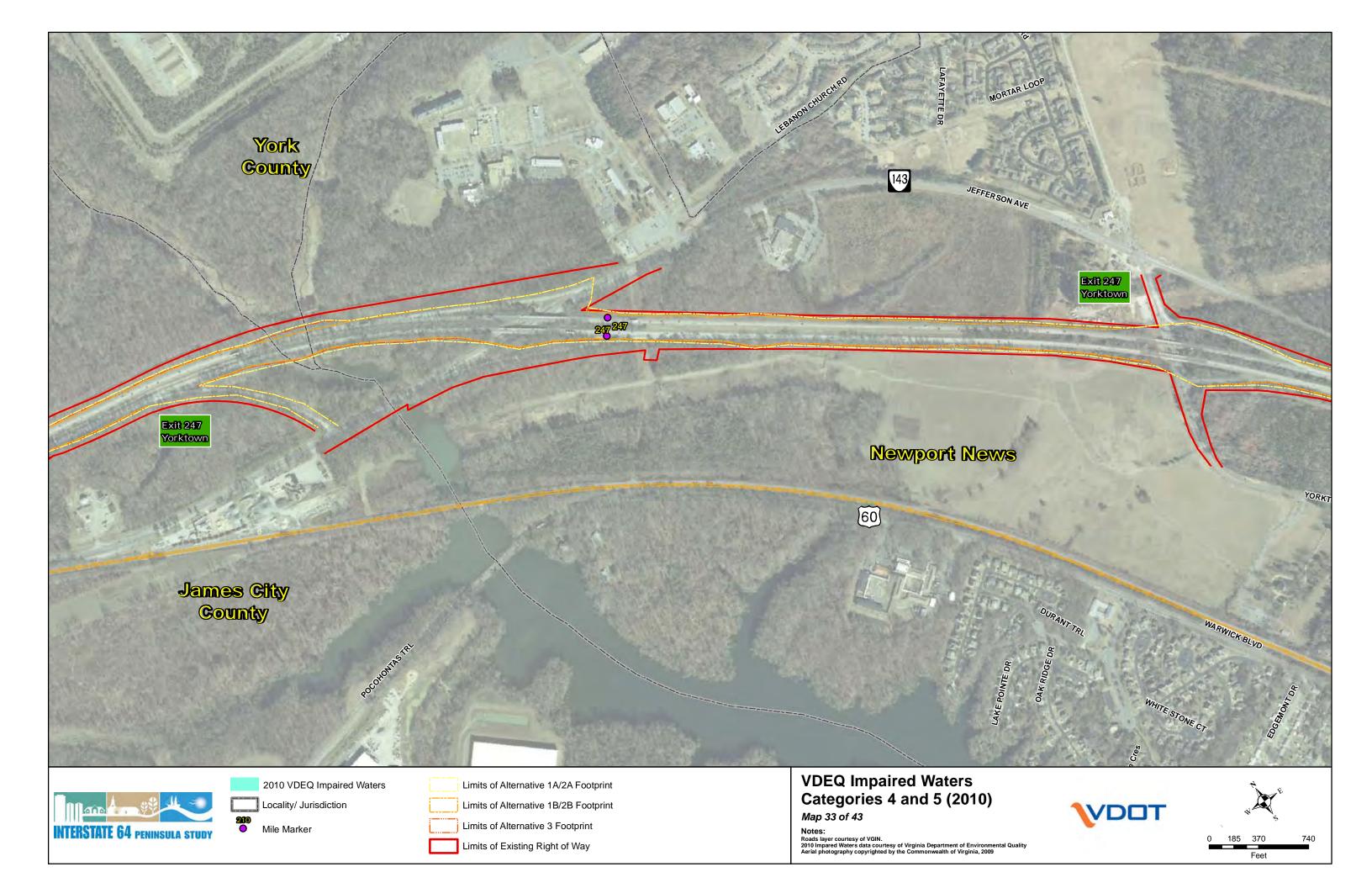


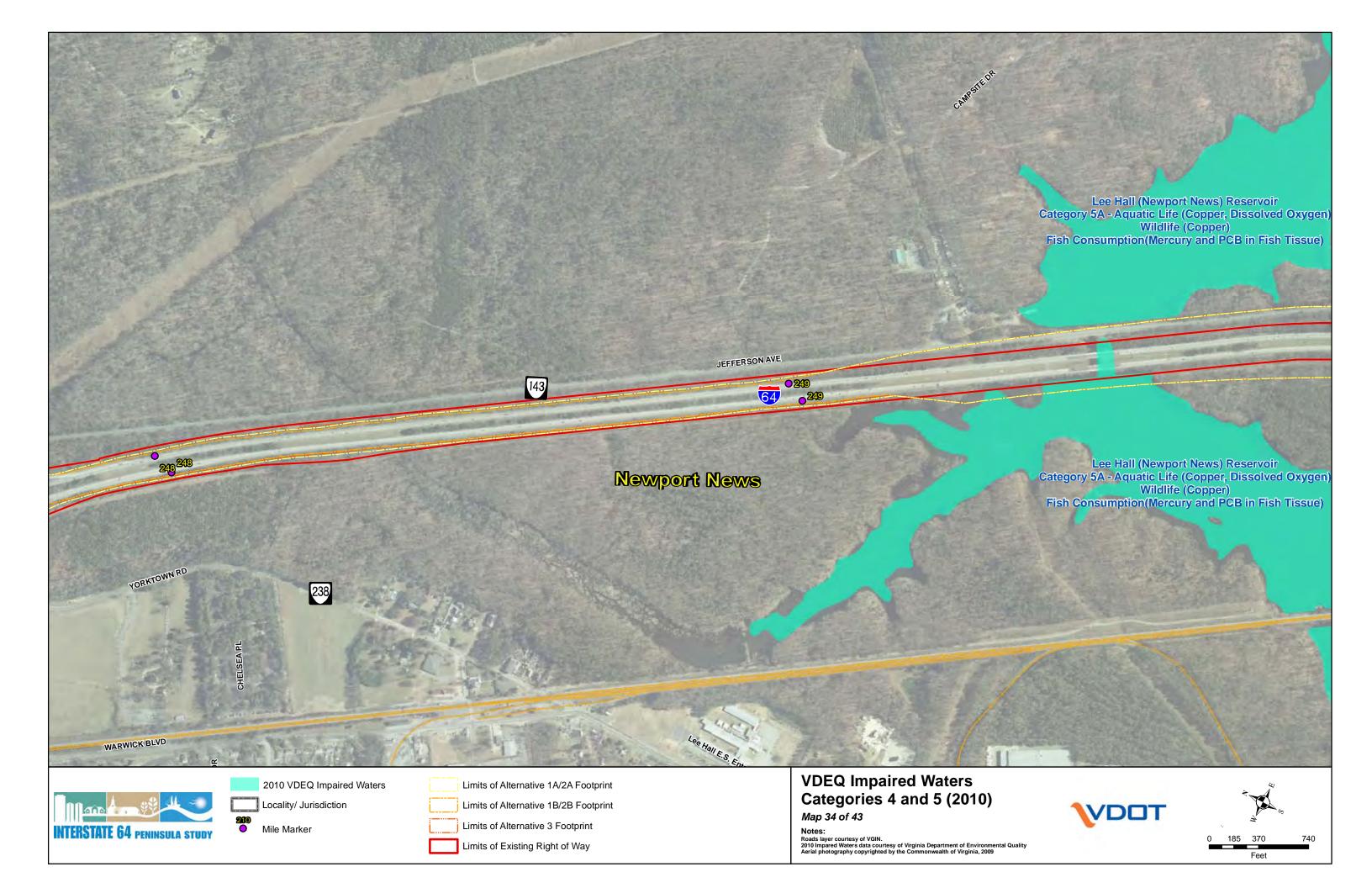


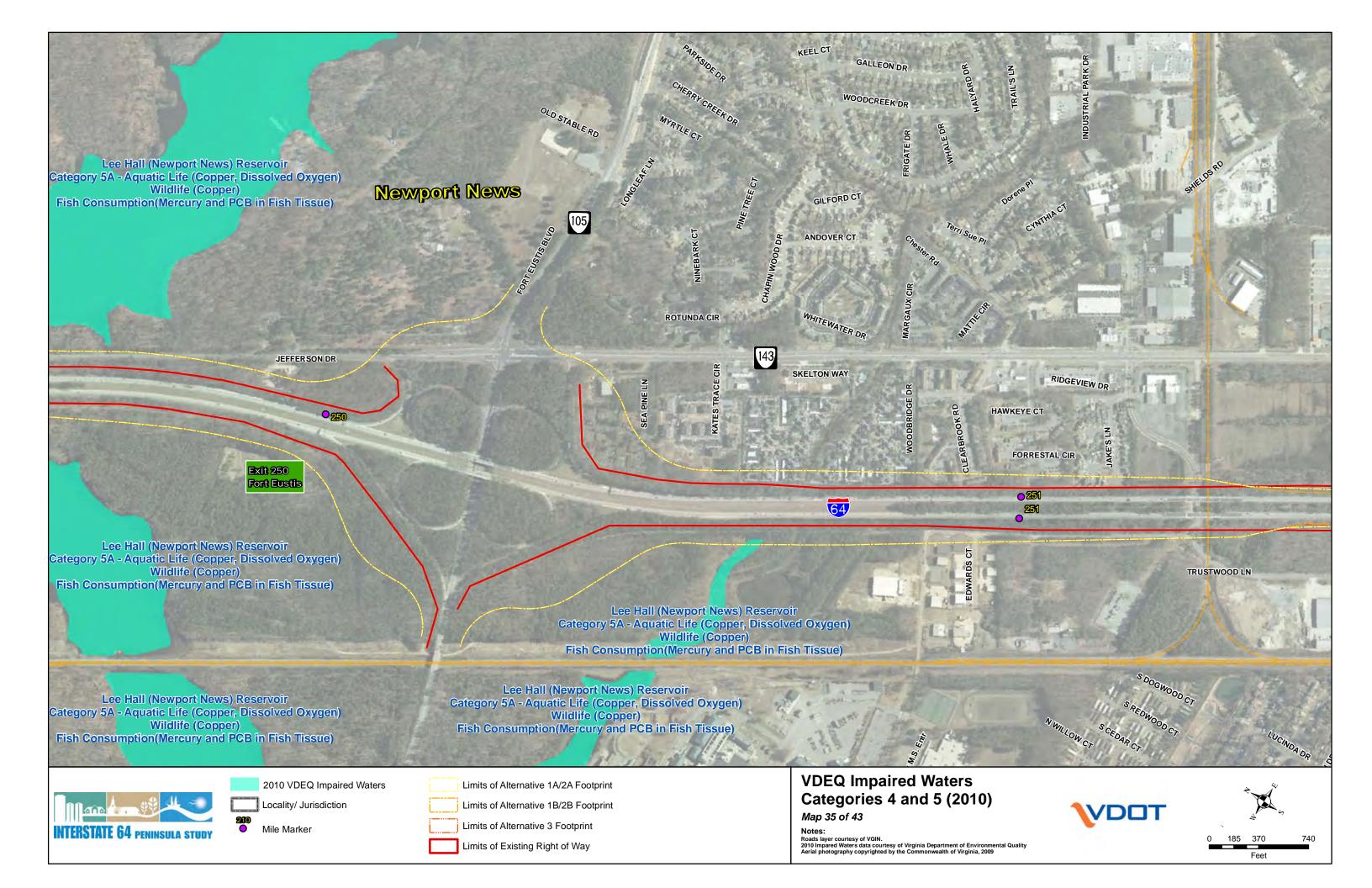


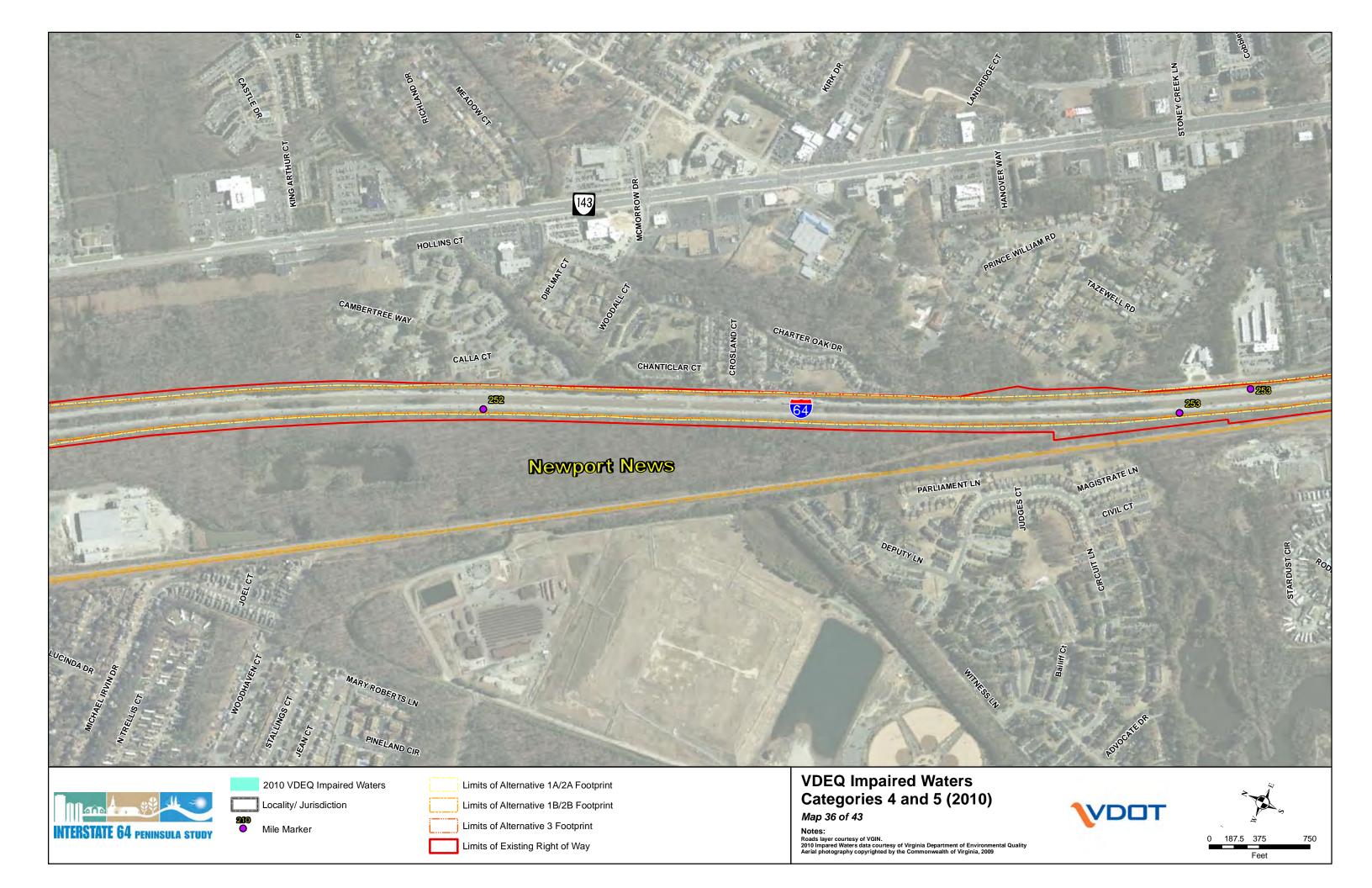


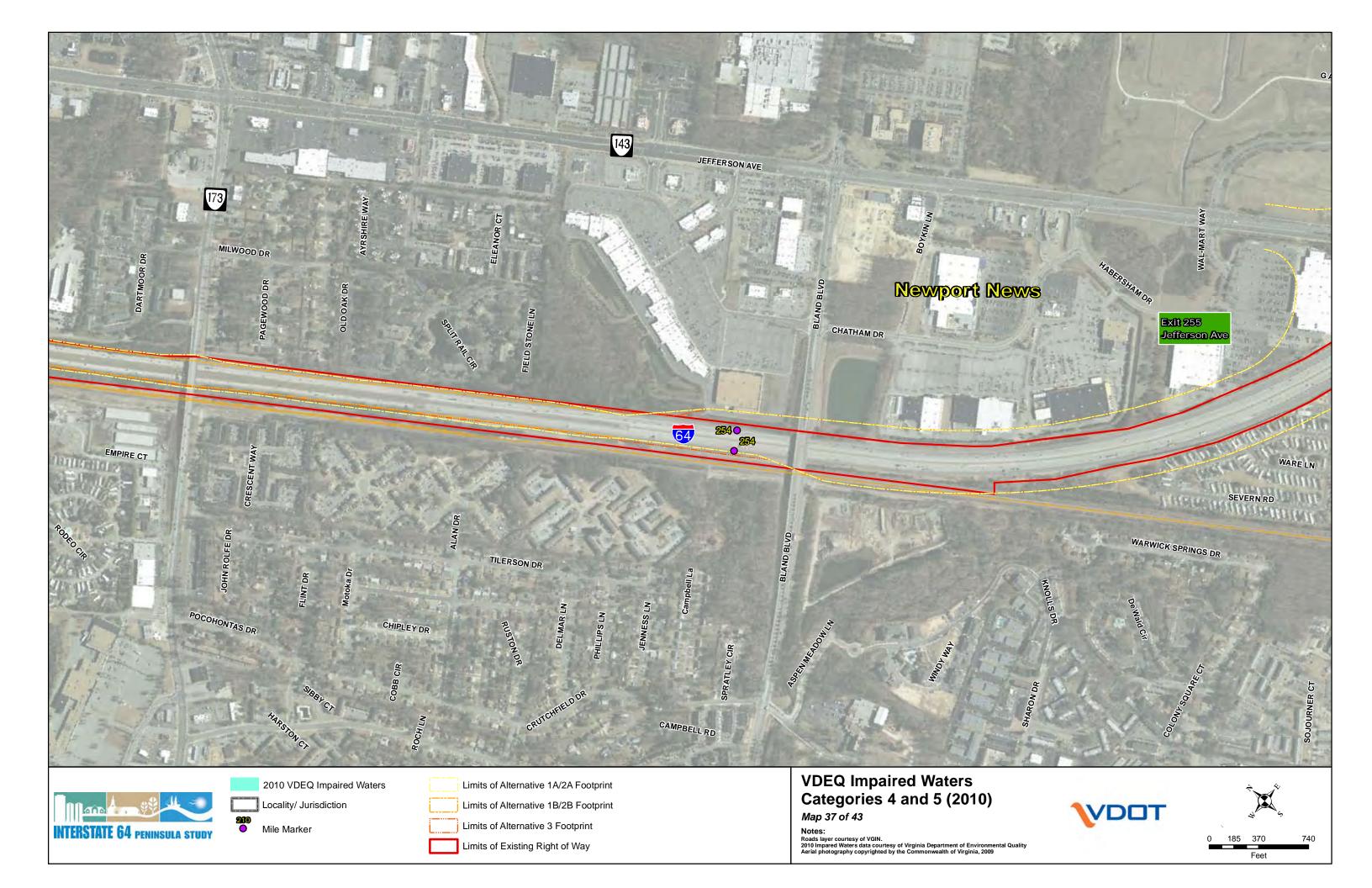


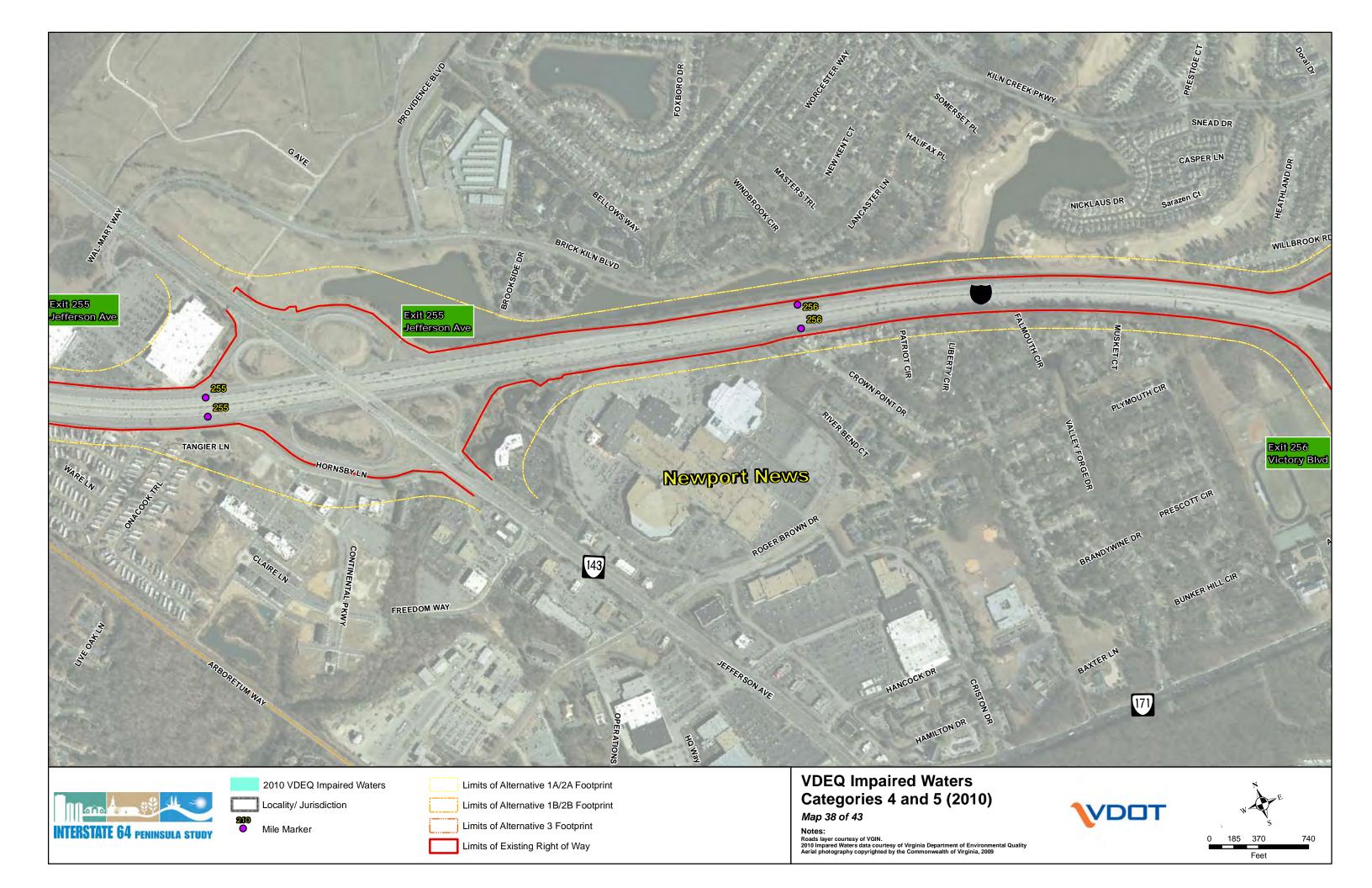


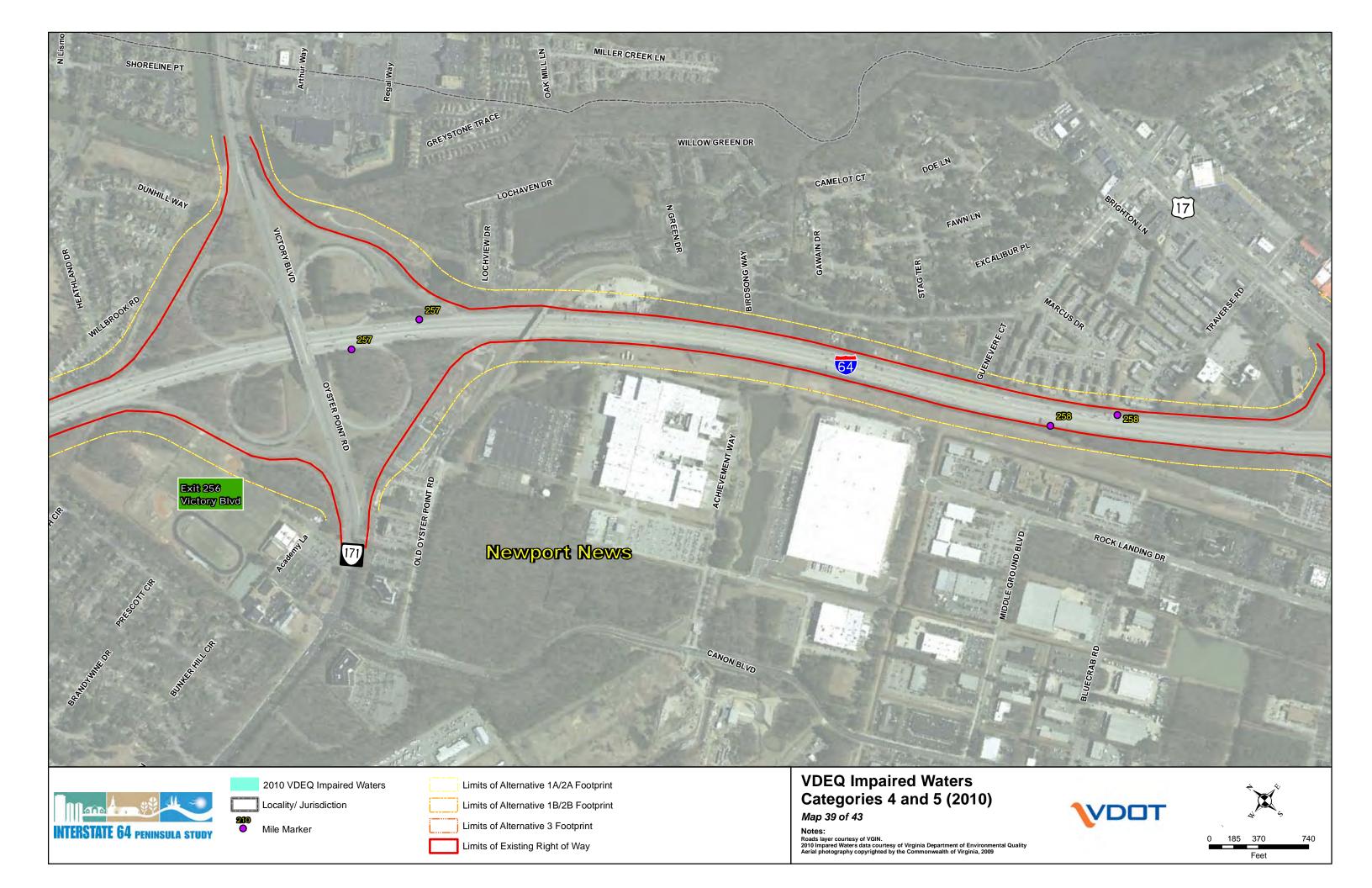


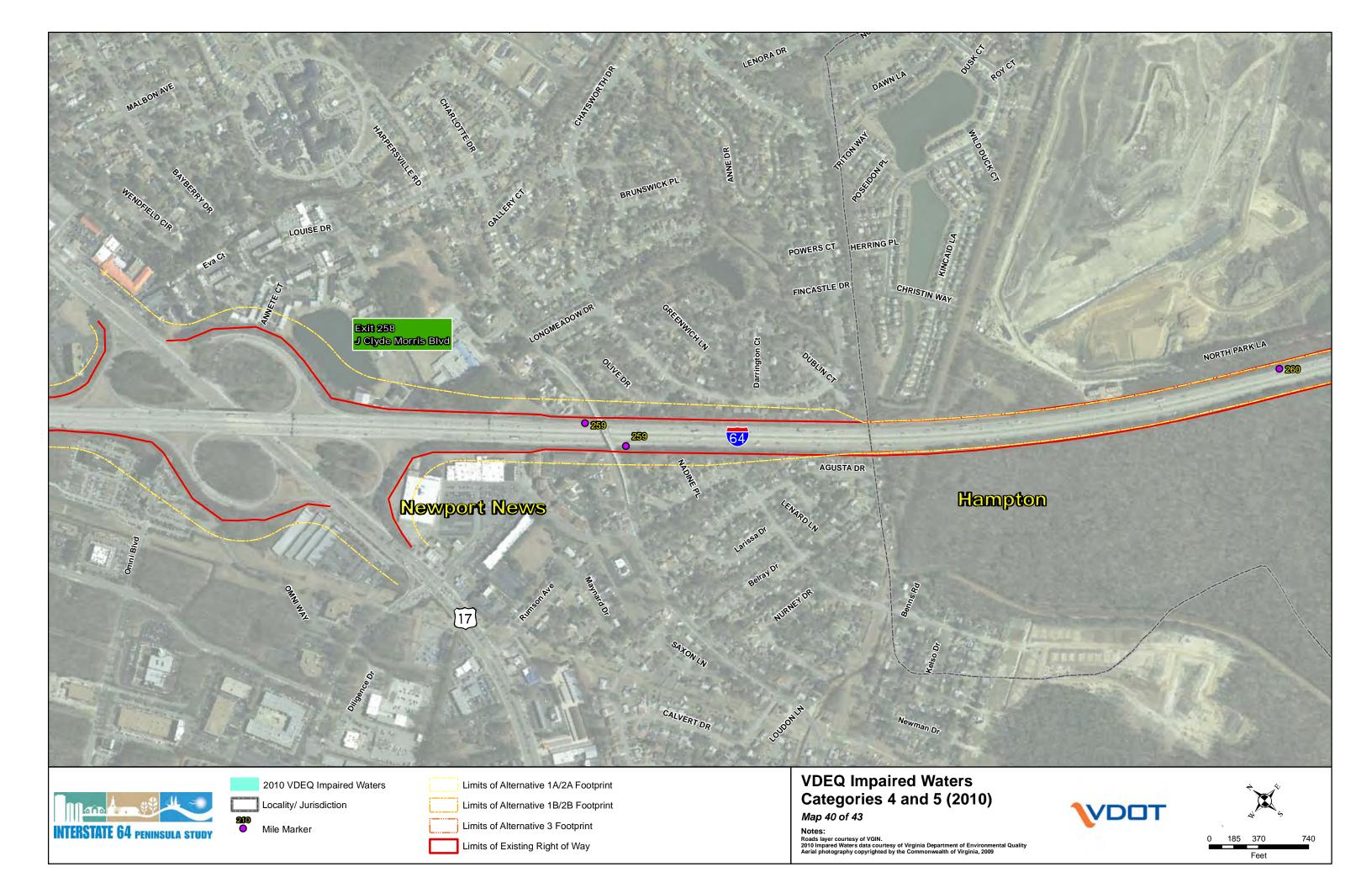


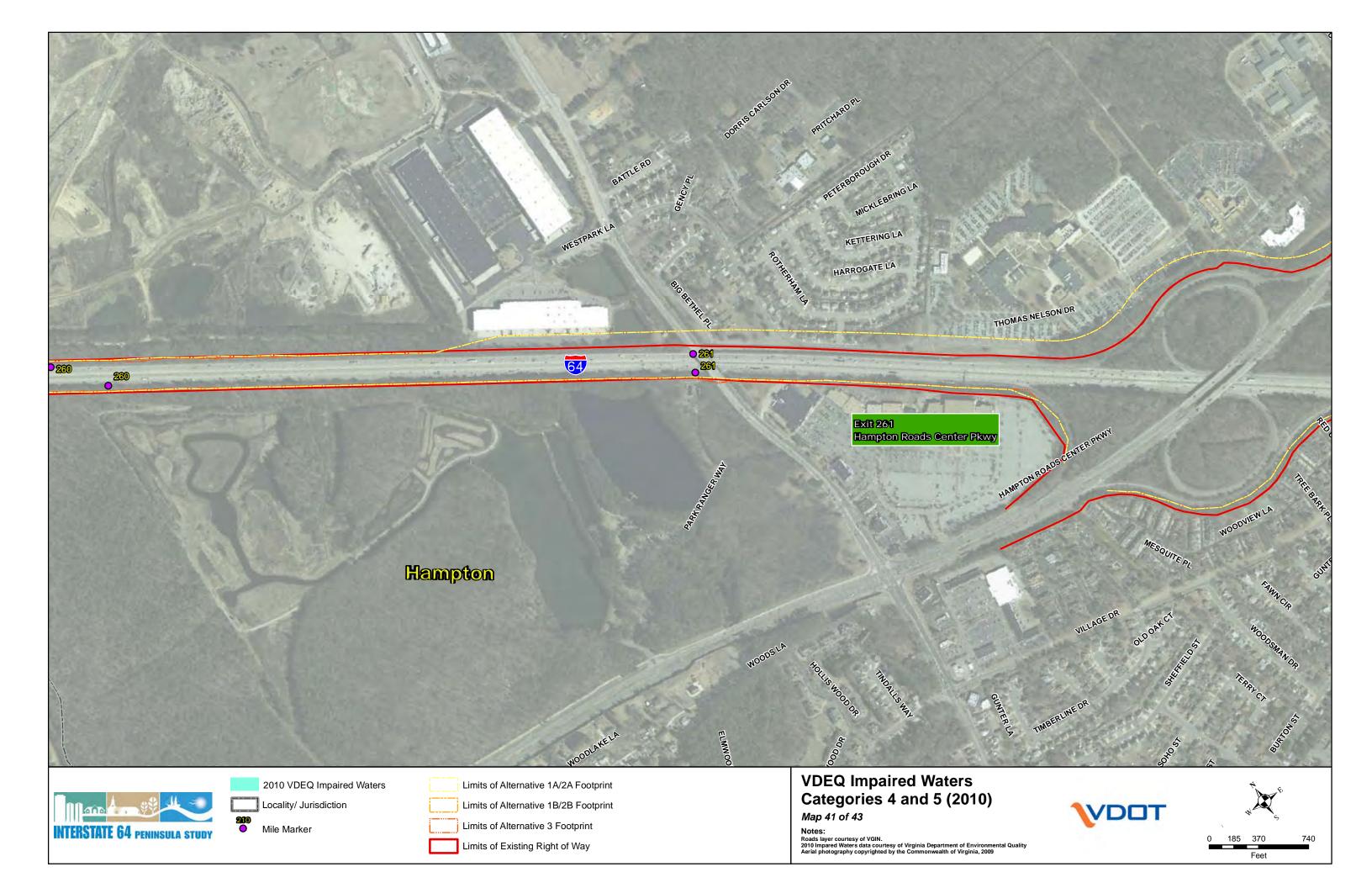


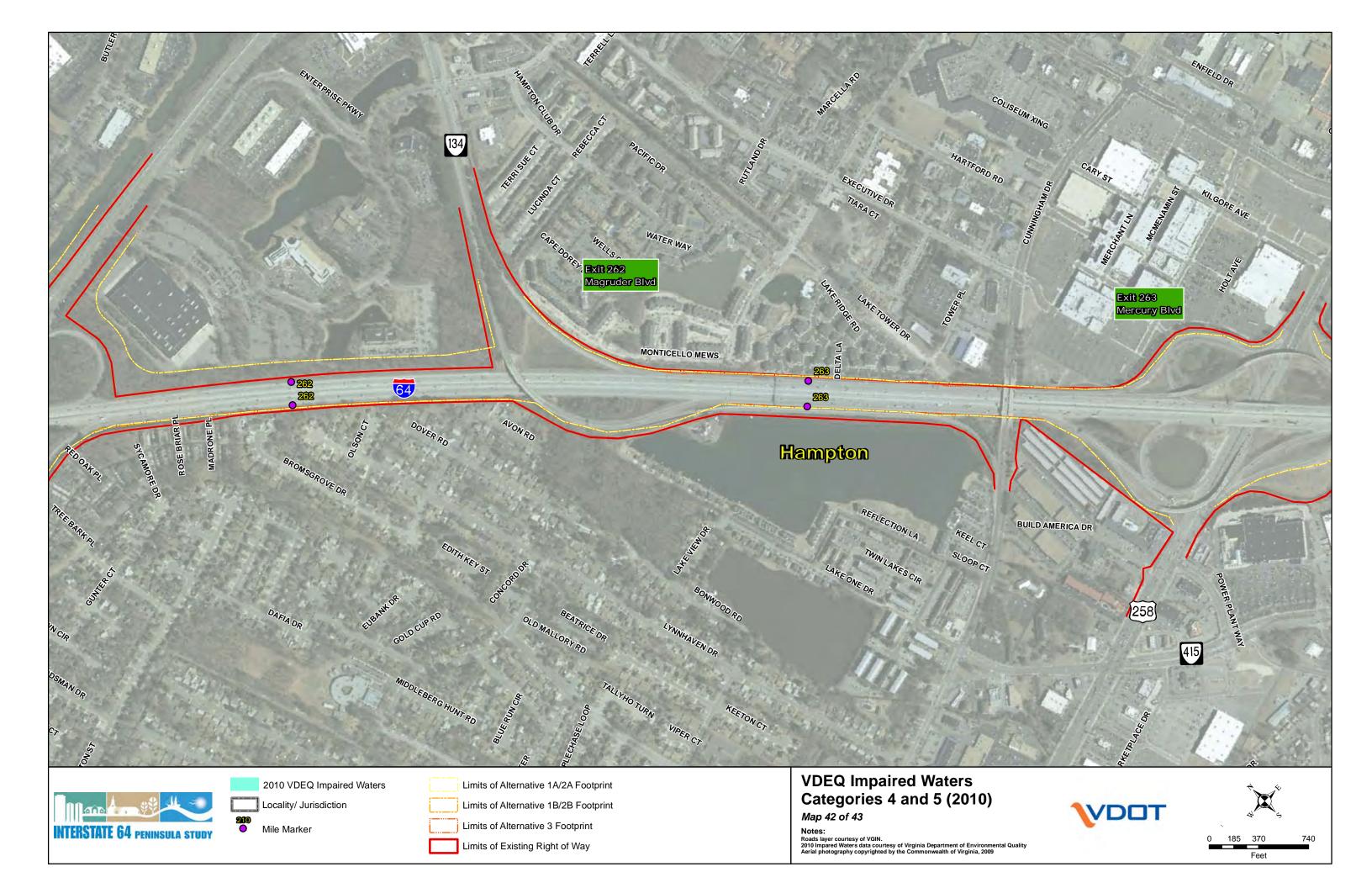


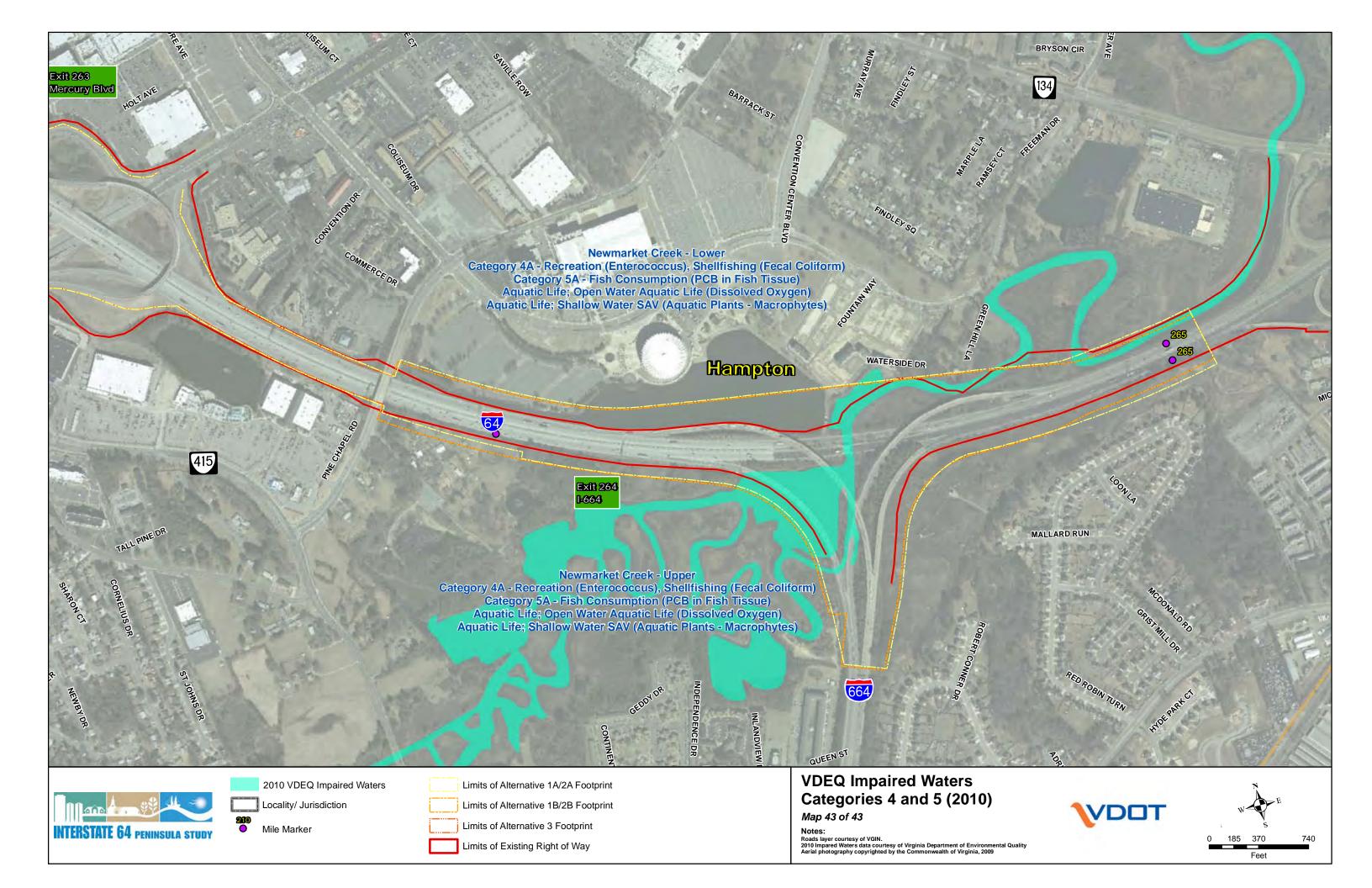


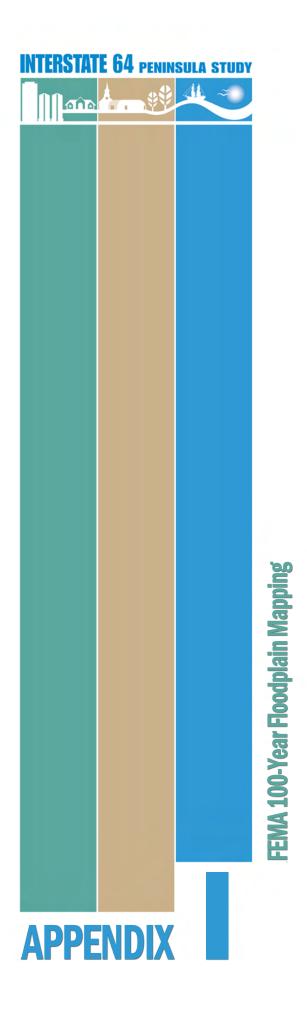


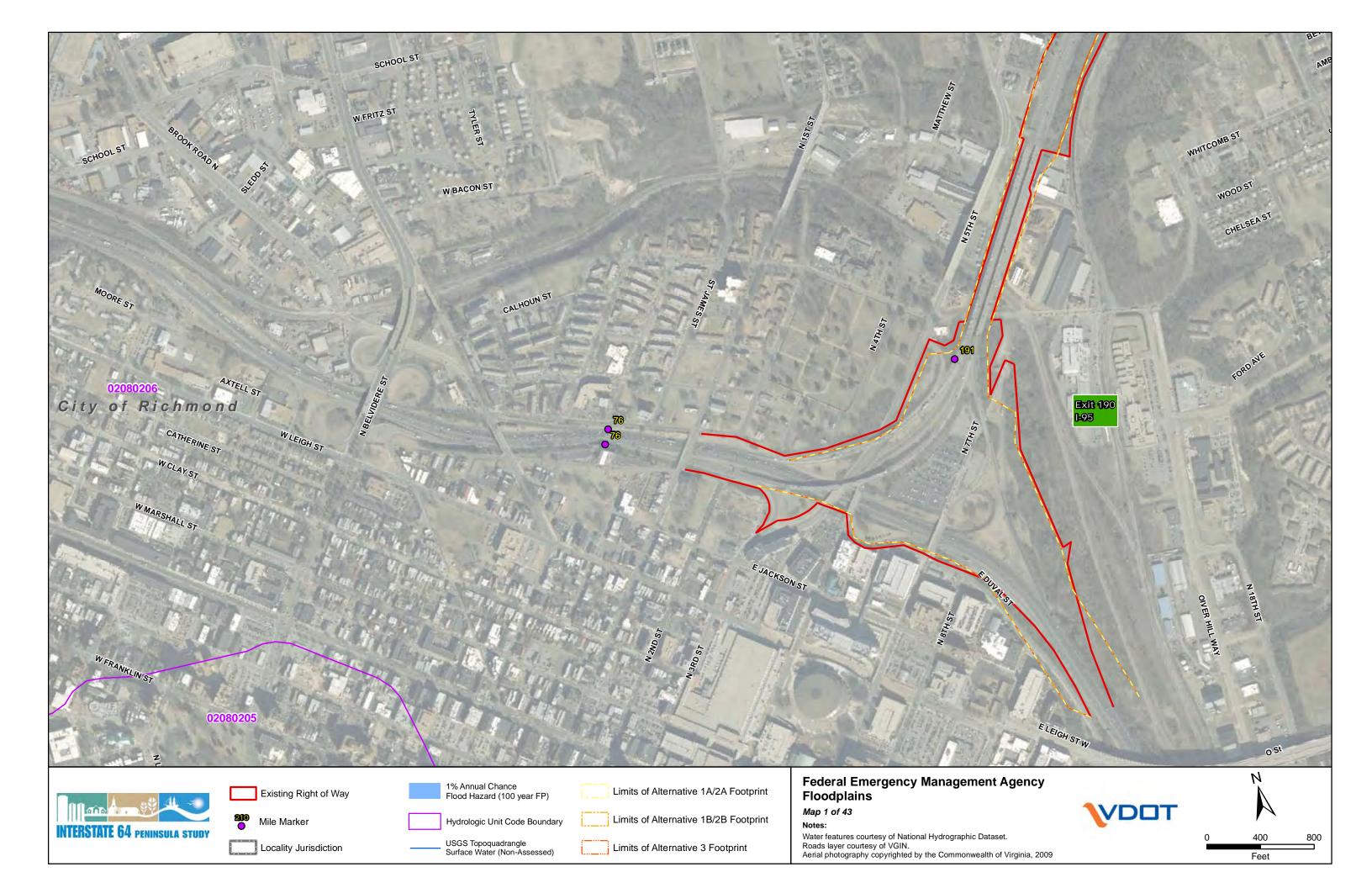


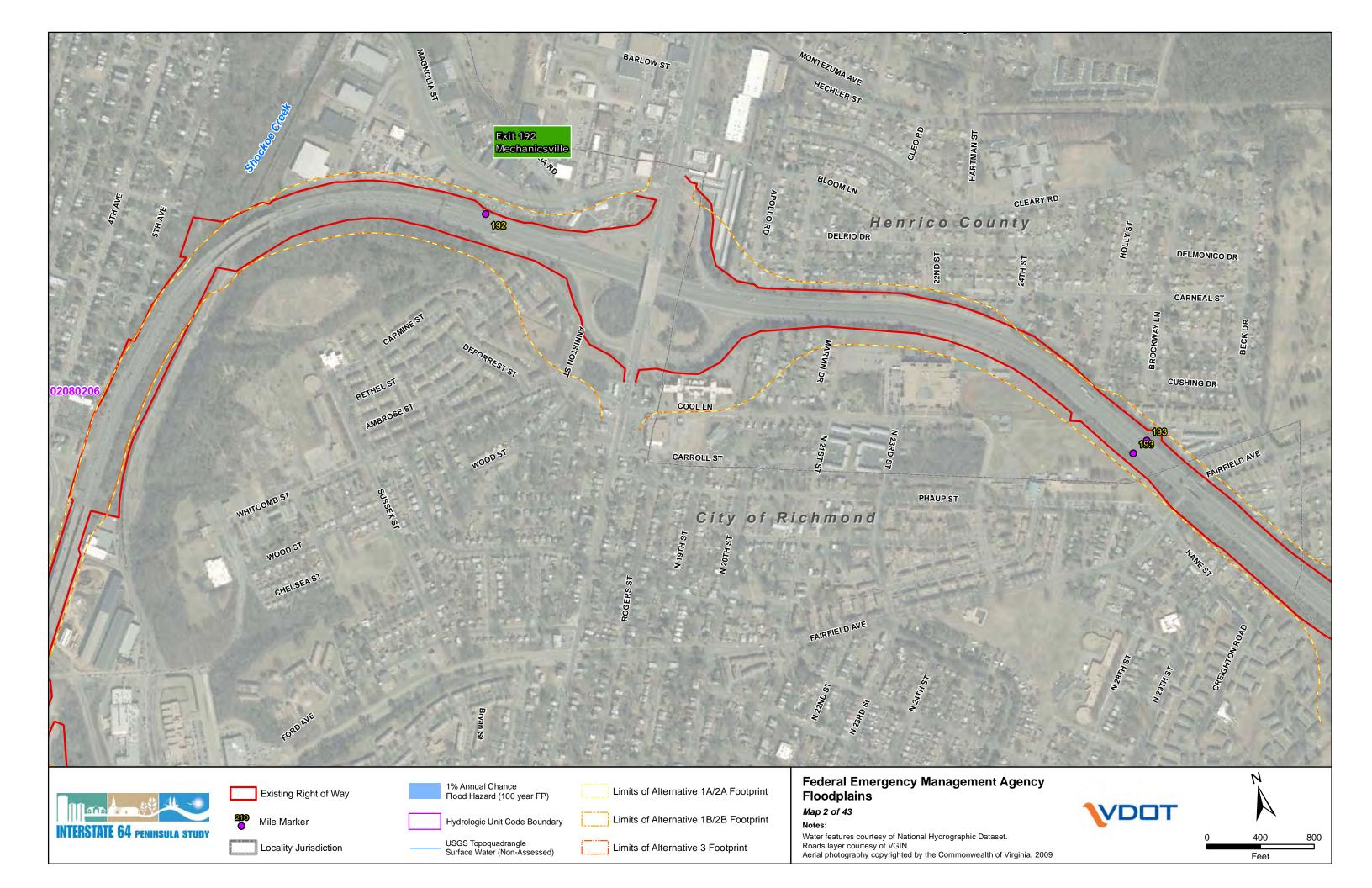


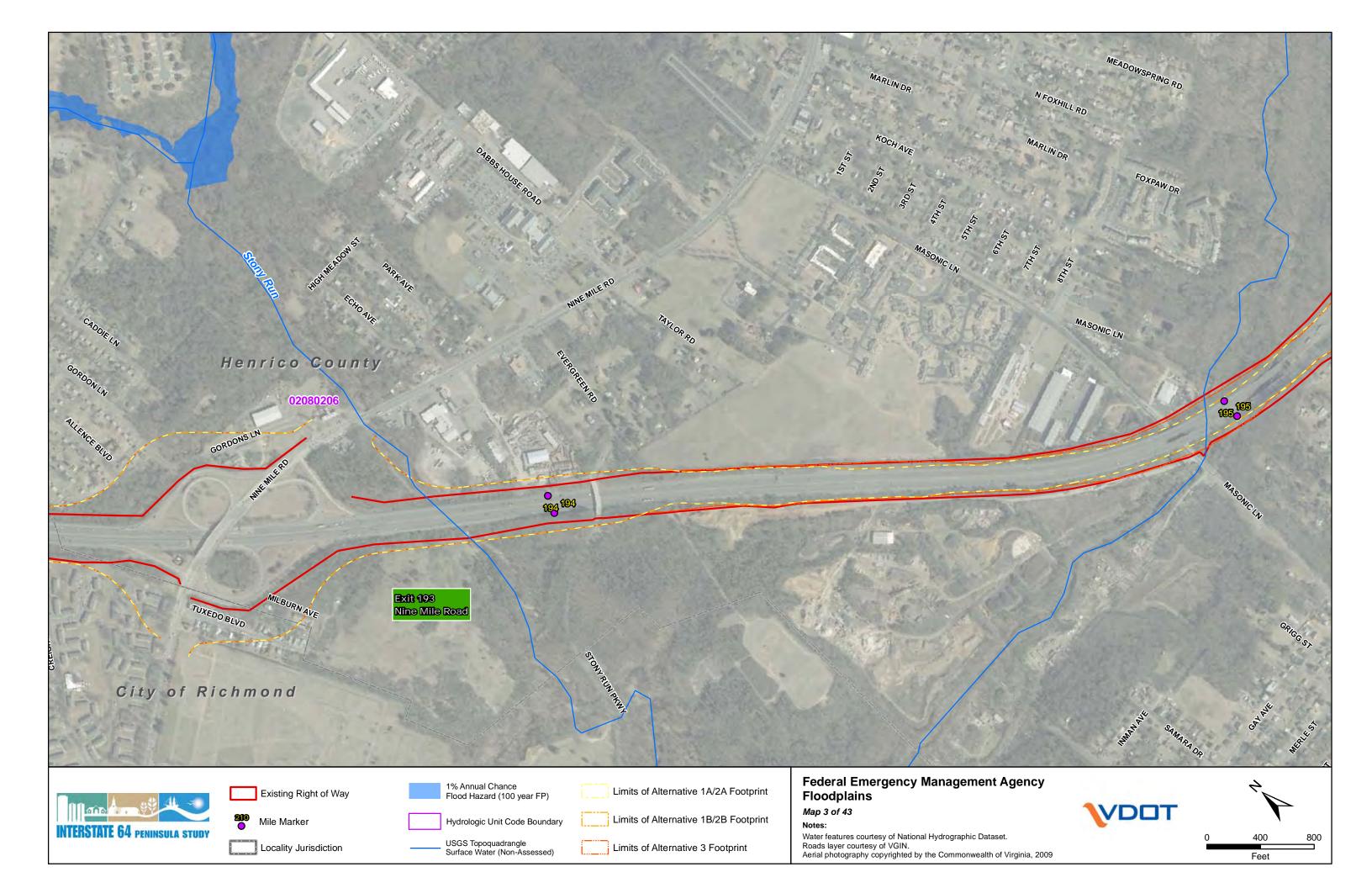


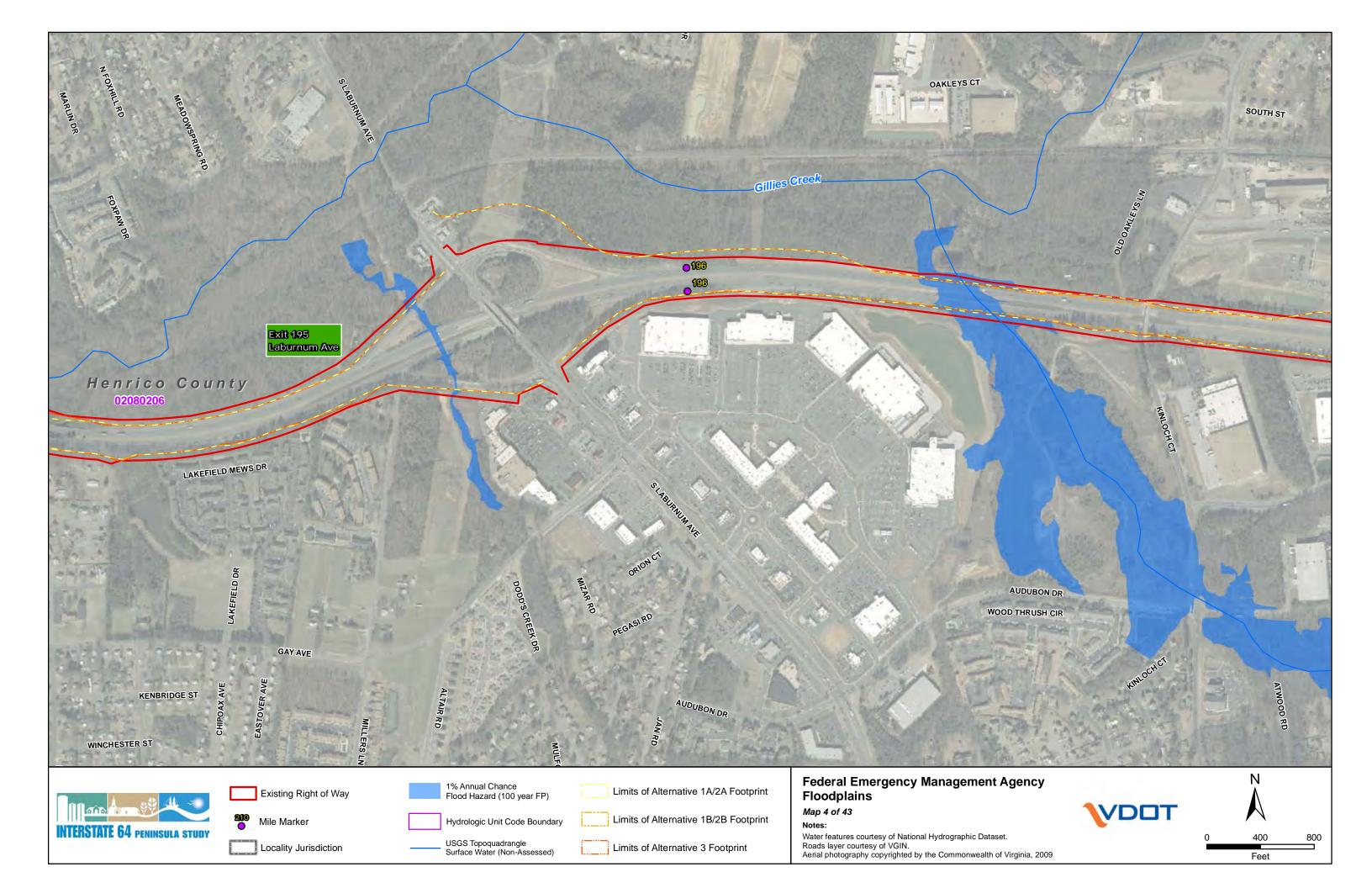


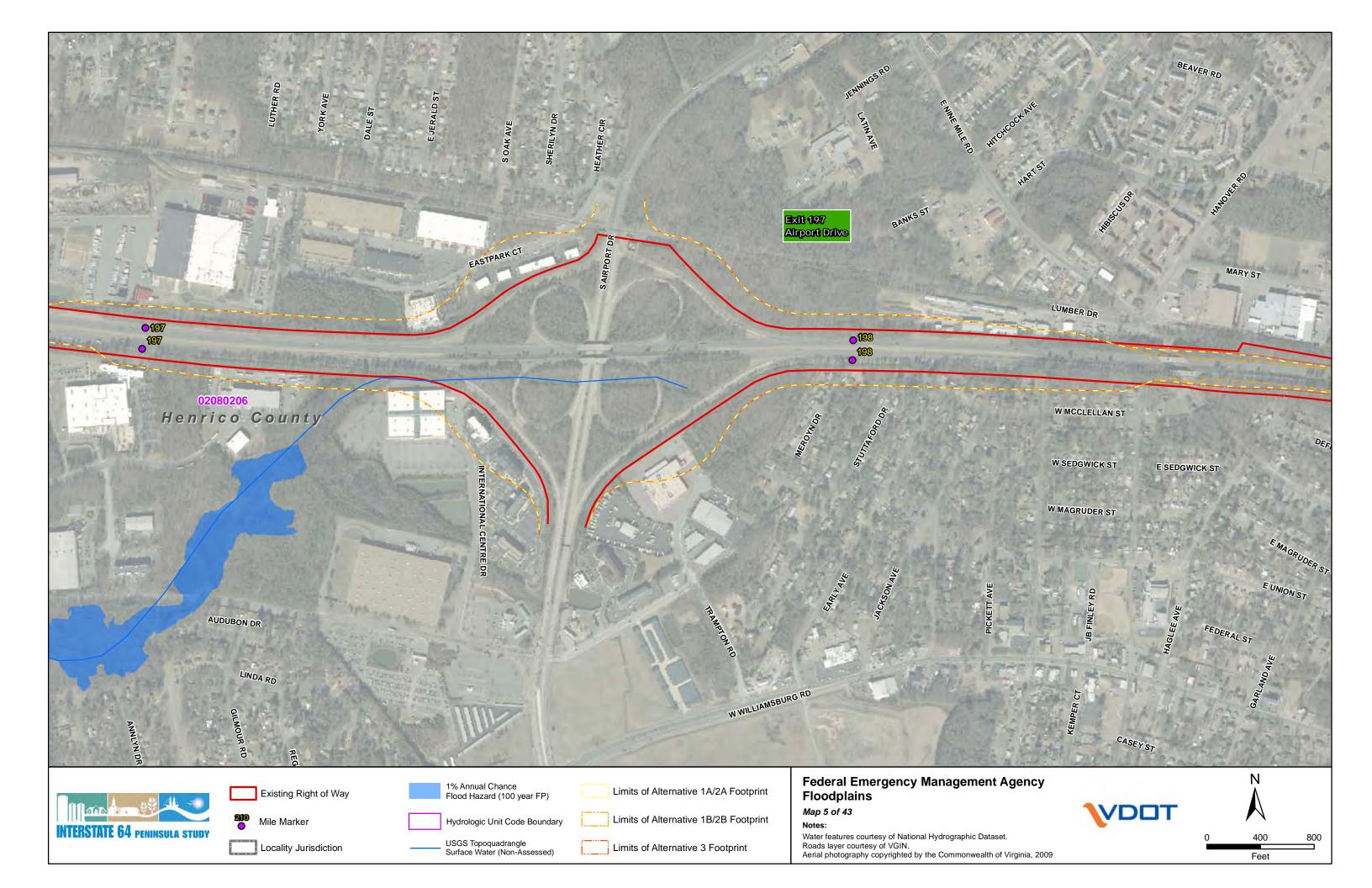


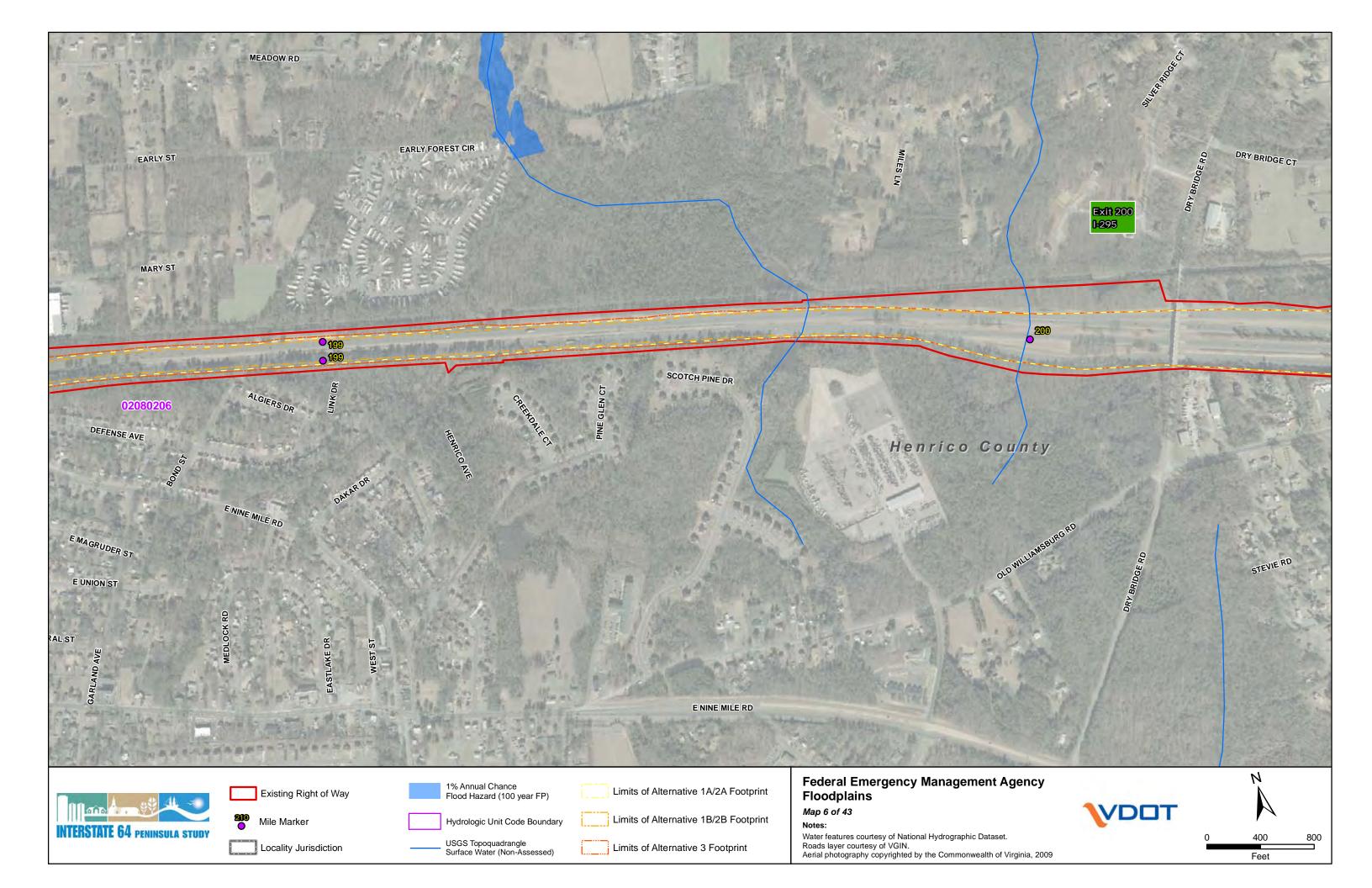


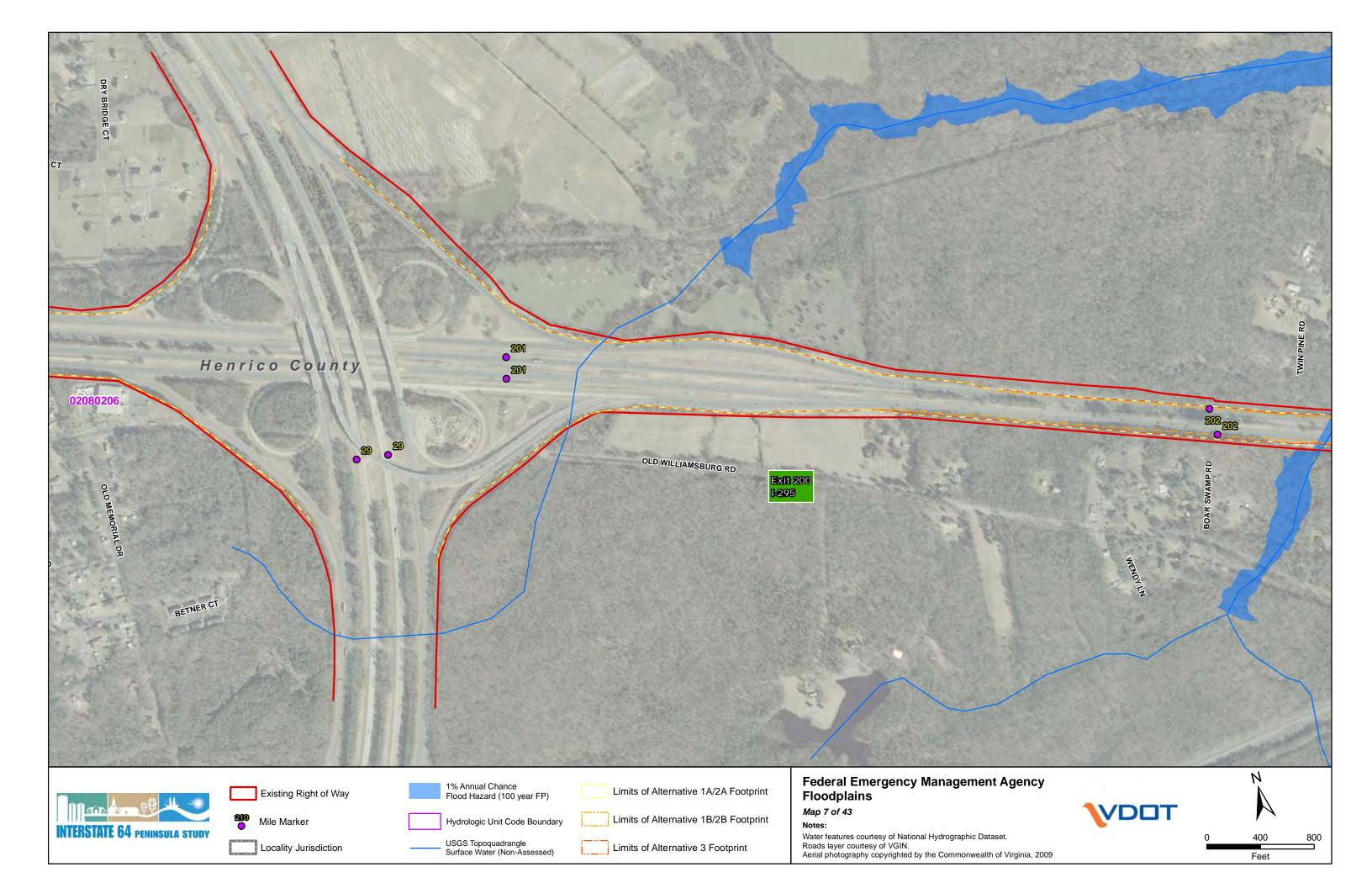


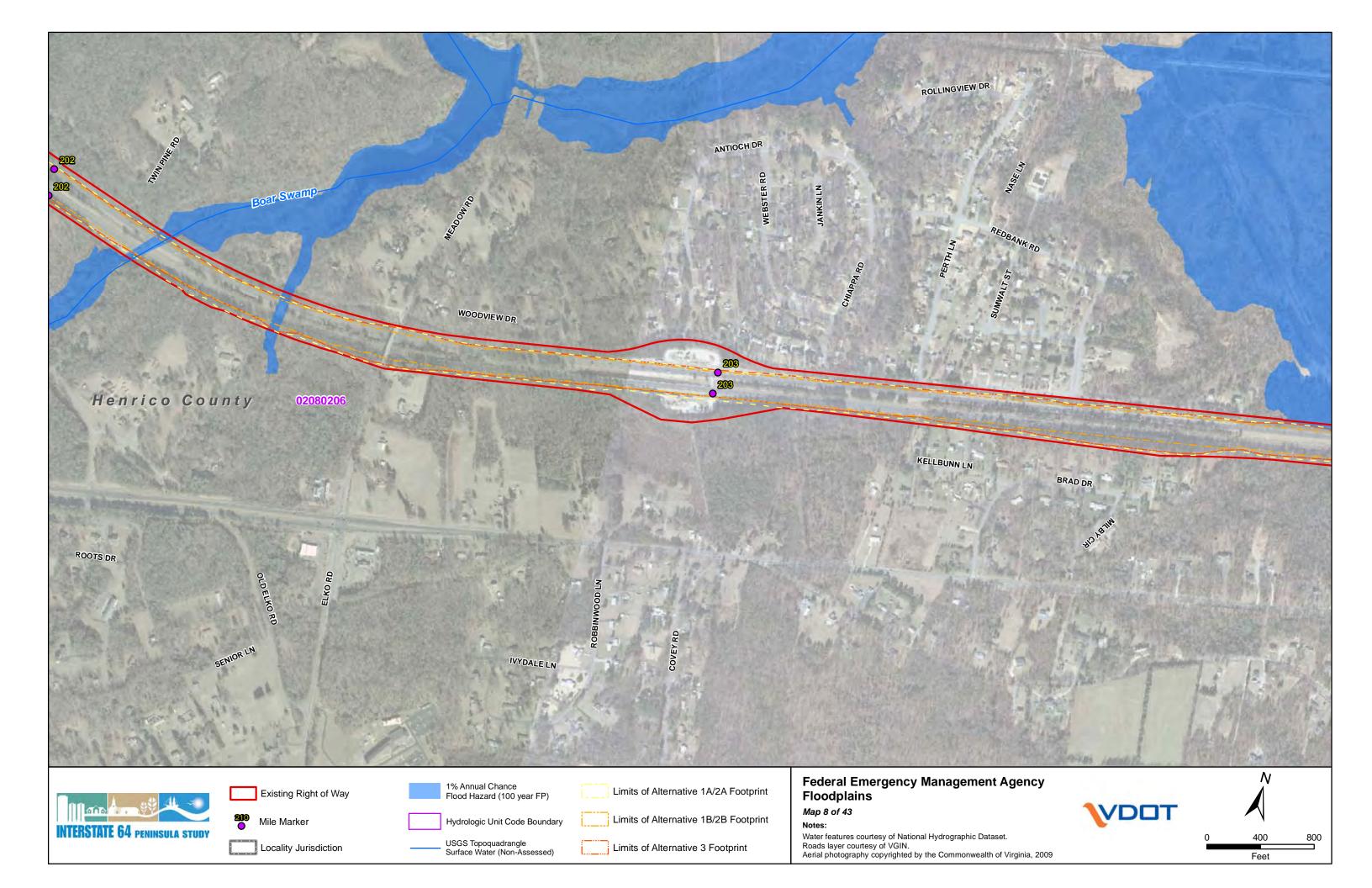


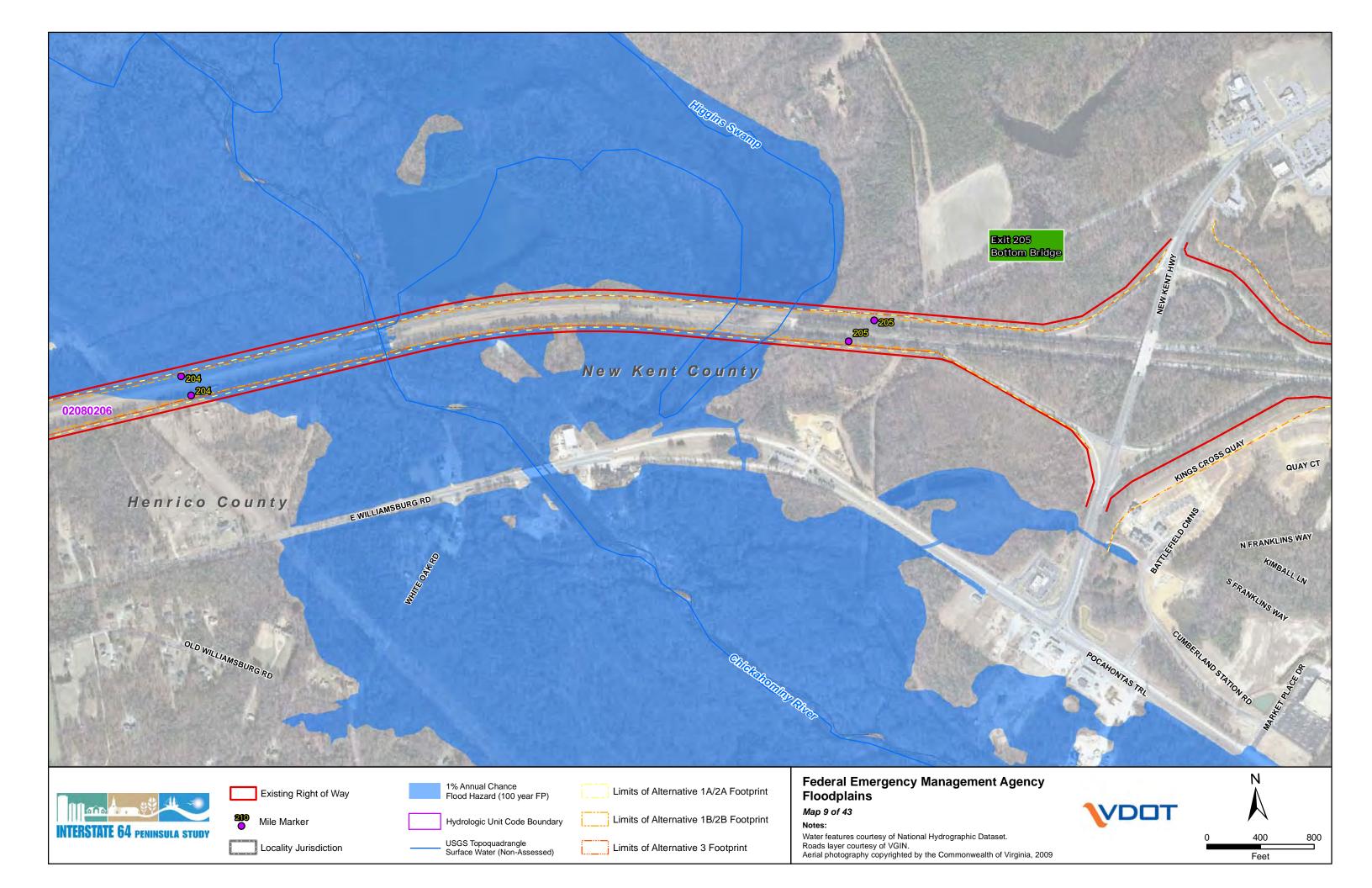


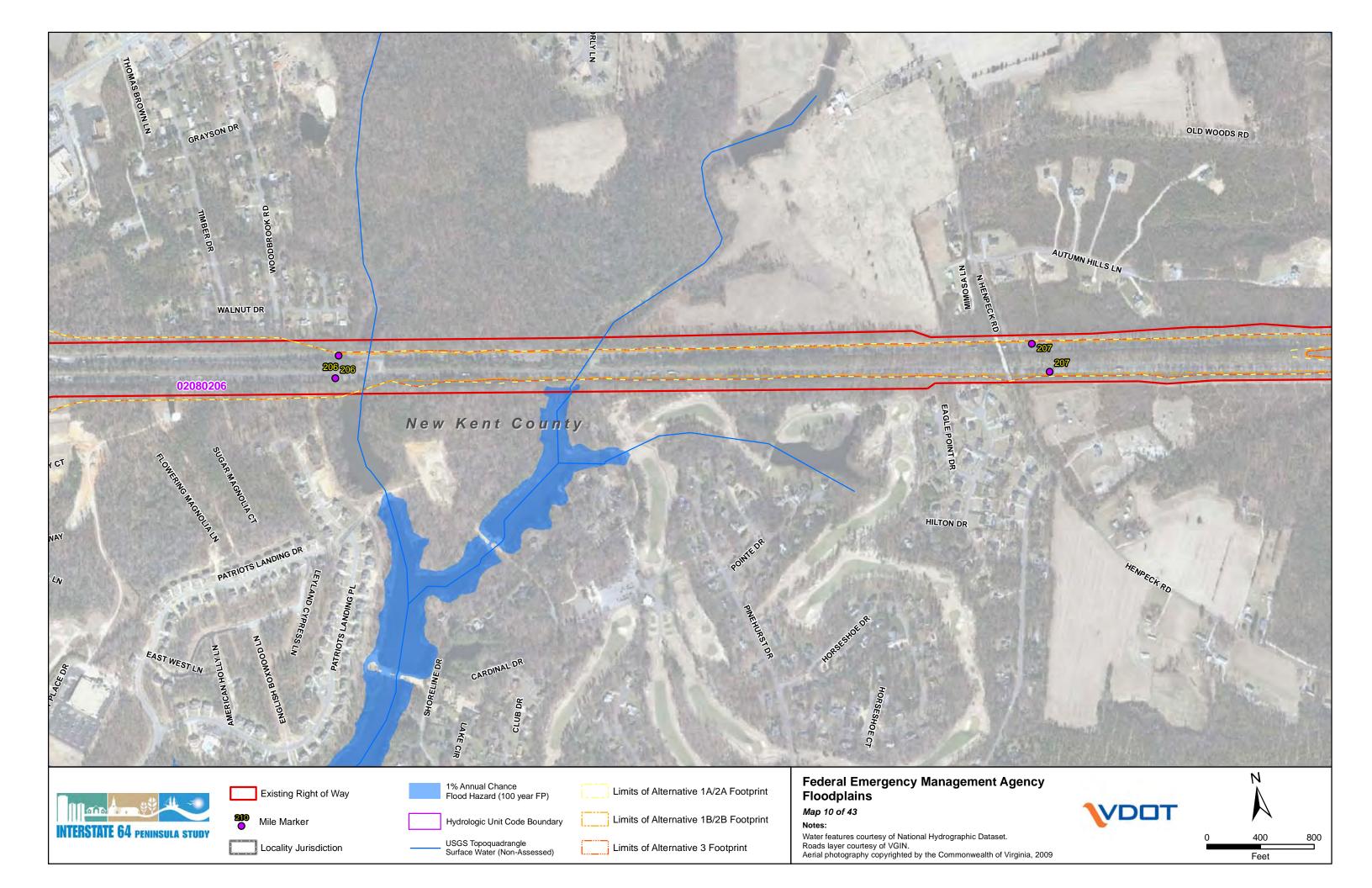


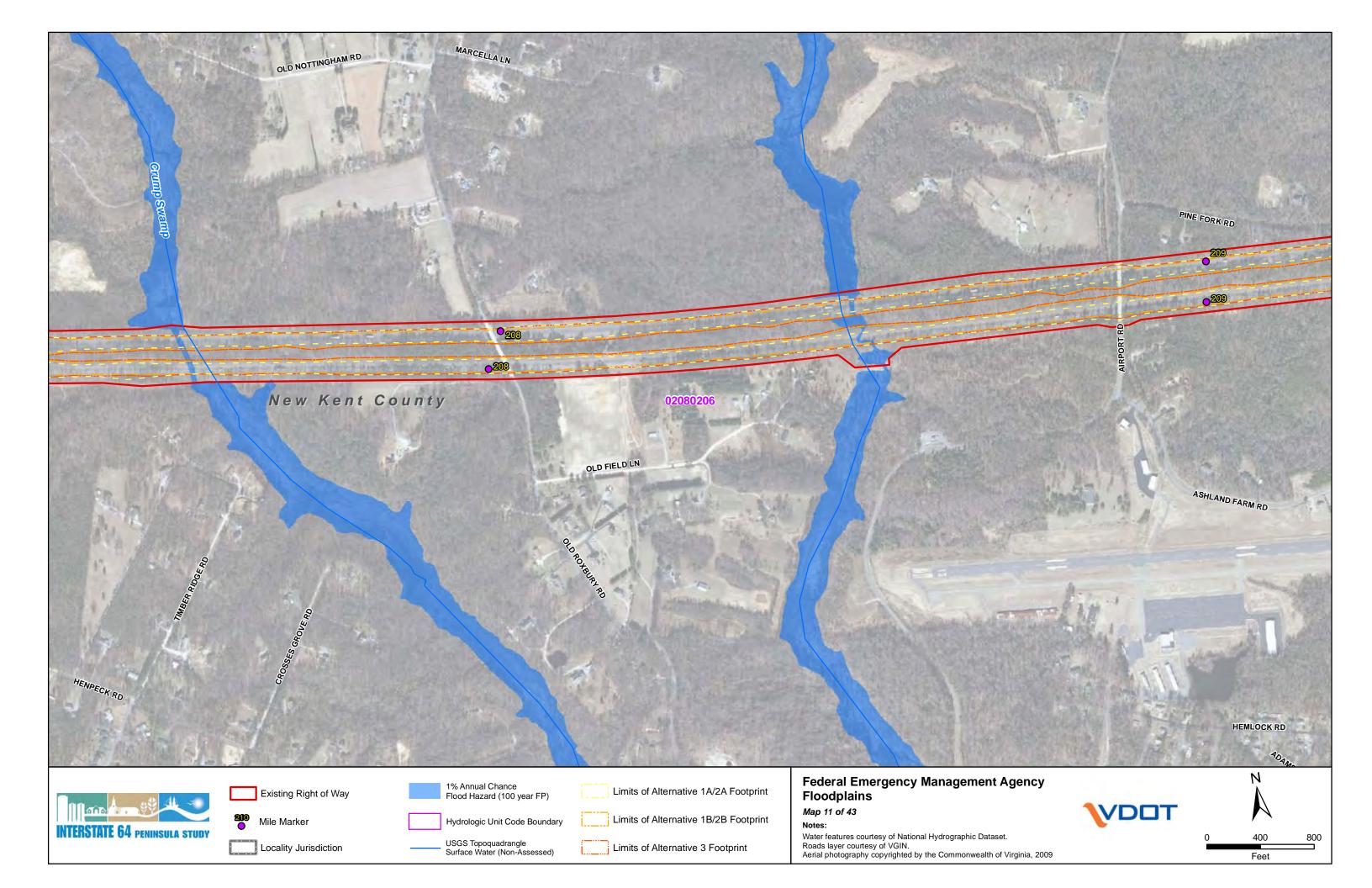


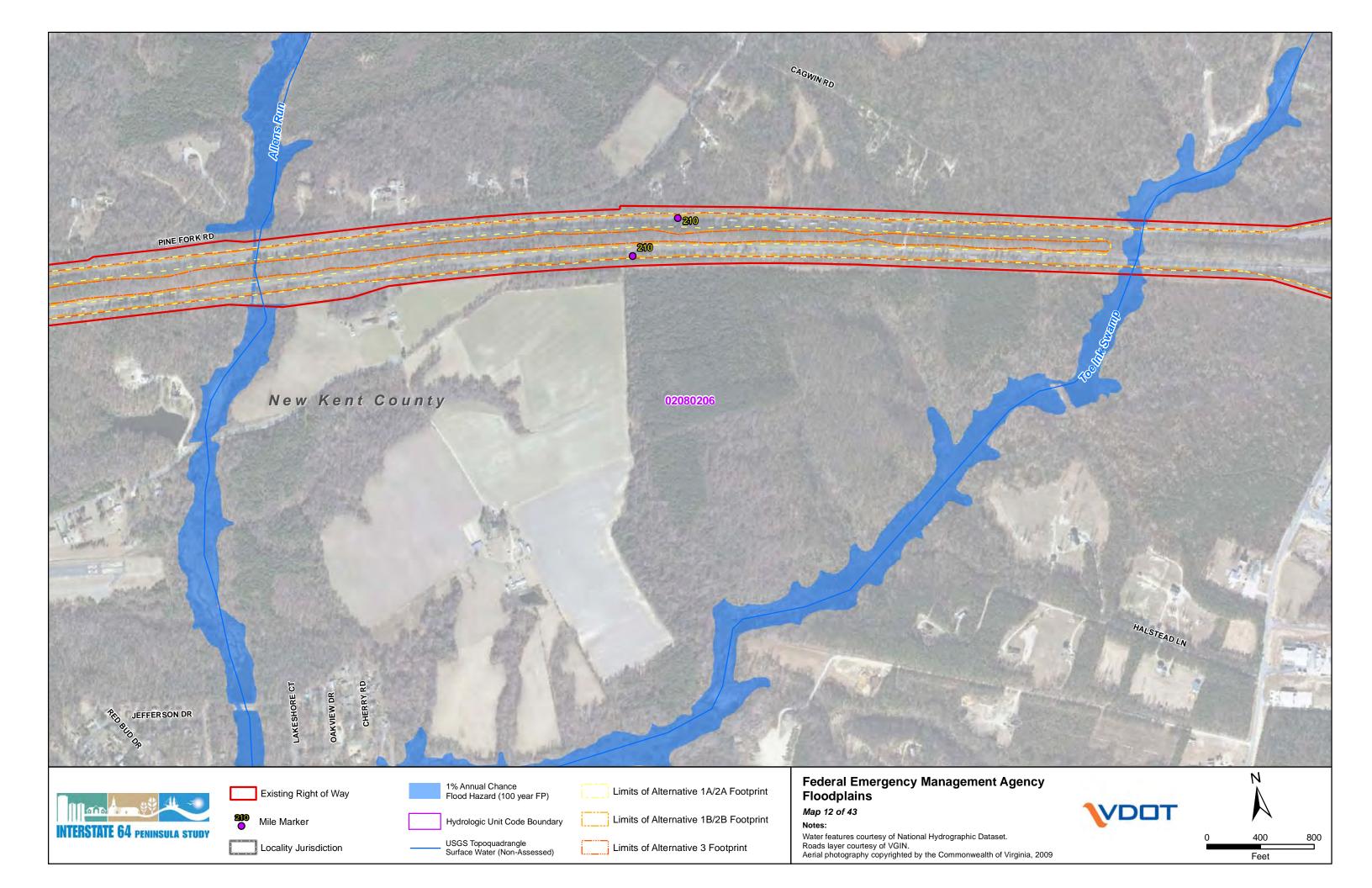


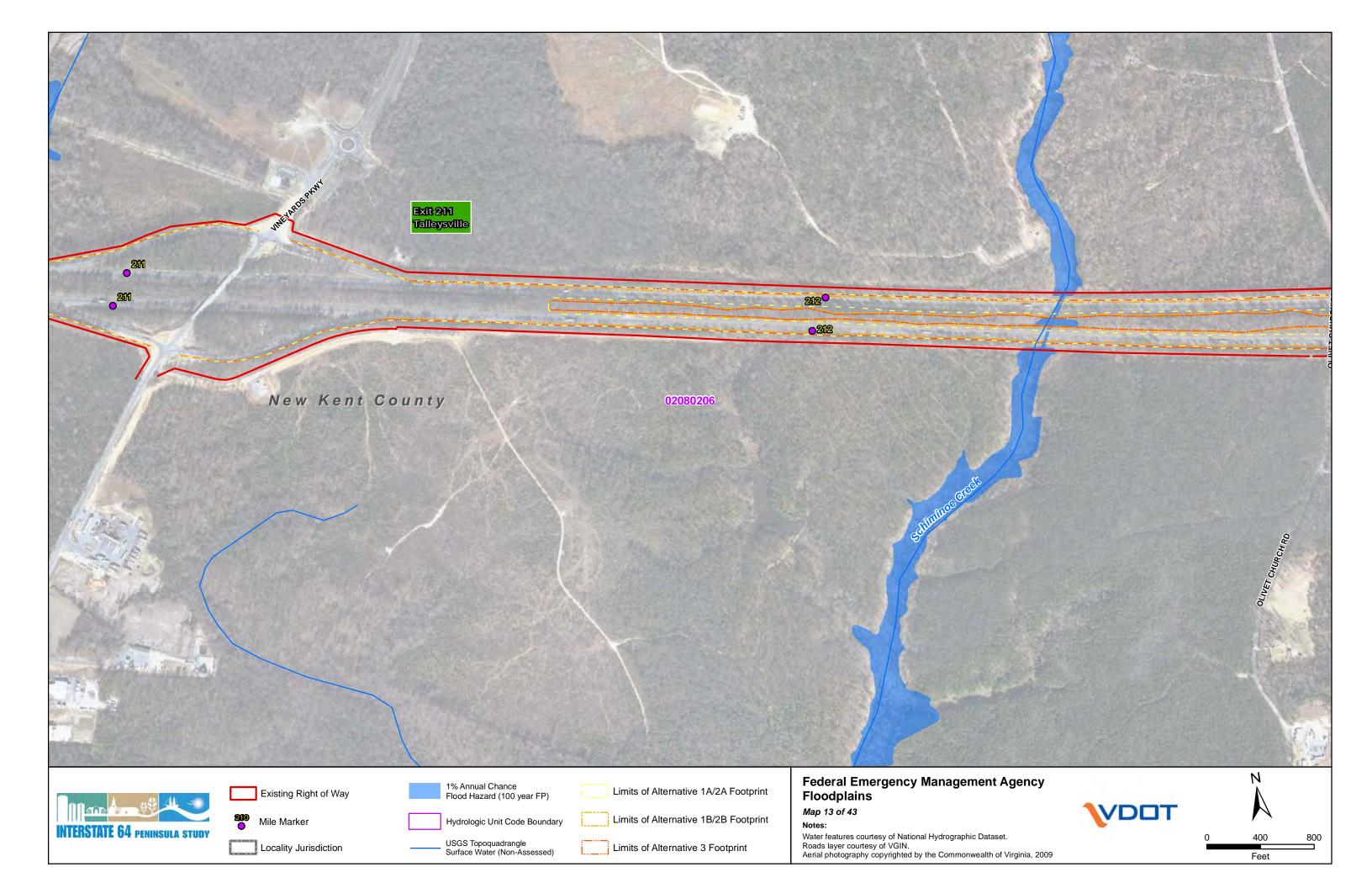


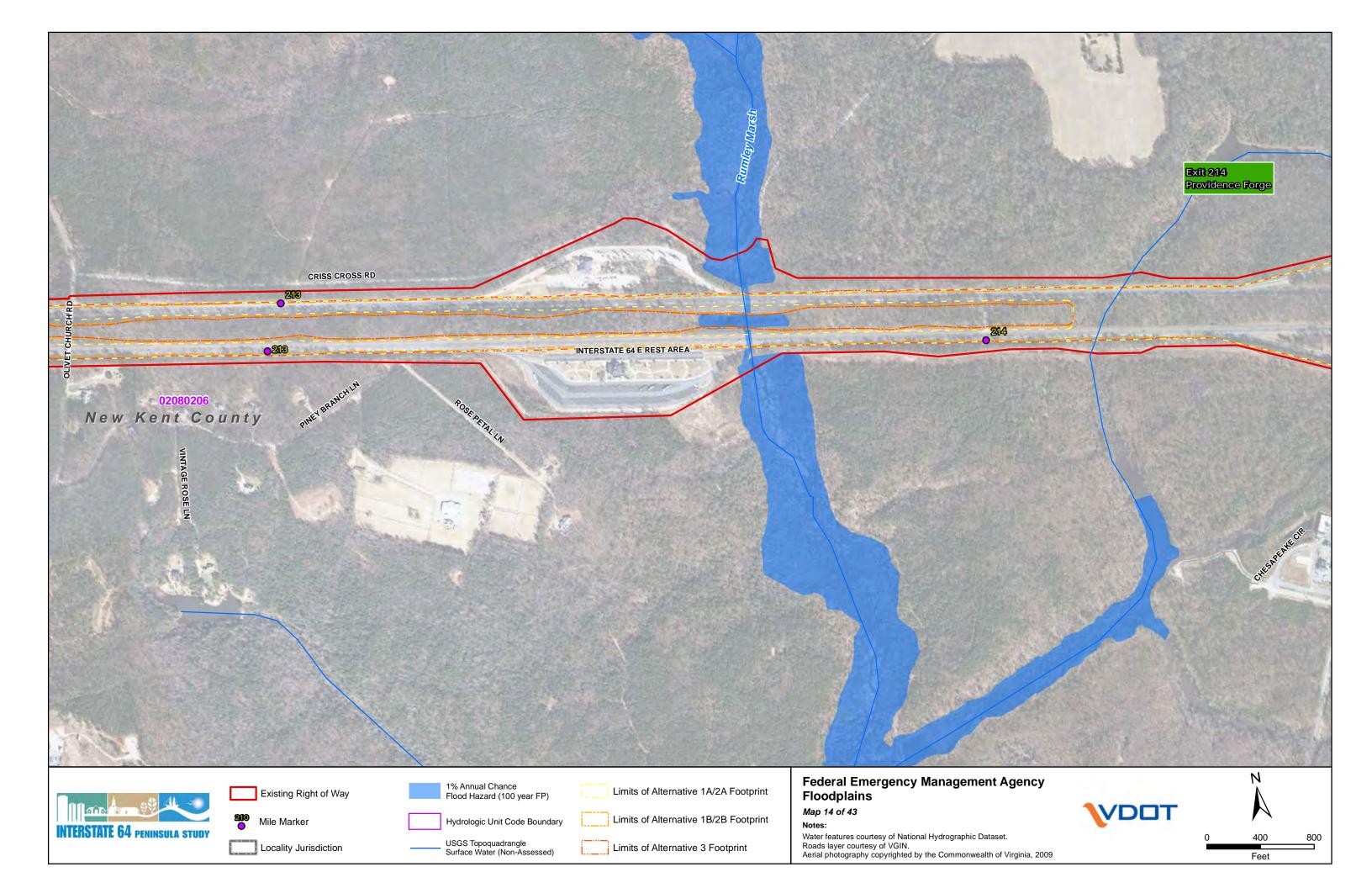


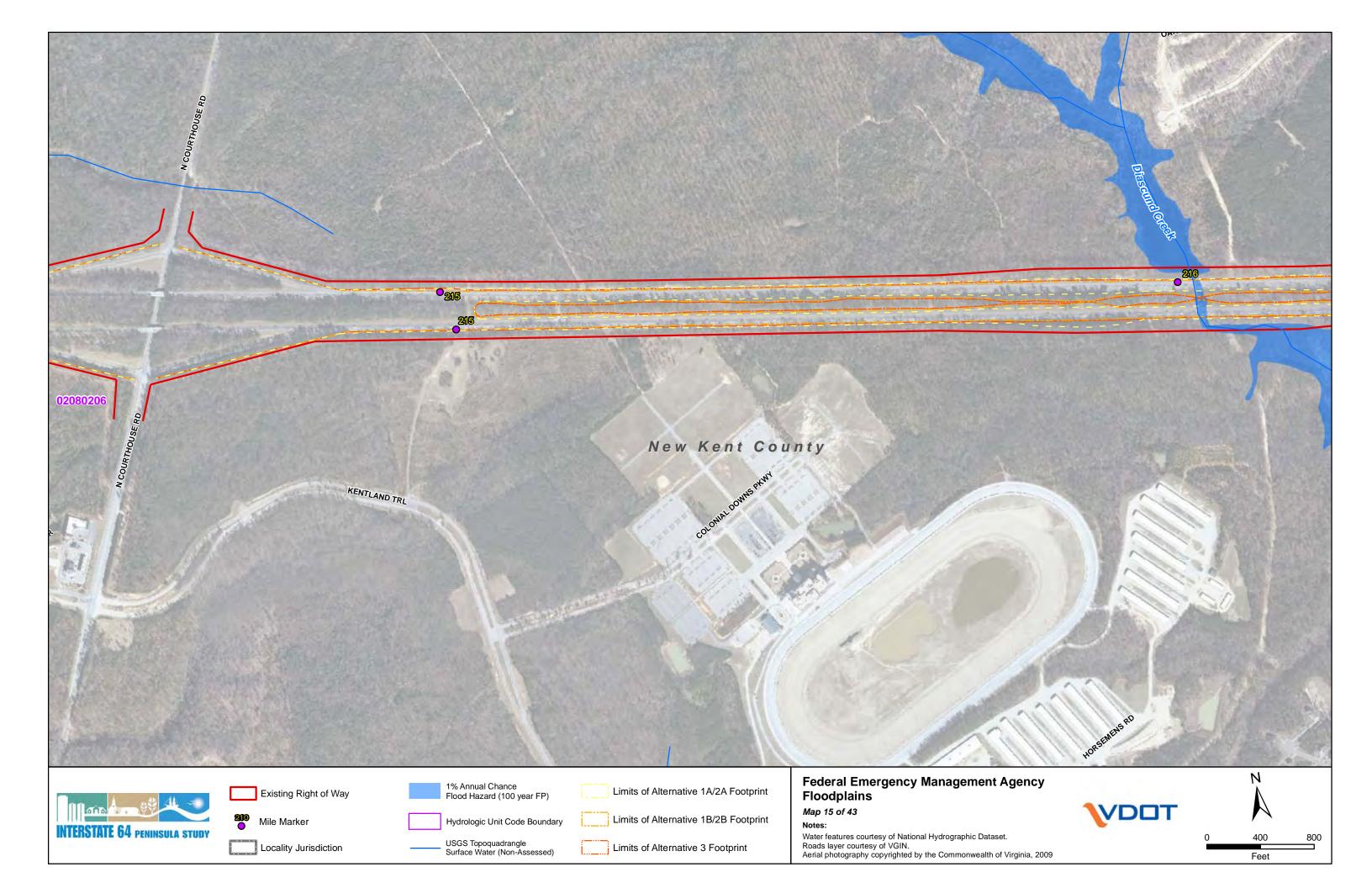


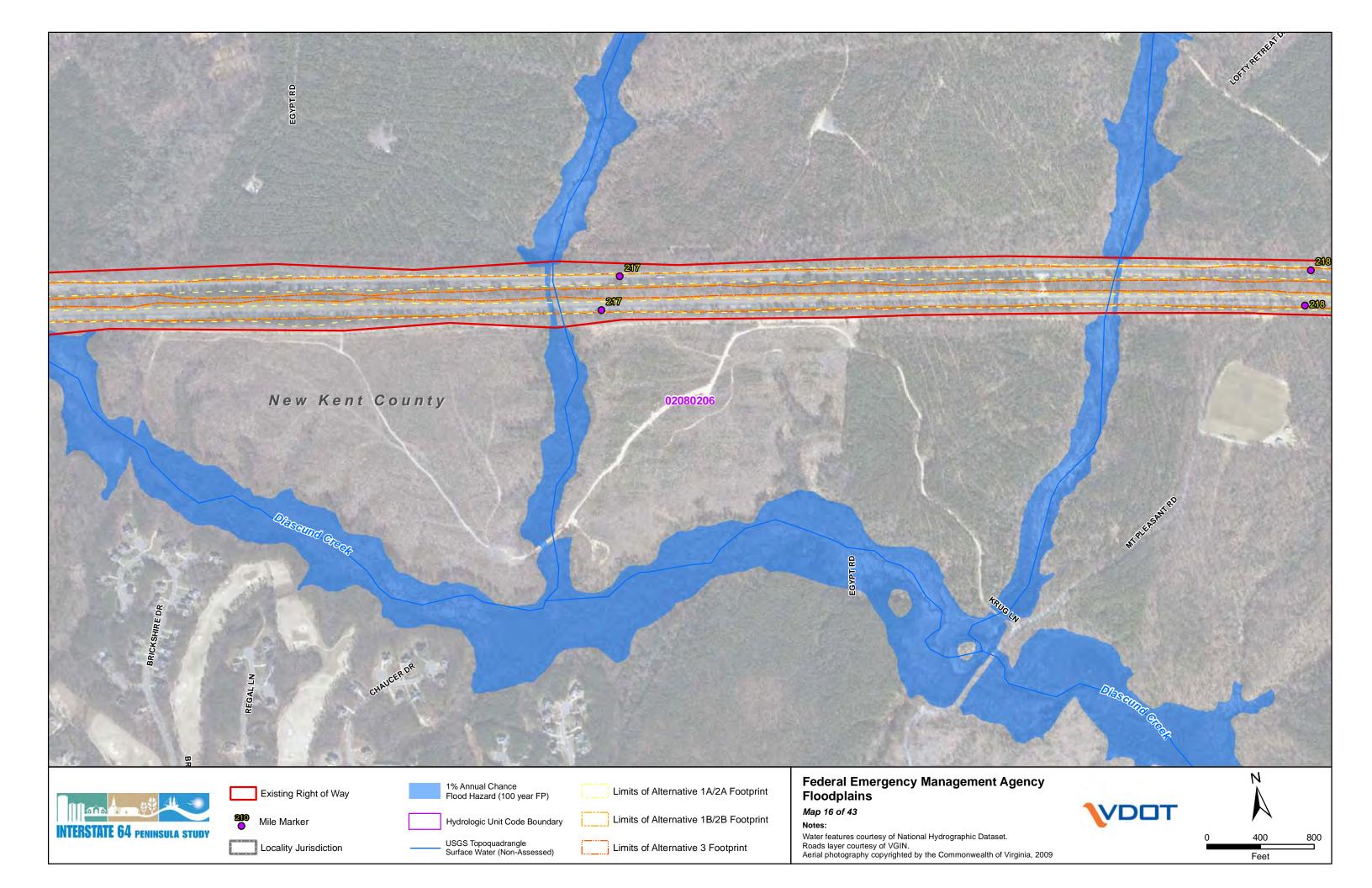


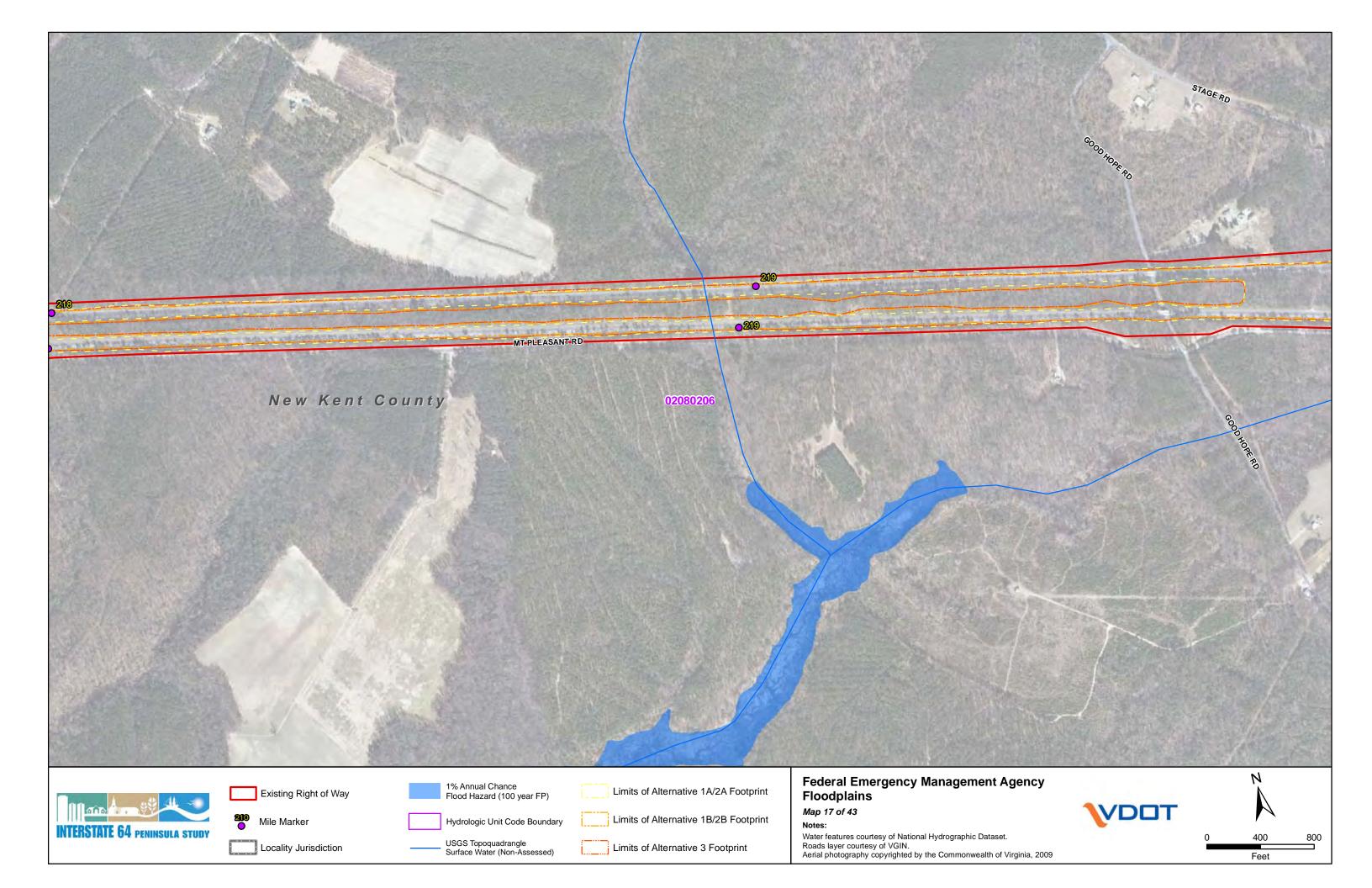


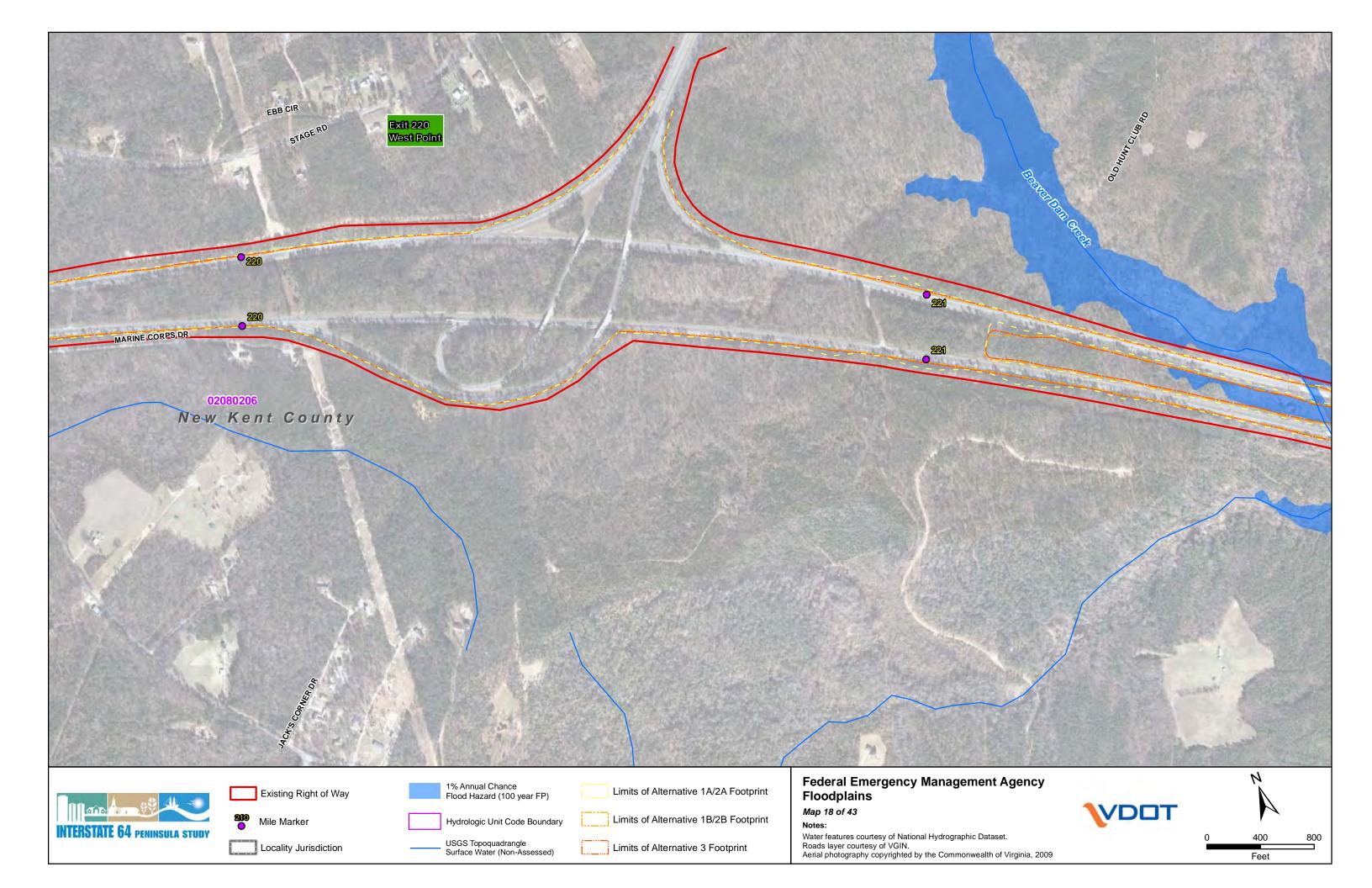


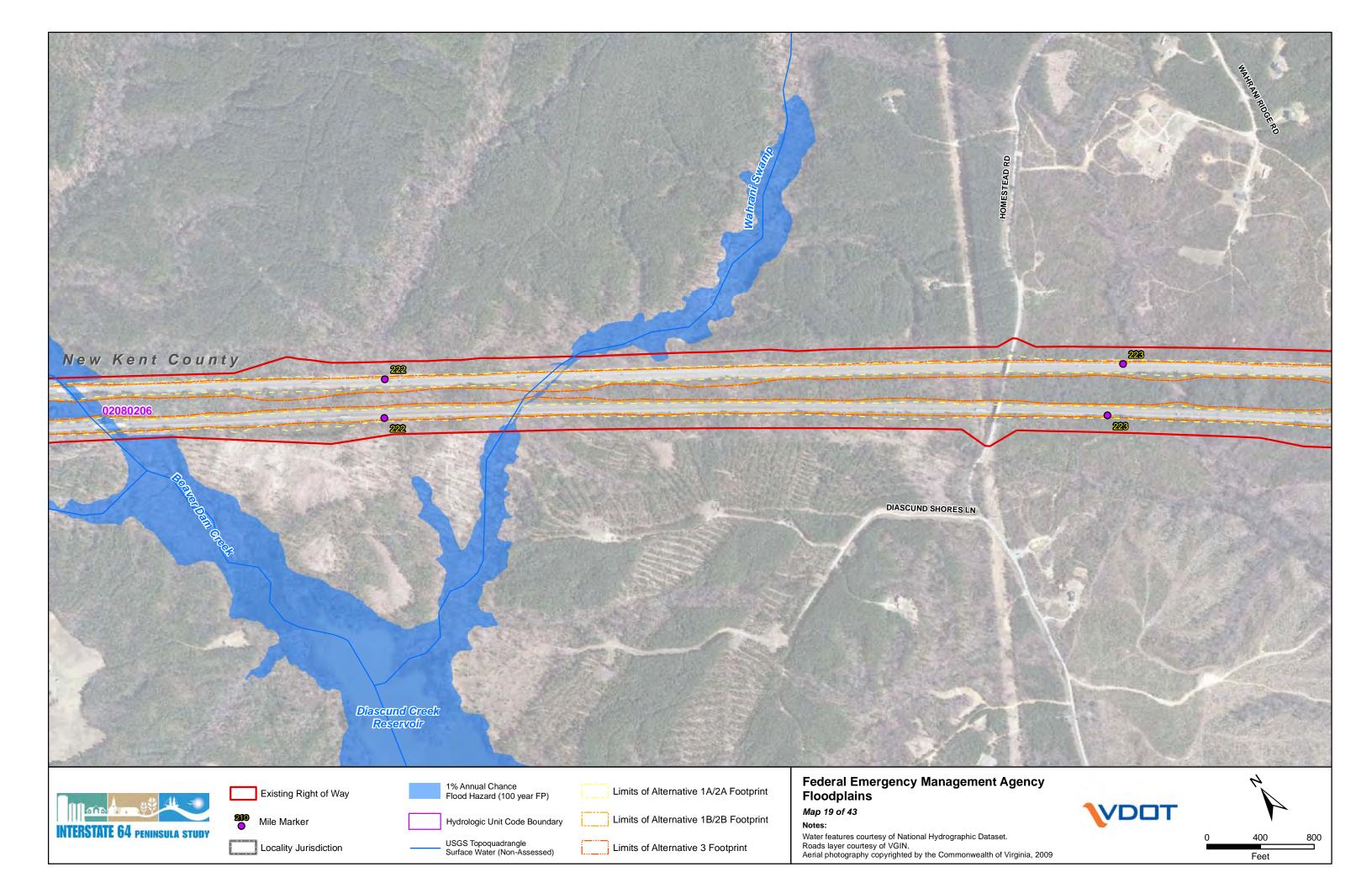


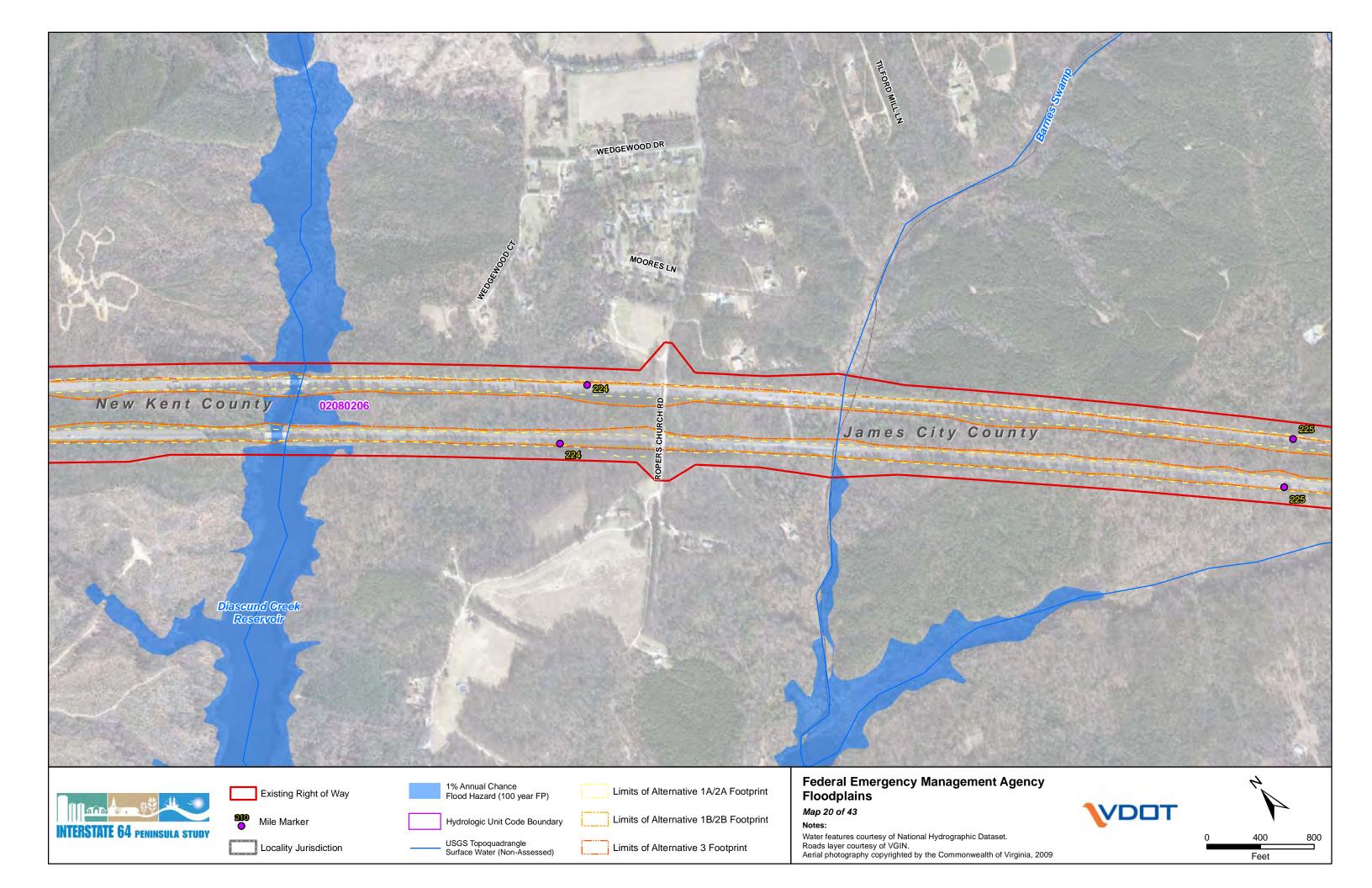


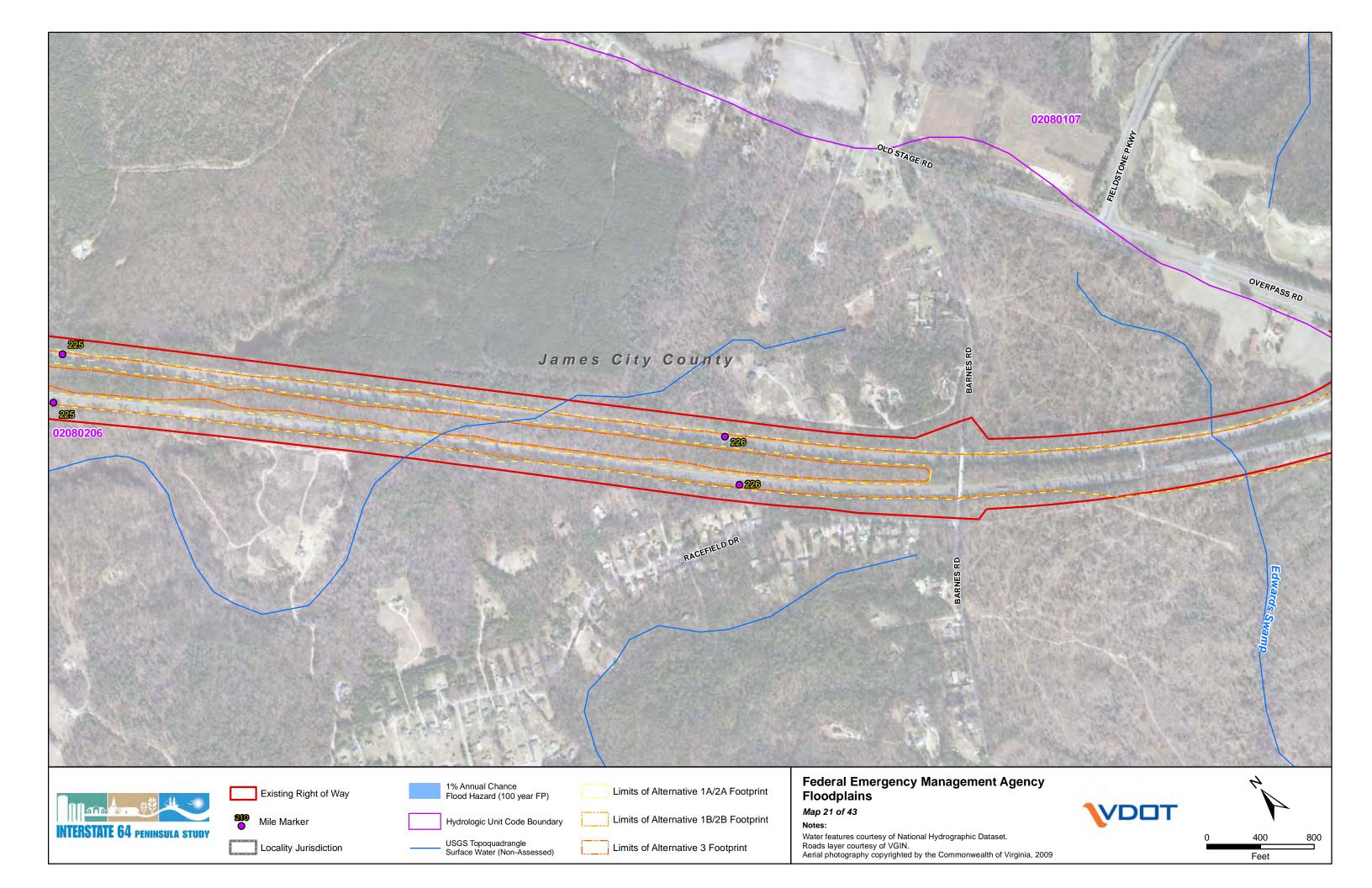


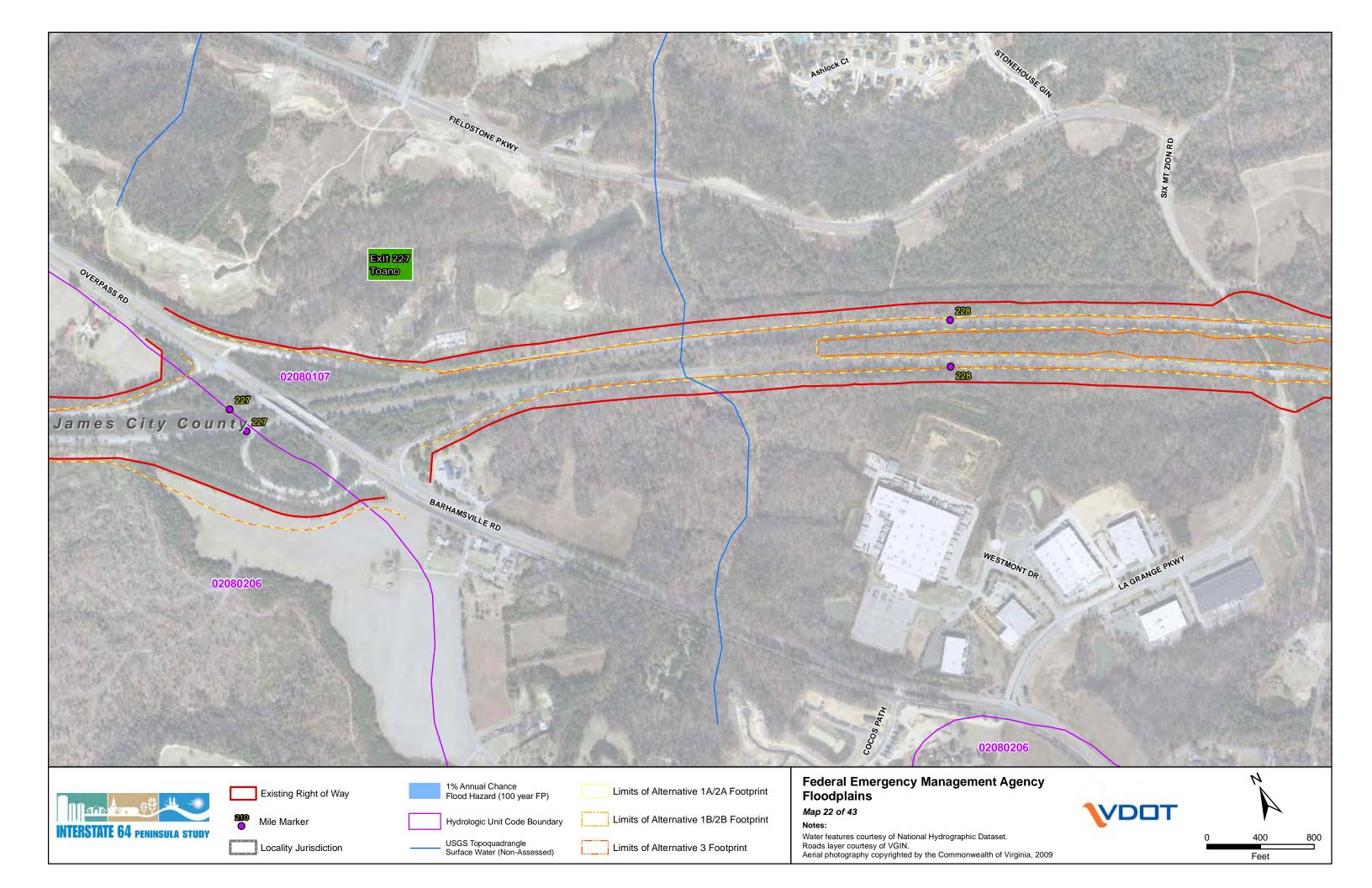


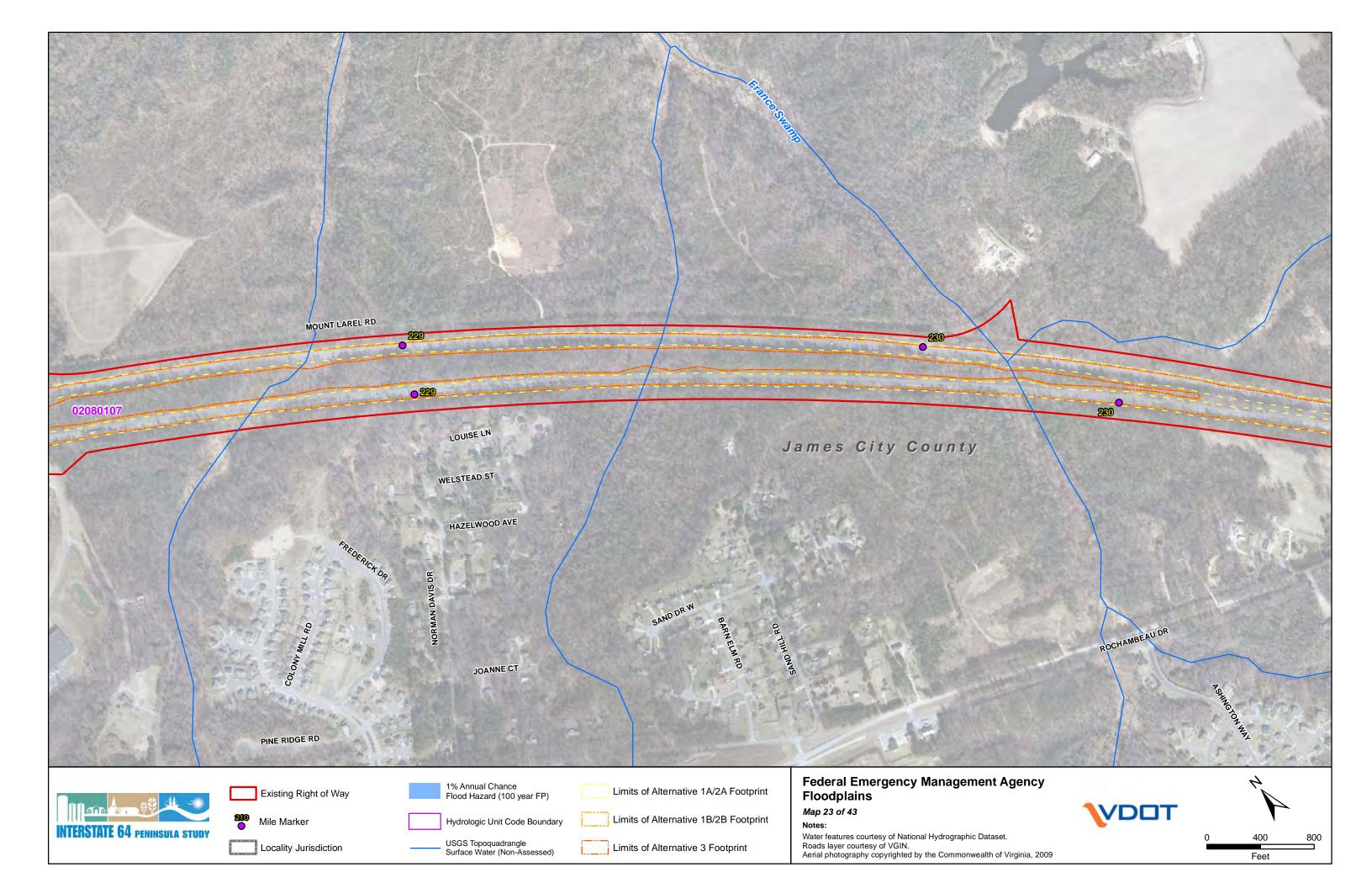


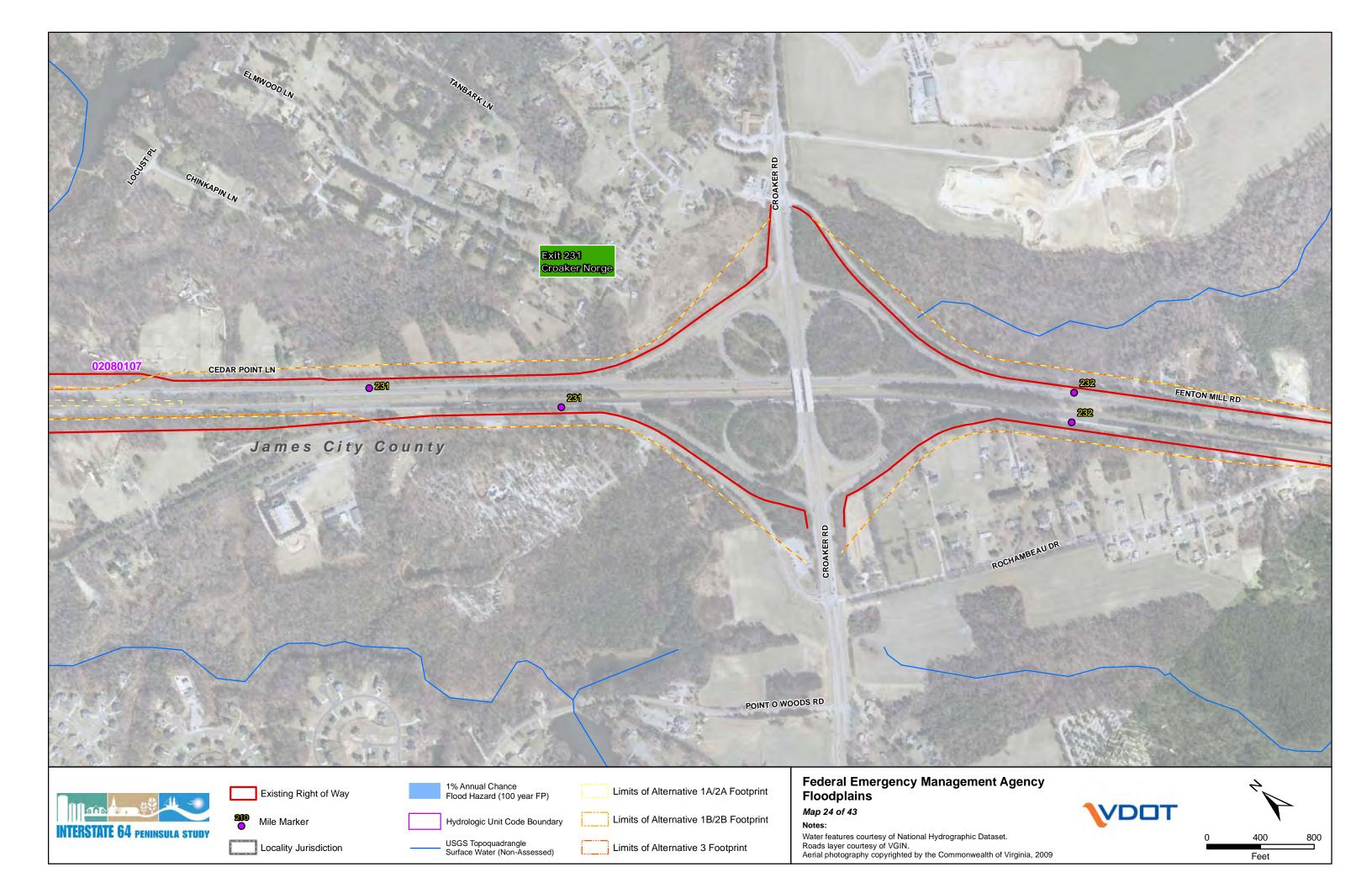


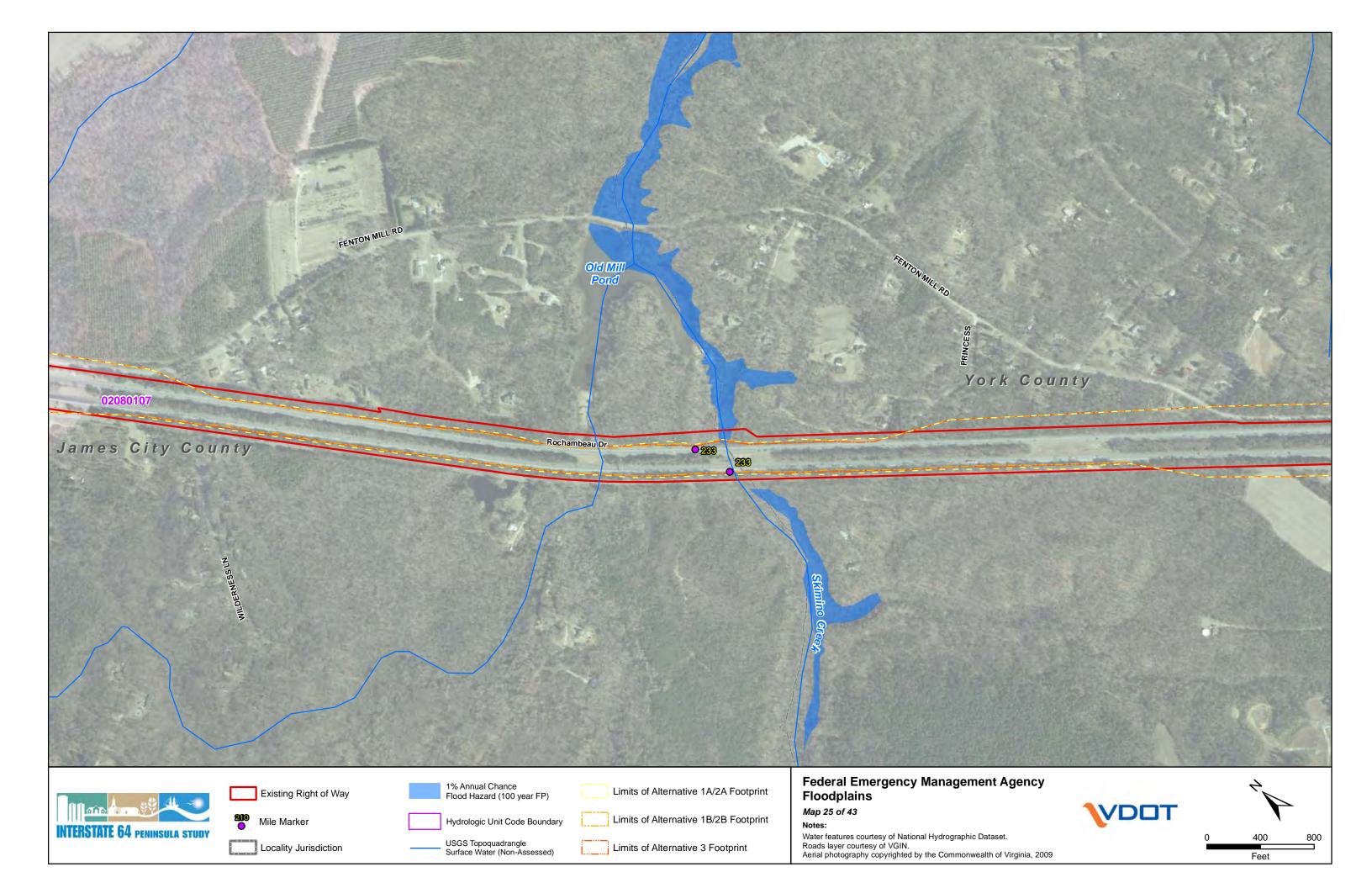


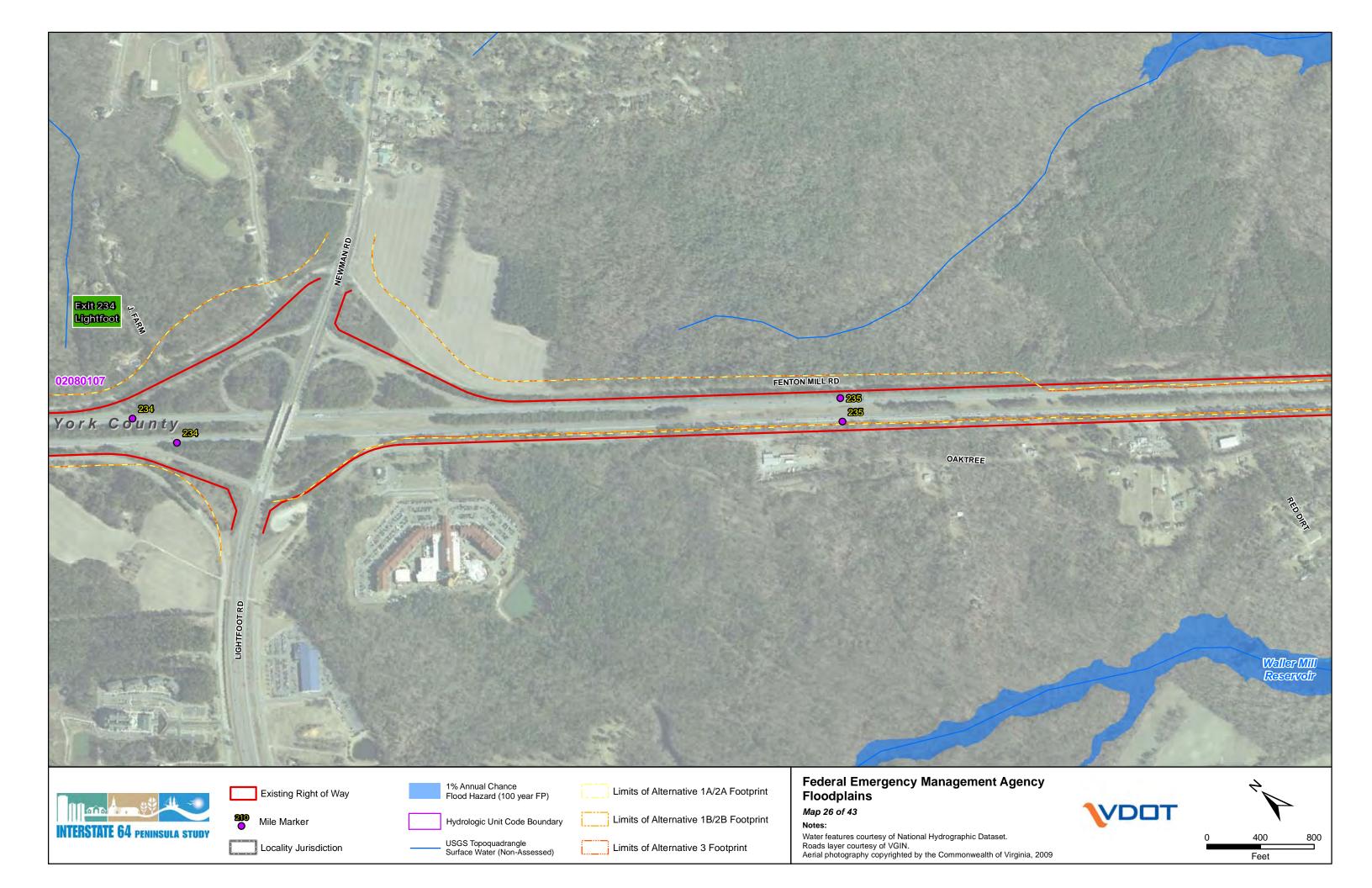


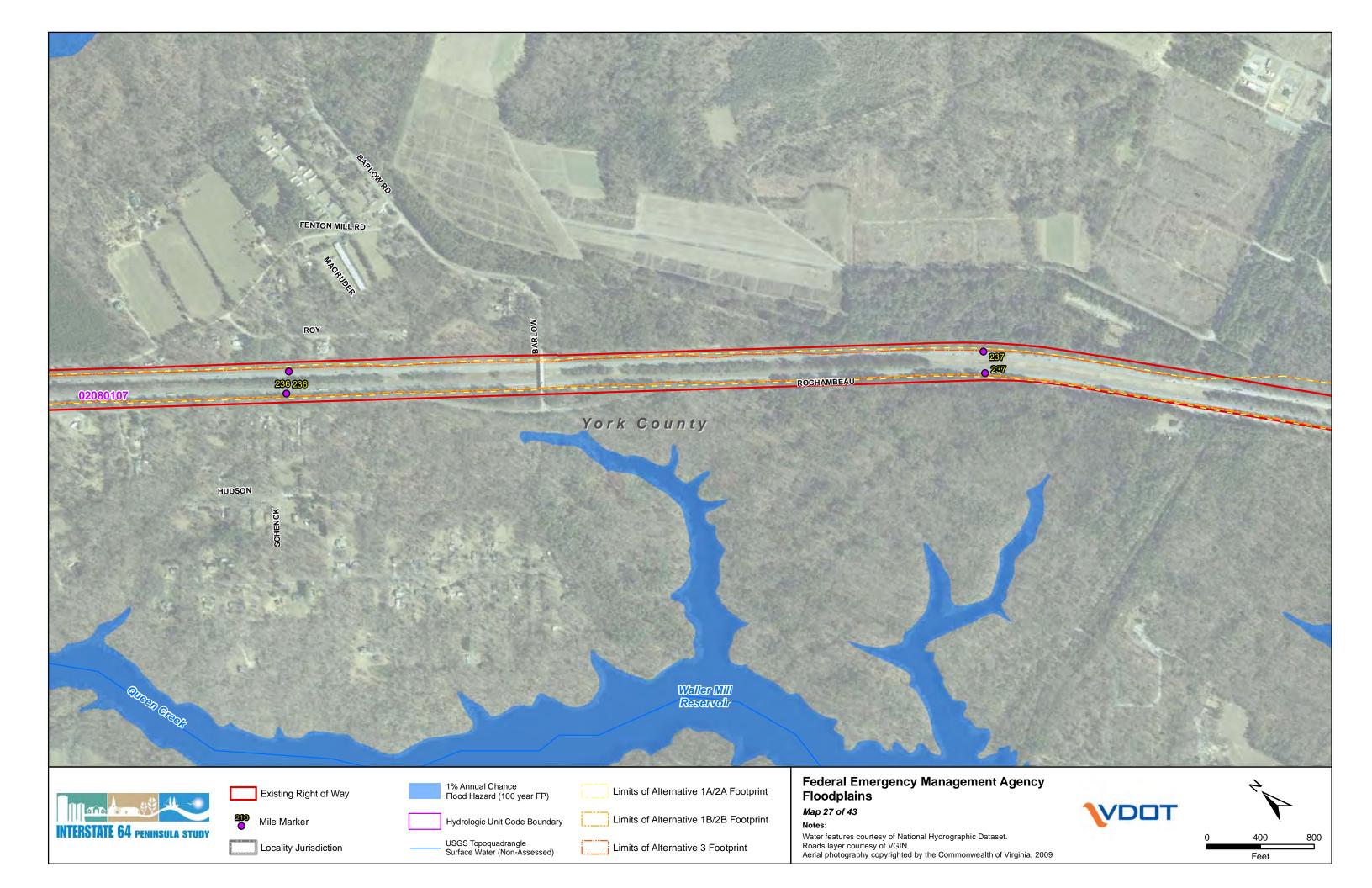


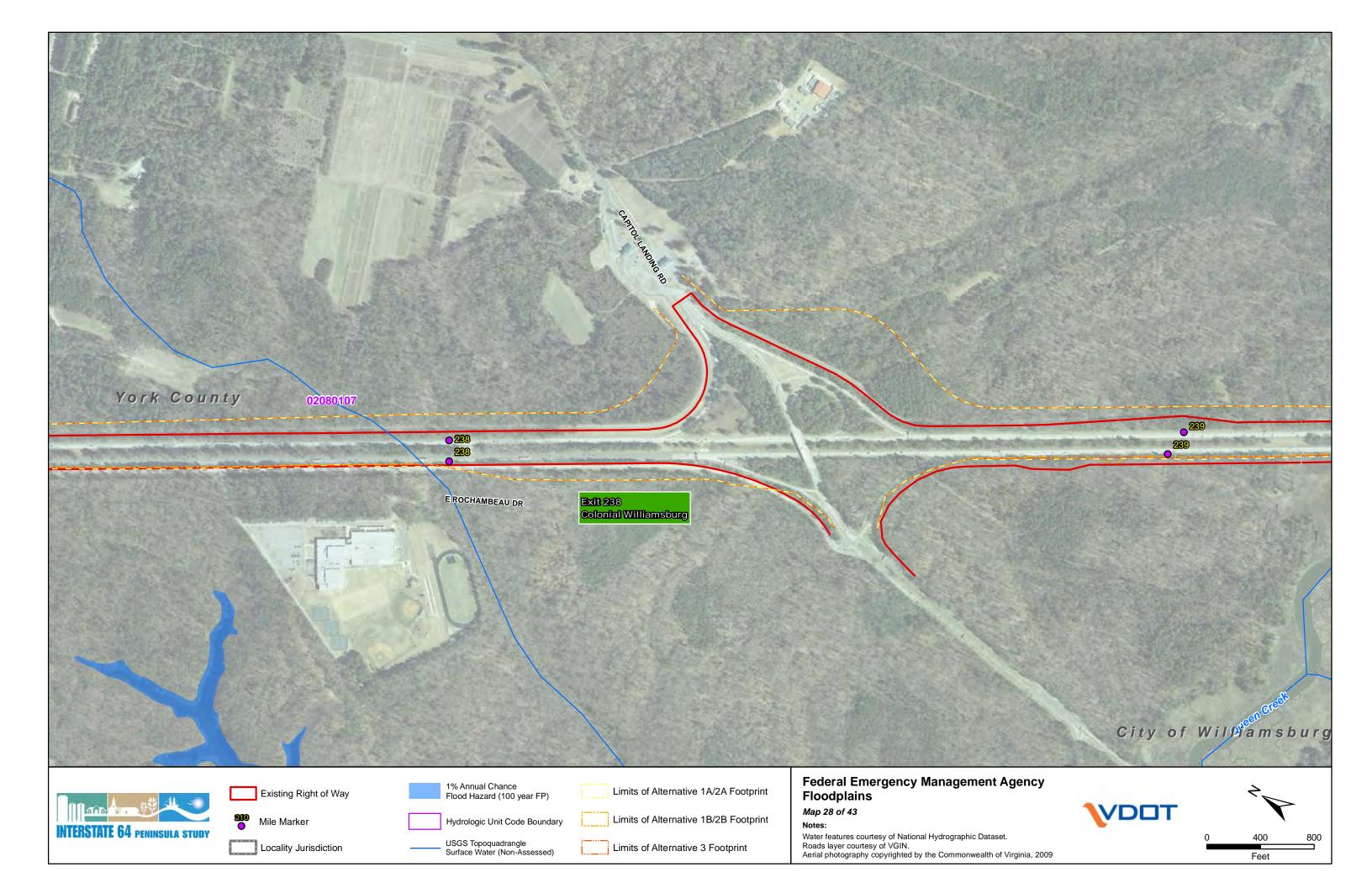


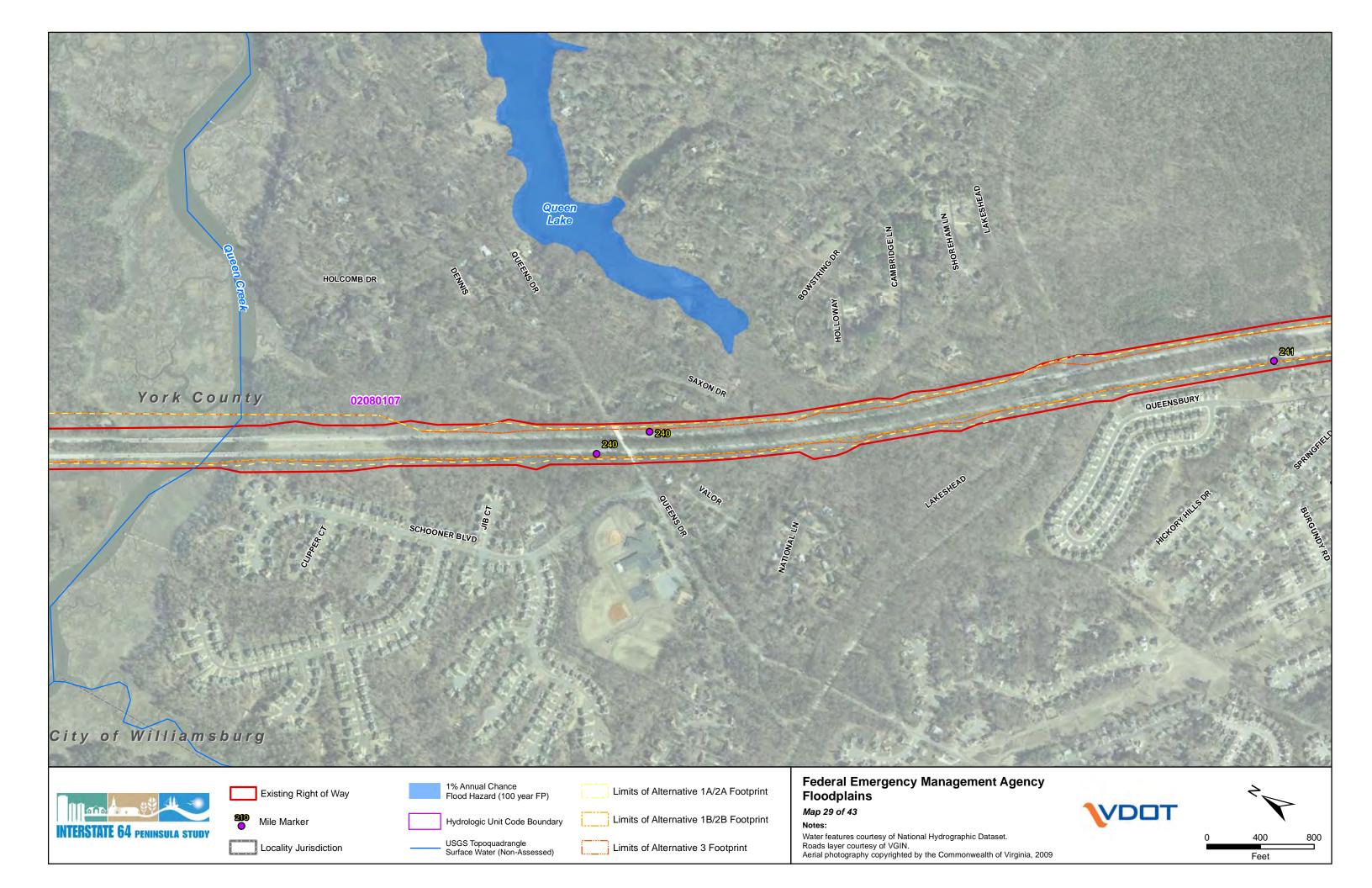


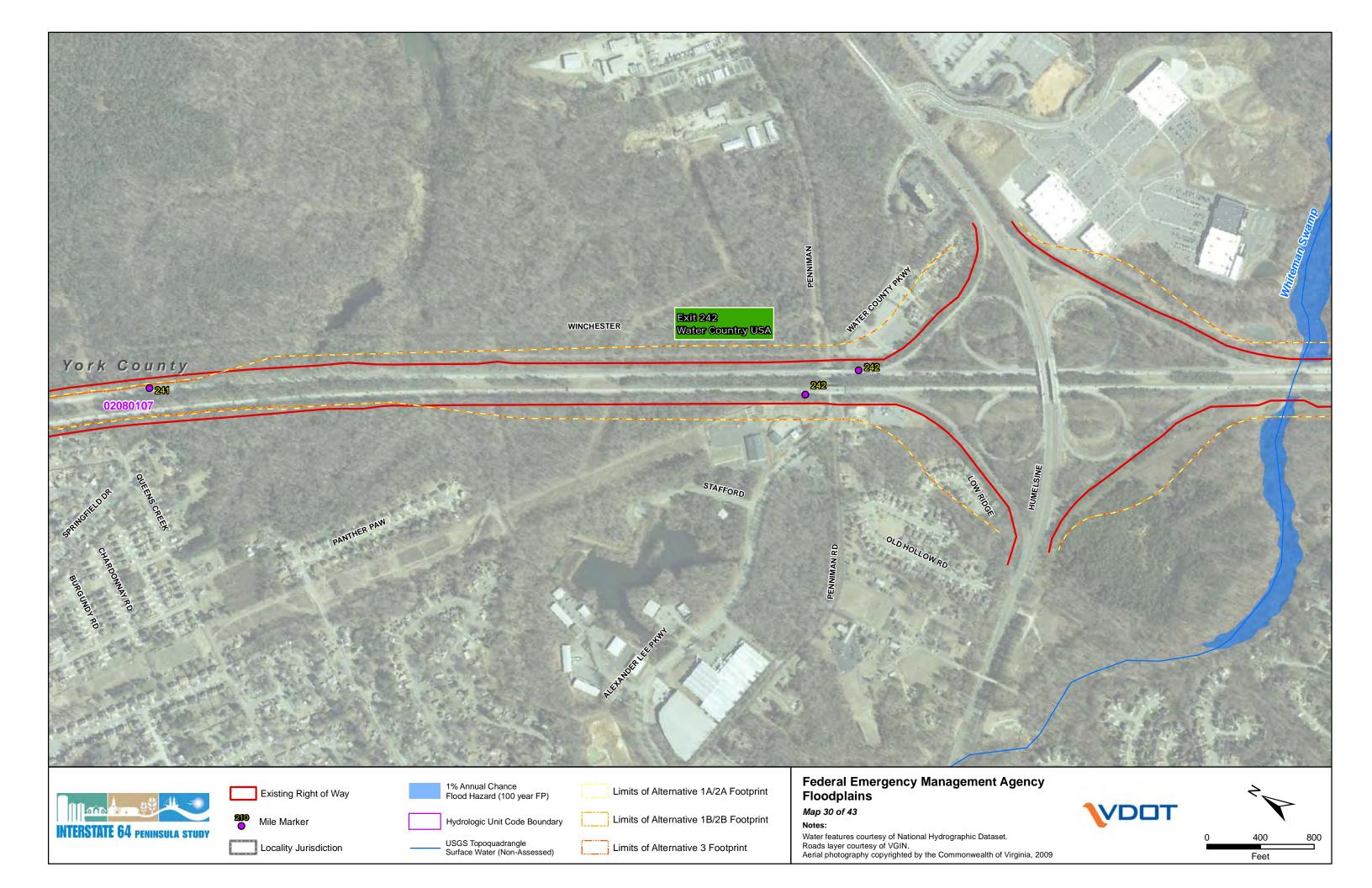


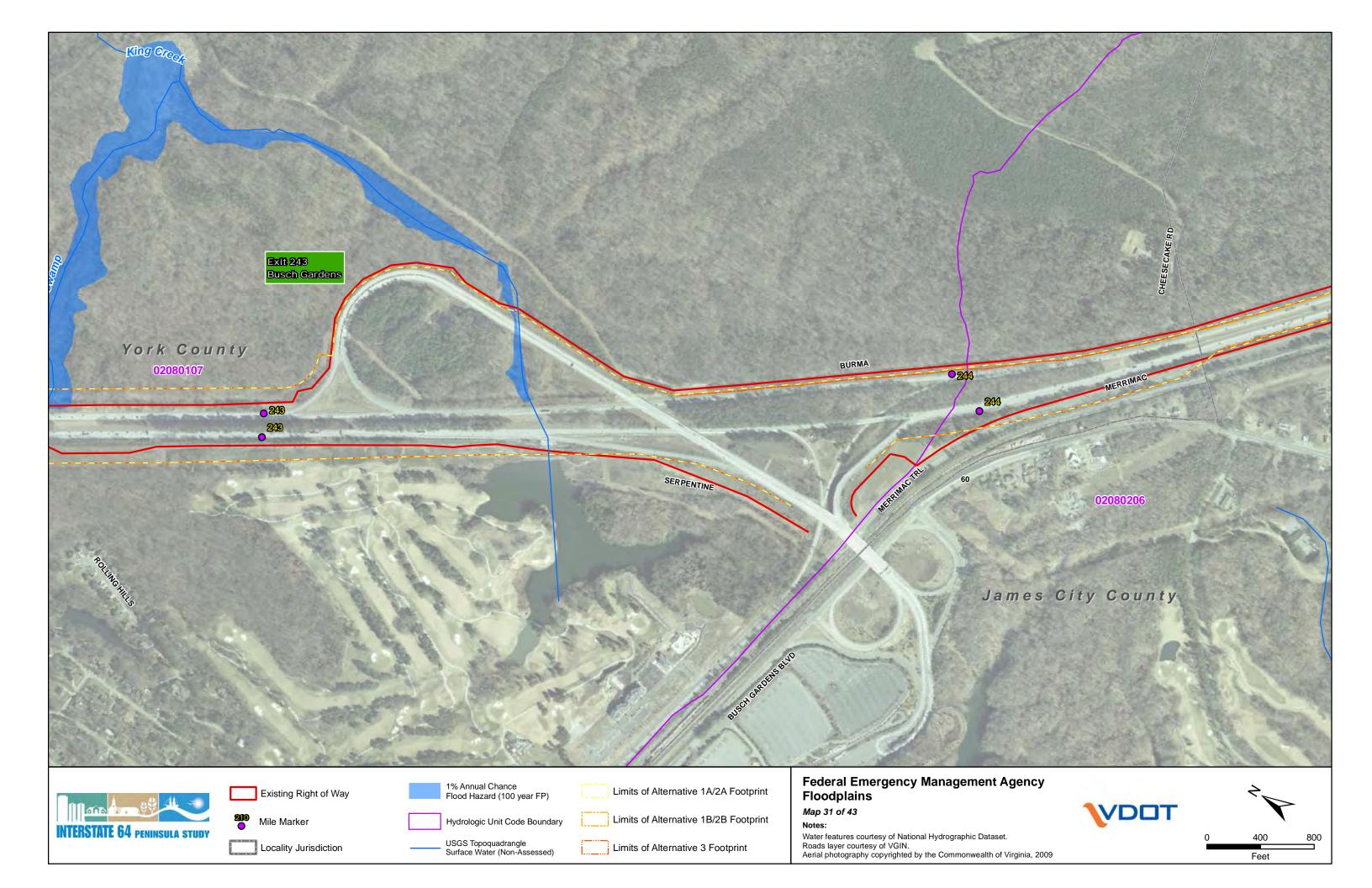


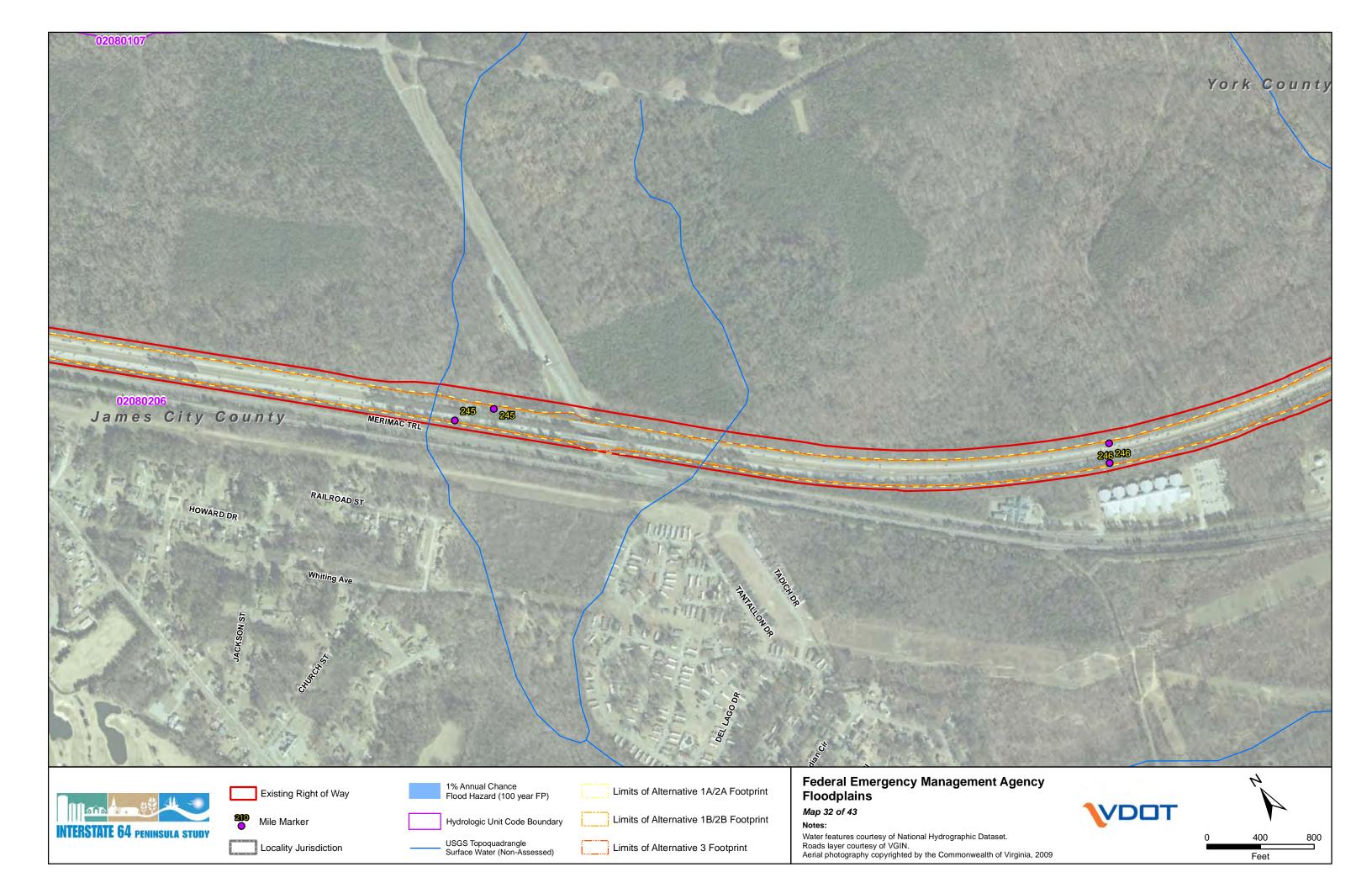


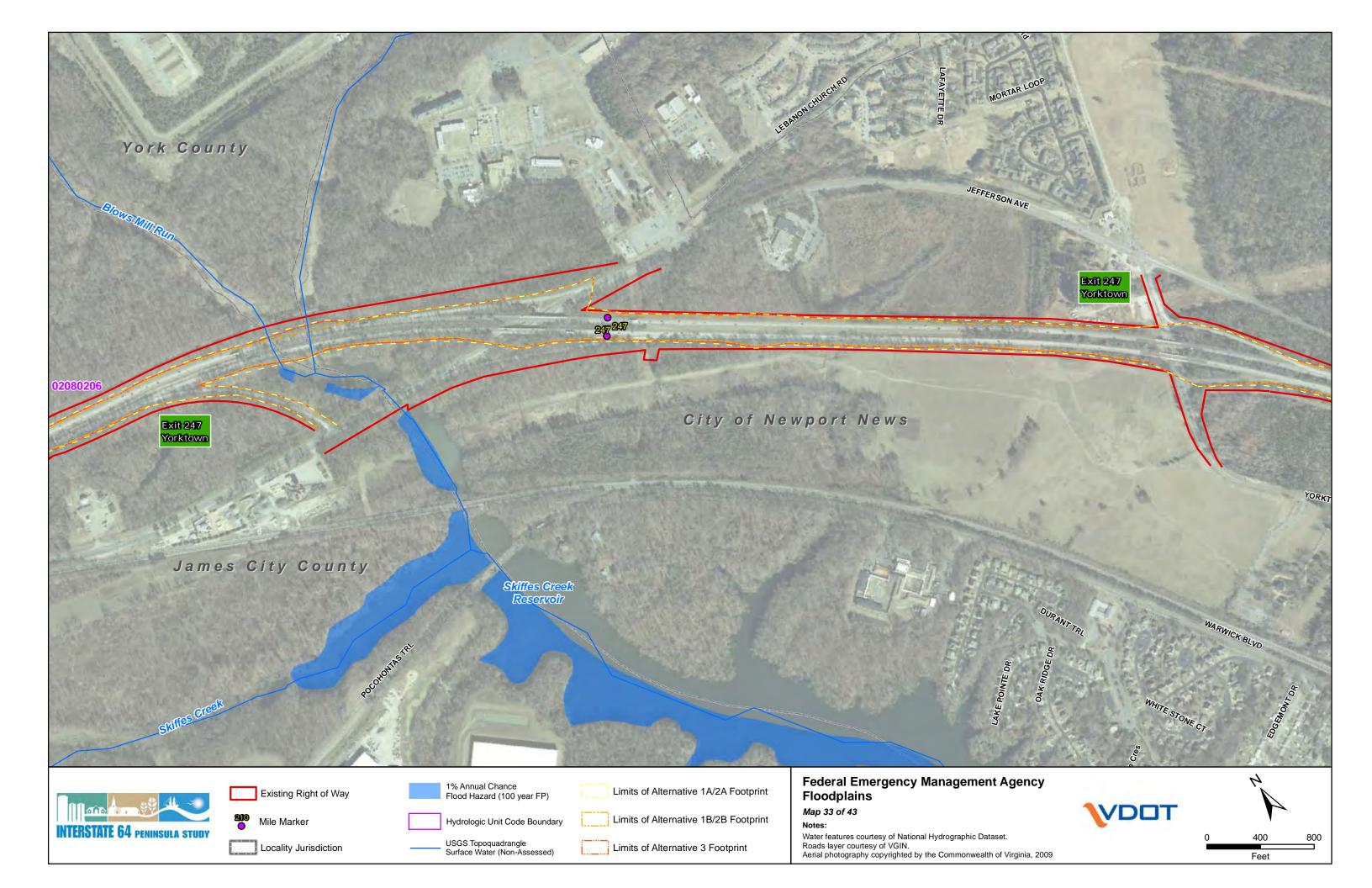


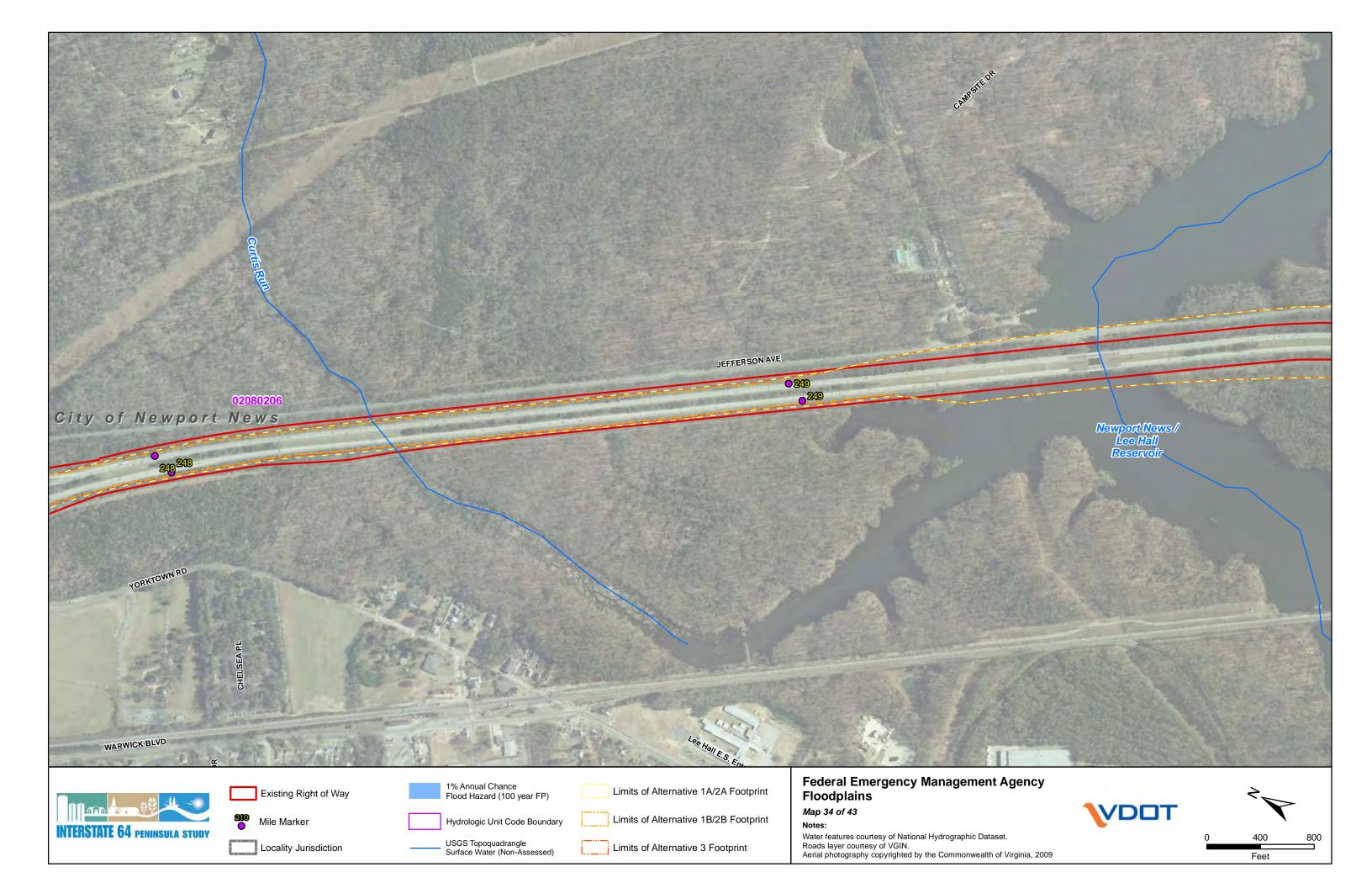


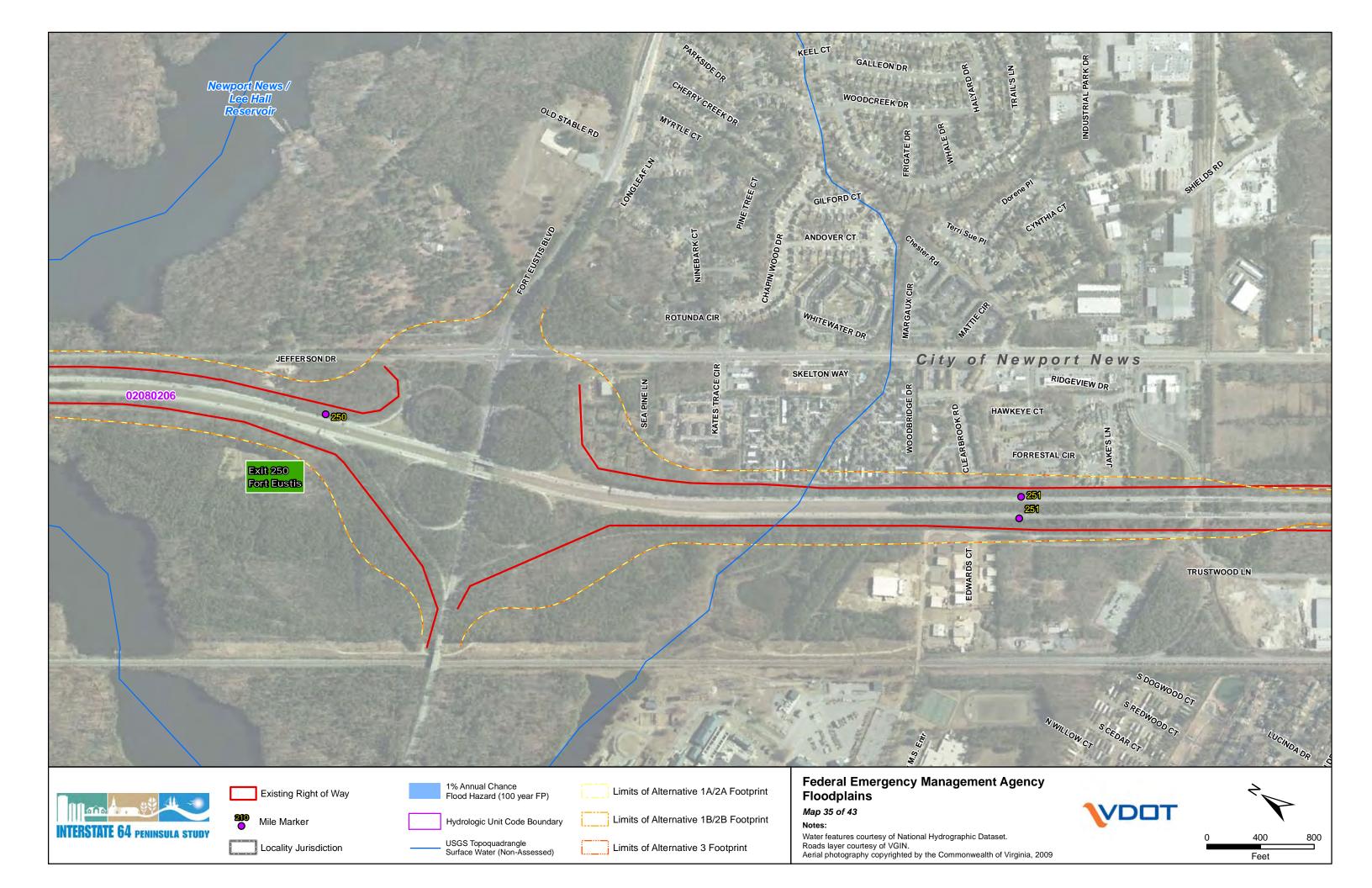


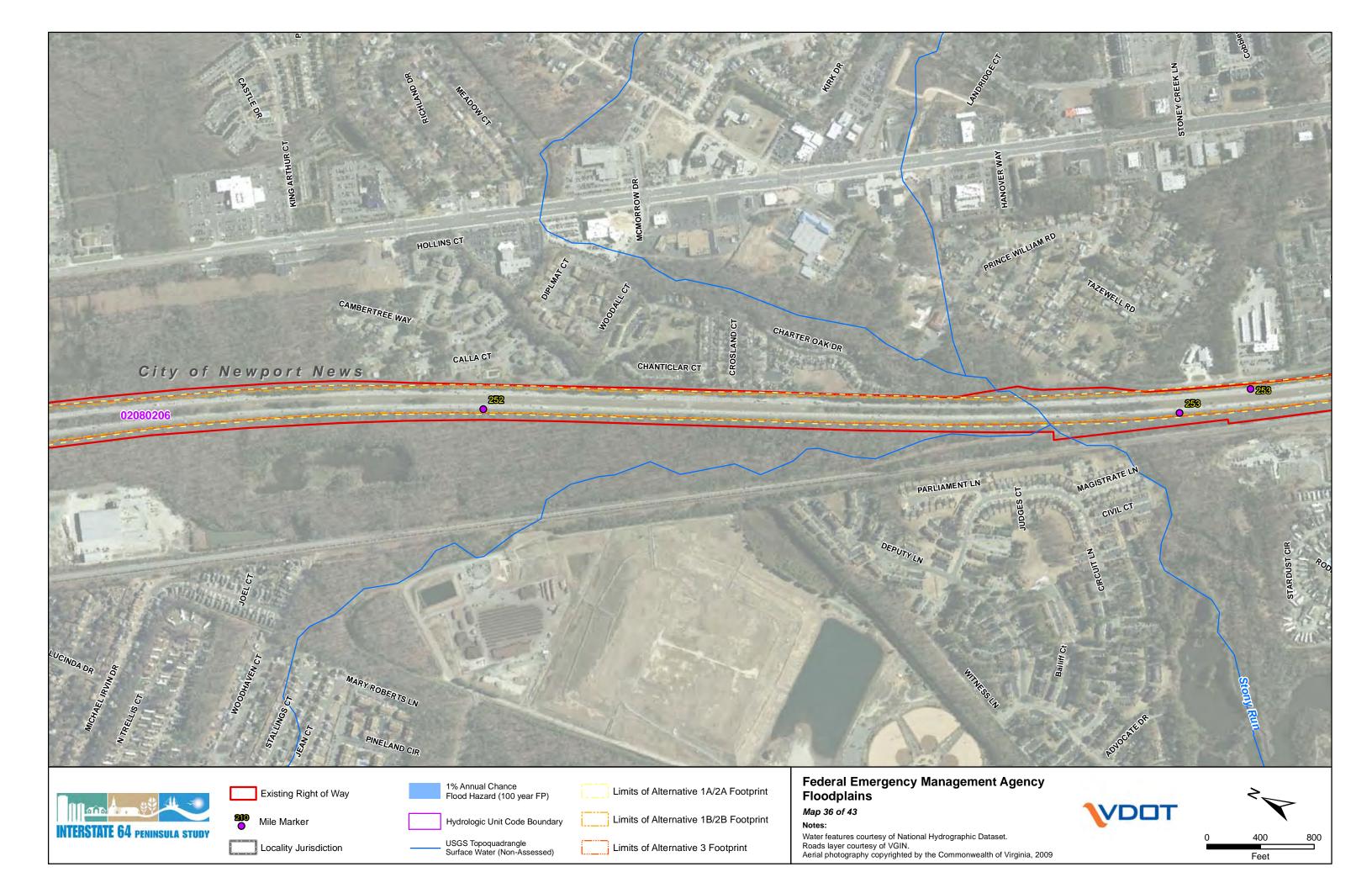


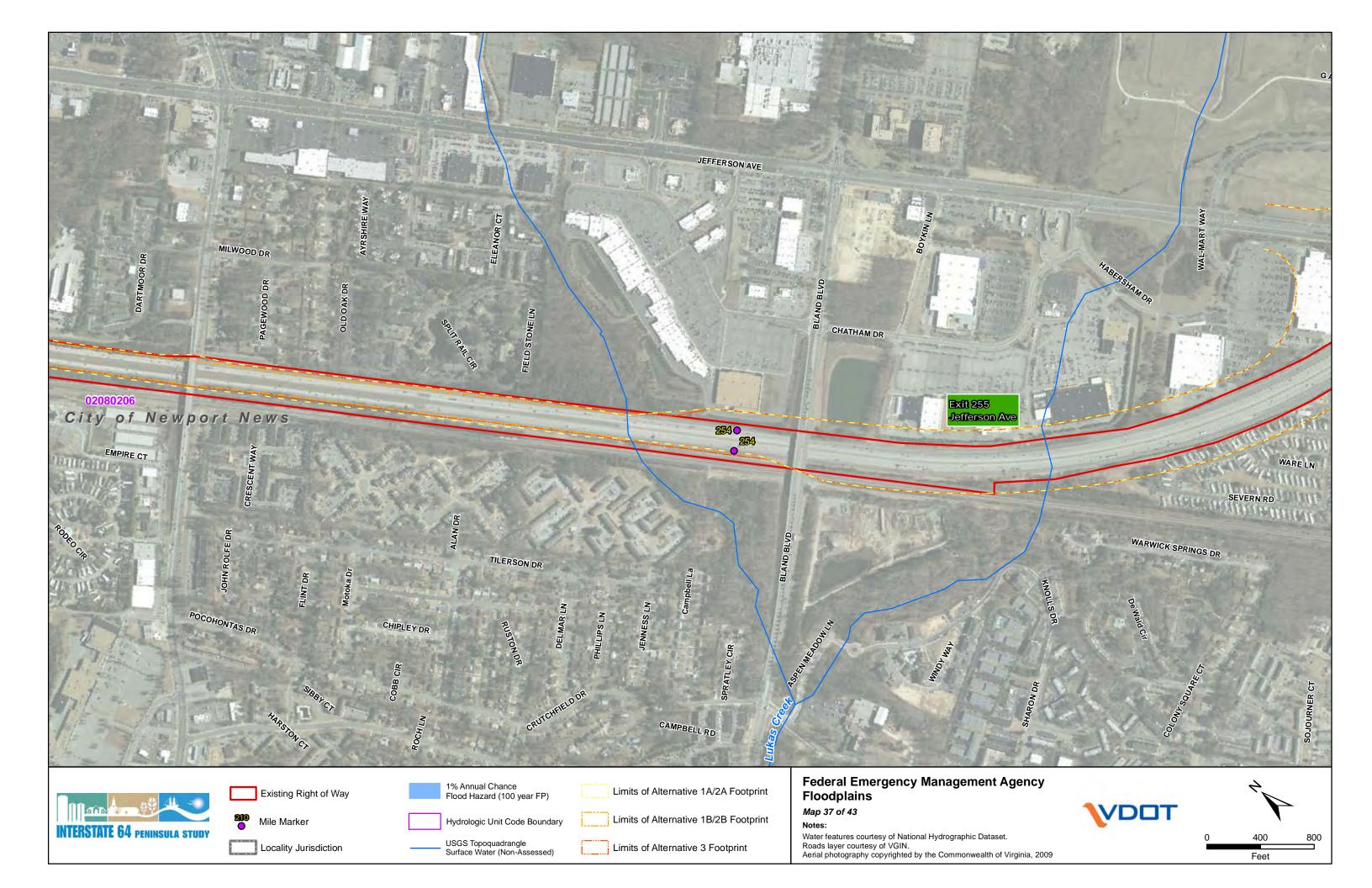


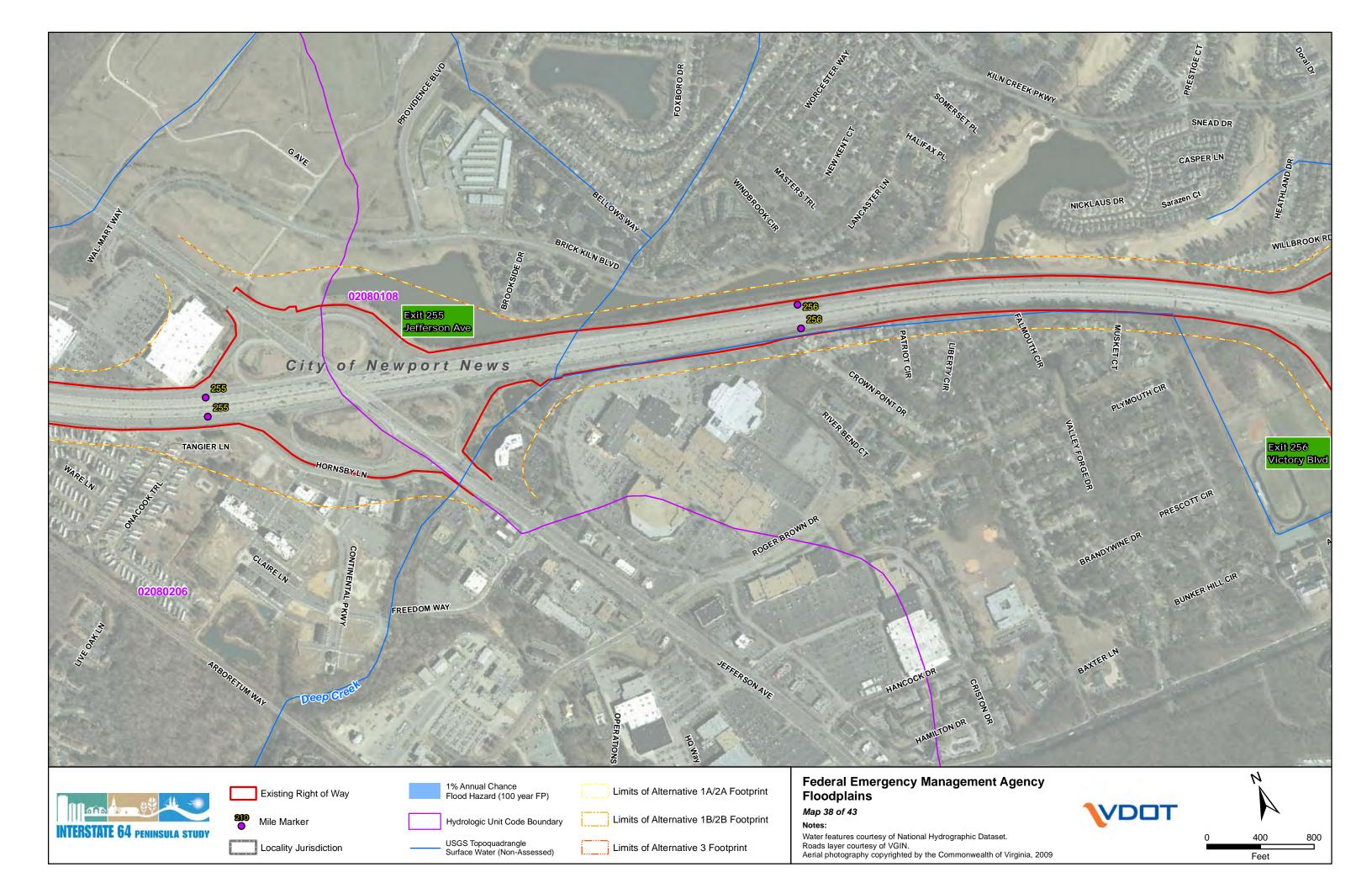


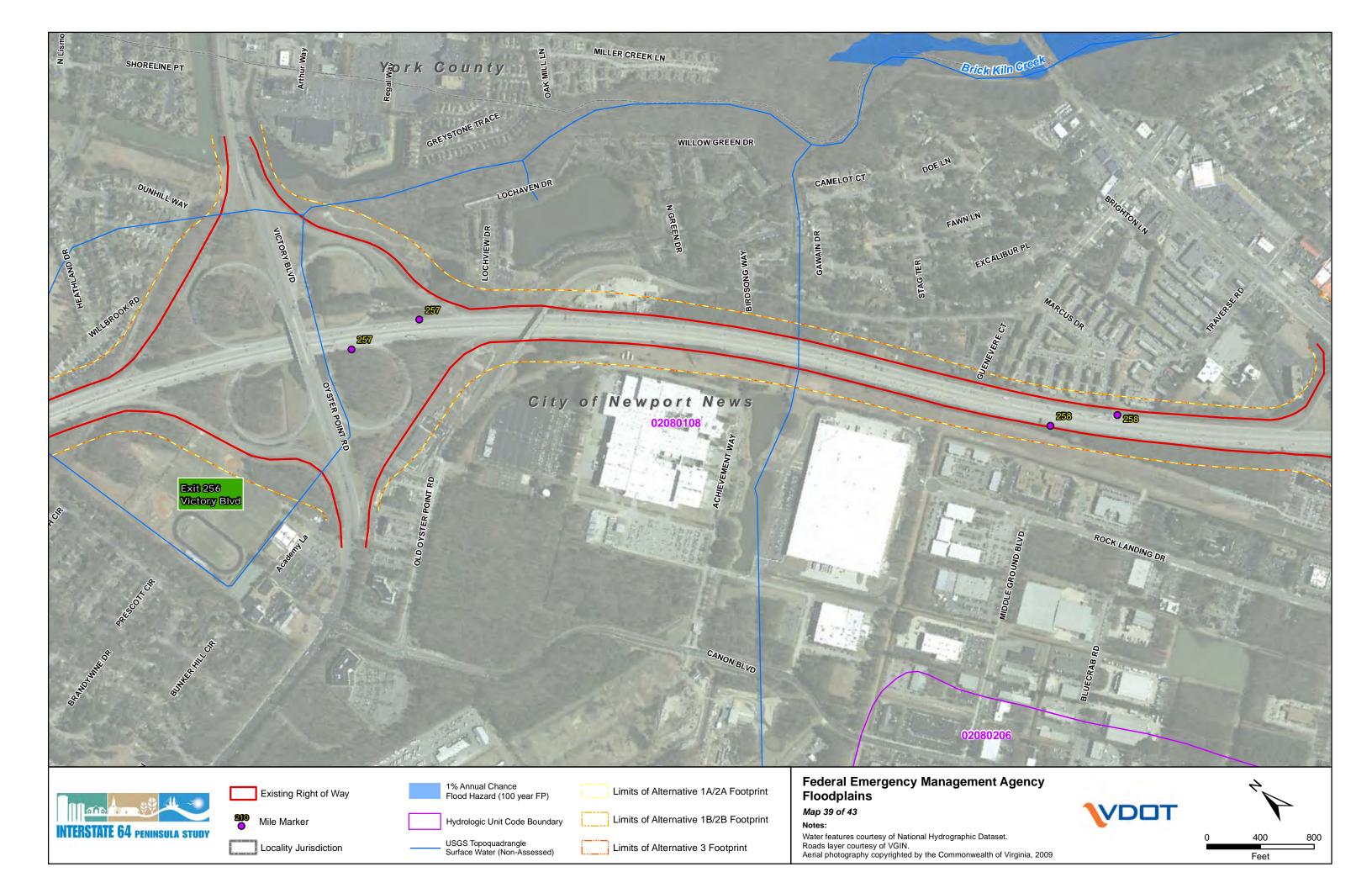


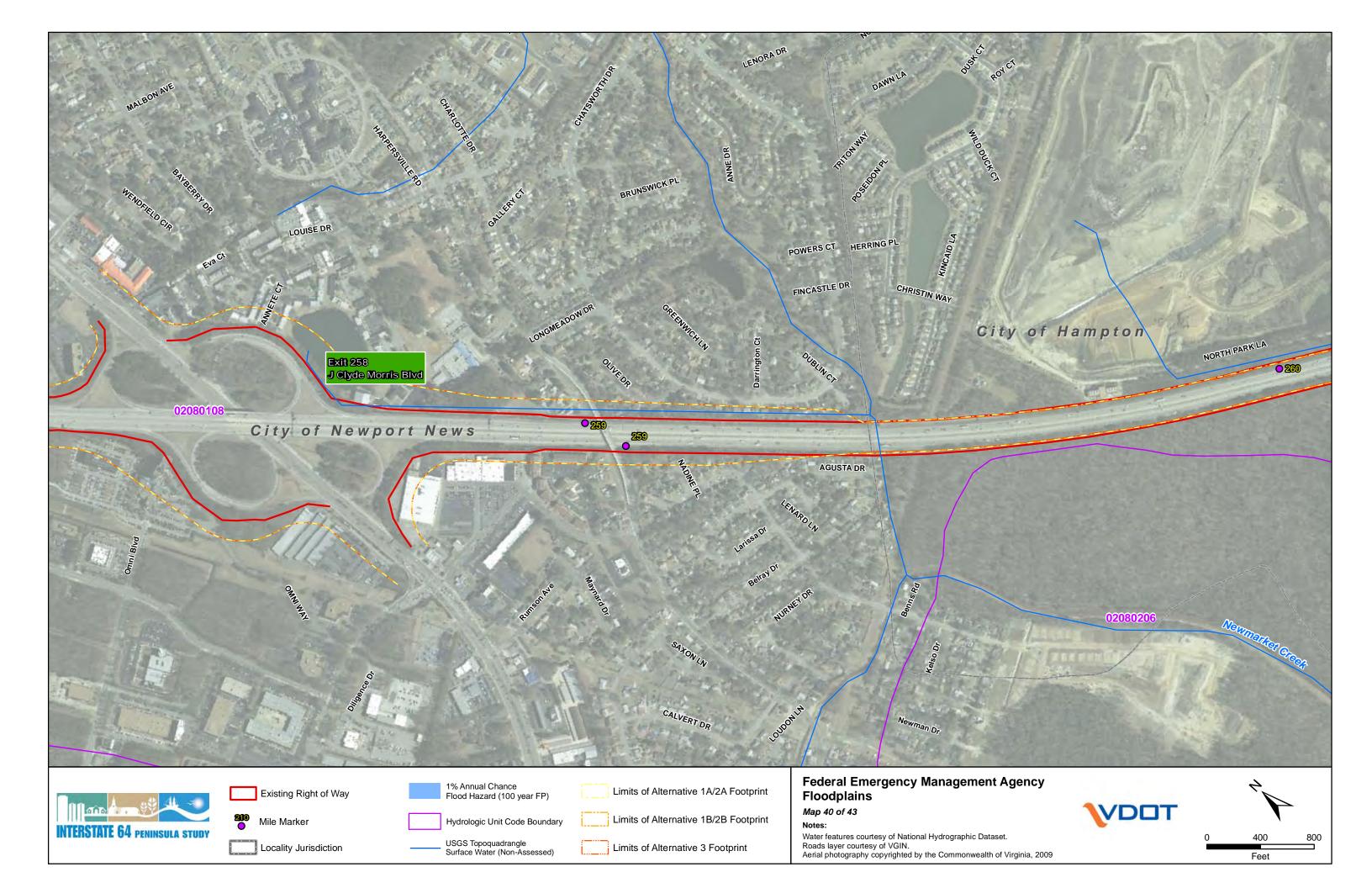


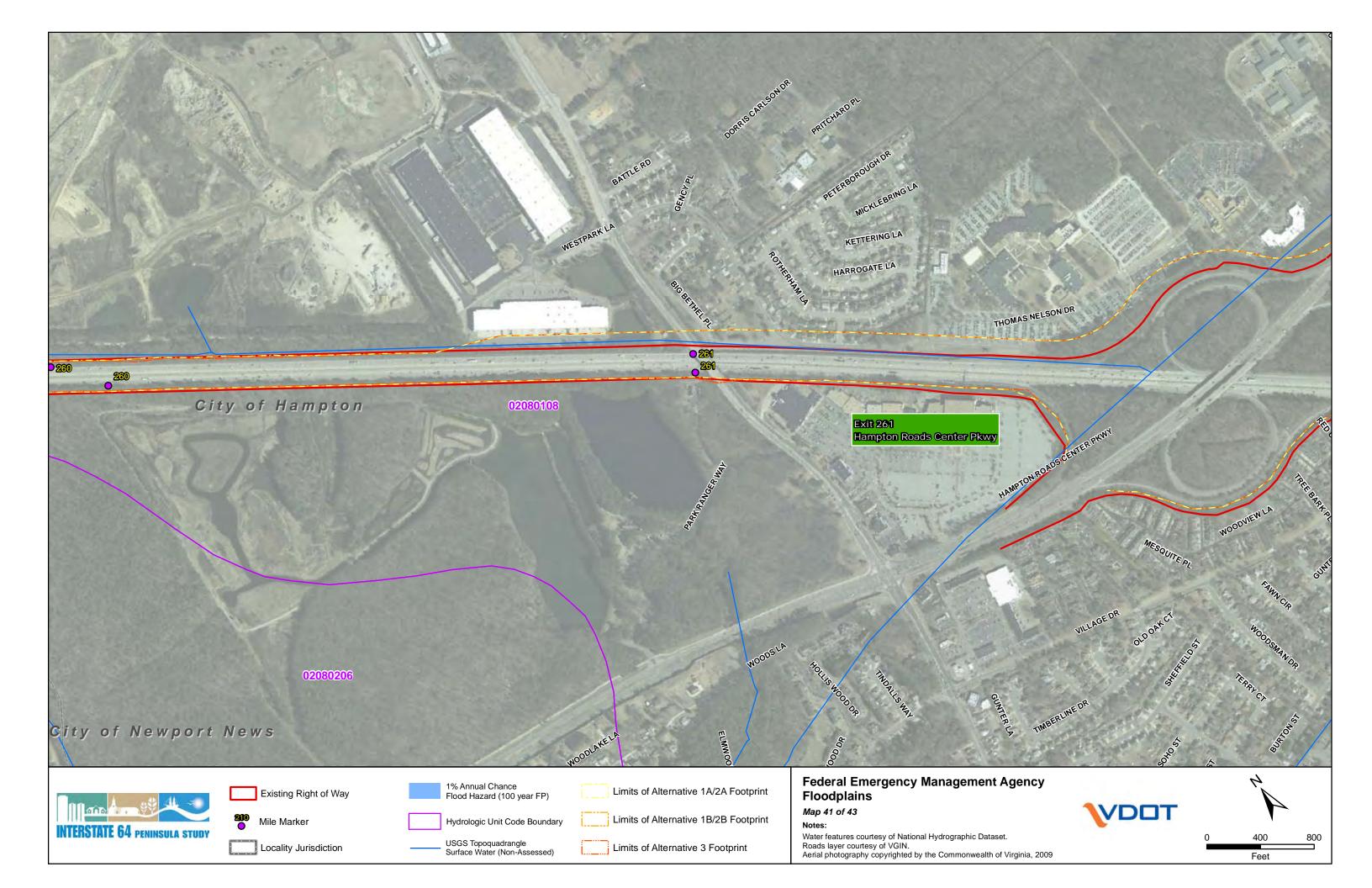


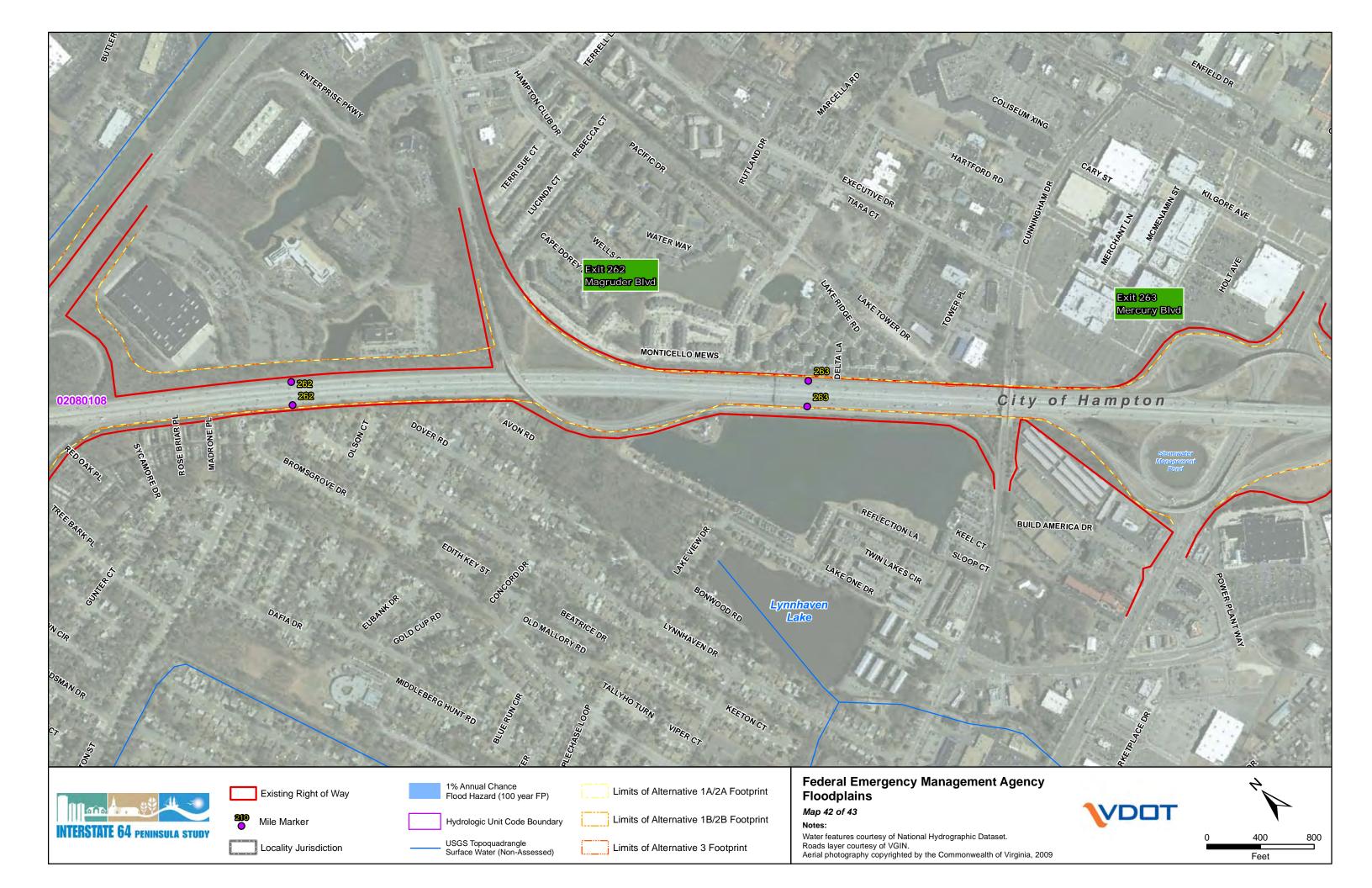


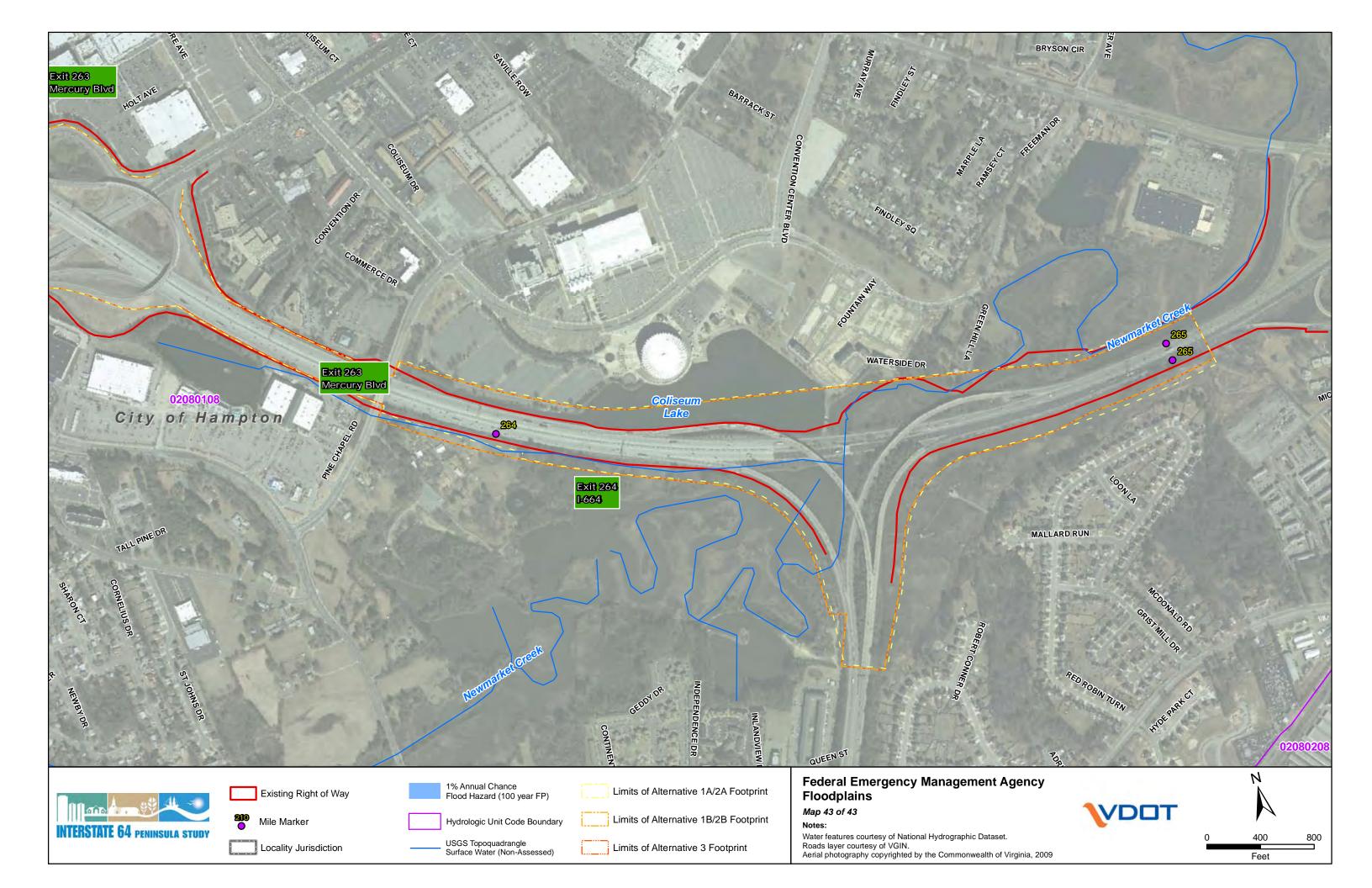


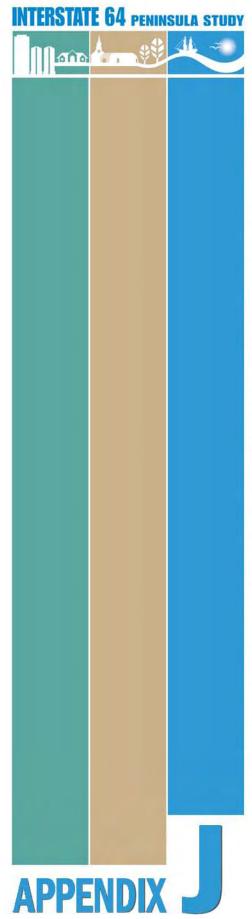












Threatened and Endangered Species, and Other Natural Heritage Resources Information

David A. Johnson Director



COMMONWEALTH of VIRGINIA DEPARTMENT OF CONSERVATION AND RECREATION

203 Governor Street
Richmond, Virginia 23219-2010
(804) 786-1712

MEMORANDUM

DATE:

March 14, 2011

TO:

Nicholas Niess, VDOT

FROM:

Roberta Rhur, Environmental Impact Review Coordinator

SUBJECT:

DCR 11-003, VDOT I-64 Peninsula Study

Division of Planning and Recreational Resources

The Department of Conservation and Recreation (DCR), Division of Planning and Recreational Resources (PRR), develops the *Virginia Outdoors Plan* and coordinates a broad range of recreational and environmental programs throughout Virginia. These include the Virginia Scenic Rivers program; Trails, Greenways, and Blueways; Virginia State Park Master Planning and State Park Design and Construction.

The project crosses the Chickahominy River, a potential scenic resource. As such we recommend that any impacts to the river crossing be mitigated using native plants to stabilized land disturbance in the project area.

Division of Natural Heritage

The Department of Conservation and Recreation's Division of Natural Heritage (DCR) has searched its Biotics Data System for occurrences of natural heritage resources from the area outlined on the submitted map. Natural heritage resources are defined as the habitat of rare, threatened, or endangered plant and animal species, unique or exemplary natural communities, and significant geologic formations.

According to the information currently in our files, numerous natural heritage resources have been documented within 2 miles of the project area (see attached table).

In addition, according to Chris Ludwig, DCR chief biologist, there is potential for Small whorled pogonia (*Isotria medeoloides*, G2/S2/LT/LE) and Swamp pink (*Helonias bullata*, G3/S2S3/LT/LE) to occur in the project area. Small whorled pogonia grows in a variety of woodland habitats in Virginia, but tends to favor mid-aged woodland habitats on gently north or northeast facing slopes often within small draws. It is quite natural for plants of this species to remain dormant in the soil for long periods of time. Direct destruction, as well as habitat loss and alteration, are principle reasons for the species' decline (Ware, 1991). Please note that this species is currently classified as threatened by the United States Fish and Wildlife Service (USFWS) and as endangered by the Virginia Department of Agriculture and Consumer Services (VDACS).

Swamp pink inhabits groundwater-influenced, perennially saturated, nutrient-poor headwater wetlands and is sensitive to hydrologic alterations to its habitat. The major direct threat to this species is habitat loss. Indirect threats result from activities that affect the hydrologic regime including such upslope activities as timber harvesting, land clearing and development, and agriculture. Downstream threats to the hydrology of a swamp pink habitat arise from flooding caused by road crossings with culverts that become blocked and beaver activity (VanAlstine, 1994). In Virginia, swamp-pink is currently known from 45 locations, 3 of which are historic. Please note that this species is currently classified as threatened by the USFWS and as endangered by the VDACS.

Under a Memorandum of Agreement established between the Virginia Department of Agriculture and Consumer Services (VDACS) and the Virginia Department of Conservation and Recreation (DCR), DCR represents VDACS in comments regarding potential impacts on state-listed threatened and endangered plant and insect species. Survey results should be coordinated with DCR-DNH and USFWS. Upon review of the results, if it is determined the species is present, and there is a likelihood of a negative impact on the species, DCR-DNH will recommend coordination with VDACS to ensure compliance with Virginia's Endangered Plant and Insect Species Act.

Furthermore, DCR recommends contacting the Center for Conservation Biology at the College of William and Mary, phone: 757-221-1645 or email: conbio@wm.edu to obtain updated bald eagle information. If bald eagle nests are identified within .25 miles of the project area, DCR recommends coordination with VDGIF to ensure compliance with protected species legislation.

Our files also indicate the Grafton Ponds Natural Area Preserve under DCR's jurisdiction in the project vicinity. For more information concerning this Natural Area Preserve, please contact Rebecca Wilson, Chesapeake Bay Region Steward at (804)225-2303 or rebecca.wilson@dcr.virginia.gov.

New and updated information is continually added to Biotics. Please contact DCR for an update on this natural heritage information if a significant amount of time passes before it is utilized.

The Virginia Department of Game and Inland Fisheries maintains a database of wildlife locations, including threatened and endangered species, trout streams, and anadromous fish waters that may contain information not documented in this letter. Their database may be accessed from http://vafwis.org/fwis/ or contact Shirl Dressler at (804) 367-6913.

Division of Soil and Water Conservation

Erosion & Sediment Control:

Virginia Department of Transportation (VDOT) projects that undertake land-disturbing activities of greater than 2,500 square feet must comply with the most current version of the VDOT erosion and sediment control (ESC) annual specifications approved by DCR. All regulated land-disturbing activities must have a project specific ESC plan developed in accordance with the DCR approved VDOT ESC annual specifications. However, the project specific ESC plan need not be submitted to DCR for approval since VDOT has DCR approved annual specifications. All regulated land-disturbing activities associated with the project, including on and off site access roads, staging areas, borrow areas, stockpiles, and soil intentionally transported from the project must be covered by the project specific ESC plan. Annual specifications must be prepared in accordance with the Virginia Erosion & Sediment Control Law (VESCL) and Regulations (VESCR) and the most current version of the Virginia Erosion & Sediment Control Handbook. [Reference: VESCL §10.1-560, §10.1-564; VESCR §4VAC50-30-30, VESCR §4VAC50-30-40, §4VAC50-30-100]

Stormwater Management:

VDOT projects that undertake land-disturbing activities equal to or greater than 2,500 square feet must comply with the most current version of the VDOT stormwater management (SWM) annual specifications approved by DCR. All regulated land-disturbing activities must have a project specific SWM plan developed in accordance with the DCR approved VDOT SWM annual specifications. However, the project specific SWM plan need not be submitted to DCR for approval since VDOT has DCR approved annual specifications. Annual specifications must be prepared in accordance with the Virginia Stormwater Management Act (VSMA) and the Virginia Stormwater Management Program (VSMP) Permit Regulations. [Reference: VSMA §10.1-603.5; VSMP Permit Regulations §4VAC50-60-160]

General Permit for Discharges of Stormwater from Construction Activities in CBPA:

The operator or owner of construction activities involving land disturbing activities equal to or greater than 2,500 square feet in areas designated as subject to the Chesapeake Bay Preservation Area Designation and Management Regulations adopted pursuant to the Chesapeake Bay Preservation Act are required to register for coverage under the General Permit for Discharges of Stormwater from Construction Activities and develop a project specific stormwater pollution prevention plan (SWPPP). The SWPPP must be prepared prior to submission of the registration statement for coverage under the general permit and the SWPPP must address water quality and quantity in accordance with the Virginia Stormwater Management Program (VSMP) Permit Regulations. General information and registration forms for the General Permit are available on DCR's website at

http://www.dcr.virginia.gov/soil and water/index.shtml

[Reference: Virginia Stormwater Management Law Act §10.1-603.1 et seq.; VSMP Permit Regulations §4VAC50-60 et seq.]

The remaining DCR divisions have no comments regarding the scope of this project. Thank you for the opportunity to comment.

CC: William Hester, USFWS
Tylan Dean, USFWS
Ernie Aschenbach, VDGIF

Literature Cited

Ware, D.M.E. 1991. Small whorled pogonia. In Virginia's Endangered Species: Proceedings of a Symposium. K. Terwilliger ed. The McDonald and Woodward Publishing Company, Blacksburg, Virginia.

VanAlstine, N.E. 1994. Information on Swamp Pink (Helonias bullata). Compiled for Endangered Species Workshop.

NATURAL HERITAGE RESOURCES WITHIN TWO MILES

GROUP NAME	SCIENTIFIC NAME	COMMON NAME	LAST OBSERVATION	GLOBAL RANK	FEDERAL SPECIES OF CONCERN	STATE RANK	FEDERAL STATUS		SITE NAME
Vertebrate Animal	Haliaeetus leucocephalus	Bald Eagle	2002-	G5		S2S3B,S3N		LT	GROVE CREEK
Vascular Plant	Utricularia striata	Fibrous Bladderwort	1975-07-09	G4G5		S1			
Vertebrate Animal	Crotalus horridus [Coastal Plain population]	Canebrake Rattlesnake	2008-10-16	G4		S1		LE	AIRPORT-TABB
Vascular Plant	Zomia bracteata	Viperina	1940-07-13	G5?		S1			
Vascular Plant	Carex lupuliformis	False Hop Sedge	1950	G4		S2			
Vascular Plant	Trillium pusillum var. virginianum	Virginia Least Trillium	1983-04-20	G3T2	SOC	S2			
Vascular Plant	Cuscuta coryli	Hazel Dodder	1973-08-09	G5?		S2?			
Vascular Plant	Cyperus diandrus	Umbrella Flatsedge	1937-09-18	G5		S1			
Vascular Plant	Tillandsia usneoides	Spanish Moss	1965-	G5		S2			
Vascular Plant	Trillium pusillum var. virginianum	Virginia Least Trillium	1990-04-20	G3T2	SOC	S2			
Nonvascular Plant	Sphagnum flexuosum	Flexuose Peatmoss	1973-04-13	G5		S1S2			
Vascular Plant	Lysimachia radicans	Trailing Loosestrife	1939-09-18	G4G5		SH			
Vascular Plant	Hypericum setosum	A St. John's-wort	1972-08-21	G4G5		S1S2			
Vascular Plant	Chelone cuthbertii	Cuthbert Turtlehead	1990-09-19	G3		S2			GRAFTON PONDS
Vascular Plant	Stewartia ovata	Mountain Camellia	1989-09-21	G4		S2			LOWER QUEEN CREEK
Vascular Plant	Liparis loeselii	Loesel's Twayblade	1997-06-05	G5		S2			LOWER QUEEN CREEK
Vertebrate Animal	Crotalus horridus [Coastal Plain population]	Canebrake Rattlesnake	1993-09-07	G4		S1		LE	
Vascular Plant	Chelone cuthbertii	Cuthbert Turtlehead	1995-09-13	G3		S2		6,43 - 3	GRAFTON PONDS
Vertebrate Animal	Ambystoma mabeei	Mabee's Salamander	2006-04-14	G4		S1S2		L'Ta	GRAFTON PONDS
Vascular Plant	Sabatia campanulata	Slender Marsh Pink	1995-09-13	G5		S2		29850	GRAFTON PONDS
Vertebrate Animal	Ambystoma mabeei	Mabee's Salamander	1990-02-13	G4		S1S2		LT	LACKEY PONDS
Vascular Plant	Trillium pusillum var. virginianum	Virginia Least Trillium	1994-06-06	G3T2	SOC	S2		200.00	RUMLEY MARSH TRIBUTARY
Vascular Plant	Tillandsia usneoides	Spanish Moss	1990-10-08	G5		S2			BEAVERDAM CREEK
Natural Community	Mesic Mixed Hardwood Forest	Mesic Mixed Hardwood Forest	1990-08-01	G5		SNR			GRICES RUN NATURAL AREA HABITAT ZONE
Vascular Plant	Hypericum setosum	A St. John's-wort	1995-08-16	G4G5		S1S2			GRAFTON PONDS
Vascular Plant	Verbena scabra	Sandpaper Vervain	1974-08-25	G5		S2			SIVII TONT ONBO
Vertebrate Animal	Haliaeetus leucocephalus	Bald Eagle	2000-	G5		S2S3B,S3N		LT	UPPER DIASCUND CREEK HABITAT ZONE
Natural Community	Basic Mesic Forest	Basic Mesic Forest	1990-08-01	G2?		SNR			GRICES RUN NATURAL AREA HABITAT ZONE
Vascular Plant	Chelone cuthbertii	Cuthbert Turtlehead	1995-08-16	G3		S2			GRAFTON PONDS
Natural Community	Coastal Plain Depression Wetland	Coastal Plain Depression Wetland	1991-06-25	G1G2		SNR			KENTUCKY FARMS
Vertebrate Animal	Ambystoma mabeei	Mabee's Salamander	1985-11-16	G4		S1S2		LT	TENTOGRA TARANG
Vertebrate Animal	Ambystoma tigrinum	Tiger Salamander	1993-05-21	G5		S1		LE	
Natural Community	Coastal Plain Depression Wetland	Coastal Plain Depression Wetland	1990-07-23	G4G5		SNR			NEW KENT POND HABITAT ZONE
Animal Assemblage	Colonial Wading Bird Colony	Codotal Frant Bepression Vedana	1991-	G5		S2			BEAVERDAM CREEK
Vascular Plant	Fimbristylis perpusilla	Harper's Fimbristylis	2008-09-24	G2	SOC	S1		LE	GRAFTON PONDS
Vascular Plant	Calamovilfa brevipilis	Pine-barren Reed-grass	1995-08-09	G4		S1			GRAFTON PONDS
Vertebrate Animal	Ardea alba	Great Egret	1991-	G5		S2S3B,S3N			BEAVERDAM CREEK
Vertebrate Animal	Crotalus horridus [Coastal Plain population]	Canebrake Rattlesnake	1988-09-01	G4		S1		LE	DE TO ETTE STATE OF THE ETTE
Vascular Plant	Trillium pusillum var. virginianum	Virginia Least Trillium	1997-03	G3T2	SOC	S2			BIG BETHEL FLATWOODS
Vertebrate Animal	Ambystoma mabeei	Mabee's Salamander	1998-06-24	G4		S1S2		LT	AIRPORT-TABB
Vascular Plant	Scutellaria incana	Hoary Skullcap	1994-07-27	G5		S2			, and order to the
Natural Community	Tidal Freshwater Marsh	Tidal Freshwater Marsh	1991-08-21	G4?		SNR			WARE CREEK
Vascular Plant	Isotria medeoloides	Small Whorled Pogonia	2007-07-11	G2		S2	LT	LE	WARE CREEK
Natural Community	Tidal Oligohaline Marsh	Tidal Oligonaline Marsh	1991-08-21	G4		SNR		Half-Si	WARE CREEK
Natural Community	Coastal Plain / Piedmont Basic Seepage Swamp	Coastal Plain/Piedmont Basic Seepage Swamp	1997-10-22	G2		SNR			LOWER QUEEN CREEK
Natural Community	Coastal Plain / Piedmont Basic Seepage Swamp	Coastal Plain/Piedmont Basic Seepage Swamp	1998-04-29	G2		SNR			LOWER QUEEN CREEK
Vertebrate Animal	Haliaeetus leucocephalus	Bald Eagle	2002-	G5		S2S3B,S3N		LT	WOOD CREEK HABITAT ZONE
Natural Community	Basic Mesic Forest	Basic Mesic Forest	2002-09-23	G2?		SNR			GROVE CREEK
Vertebrate Animal	Haliaeetus leucocephalus	Bald Eagle	2002-03-23	G5		S2S3B,S3N		LT	POND #11
Vertebrate Animal	Haliaeetus leucocephalus	Bald Eagle	2002-	G5		S2S3B,S3N		LT	BIG BETHEL FLATWOODS
Vascular Plant	Liparis loeselii	Loesel's Twayblade	1997-06-05	G5		\$233B,33N		-1	LOWER QUEEN CREEK
Vascular Plant	Wisteria frutescens	American Wisteria	1994-05-04	G5		S2			BLAINE LANDING ROAD UPLAND
Vertebrate Animal	Ambystoma mabeei	Mabee's Salamander	2007-03-30	G4		S1S2		LT	BLACK SWAMP RAVINES AND FLATWOODS
Natural Community	Coastal Plain / Piedmont Basic Seepage Swamp	Coastal Plain/Piedmont Basic Seepage Swamp	2007-03-30	G2		SNR		L.I.	GROVE CREEK
Vascular Plant	Stewartia ovata	Mountain Camellia	2002-09-23	G2 G4		S2			GROVE CREEK
Vascular Plant	Eupatorium incarnatum	Pink Thoroughwort	2002-09-23	G5		\$2 \$2			OKOVE OKEEK
Vertebrate Animal	Haliaeetus leucocephalus	Bald Eagle	2002-10-03	G5		S2S3B,S3N		ΙT	BEAVERDAM CREEK
Vertebrate Animal	Haliaeetus leucocephalus	Bald Eagle	2002-	G5		S2S3B,S3N		LT	JONES MILLPOND

DCR 11-003, VDOT I-64 PENINSULA STUDY

NATURAL HERITAGE RESOURCES WITHIN TWO MILES

Vascular Plant	Asclepias purpurascens	Purple Milkweed	2002-06-18	G5?	S2		NEWMARKET CREEK POWERLINE
Natural Community	Coastal Plain Depression Wetland	Coastal Plain Depression Wetland	2002-09-25	G1G2	SNR		HALSTEAD ROAD SINKHOLE PONDS
Invertebrate Animal	Sphinx franckii	Franck's Sphinx	2002-06-26	G4	S2S3		JONES MILLPOND
Natural Community	Coastal Plain Dry Calcareous Forest / Woodland	Coastal Plain Dry Calcareous Forest / Woodland	2002-09-23	G1	SNR		GROVE CREEK
Vascular Plant	Liparis loeselii	Loesel's Twayblade	1989-06-09	G5	S2		LOWER QUEEN CREEK
Natural Community	Coastal Plain / Piedmont Basic Seepage Swamp	Coastal Plain/Piedmont Basic Seepage Swamp	2002-09-06	G2	SNR		KING CREEK RAVINE
Natural Community	Basic Mesic Forest	Basic Mesic Forest	2002-09-27	G2?	SNR		BLACK SWAMP RAVINES AND FLATWOODS
Natural Community	Oak / Heath Forest	Oak / Heath Forest	2002-09-26	G4G5	SNR		BLACK SWAMP RAVINES AND FLATWOODS
Natural Community	Coastal Plain / Piedmont Basic Seepage Swamp	Coastal Plain/Piedmont Basic Seepage Swamp	2002-09-19	G2	SNR		BLACK SWAMP RAVINES AND FLATWOODS
Natural Community	Coastal Plain / Piedmont Basic Seepage Swamp	Coastal Plain/Piedmont Basic Seepage Swamp	2002-09-05	G2	SNR		BLACK SWAMP RAVINES AND FLATWOODS
Natural Community	Basic Mesic Forest	Basic Mesic Forest	2002-09-05	G2?	SNR		BLACK SWAMP RAVINES AND FLATWOODS
Natural Community	Mesic Mixed Hardwood Forest	Mesic Mixed Hardwood Forest	2002-09-27	G5	SNR		BLACK SWAMP RAVINES AND FLATWOODS
Natural Community	Coastal Plain Dry Calcareous Forest / Woodland	Coastal Plain Dry Calcareous Forest / Woodland	2002-09-27	G1	SNR		BLACK SWAMP RAVINES AND FLATWOODS
Natural Community	Basic Mesic Forest	Basic Mesic Forest	2002-09-06	G2?	SNR		BLACK SWAMP RAVINES AND FLATWOODS
Natural Community	Coastal Plain Depression Wetland	Coastal Plain Depression Wetland	2002-09-25	G1G2	SNR		BLACK SWAMP RAVINES AND FLATWOODS
Natural Community	Coastal Plain Dry Calcareous Forest / Woodland	Coastal Plain Dry Calcareous Forest / Woodland	2002-10-03	G1	SNR		GROVE CREEK
Vascular Plant	Lythrum lanceolatum	Lance-leaved Loosestrife	1940-08-20	G5T5	SH		
Invertebrate Animal	Stylurus laurae	Laura's Clubtail	1931-08-02	G4	S2		
Vascular Plant	Stewartia ovata	Mountain Camellia	1978-06-23	G4	S2		
Vascular Plant	Stewartia ovata	Mountain Camellia	1972-07-05	G4	S2		
Vascular Plant	Stewartia ovata	Mountain Camellia	1954-04-24	G4	S2		
Vascular Plant	Helonias bullata	Swamp-pink	2007-05-07	G3	S2S3	LT	LE BROADWATER CREEK
Vascular Plant	Isotria medeoloides	Small Whorled Pogonia	1941-05-11	G2	S2	LT	LE
Vascular Plant	Isotria medeoloides	Small Whorled Pogonia	1929-05-11	G2	S2	LT	LE
Natural Community	Non-Riverine Flatwood / Swamp	Non-Riverine Flatwood / Swamp	2006-05-05	G2?	SNR		CHICKAHOMINY FLATS
Vertebrate Animal	Crotalus horridus [Coastal Plain population]	Canebrake Rattlesnake	2007-05-31	G4	S1		LE
Natural Community	Piedmont / Coastal Plain Oak - Beech / Heath Forest	Piedmont / Coastal Plain Oak - Beech / Heath Forest	2006-09-13	G4	SNR		TASKINAS CREEK
Natural Community	Coastal Plain Depression Wetland	Coastal Plain Depression Wetland	2009-10-08	G4G5	SNR		GRAFTON PONDS
Natural Community	Coastal Plain Depression Wetland	Coastal Plain Depression Wetland	2008-09-24	G3?	SNR		GRAFTON PONDS
Natural Community	Coastal Plain Depression Wetland	Coastal Plain Depression Wetland	2009-10-08	G1G2	SNR		GRAFTON PONDS
Vertebrate Animal	Falco peregrinus	Peregrine Falcon	2007-03-12	G4	S1B,S2N		LT LEE BRIDGE
Vertebrate Animal	Crotalus horridus [Coastal Plain population]	Canebrake Rattlesnake	2010-08-08	G4	S1		LE
Vascular Plant	Heteranthera multiflora	Multiflowered Mud-plantain	1974-08-25	G4	S1		
Vascular Plant	Ludwigia hirtella	Hairy Seedbox	1972-08-10	G5	S1		
Vascular Plant	Cuscuta indecora	Pretty Dodder	1963-08-05	G5	S2?		



Matthew J. Lohr Commissioner

COMMONWEALTH of VIRGINIA

Department of Agriculture and Consumer Services

PO Box 1163, Richmond, Virginia 23218
Phone: 804/786-3501 • fax: 804/371-2945 • Hearing Impaired: 800/828-1120
www.vdacs.virginia.gov

April 5, 2011

Mr. Rich Butala McCormick Taylor, Inc. North Shore Commons A 4951 Lake Brook Drive, Suite 275 Glen Allen, VA 23060

Dear Mr. Butala:

Nicholas Nies, Project Studies Manager, Virginia Department of Transportation (VDOT), has requested that VDACS provide you comments regarding the I-64 Peninsula Study that was the subject of an agency scoping meeting held on March 22, 2011.

VDACS has responsibility for farmland preservation and the protection of endangered and threatened plant and insect species. Regarding the first matter, we encourage those involved in planning highway construction to seek to minimize the loss of agricultural land that may occur. Regarding endangered and threatened species, my staff advises that, although it is unlikely, there is the possibility that endangered plants or insects could occur in the vicinity of the I-64 corridor. There are a number of endangered species which are known to occur in the localities impacted by this project; however, it is not known if these species are found near the interstate. Of those species, the Small Whorled Pogonia, the New Jersey Rush, and the Swamp-pink have the greatest potential for occurring along I-64.

I am sure that VDOT will follow the State Environmental Review Process (SERP) policies to formally consult with the state and federal agencies involved in protection of natural and historic resources. The Department of Conservation and Recreation (DCR) will conduct an initial review of the study area regarding natural resources, including endangered plant and insect species. DCR will then report their findings to VDOT and VDACS.

In closing, VDACS recommends that VDOT consult with appropriate state and federal agencies in order to provide protection for the Commonwealth's natural resources.

Thank you for this opportunity to comment.

Sincerely

Matthew J. Lo

CC:

Sandra J. Adams, Deputy Commissioner Andy Alvarez, Director, Division of Consumer Protection Charles Green, Director, Division of Marketing Roy Seward, Director, Office of Policy, Planning and Research



United States Department of the Interior

FISH AND WILDLIFE SERVICE VIRGINIA ECOLOGICAL SERVICES FIELD OFFICE 6669 SHORT LANE GLOUCESTER, VA 23061

PHONE: (804)693-6694 FAX: (804)693-9032 URL: www.fws.gov/northeast/virginiafield/



Consultation Tracking Number: 05E2VA00-2013-SLI-0013

onsaitation Tracking Namour. ODE2 (Acc-2015-DE1-00

October 02, 2012

Project Name: I-64 Widening

Subject: List of threatened and endangered species that may occur in your proposed project

location, and/or may be affected by your proposed project.

To Whom It May Concern:

The enclosed species list identifies threatened, endangered, and proposed species, designated critical habitat, and candidate species that may occur within the boundary of your proposed project and/or may be affected by your proposed project. The species list fulfills the requirements of the U.S. Fish and Wildlife Service (Service) under section 7(c) of the Endangered Species Act (Act) of 1973, as amended (16 U.S.C. 1531 et seq.).

New information based on updated surveys, changes in the abundance and distribution of species, changed habitat conditions, or other factors could change this list. Please feel free to contact us if you need more current information or assistance regarding the potential impacts to federally proposed, listed, and candidate species and federally designated and proposed critical habitat. Please note that under 50 CFR 402.12(e) of the regulations implementing section 7 of the Act, the accuracy of this species list should be verified after 90 days. This verification can be completed formally or informally as desired. The Service recommends that verification be completed by visiting the ECOS-IPaC website at regular intervals during project planning and implementation for updates to species lists and information. An updated list may be requested through the ECOS-IPaC system by completing the same process used to receive the enclosed list.

The purpose of the Act is to provide a means whereby threatened and endangered species and the ecosystems upon which they depend may be conserved. Under sections 7(a)(1) and 7(a)(2) of the Act and its implementing regulations (50 CFR 402 et seq.), Federal agencies are required to utilize their authorities to carry out programs for the conservation of threatened and endangered species and to determine whether projects may affect threatened and endangered species and/or designated critical habitat.

A Biological Assessment is required for construction projects (or other undertakings having

similar physical impacts) that are major Federal actions significantly affecting the quality of the human environment as defined in the National Environmental Policy Act (42 U.S.C. 4332(2) (c)). For projects other than major construction activities, the Service suggests that a biological evaluation similar to a Biological Assessment be prepared to determine whether the project may affect listed or proposed species and/or designated or proposed critical habitat. Recommended contents of a Biological Assessment are described at 50 CFR 402.12.

If a Federal agency determines, based on the Biological Assessment or biological evaluation, that listed species and/or designated critical habitat may be affected by the proposed project, the agency is required to consult with the Service pursuant to 50 CFR 402. In addition, the Service recommends that candidate species, proposed species and proposed critical habitat be addressed within the consultation. More information on the regulations and procedures for section 7 consultation, including the role of permit or license applicants, can be found in the "Endangered Species Consultation Handbook" at:

http://www.fws.gov/endangered/esa-library/pdf/TOC-GLOS.PDF

Please be aware that bald and golden eagles are protected under the Bald and Golden Eagle Protection Act (16 U.S.C. 668 et seq.), and projects affecting these species may require development of an eagle conservation plan

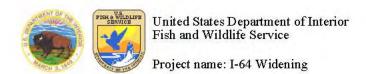
(http://www.fws.gov/windenergy/eagle_guidance.html). Additionally, wind energy projects should follow the wind energy guidelines (http://www.fws.gov/windenergy/) for minimizing impacts to migratory birds and bats.

Guidance for minimizing impacts to migratory birds for projects including communications towers (e.g., cellular, digital television, radio, and emergency broadcast) can be found at: http://www.fws.gov/migratorybirds/CurrentBirdIssues/Hazards/towers/towers.htm; http://www.towerkill.com; and

http://www.fws.gov/migratorybirds/CurrentBirdIssues/Hazards/towers/comtow.html.

We appreciate your concern for threatened and endangered species. The Service encourages Federal agencies to include conservation of threatened and endangered species into their project planning to further the purposes of the Act. Please include the Consultation Tracking Number in the header of this letter with any request for consultation or correspondence about your project that you submit to our office.

Attachment



Official Species List

Provided by:

VIRGINIA ECOLOGICAL SERVICES FIELD OFFICE 6669 SHORT LANE GLOUCESTER, VA 23061 (804) 693-6694 http://www.fws.gov/northeast/virginiafield/

Consultation Tracking Number: 05E2VA00-2013-SLI-0013

Project Type: Transportation

Project Description: Improvements to I-64 from the 1-95 in the City of Richmond to the I-664 in

the City of Hampton. EIS purposes only.

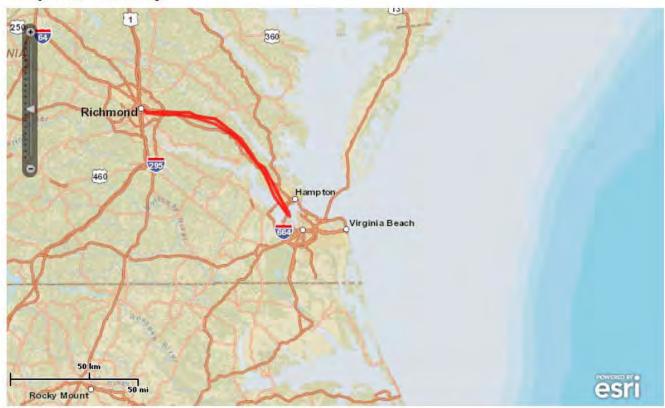




United States Department of Interior Fish and Wildlife Service

Project name: I-64 Widening

Project Location Map:



Project Coordinates: MULTIPOLYGON (((-77.4006711 37.5192278, -77.406771 37.528786, -77.4067741 37.5287968, -77.4067741 37.5287968, -77.4067741 37.5290146, -77.4067726 37.5290223, -77.4067682 37.5290287, -77.4067618 37.5290331, -77.4067541 37.5290346, -77.4067464 37.5290331, -77.40674 37.5290287, -77.4067356 37.5290223, -77.4067341 37.5290146, -77.4067341 37.5288026, -77.4006199 37.519222, -77.3680266 37.5155288, -77.2529463 37.5201036, -77.2529443 37.5201036, -77.175766 37.5155288, -77.0881506 37.5159645, -77.0881422 37.5159627, -77.0496926 37.4985335, -76.9615308 37.4850227, -76.9065999 37.4806636, -76.906591 37.4806607, -76.8299613 37.4331309, -76.8299612 37.4331308, -76.7255911 37.3676734, -76.7255869 37.3676699, -76.6541758 37.2890456, -76.6541748 37.2890444, -76.610232 37.2322123, -76.5553039 37.2015928, -76.5552969 37.2015863, -76.489379 37.1008856, -76.4893788 37.1008852, -76.4509269 37.0395239, -76.4069824 36.9781136, -76.3850101 36.9517799, -76.3850059 36.9517713, -76.3792381 36.9249887, -76.3792381 36.9249803, -76.3792416 36.9249727, -76.3792479 36.9249671, -76.3792559 36.9249646, -76.3792642 36.9249656, -76.3792714 36.9249699, -76.4125051 36.9561422, -76.4125061





United States Department of Interior Fish and Wildlife Service

Project name: I-64 Widening

36.9561432, -76.4894104 37.0394992, -76.4894135 37.0395036, -76.5553301 37.1665526, -76.6651911 37.2846476, -76.7530793 37.3676401, -76.9068833 37.4505407, -77.0497022 37.4854189, -77.1702748 37.5024163, -77.2856298 37.5024163, -77.2856318 37.5024164, -77.3735214 37.5111315, -77.3954931 37.5111315, -77.3954997 37.5111326, -77.3955055 37.5111358, -77.39551 37.5111407, -77.4006434 37.5191844, -77.4064817 37.5198459, -77.4064891 37.5198483, -77.406495 37.5198533, -77.4064986 37.5198603, -77.4064993 37.5198681, -77.4064969 37.5198755, -77.4064919 37.5198814, -77.4064849 37.519885, -77.4064771 37.5198857, -77.4006711 37.5192278), (-77.4005921 37.5191786, -77.3954821 37.5111715, -77.3735204 37.5111715, -77.3735184 37.5111714, -77.2856288 37.5024563, -77.1702734 37.5024563, -77.1702706 37.5024561, -77.0496956 37.4854584, -77.0496937 37.485458, -76.9068714 37.4505789, -76.9068666 37.4505771, -76.753058 37.3676741, -76.7530538 37.367671, -76.6651632 37.2846762, -76.6651623 37.2846753, -76.555299 37.1665778, -76.5552958 37.1665734, -76.4893792 37.0395244, -76.4124772 36.9561709, -76.3792907 36.9250429, -76.385044 36.9517581, -76.4070136 36.9780886, -76.4070145 36.9780898, -76.4509598 37.0395012, -76.4509604 37.0395022, -76.4894125 37.1008638, -76.5553276 37.2015602, -76.610255 37.2321793, -76.6102611 37.2321846, -76.6542059 37.2890193, -76.7256147 37.367641, -76.8299824 37.4330969, -76.9066079 37.4806241, -76.9615347 37.4849829, -76.9615361 37.484983, -77.0497014 37.4984943, -77.0497067 37.4984959, -77.0881548 37.5159245, -77.1757664 37.5154888, -77.1757677 37.5154888, -77.2529457 37.5200636, -77.3680265 37.5154888, -77.3680296 37.5154889, -77.4005921 37.5191786)))

Project Counties: Hampton, VA | Henrico, VA | James City, VA | New Kent, VA | Newport News, VA | Portsmouth, VA | Richmond (city), VA | York, VA



Endangered Species Act Species List

Species lists are not entirely based upon the current range of a species but may also take into consideration actions that affect a species that exists in another geographic area. For example, certain fish may appear on the species list because a project could affect downstream species. Please contact the designated FWS office if you have questions.

Piping Plover (Charadrius melodus)

Population: except Great Lakes watershed

Listing Status: Threatened

Sensitive joint-vetch (Aeschynomene virginica)

Listing Status: Threatened

Small Whorled pogonia (Isotria medeoloides)

Listing Status: Threatened

Swamp pink (Helonias bullata)

Listing Status: Threatened

Species Conclusions Table

Date: October 2012

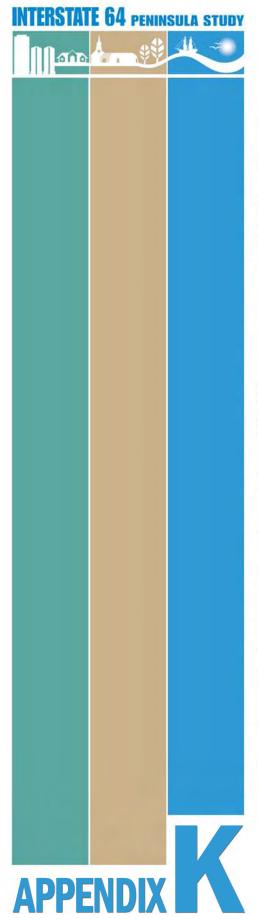
Species Name	Conclusion	ESA Section 7 / Eagle Act Determination	Notes / Documentation			
Potential suitable habitat. Species assessment was conducted as part of this study to identity potential habitat. See assessment report in Appendix L of the Natural Resources Technical Memorandum for details. May adversely affect. Additional coordination required during design phase of this project.		This orchid grows in older hardwood stands of beech, birch, maple, oak, and hickory that have an open understory. Sometimes it grows in stands of softwoods such as hemlock. It prefers acidic soils with a thick layer of dead leaves, often on slopes near small streams.				
Swamp pink (Helonias bullata)	. 마구시크리 :		Variety of wetland habitats including Appalachian bogs and swamps, swampy forests bordering small streams, boggy meadows, and spring seepage areas. Requires constant saturated, but not flooded, forest habitat. Commonly associated with some evergreens, including pitch pine (Pinus rigida), Atlantic white cedar, American larch, black spruce, red spruce, and with red maple. Often grows on hummocks formed by trees, shrubs, and sphagnum moss. The hummocks keep the roots moist but not submerged.			
Piping plover (Charadrius melodus)	No suitable habitat present. Not listed on state agency databases.	No effect.	Piping plovers use wide, flat, open, sandy beaches with very little grass or other vegetation. Nesting territories often include beaches, sand flats, and washovers.			
Sensitive joint-vetch (Aeschynomene virginica)			The Sensitive joint-vetch occurs in fresh to slightly brackish tidal river systems, within the intertidal zone where populations are flooded twice daily. It typically occurs at the outer fringe of marshes or shores; its presence in marsh interiors may be a result of nutrient deficiencies, ice scouring, or muskrat herbivory. The Sensitive joint-vetch is found in			

Species Name	Conclusion	ESA Section 7 / Eagle Act Determination	Notes / Documentation			
			localities where plant diversity is high and annual species are prevalent. Bare to sparsely vegetated substrates appear to be a habitat feature of critical importance for establishment and growth of this species.			
Bald eagle (Haliaeetus leucocephalus)	Potential suitable habitat. Unlikely to disturb nesting Bald eagles. Bald eagle concentration areas are located along the James River (and tributaries) in the vicinity of the project corridor.	An Eagle Act Permit is not likely required; however, coordination with the agencies will continue through the design and permitting phase of the project.	The Bald eagle prefers habitats near seacoasts, rivers, large lakes, oceans, and other large bodies of open water with an abundance of fish. The Bald eagle requires old-growth and mature stands of coniferous or hardwood trees for perching, roosting, and nesting. The Center for Conservation Biology did not list any records of eagle nests within 660' of the project corridor.			
Rafinesque's eastern big-eared bat (Corynorhinus rafinesquii macrotis)	Potential suitable habitat. Numerous forest systems and stream / wetland habitats were identified along the corridor.	May adversely affect. Additional coordination required during design phase of this project.	This bat is rare in Virginia with both subspecies at the edge of their ranges in Virginia. They are uncommon to rare throughout their range, and both seem to be declining. They prefer roosting sites near mature forests and adjacent to rivers and other permanent bodies of water;			
Peregrine falcon (Falco peregrinus)	No suitable habitat present.	No effect.	The species breed in open landscapes with cliffs (or skyscrapers) for nest sites. They can be found up to about 12,000 feet, as well as along rivers and coastlines or in cities. In migration and winter you can find Peregrine falcons in nearly any open habitat, but with a greater likelihood along barrier islands, mudflats, coastlines, lake edges, and mountain chains.			

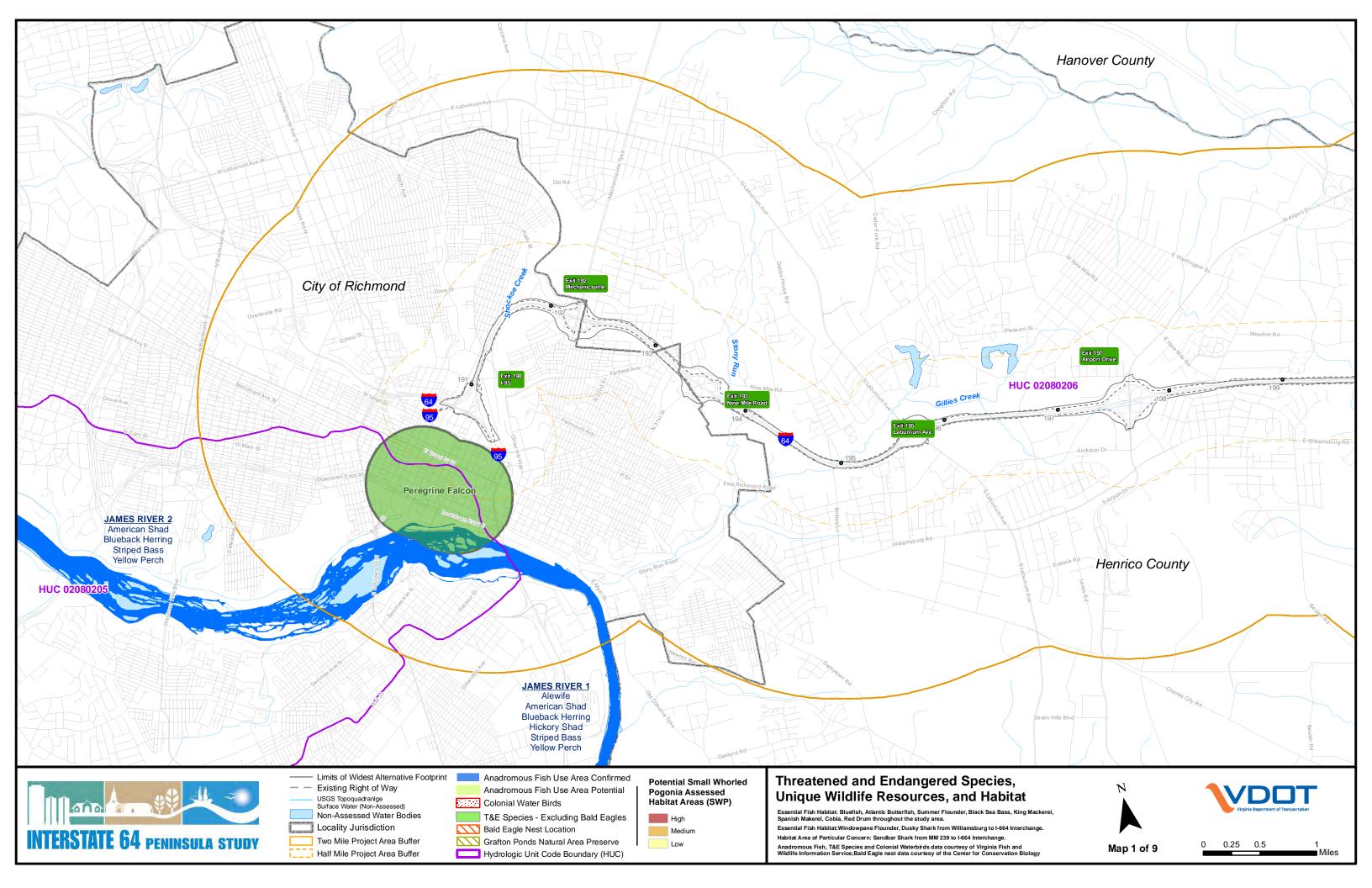
Species Name	Conclusion	ESA Section 7 / Eagle Act Determination	Notes / Documentation			
Canebrake rattlesnake (Crotalus horridus)	Potential suitable habitat. Numerous forest habitats were identified along the corridor.	May adversely affect. Additional coordination required during design phase of this project.	Mature hardwood forests are the preferred habitat of Canebrake rattlesnakes, but the snakes also are found in mixed hardwood-pine forests, cane thickets, and in the ridges and glades of swamps. They prefer areas with numerous logs and a substantial layer of leaves and humus. Canebrakes overwinter in the bases of hollow trees and stumps, and in the underground tunnels resulting from stump and root decomposition.			
Mabee's salamander (Ambystoma mabee)	Potential suitable habitat. Wet woods and swamps were identified along the corridor.	May adversely affect. Additional coordination required during design phase of this project.	Known populations are low in number and tend to be isolated. Their range is restricted to the lower Coastal Plain of the Carolinas and Virginia. The species are found in savannas in burrows at the edges of bogs or ponds and in low wet woods and swamps. Breeding sites in Virginia are fish-free vernal ponds or ephemeral coastal plain sinkholes up to 1.5 meters deep, with surrounding forests generally composed of hardwoods mixed with pine. It is also found in low areas adjacent to coastal rivers and pine savannas, and in bogs, ponds, low wet woods, and swamps.			

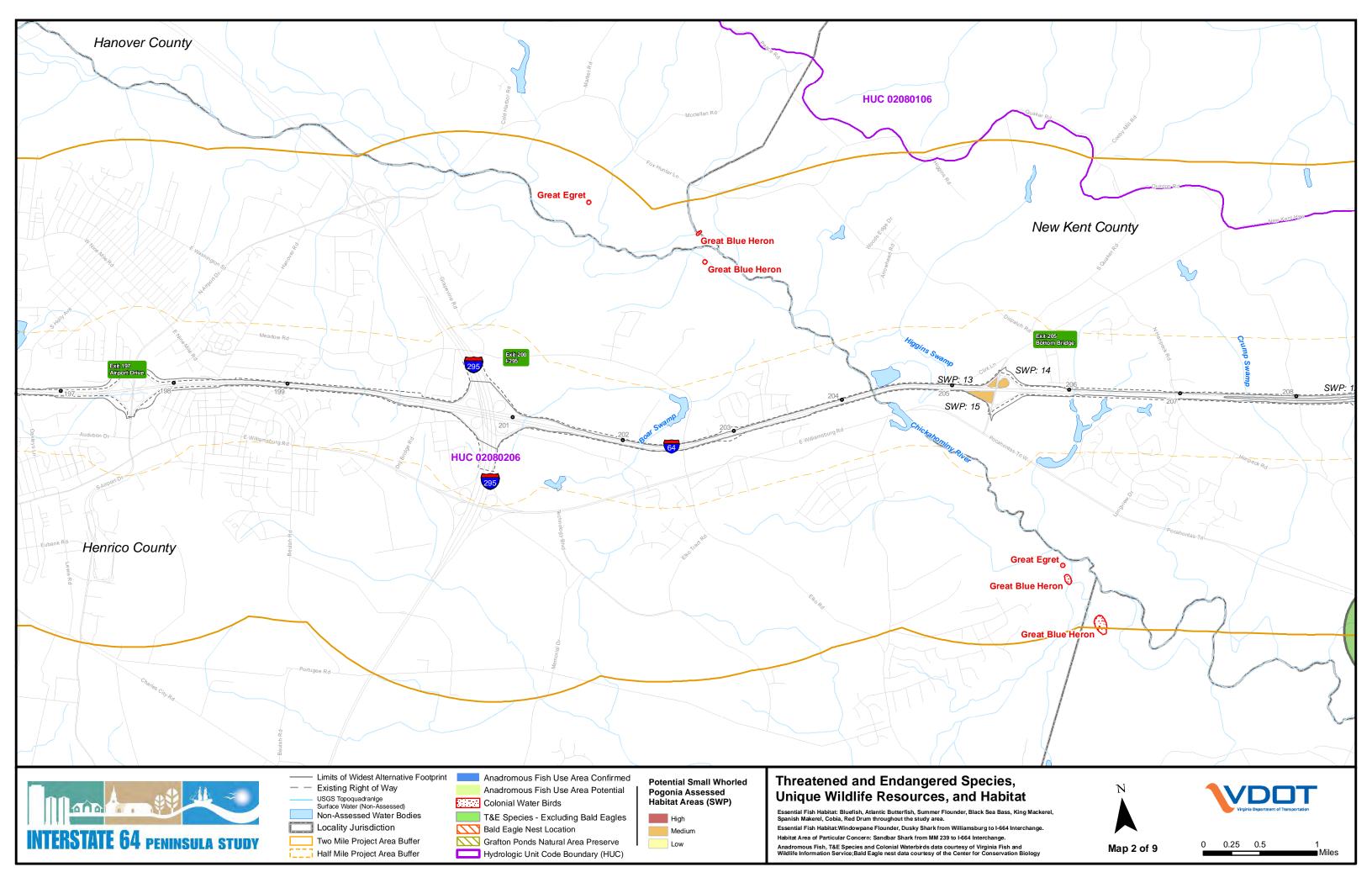
Species Name	Conclusion	ESA Section 7 / Eagle Act Determination	Breeding habitats include limestone sinkhole ponds and Coastal Plain vernal pools associated with wetlands. The terrestrial habitat is only generally described as that with a substrate suitable for burrowing, or sandy areas near shallow pools, chiefly in pine savannas. Unique habitat associations include springs and seeps, vernal pools, bottomland hardwoods and freshwater wetlands. They may inhabit any type of woodland or marshy grassland and are found in leaf letter, debris and humus. According to VDGIF, this species can be considered extant in only two sites in Virginia – Mathews and Augusta Counties.			
Eastern tiger salamander (Ambystoma tigrinum tigrinum)	Potential suitable habitat. Numerous forests and wetland systems were identified along the corridor.	May adversely affect. Additional coordination required during design phase of this project.				
Loggerhead sea turtle (Caretta caretta)	No suitable habitat present. Not listed on state agency databases.	No effect.	This species is found only in salt water, in the Chesapeake Bay from Baltimore south, in all the major rivers along Virginia's coast, and into channels between barrier islands. This species is a wanderer which prefers moderately deep bays, and has been found in streams, marshes and many miles into the sea. Nearly all nesting sites are on barrier islands in the United States. Nesting habitat is a sand beach that is high enough that it is not inundated by high tides nor soaked by groundwater rising from below. The Loggerhead forages in the bay and its estuaries primarily for horseshoe crabs. It would also consume other crustaceans, sea grasses, sponges, fish, mollusks, and snails.			

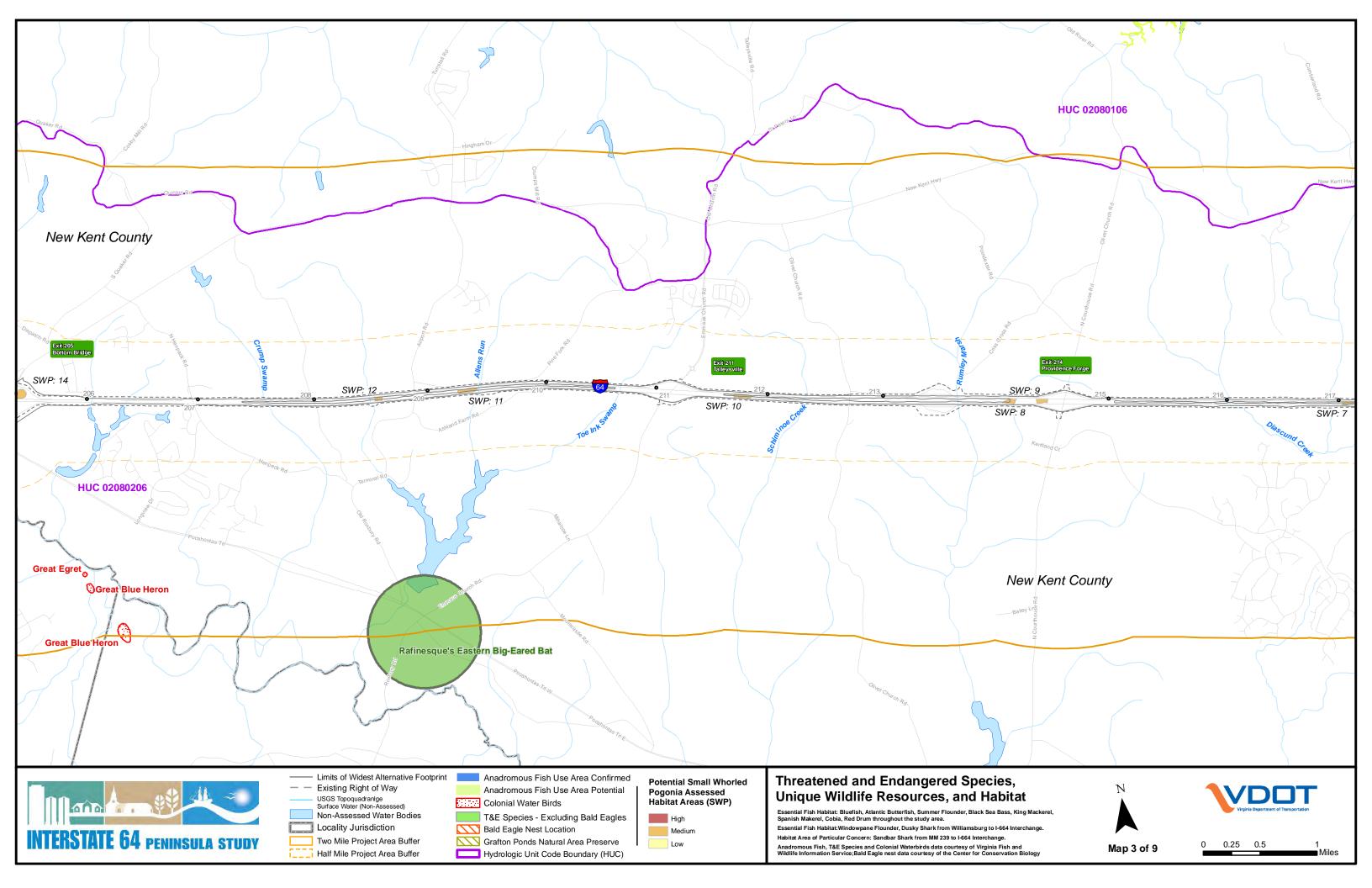
Note: Additional information regarding threatened and endangered species is included in Section J of the *Natural Resources Technical Memorandum*.

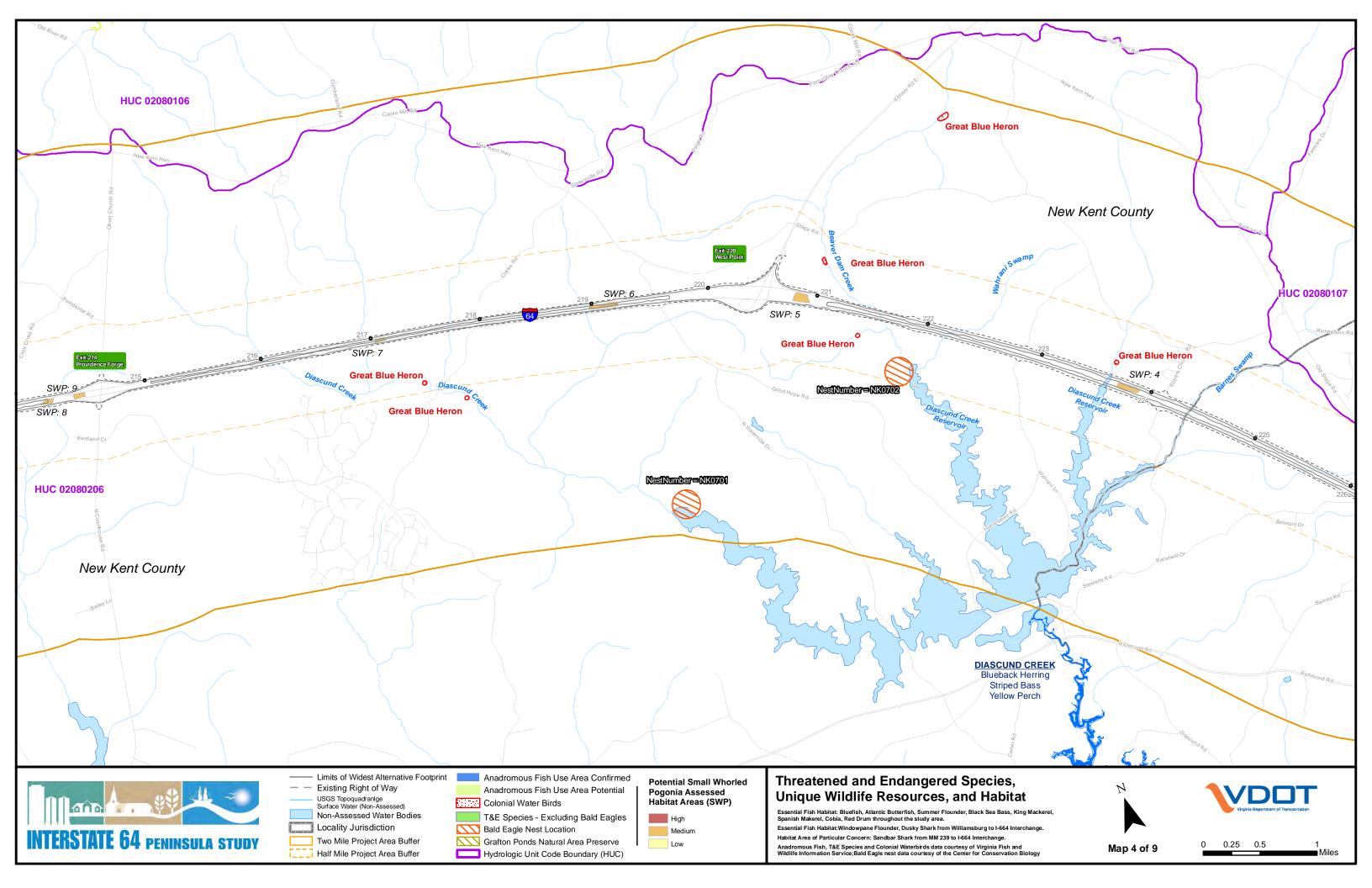


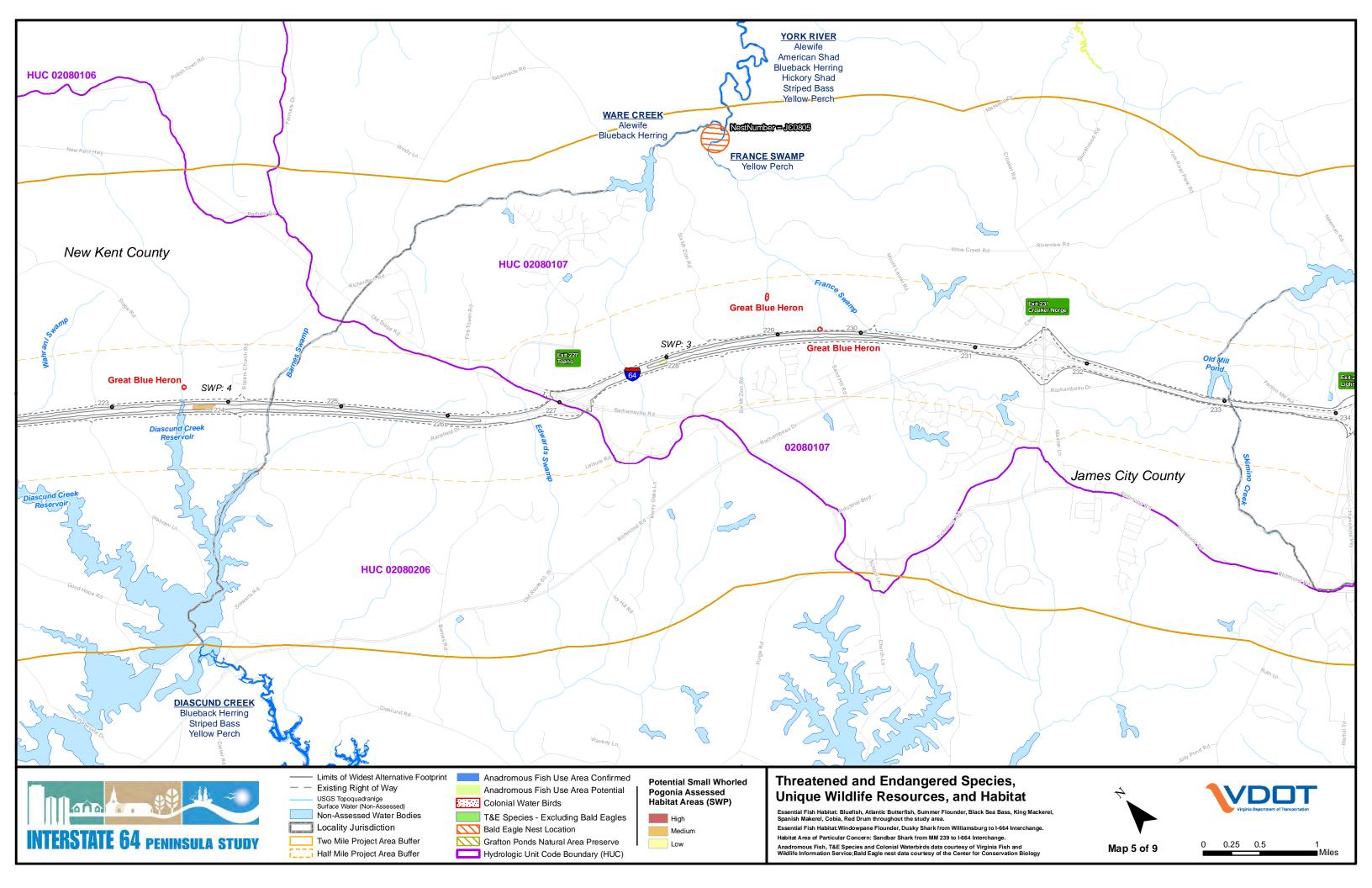
Threatened and Endangered Species, Unique Wildlife Resources, and Habitat Mapping

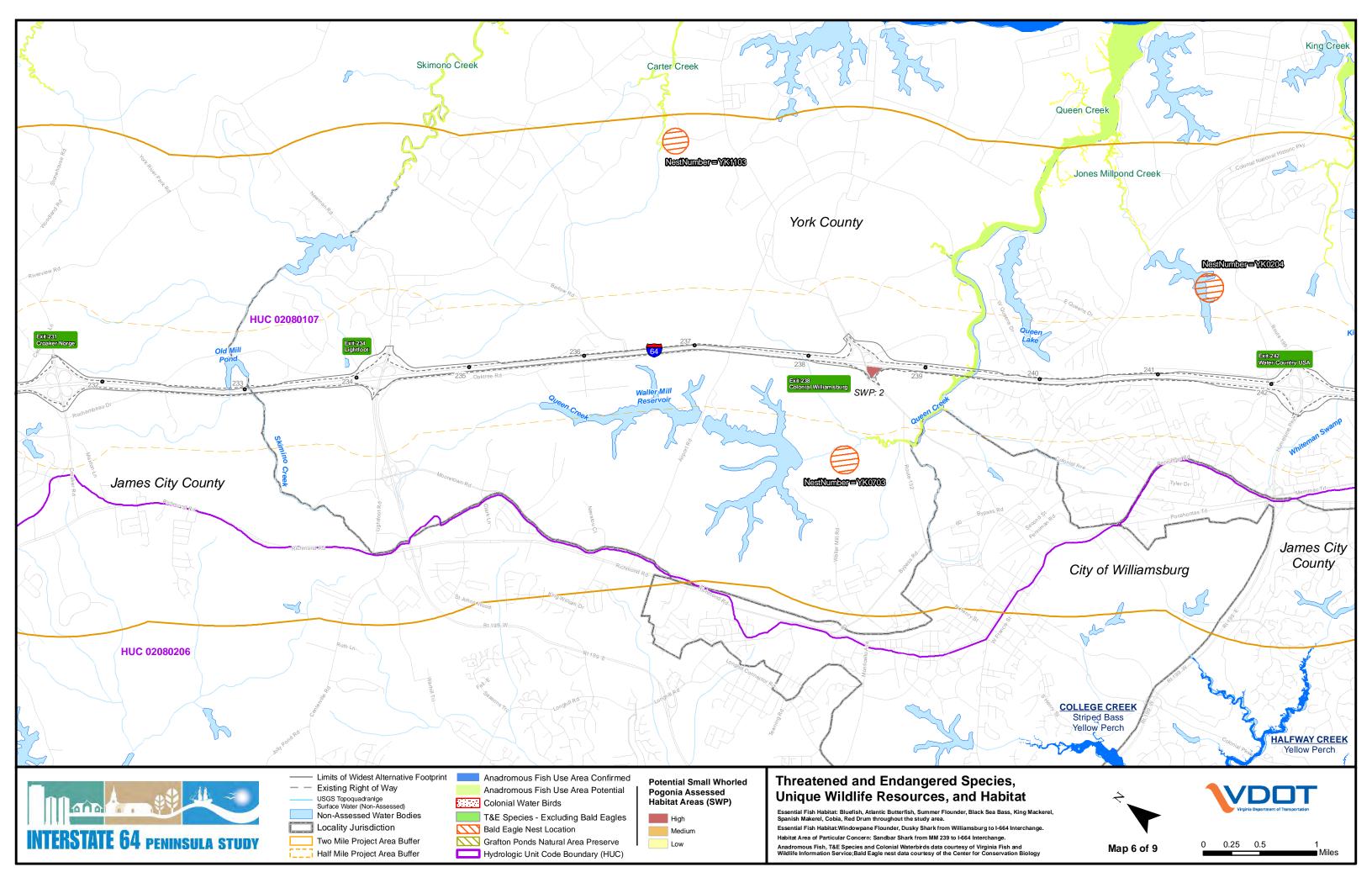


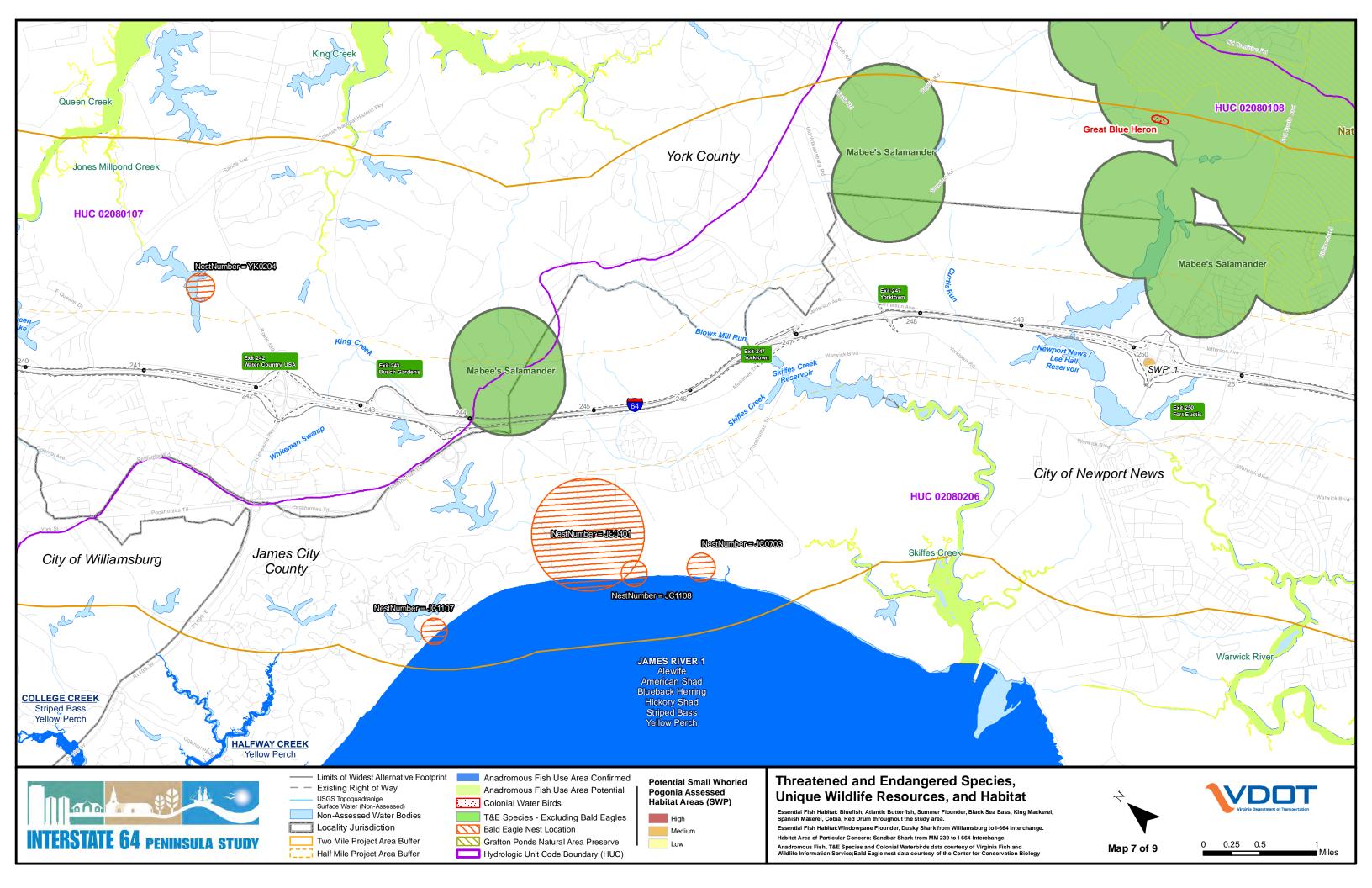


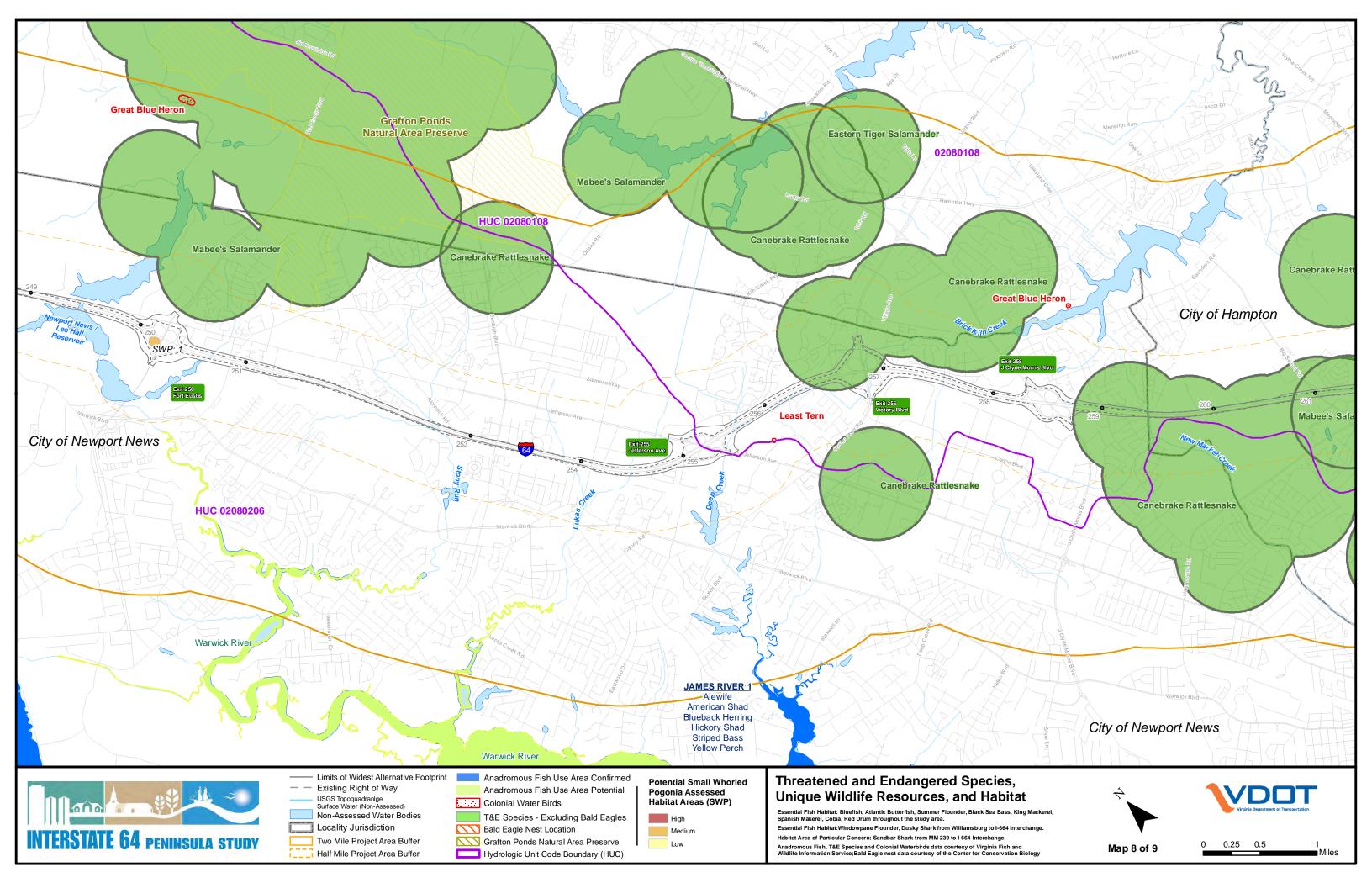


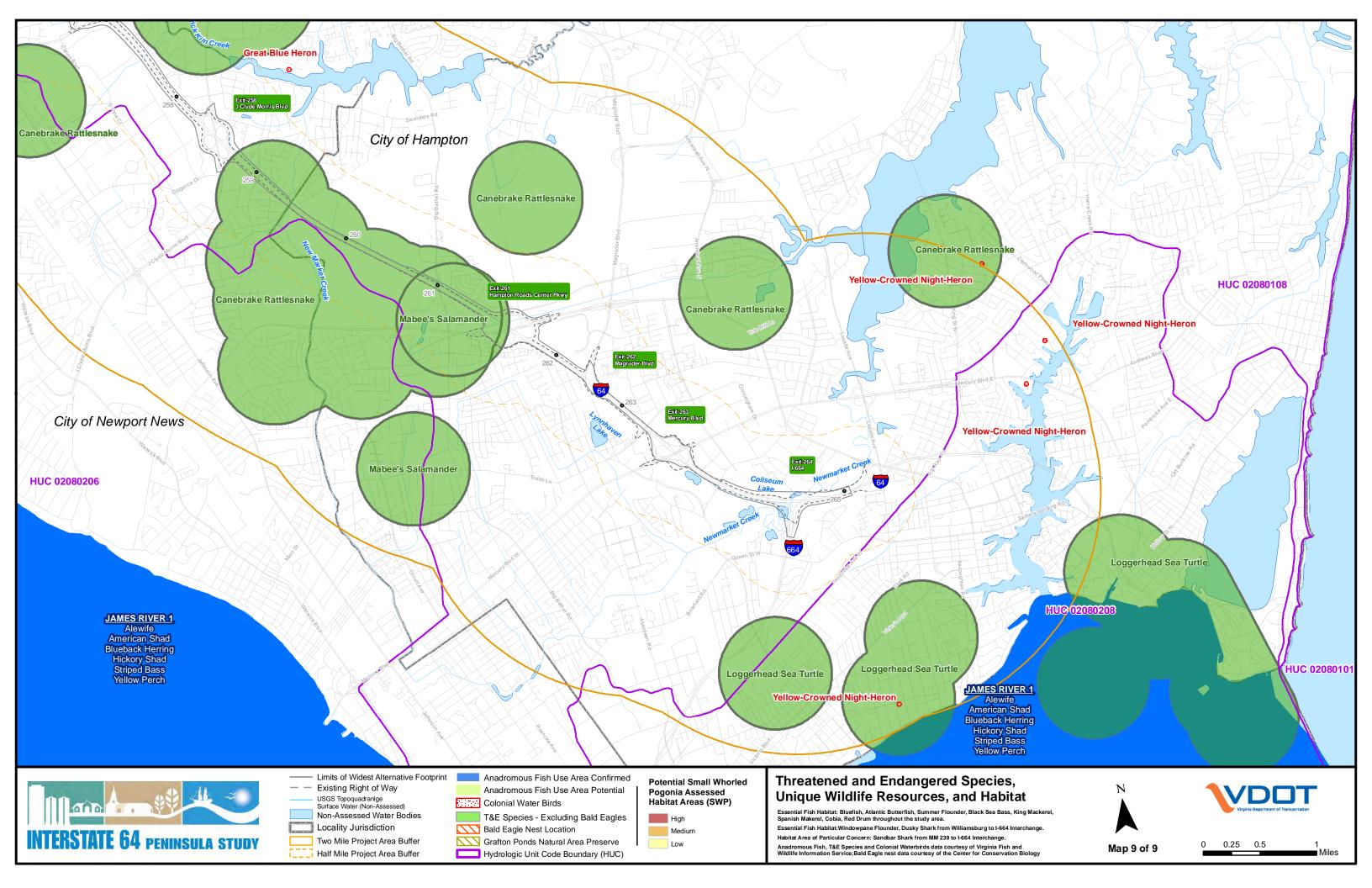


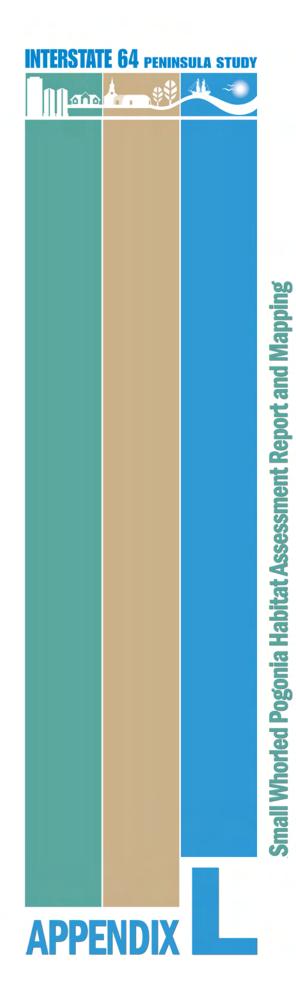












Habitat Reconnaissance for Small Whorled Pogonia (*Isotria medeoloides*)

I-64 Road Improvement State Project No. 0064-M11-002, P101 Hampton to Richmond, Virginia

Prepared for:

McCormick Taylor, Inc. 4951 Lake Brook Drive, Suite 275 Glen Allen, Virginia 23060

Prepared By:

EEE Consulting, Inc. 8525 Bell Creek Road Mechanicsville, Virginia 23116 (804) 442-3330

May 1, 2012

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Small Whorled Pogonia (*Isotria medeoloides*) Habitat Reconnaissance I-64 Road Improvements Richmond to Hampton, Virginia EEE Project #11-080 May 1, 2012

1.0 Executive Summary

EEE Consulting, Inc. (EEE) conducted a reconnaissance-level habitat evaluation for the Federally-threatened, State-endangered small whorled pogonia (*Isotria medeoloides*) within the existing (as of September 2011) Virginia Department of Transportation (VDOT) right-of-way (ROW) north of westbound travel lanes, south of eastbound travel lanes, within the median, and around interchanges from Richmond to Hampton, Virginia. Potential habitat was identified using a combination of "desktop" review of relevant data resources, "windshield" reconnaissance conducted from a vehicle, and field spot checks of the highest quality habitat areas that were identified by the "desktop" and "windshield" reviews. Fifteen areas identified during the "desktop/windshield" review were checked in the field. Of the fifteen areas that were field reviewed, thirteen were determined to be areas of medium potential habitat, one (Area 2) was characterized as high potential habitat, and one (Area 3) was determined to be low potential habitat. EEE recommends intensive pedestrian surveys of all areas of medium potential and high potential habitat within the project corridor.

The scope of this investigation was limited to a cursory review. Additional small whorled pogonia habitat not identified during this investigation may be present within the project corridor. As the project progresses to the design and permitting stage, a pedestrian survey of all forested areas within the project corridor should be conducted to identify all suitable habitat and to determine presence or absence of small whorled pogonia.

2.0 Introduction

The purpose of this investigation was to identify potential small whorled pogonia habitat within the existing VDOT ROW along the project corridor using "desktop" review, "windshield" surveys, and limited field spot checks. The project involves improvements to Interstate I-64 from Interstate 664 in Hampton to Interstate 95 in Richmond, Virginia. Potential improvements may include the addition of west and east bound travel lanes and interchange improvements.

3.0 Species Description and Habitat Associations

The small whorled pogonia was listed as Federally-endangered for protection under the Endangered Species Act on September 9, 1982 and was reclassified from endangered to threatened on October 6, 1994 (USFWS 1982, 1994). The small whorled pogonia is listed as State-endangered by the Commonwealth of Virginia.

Historically, small whorled pogonia has been documented in 21 states, Canada, and the District of Columbia; however, current estimates report that 93 extant sites representing fewer than 3,000

individuals occur across nine states (NatureServe 2011; USDA, NRCS 2009). In Virginia, most populations occur in the coastal plain and piedmont. Small whorled pogonia has been documented in 21 counties (and one city), including James City County, New Kent County, York County, and the City of Williamsburg (USFWS 2012).

The small whorled pogonia is an herbaceous, perennial orchid (family Orchidaceae) that consists of a single stem (rarely two or more) with a whorl of five or six leaves at the apex of the stem. The stem is hollow and smooth with a glaucous light-green appearance similar to a seedless green grape. Similar species include Indian cucumber root (*Medeola virginiana*), which has a solid, wiry, reddish-brown (sometimes green) stem with cobwebby pubescence and large whorled pogonia (*Isotria verticillata*), which has a reddish stem.

Small whorled pogonia is thought to remain dormant for extended periods (Correll 1950), but Mehrhoff (1989b) found that dormancy periods are typically less than three years. Size of an individual can be a good predictor of reproductive success the following year; with the largest individuals having the largest capsules and highest seed set (Vitt and Campbell 1997). Mehrhoff (1989b) found that the probability of flowering the following year is positively correlated with plant size and that flowering individuals are, on average, the largest plants. Small whorled pogonia is primarily self-pollinating and vegetative reproduction is infrequent (Mehrhoff 1983; Vitt and Campbell 1997). Flowering occurs from May to June when a greenish-yellow, odorless flower with green sepals less than 3 cm long emerges above the whorl of leaves (Radford et al. 1964; Gleason and Cronquist 1991).

Mehrhoff (1989a) found that the most consistent habitat features at sites occupied by the small whorled pogonia are vegetation structure and disturbance history. Small whorled pogonia typically occurs on mesic sites in mixed-deciduous or mixed-deciduous coniferous forests that are generally in second- or third-growth successional stages (USFWS 1992). Most occupied sites have been cutover in the past and allowed to regenerate for at least several decades (Mehrhoff 1989a). Occupied sites typically have sparse to moderate ground cover, a relatively open understory, and proximity to long persisting canopy breaks associated with logging roads, streams, and large tree falls (Mehrhoff 1989a).

In Virginia, the ages of older canopy trees have been estimated to be 45 to 80 years old (Ware 1987). Virginia sites typically contain dry-mesic to wet-mesic soils that are low-nutrient, acidic loams (Mehrhoff 1989a). In Virginia, the soils at occupied sites are typically acidic sandy loams with pH values of 4.3 to 5.5; however, the soil from one site in Virginia was described as a silt loam (Ware 1991). The forest floor is typically flecked with sunlight and is covered with a light to thick layer of leaf litter with limited exposed rock and soil (USFWS 1992; Mehrhoff 1989a). Small whorled pogonia generally occurs on gentle to moderate slopes with eastern or northern exposures, although the plant has been documented on all slope aspects (Ware 1991). Decaying woody debris is also present at most occupied sites and, like many orchids, mycorhizzal associations likely play a prominent role in nutrient uptake (USFWS 1992).

Mehrhoff (1989a) did not identify unique indicator species, but red oak (*Quercus rubra*) and red maple (*Acer rubrum*) were present in the canopy of all occupied sites. In Virginia, typical canopy species associated with small whorled pogonia are white oak (*Quercus alba*), black oak (*Q. velutina*), scarlet oak (*Q. coccinea*), sweetgum (*Liquidambar styraciflua*), tulip tree (*Liriodendron tulipifera*), and American beech (*Fagus grandifolia*). Typical understory and shrub species include flowering dogwood (*Cornus florida*), sourwood (*Oxydendrum arboreum*), mountain laurel (*Kalmia latifolia*), American chestnut (*Castanea dentata*), and witch hazel (*Hamamelis virginiana*). Typical ground cover species are partridge berry (*Mitchella repens*), Indian cucumber root, New York fern (*Thelypteris noveboracencis*), lowbush blueberry (*Vaccinium pallidum*), rattlesnake plantain (*Goodyera pubescens*), red maple seedlings, oak species seedlings, Virginia creeper (*Parthenocissus quinquefolia*), naked tick-trefoil (*Desmodium nudiflorum*), catbrier (*Smilax glauca*), and Christmas fern (*Polystichum acrostichoides*). (USFWS 1992).

Two known sites in Prince William County, Virginia, visited by EEE staff from 2008 to 2011 were noted to have the following associates:

Prince William County Location #1:

The canopy was dominated by American beech, red maple, white oak, pignut hickory (Carya glabra), southern red oak (Quercus falcata), tulip tree, and sweet gum. The dominant saplings were black gum (Nyssa sylvatica), American beech, red maple, American holly (Ilex opaca), and pignut hickory. The dominant herbs were southern ground cedar (Lycopodium digitatum), strawberry bush (Euonymus americana), lowbush blueberry, red maple, pignut hickory, beechdrops (Epifagus virginiana), mapleleaf viburnum (Viburnum acerifolium), black cherry (Prunus serotina), and Virginia creeper. No vine or shrubs were present at this location.

Prince William County Location #2:

The canopy was dominated by tulip tree, pignut hickory, white oak, and American beech. The sapling/shrub dominants were blackgum, American beech, ironwood (*Carpinus caroliniana*), and American holly. The herbaceous layer was dominated by southern ground cedar, American beech, naked-flowered tick-trefoil, sessile leaf bellwort (*Uvularia sessilifolia*), strawberry bush, New York fern, Christmas fern, partridgeberry, lowbush blueberry, and striped wintergreen (*Chimaphila maculata*).

4.0 Methodology

Potential small whorled pogonia habitat was initially identified using a combination of "desktop" review of relevant data resources (e.g., site topography, USGS topographic quadrangle maps, National Wetlands Inventory maps; NRCS soils map data, the Federal Emergency Management Agency (FEMA) Flood Insurance Rate Maps, natural color aerial imagery, and color infrared aerial imagery) and "windshield" reconnaissance conducted from a vehicle. Field spot checks

were then conducted on 15 areas of potential habitat identified during the "desktop/windshield" review. This habitat reconnaissance was conducted within the existing (as of September 2011) VDOT ROW north of westbound travel lanes, south of eastbound travel lanes, within the median, and around interchanges from Richmond to Hampton, Virginia.

Field review of the 15 habitat areas was conducted by EEE environmental scientists Taylor S. Sprenkle and Tamara Doucette on August 30 and September 1, 2011. Mr. Sprenkle is included on the U.S. Fish and Wildlife Service's list of approved surveyors for the small whorled pogonia.

Potential small whorled pogonia habitat was evaluated based on criteria developed from literature review, research conducted in Virginia, and the personal experience of EEE staff. Habitat quality was divided into three categories: low potential, medium potential, and high potential as follows:

High potential habitat areas possess almost all of the physical and biological characteristics of optimal habitat described for small whorled pogonia in Virginia (Ware 1991; USFWS 1992).

Medium potential habitat approaches optimal habitat but lacks one or more key habitat characteristics. Habitat that would otherwise be considered high potential, would be considered medium potential if:

- steep slopes are present;
- the slope aspect faces a direction other than north to southeast (i.e., west);
- scattered individuals of "dry" species such as Virginia pine (*Pinus virginiana*), chestnut oak (*Quercus prinus*) or black locust (*Robinia pseudoacacia*) are present;
- the understory or ground cover is moderately dense; or
- soils are not typical of soil types associated with suitable habitat.

Low potential habitat would have little to no potential to support the small whorled pogonia. Habitat is considered low potential if:

- the area is dominated primarily by chestnut oak or Virginia pine;
- the forest is relatively young;
- the area is heavily disturbed
- the area is dominated by exotic species;
- the understory is extremely dense;
- the area is very dry or very wet; or
- very steep slopes are present with little leaf litter.

5.0 Habitat Evaluation Findings

The majority of the project corridor would be considered low potential habitat including non-forested areas (e.g., mowed roadsides and lawns, landscaped areas, buildings, pavement. etc.) and forested areas that are wetlands, are heavily disturbed, have an extremely dense understory, are heavily dominated by xeric species such as chestnut oak or Virginia pine, or are heavily dominated by invasive species such as Japanese honeysuckle, tree-of-heaven (*Ailanthus altissima*), common periwinkle (*Vinca minor*), or English ivy (*Hedera helix*).

Fifteen forested areas were identified during the "desktop/windshield" review as warranting field review. Of the fifteen areas that were field reviewed, thirteen were determined to be medium potential habitat, one (Area 2) was characterized as high potential habitat, and one (Area 3) was determined to be low potential habitat.

Area 1

This medium potential habitat is situated on level ground within the northwest loop of the interchange cloverleaf at exit 250. The canopy is dominated by red maple, American holly, white oak, loblolly pine, tulip tree, black gum and sweet gum. The sapling/shrub dominant is American beech. The herbaceous dominants include greenbrier (*Smilax rotundifolia*), lowbush blueberry, willow oak (*Quercus phellos*) and muscadine (*Vitis rotundifolia*). The understory is very sparse with thick leaf and pine needle litter and a wet feature at the bottom of a slight slope. Although several indicators of high quality habitat are present, field observations suggest that the hydrologic regime may be more hydric than ideal for small whorled pogonia; therefore, this habitat was classified as medium potential.

Area 2

This high potential habitat is located within a "triangle" of land bordered to the northeast by I-64, to the northwest by Merrimac Trail (Route 143), and to the south by the eastbound access ramp to I-64. This habitat has gentle slopes with an ephemeral channel at the base of the slope and sun flecking. The herbaceous layer was sparse with abundant leaf litter and abundant decaying woody material. The canopy in this area is dominated by white oak, American beech, American holly, loblolly pine, red oak, tulip tree and sweet gum. The sapling/shrub dominants include mockernut hickory (*Carya alba*), red oak, American beech, white oak, southern red oak, devil's walking stick (*Aralia spinosa*), eastern red cedar, southern magnolia (*Magnolia grandiflora*) and pignut hickory. The herbaceous layer dominants include partridge berry, lowbush blueberry, muscadine and multiflora rose (*Rosa multiflora*).

Area 3

This low potential habitat in the median at mile marker 228 is situated on a steep west facing slope. The canopy in this area is dominated by tulip tree, white oak, sweet gum and red maple. The sapling/shrub layer is dominated by mountain laurel and the herbaceous layer is dominated by muscadine and partridge berry. The shrub layer is thick and dominates the forest floor. Due

to the steep slope, west facing slope, and thick understory, this site was classified as low potential.

Area 4

This medium potential site is situated on a gentle to moderate slope in the median near mile marker 224. The tree canopy is dominated by American holly, white oak, American beech, sourwood, tulip tree, red oak, sweet gum and southern red oak. The sapling/shrub layer is dominated by mountain laurel, American holly, lowbush blueberry and white oak. The herbaceous layer is dominated by lowbush blueberry.

Area 5

This medium potential site is situated on an east facing slope in the median near mile marker 221. The tree canopy is dominated by red maple, sweet gum, white oak, tulip tree, southern red oak, American beech, loblolly, swamp white oak, American holly and mockernut hickory. The sapling/shrub layer is dominated by sweet gum, ironwood, devil's walking stick and mockernut hickory. The herbaceous layer is dominated by partridge berry. The understory in this area is sparse with sun flecking, thick leaf litter, east facing slope and a perennial stream and wet feature at the bottom of the slope. Although several indicators of suitable habitat are present, the slope in this area is moderate to steep and is therefore classified as medium potential.

Area 6

This medium potential habitat is located in the median at mile marker 219. This habitat area has a sparse understory and herbaceous layer, sun flecking, abundant woody debris, thick leaf litter, moderate west facing slope and a stream feature at the base of the slope. The tree canopy is dominated by white oak, American holly, American beech and loblolly. The sapling/shrub layer is dominated by American holly, red oak, sweet gum and red maple. The herbaceous layer is dominated by lowbush blueberry, mockernut hickory and smooth carionflower (*Smilax herbacea*).

Area 7

This medium potential site is located in the median near mile marker 217. The tree canopy is dominated by loblolly, white oak, pignut hickory, American beech, red maple and eastern red cedar. The sapling/shrub layer is dominated by pignut hickory and American holly. The herbaceous layer is dominated by smooth carionflower, muscadine, and partridge berry. The area has a sparse understory and herbaceous layer, sun flecking, abundance woody debris, thick leaf litter and a gentle west-facing slope. Although the area contains indicators of high quality habitat, the west-facing slope is not ideal for small whorled pogonia; therefore, this area is classified as medium potential habitat.

Area 8

This medium potential area is located in the median near mile marker 214. The tree canopy is dominated by American holly, white oak, pignut hickory, southern red oak, tulip tree and

loblolly. The sapling/shrub layer is dominated by American holly and eastern red cedar. The herbaceous layer is dominated by white oak, pignut hickory, red oak, longleaf woodoats (*Chasmanthium sessiliflorum*), Bosc's panicgrass (*Dichanthelium boscii*) and lowbush blueberry. The site has a sparse understory, thick leaf litter, moderate woody debris, moderate east facing slope and sun flecking.

Area 9

This medium potential site is located in the median approximately 500 feet west of exit 214. This habitat area is characterized by a sparse herbaceous layer and a gentle western facing slope. The tree canopy is dominated by fringe tree (*Chionanthus virginicus*), American holly, white oak, southern red oak, pignut hickory, sweet gum, red maple, tulip tree and red oak. The sapling/shrub layer is dominated by fringe tree, American holly, white oak, sweet gum and black cherry. The herbaceous layer is dominated by lowbush blueberry, muscadine, pignut hickory, poison ivy (*Toxicodendron radicans*), sassafras (*Sassafras albidum*) and poison oak (*Toxicodendron pubescens*).

Area 10

This medium potential site is located in the median near mile marker 212. It is characterized by gentle to moderate east and west facing slopes, spare to moderate herb cover and dense leaf litter. The tree canopy is dominated by red oak, white oak, American holly, American beech, Virginia pine, loblolly pine, sweet gum and pin oak (*Quercus palustris*). The sapling/shrub layer is dominated by red oak, American holly, sweet gum and black cherry. The herbaceous layer is dominated by red oak, white oak, sweet gum, muscadine, lowbush blueberry, greenbriar and poison ivy. Although this area has indicators of suitable habitat, the presence of exotics and xeric species such as Virginia pine and abundant herbaceous cover indicates moderate potential habitat.

<u>Area 11</u>

This medium potential site is located in the median near mile marker 210. The tree canopy is dominated by white oak, flowering dogwood (*Cornus florida*), tulip tree, American hornbeam (*Carpinus caroliniana*), sweet gum, red oak and black cherry. The sapling/shrub layer is dominated by tulip tree, sweet gum, read oak, sassafras, American holly, lowbush blueberry and pignut hickory. The herbaceous layer is dominated by pignut hickory, spicebush (*Lindera benzoin*), sweet gum, tulip tree, greenbriar, Virginia creeper and muscadine. This area has a sparse understory, sun flecking, moderate southeast facing slope and abundant leaf litter.

Area 12

This medium potential site is located in the median near mile marker 209. The tree canopy is dominated by ironwood, river birch (*Betula nigra*), white oak, American holly, sweet gum, tulip tree, loblolly and water oak (*Quercus nigra*). The sapling/shrub layer is dominated by American beech, ironwood, American holly and pignut hickory. The herbaceous layer is dominated by lady fern (*Athyrium filix-femina*), greenbriar, Virginia creeper and Japanese honeysuckle. The

slope is moderate to steep and southwest facing with a stream at the base. The herbaceous cover is moderate with leaf litter and woody debris.

Area 13

This medium potential site is located in the exit 205 interchange northwest of the intersection between I-64 and New Kent Highway (Route 249). The tree canopy is dominated by American holly, read oak, white oak, American beech, tulip tree, sweet gum and sassafras. The sapling/shrub layer is dominated by American holly, American beech and black gum. The herbaceous layer is dominated by American holly, white oak, muscadine, greenbrier, Virginia creeper and sweet gum. This area is relatively flat and does not have a stream or wetland in the vicinity, but abundant woody debris, sun flecking and thick leaf litter make this medium potential habitat.

Area 14

This medium potential area is located within the northeast loop of the exit 205 interchange. The tree canopy is dominated by beech, pignut hickory, white oak, tulip tree, sweetgum and loblolly. The sapling/shrub layer is dominated by American beech, American holly, sweet gum and black gum. The herbaceous layer is dominated by burning bush and American holly. The area lacks slope or a water feature but has abundant woody debris, sun flecking and thick leaf litter.

Area 15

This medium potential site is located in the exit 205 interchange on the south side of interstate 64 and the west side of New Kent Highway (Route 249). The tree canopy is dominated by American beech, red oak, tulip tree, sweet gum, white oak and loblolly. The sapling/shrub layer is dominated by American beech and American holly. The herbaceous layer is dominated by American burnweed (*Erechtites hieraciifolia*), white oak and muscadine. The area lacks slope or a water feature but has abundant woody debris, sun flecking and thick leaf litter with sparse herbaceous cover. The site has evidence of previous fire and a duff layer approximately 3 inches thick.

6.0 Conclusions

In our opinion, the areas of the project corridor that have little to no potential to support small whorled pogonia would not warrant a survey for small whorled pogonia (subject to concurrence from relevant resource agencies). These areas include non-forested areas (e.g., mowed roadsides and lawns, landscaped areas, buildings, pavement. etc.), wetlands, and areas that are forested but are heavily disturbed, have an extremely dense understory, are heavily dominated by xeric species such as chestnut oak or Virginia pine, or are heavily dominated by invasive species such as Japanese honeysuckle, tree-of-heaven (*Ailanthus altissima*), common periwinkle (*Vinca minor*), or English ivy (*Hedera helix*).

EEE recommends intensive pedestrian surveys of all areas of medium potential and high potential habitat within the project corridor.

7.0 Limitations

A presence/absence survey for small whorled pogonia was not conducted during this habitat reconnaissance. This habitat reconnaissance was conducted within the existing (as of September 2011) VDOT ROW north of westbound travel lanes, south of eastbound travel lanes, within the median, and around interchanges from Richmond to Hampton, Virginia. The scope of this investigation was limited to a cursory review. Additional small whorled pogonia habitat not identified during this investigation may be present within the project corridor. As the project progresses to the design and permitting stage, a pedestrian survey of all forested areas within the project corridor should be conducted to identify all suitable habitat and to determine presence or absence of small whorled pogonia. A presence/absence survey should be conducted within the timeframe recommended by the U.S. Fish and Wildlife Service (May 25 to July 15 for the project corridor). The determination whether or not to conduct a small whorled pogonia survey is subject to review and concurrence from the relevant resource agencies.

This study is based on examination of the habitat conditions at the time of this study and does not address conditions at a given time in the future as habitat conditions may change over time. Therefore, the conclusions of this study may differ from future observations.

EEE's habitat evaluation has been conducted in accordance with generally accepted guidelines for the conduct of surveys for rare, threatened, and endangered plants. EEE makes no warranties, either expressed or implied, and this report is not a recommendation for actions along the study corridor.

EEE Consulting, Inc.

Carle on

Taylor S. Sprenkle, PWD Environmental Scientist

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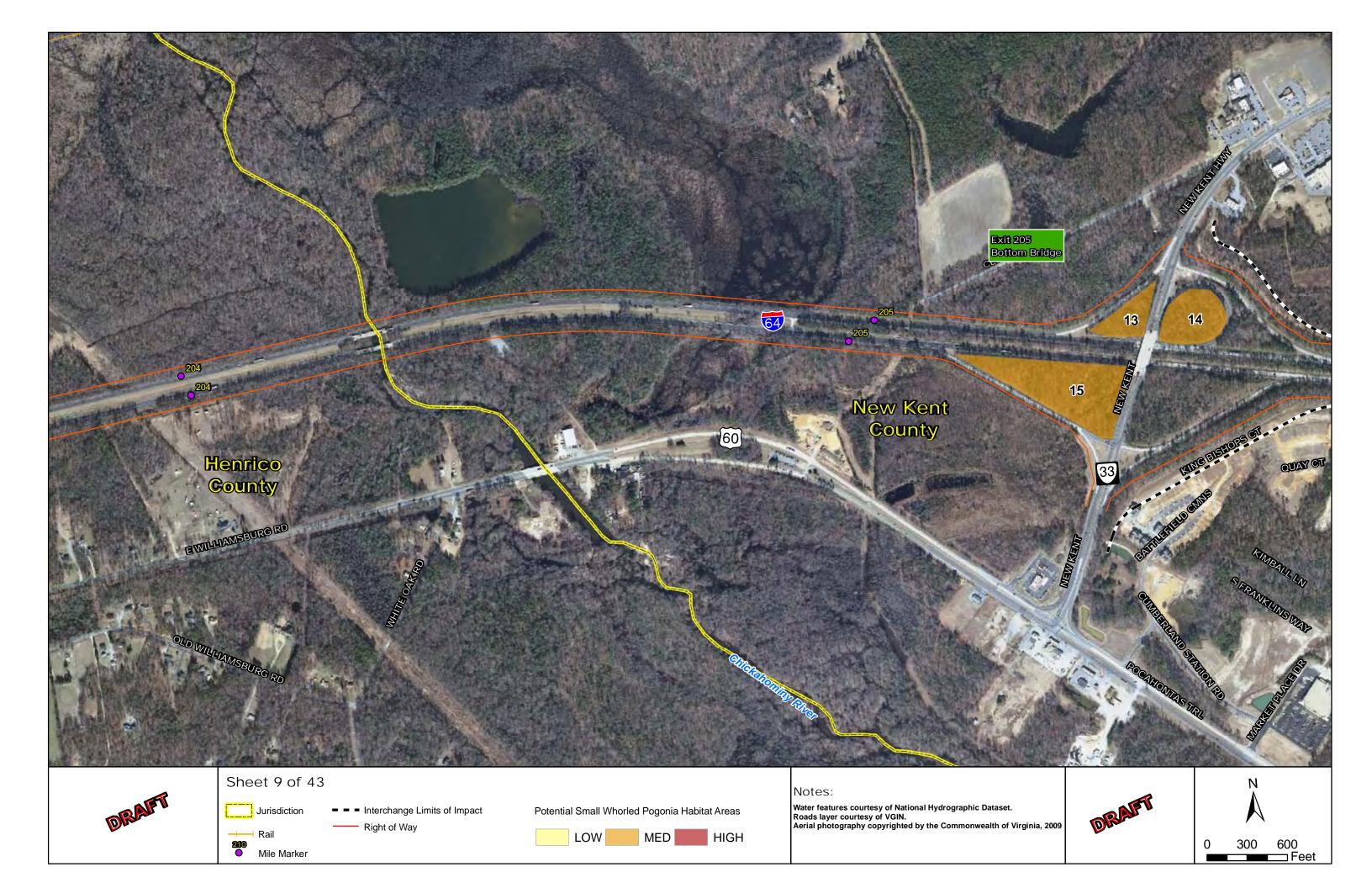
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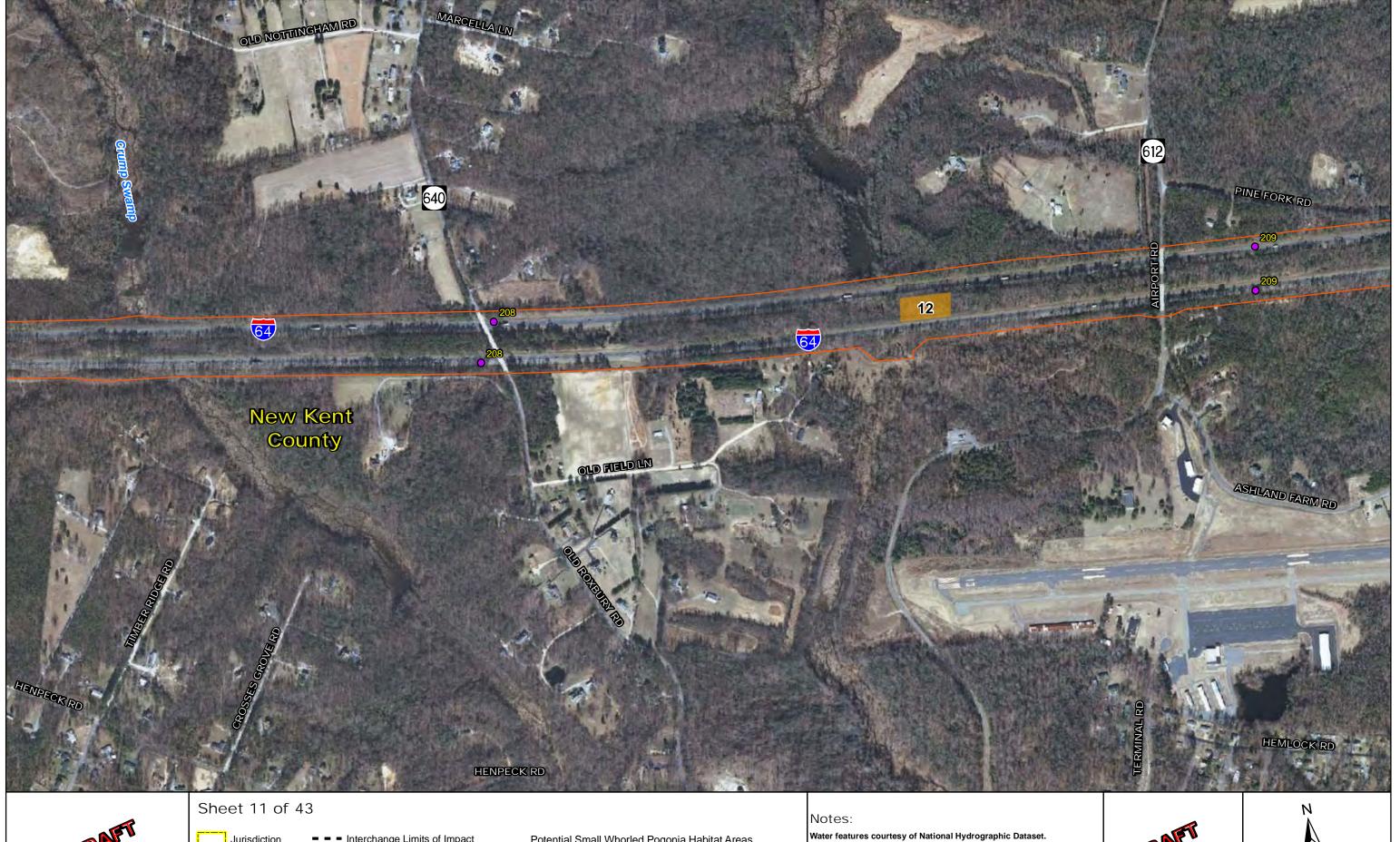
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■ ■ Interchange Limits of Impact Right of Way

Potential Small Whorled Pogonia Habitat Areas

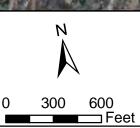


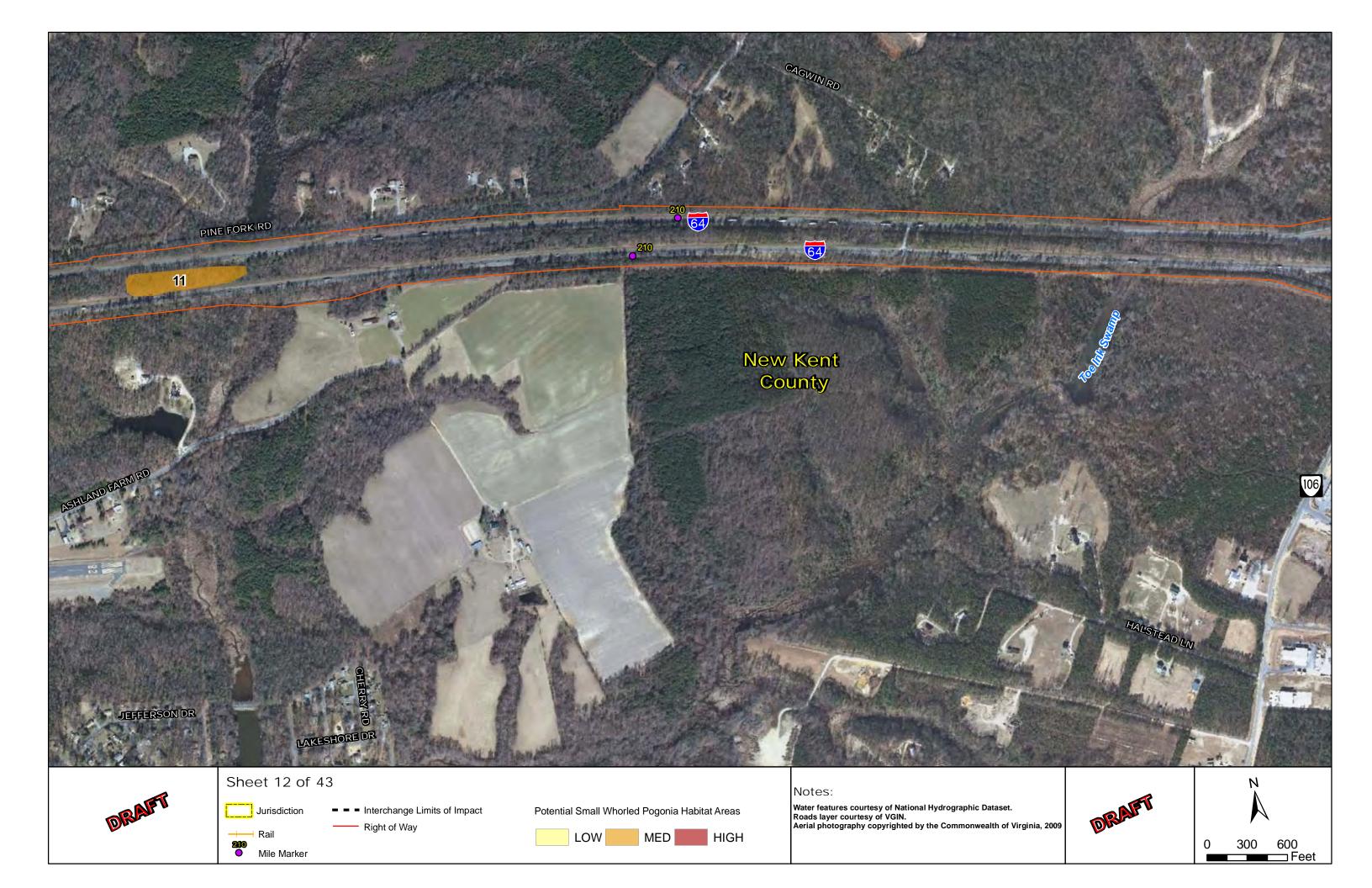
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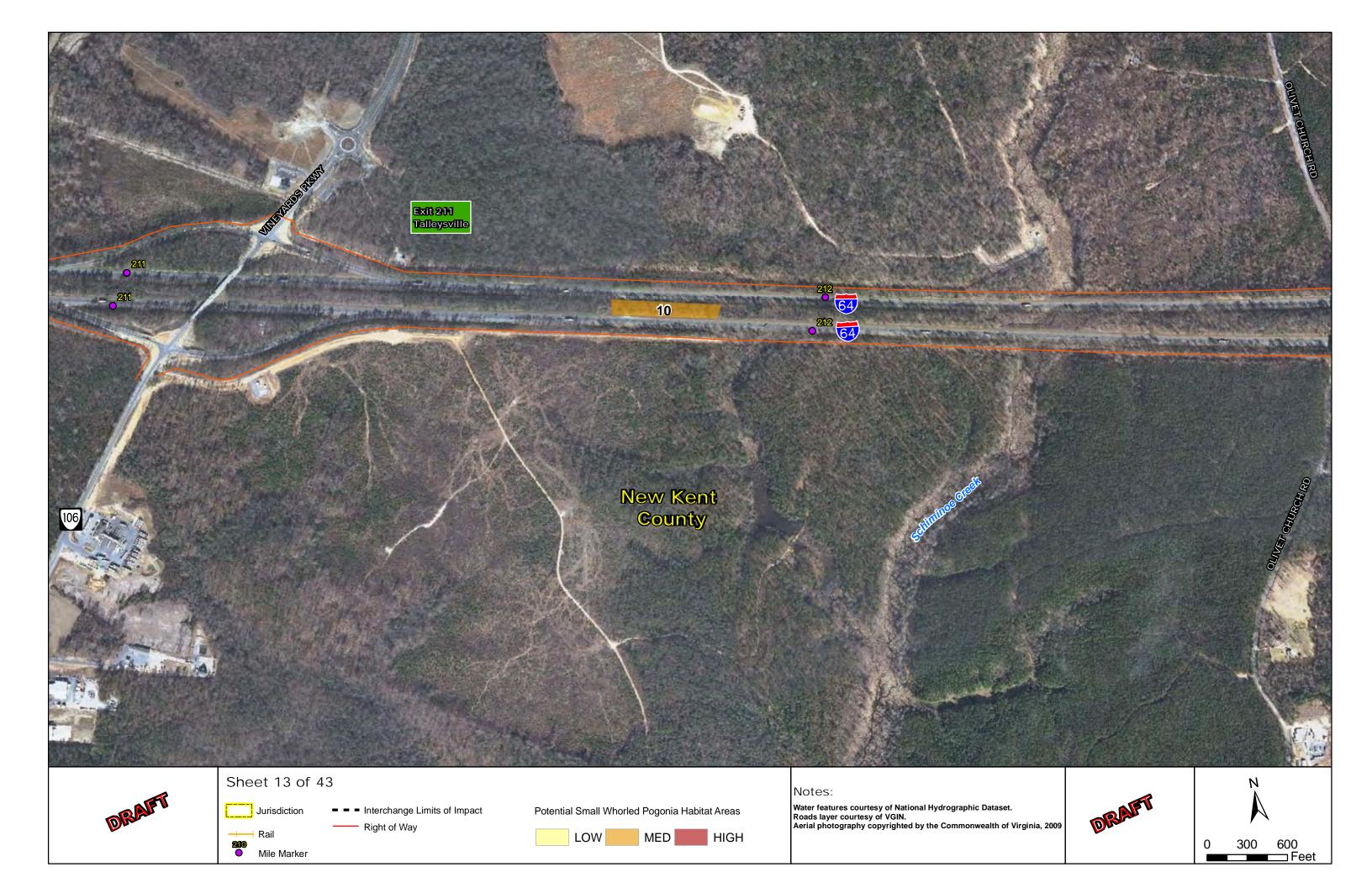


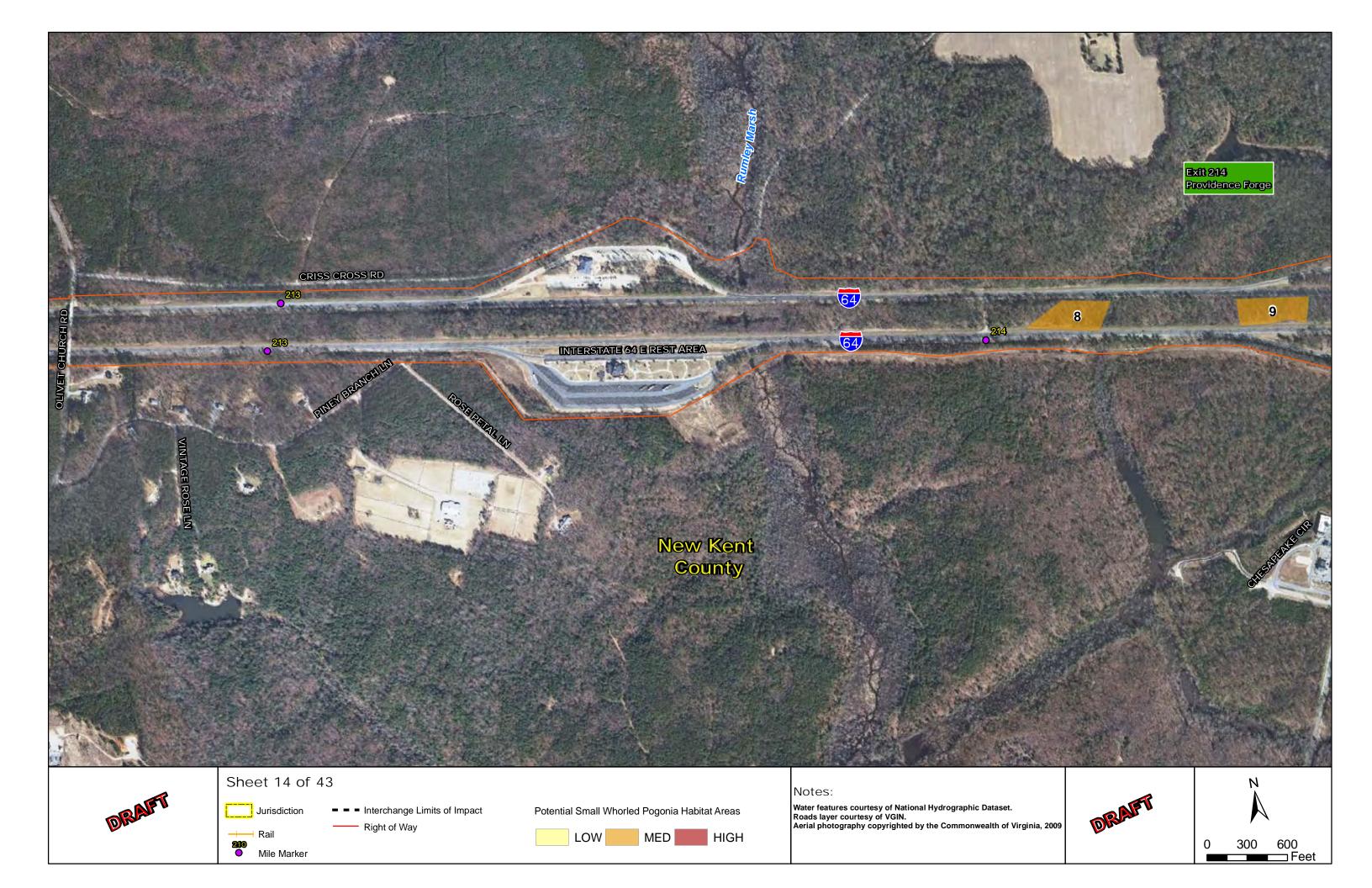
Water features courtesy of National Hydrographic Dataset. Roads layer courtesy of VGIN. Aerial photography copyrighted by the Commonwealth of Virginia, 2009

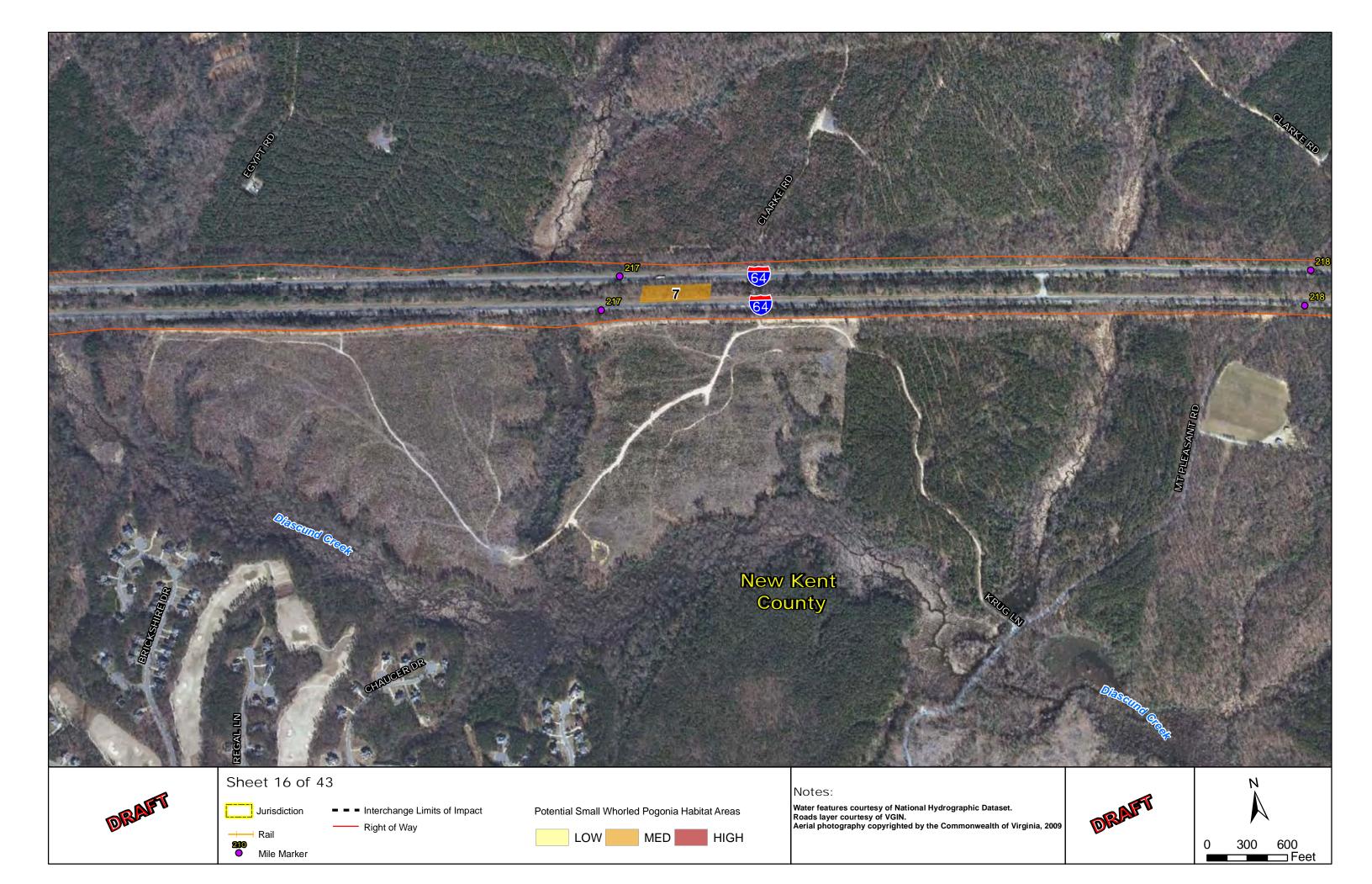


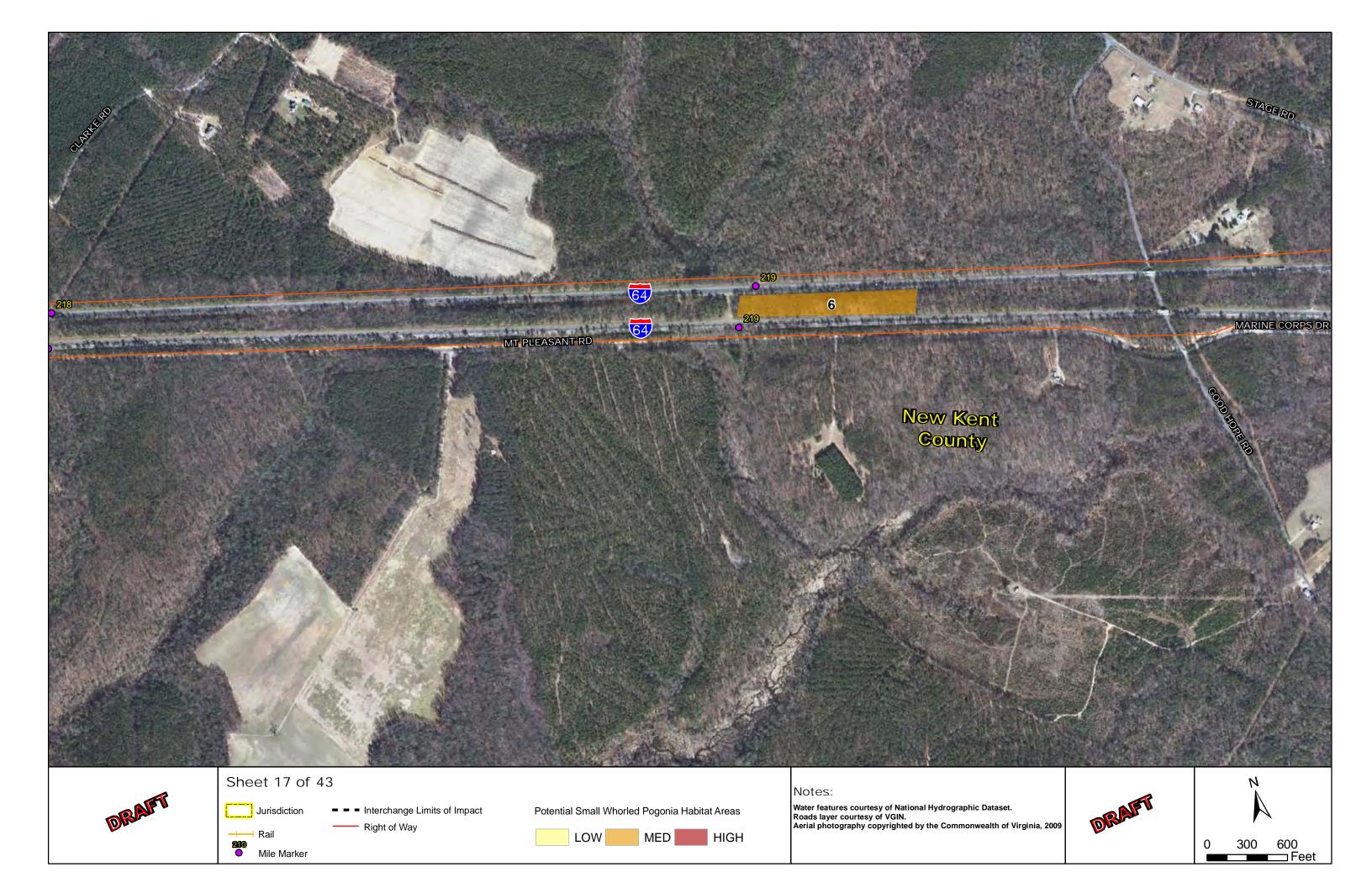


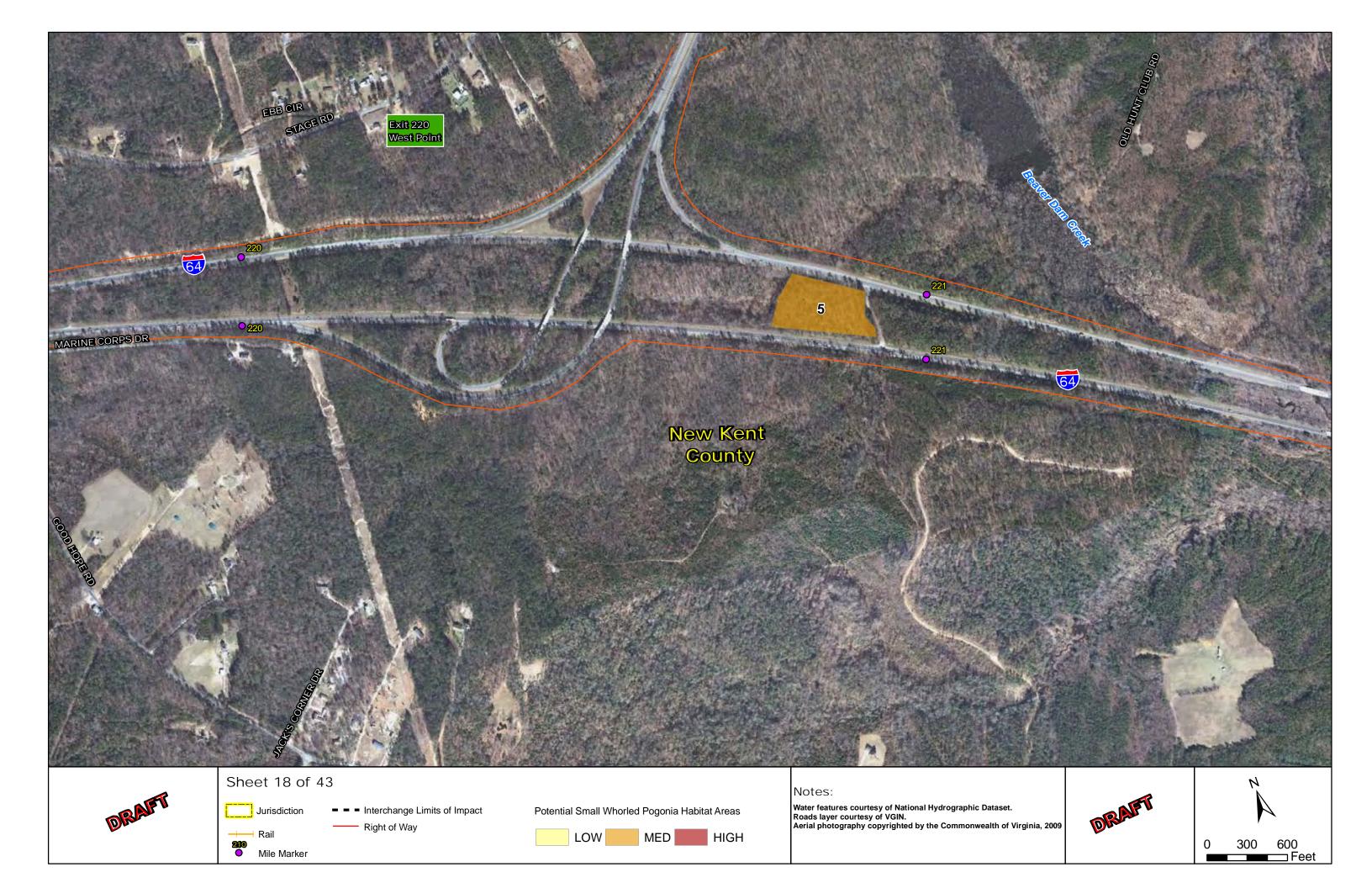


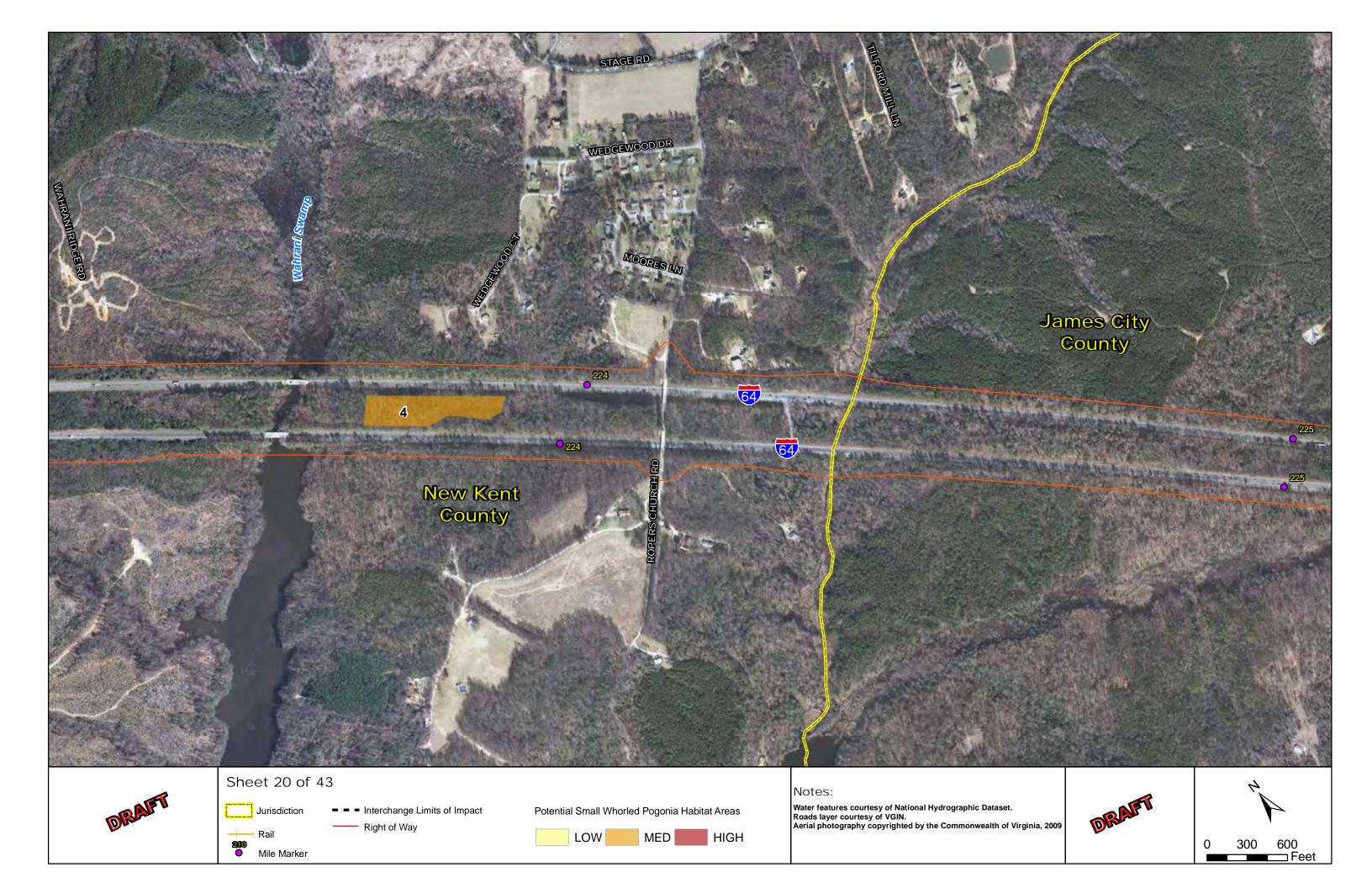
















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Interchange Limits of Impact Right of Way

Potential Small Whorled Pogonia Habitat Areas





Water features courtesy of National Hydrographic Dataset. Roads layer courtesy of VGIN. Aerial photography copyrighted by the Commonwealth of Virginia, 2009



