Application, Appendix, DEQ Supplement, Routing Study, Direct Testimony and Exhibits of Virginia Electric and Power Company

Before the State Corporation Commission of Virginia

Meadowville 230 kV Electric Transmission Project

Application No. 343

Case No. PUR-2024-00179

Filed: October 11, 2024

Volume 3 of 3

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Environmental Routing Study
Meadowville 230 kV Electric Transmission Project
September 2024
Project No. 64094

CONTENTS

APPENDICES

1. INTRODUCTION AND BACKGROUND

This report presents the results of an environmental constraint identification and routing study prepared by Timmons Group (Timmons) on behalf of Virginia Electric and Power Company (herein referred to as Dominion Energy Virginia, Dominion, or the Company) for the proposed Meadowville 230 kV Electric Transmission Project in Chesterfield County, Virginia.

1.1 Project Description

In order to provide service requested by two data center customers (collectively, the “Customers”), to maintain reliable service for the overall load growth in the area, and to comply with mandatory North American Electric Reliability Corporation (“NERC”) Reliability Standards, Virginia Electric and Power Company (“Dominion Energy Virginia” or the “Company”) proposes in Chesterfield County, Virginia, to:

Component 1: Bermuda Hundred and Sloan Drive

Construct the Bermuda Hundred Switching Station (“Bermuda Hundred Station”) on Customer A’s property in Chesterfield County, Virginia, west of Discovery Road and the Company’s existing Line #2050, cut into the adjacent Line #2050 (Bermuda Hundred – Chickahominy) to the east of the proposed Bermuda Hundred Station, and loop Line #2050 in and out of the Bermuda Hundred Station on two new weathering steel structures, traveling approximately 0.10 mile along new 100-foot-wide right-of-way (“ROW”). Once Line #2050 is looped in and out of the Bermuda Hundred Station, Line #2050 will then be renumbered as Line #2368 from existing structure 2050/13 to Allied Substation. The Company will then construct two structures outside the fence of the Bermuda Hundred Station on property owned by Customer A, which Customer A will use to interconnect to their data center campus.2 The Company will also construct the proposed Sloan Drive Switching Station (“Sloan Drive Station”), located to the west of the Bermuda Hundred Station on Customer A’s property, and construct two new double-circuit 230 kV lines (Line #2366 and Line #2367) that will extend approximately 1 mile west from the proposed Bermuda Hundred Station along new 100-feet ROW on double-circuit weathering steel poles to the proposed Sloan Drive Station.

Component 2: Meadowville and White Mountain

Construct the proposed Meadowville Switching Station ("Meadowville Station") east of Interstate 95 ("I-95") and west of Meadowville Technology Parkway on Customer B's property, construct the proposed White Mountain Substation northeast of the Meadowville Station and Meadowville Technology Parkway on Chesterfield County Economic Development Authority ("EDA")-owned property, which will be purchased by the Company, and construct new 230 kV lines (Line #2363 and Line #2364) on double-circuit weathering steel structures traveling northwest from the Sloan Drive Station along new 100-foot-wide ROW, with single-circuit Line #2363 traveling approximately 1.6 miles terminating in the proposed Meadowville Station and single-circuit Line #2364 traveling approximately 1.4 miles terminating at the proposed White Mountain Substation. In addition, the Company will also connect Meadowville Station and White Mountain Substation with a new single-circuit 230 kV line (Line #2365) on double-circuit weathering steel structures traveling approximately 0.5 mile between the stations within the same proposed 100-foot-wide ROW as Line #2363 and Line #2364. The Company also proposes to cut the existing 230 kV Line #2049 (Sycamore Springs – Allied) to connect to the Sloan Drive Station. The extension from the existing #2049 corridor to Meadowville Station will be renamed Line #2361. The existing Line #2049 from Enon Substation to Allied Substation will be renamed Line #2370. Line #2361 will be constructed on double-circuit weathering steel structures, in new 100-foot-wide ROW from Enon Substation for approximately 2.2 miles on a direct route north towards the Sloan Drive Station where it will converge with Lines #2363 and #2364 terminating in the proposed Meadowville Station.

Component 3: Sycamore Springs

Construct the Sycamore Springs Switching Station ("Sycamore Springs Station") to the east of Bermuda Orchard Lane and west of Interstate 295 ("I-295") on Chesterfield County-owned property, which will be purchased by the Company, and cut existing Lines #211, #228, and #2049 in and out of the proposed Sycamore Springs Station. Once Line #2049 is looped into Sycamore Springs Station, the line from Sycamore Springs Station to Enon Substation will then be renumbered as Line #2406 from Sycamore Springs Station to Enon Substation, and Line #2370 from Enon Substation to Allied Substation. The Company will partially rebuild existing Line #2049 from the proposed Sycamore Springs Station to existing structure #2049/55 for approximately 1.8 miles on an existing 130-foot-wide ROW on new double-circuit weathering steel structures. In addition, the Company proposes to construct new 230 kV Line #2360. Line #2360 will travel along the same existing 130-foot-wide ROW and on the same double-circuit weathering steel structures as Line #2406 (formerly Line #2049) from the proposed Sycamore Springs Station to existing structure #2049/55 for approximately 1.8 miles. The Company also proposes to expand the proposed 100-foot right-of-way to 160 feet in width from Enon Substation to Meadowville Station to construct a new approximately 2.2-miles 230 kV line, Line #2362, on double-circuit weathering steel monopoles adjacent to the corridor described in Component 2, extending the convergence of Line #2361 and Line #2362 with Line #2363 and Line #2364, with Line #2361 and Line #2362 ultimately terminating at Meadowville Station.

The Components described above are collectively referred to as the "Project." The Project is needed to interconnect and provide service requested by two data center customers in the Chesterfield Load Area, and to maintain compliance with mandatory NERC Reliability Standards. The combination of competitive collocation/cloud environment, fiber connectivity, strategic geographic location, low risk of business disruptions, affordable and reliable power, and the business climate in Virginia has created the largest market for data center capacity in the United States. The data center market continues to rapidly expand in Virginia, and the growing demand for data center space in Virginia has led the industry to locations in the central Virginia region.

1.2 Project Background

Meadowville Technology Park (the Park) is recognized as one of the Commonwealth's premiere Class A master-planned technology parks. Owned by the Economic Development Authority of Chesterfield County (the EDA), the Park is home to Fortune 500 companies and corporate giants including Amazon, Niagara

Bottling, Medline, Plenty Unlimited, and the LEGO Group. The EDA continues to be the master developer of this park, including assuring that each transaction allows for future utility extensions necessary to serve future phases of the Park. Customer B recently joined the Park by purchasing the existing Capital One Data Center and the adjacent packaging plant, effectively creating a "data center campus" strategically located in the center of the 1,300-acre park. The original strategy to pursue the semi-conductor market proved insightful, as the current data centers benefit from the redundant power, water, and fiber capacity that is built into the Park infrastructure.

The Park was recently expanded to the east to include 450 acres that will contain vertical farming and Customer A data center campus. In anticipation of this, the EDA purchase the right-of-way necessary to extend transmission lines to service Customer A property.

The Park is the epitome of strategic real estate acquisition, municipal economic investment, decades of calculated site planning, and a shared vision of success. Spanning over 1,300 acres, the Park is a key player in the economic narrative of not only Virginia, but the entire East Coast. Its strategic location at the crossroads of Interstates 64, 95, and 85, shipping ports on the historic James River, and Richmond International Airport positions it as a vital link to global markets.

The Park's current success also represents the culmination of a municipal leadership, investment, and a long-standing relationship with the founders and leaders of Timmons Group. Founded originally as a land surveying company in 1953 by namesake J.K. Timmons, Timmons Group is now a full-service civil engineering and technology firm based in Richmond. While J.K. Timmons did not directly oversee the work accomplished at Meadowville Technology Park, he did have a unique relationship with the property before it sold to the EDA in the 1990s: he and several other partners owned most of the land that now makes up the Park. J.K. Timmons and his partners agreed to rezone the property in a partnership with the EDA, which allowed the Chesterfield County Economic Development (CCED) to transform Meadowville into a landmark that would attract world class jobs and investment.

The EDA then began purchasing portions of the property over a number of years to specifically open opportunities within the semi-conductor fabrication market. When that market shifted, the County reimagined the property as a multi-tenant technology park. Through the leadership of CCED, the Park now offers robust infrastructure to its tenants and neighbors, including a county-owned and operated wastewater system, two water towers, an expansive electric power and natural gas network through local providers, and telecommunications services.

Timmons has overseen the due diligence of the Meadowville Technology Park. The latest prospective developments necessitate the expansion of the electrical transmission infrastructure in the area. Timmons Group's relationship with the CCED, along with the extensive history with and knowledge of the area, has allowed Timmons to identify the most practicable and least impactful transmission route to service the Customers, future prospective clients, and the Park as a whole.

1.3 Objectives of the Study

The Company requested Timmons' services to complete the following: a) collect information about routing constraints and opportunities within the vicinity of the proposed alignment; b) identify the constraints and opportunities associated with each Component; and c) document these efforts in this report. The location of the proposed Project is depicted in Figure 1.2 in Appendix A, Figures.

2. METHODOLOGY

The process of routing new electric transmission lines follows a sequence whereby potential route corridors are developed into a viable route. Although details may differ, the fundamental objectives of the process are the same regardless of project or location: maximize collocation with compatible linear features or land uses, and avoid, minimize, or mitigate impacts to the human and natural environment. Route viability is

assessed through permitting risk, constructability, right-of-way acquisition, and cost after the least impactful route alignment is identified.

Timmons identified and mapped existing land uses, planned developments, and environmental, visual, recreational, and cultural features within and in the vicinity of the proposed alignment. Timmons also considered parcel ownership. To complete this work, the routing team used the following data sources:

- Chesterfield County department websites and open geographic information system (GIS) datasets and mapping programs
- Virginia Department of Transportation (VDOT) projects and studies database (VDOT 2024)
- National Conservation Easement database (NCED 2024)
- Virginia Department of Conservation and Recreation (VDCR) conservation lands database (VDCR 2024)
- United States Environmental Protection Agency's Environmental Justice Screening and Mapping Tool (EJSCREEN; USEPA 2020)
- U.S. Fish and Wildlife Service (USFWS) National Wetlands Inventory (NWI) mapping (USFWS 2022)
- Recent aerial imagery
- Other database resources as described in the following sections

Sensitive environmental resources or cultural features identified through the listed sources and other sources were defined as routing constraints. In addition to constraints, Timmons identified existing electric transmission and distribution lines, other utility rights-of-way, and roads within the vicinity of the proposed alignment using a variety of digital map resources, current aerial imagery, and data provided by Dominion for its existing facilities. These existing linear corridor features were defined as potential opportunities for routing the new transmission lines. Timmons layered the routing opportunities over the constraints in GIS to assess each Component route. Timmons then conducted an analysis using GIS to quantify potential impacts on constraints and the use of opportunities for each Component.

2.1 Inventory of Constraints and Opportunities

Timmons identified several environmental features and other constraints in the vicinity of the proposed alignment, including but not limited to:

- Existing transmission and other utility rights-of-way
- Federal, state, and county lands
- Planned future developments
- Wetlands and waterbodies
- Areas of ecological significance
- Protected species
- Parks, trails, and conservation easements
- Forested land
- Historic sites

Environmental or other features potentially affecting the constructability of the Project facilities were defined as routing constraints.

Timmons identified existing electric transmission lines, pipelines, roads, and other linear features within the vicinity of the proposed alignment using a variety of digital map sources and current aerial imagery, along with data provided by Dominion for its existing transmission facilities. These existing linear corridor features were defined as potential opportunities for routing/siting transmission infrastructure. Timmons layered the routing opportunities and the constraints over each Component alignment in GIS. Descriptions of the specific constraints and opportunities located along and near each Component are provided in Section 3.

Multiple significant routing constraints and opportunities are present in the area between existing transmission infrastructure and the locations of Customer A and Customer B data centers which will be connected to the grid by components of the Project. The following is a summary of the major constraints and opportunities that influenced the location of each Component.

- Brown and Williamson Conservation Area: The Brown and Williamson Conservation area is a Virginia Outdoors Foundation (VOF) co-held Managed Conservation Land located immediately north of Component 1.

- Existing Delineations: Due to recent and planned commercial/industrial development in the vicinity of Components 1, 2, and the northern portion of Component 3, delineations required by these permits and confirmed by the US Army Corps of Engineers are available that identify wetlands and waterbodies that may exist in these areas, including headwater, floodplain, and/or other wetland areas. Unconfirmed field and/or desktop delineations were performed on all areas where confirmed delineations were not available. Johnson Creek and other unnamed waterbodies draining to the Appomattox and James Rivers were also identified by these delineations. Further details are provided in Section 3.3.2, Wetlands and Section 3.3.3, Waterbodies.

- Existing Roads: Existing roads crossed by the proposed alignment include Meadowville Technology Parkway, North Enon Church Road, Bermuda Hundred Road, Route 10 (East Hundred Road), River Tree Drive, River Rock Road, River Rock Place, River Fork Way, River Fork Terrace, River Haven Avenue, Interstate 295, and Elkington Drive. The proposed alignment collocated within existing rights-of-way or existing easement crossings of these roads when practicable.

- Residential Areas: Existing and planned residential subdivisions and residences are located along most of Component 3 south of Bermuda Hundred Road. This includes the Rivermont Crossing area between East Hundred Road and Interstate 295 and the Cameron Hills/Walthall Mill area between Bermuda Orchard Lane and Interstate 295. The proposed alignment in these areas is primarily collocated within an existing easement. Otherwise, the proposed alignment presented in this study avoids residential areas to the maximum extent practicable to limit new right-of-way acquisition on residential lots.

- Planned Development: Customer A is a planned data center, who owns the land on which Component 1 and parts of Components 2 and 3 will be constructed. Customer A site plans restrict the location of Component 1 to the northside of the data center.

- Existing Transmission Lines: Several existing transmission line corridors operated by Dominion are located within the vicinity of the proposed alignment. It is often beneficial to build new transmission lines adjacent to existing corridors to minimize impacts on environmental and other resources. The SCC requires that existing transmission lines be considered as routing opportunities to the fullest extent when planning new transmission lines. Many of the existing transmission line corridors within the vicinity of the proposed alignment cross heavily developed areas where homes and other buildings have been built up to the edge of the right-of-way. Where feasible, portions of these corridors were considered as potential opportunities for routing the proposed alignment.

- In addition to the major routing constraints and opportunities described above, the vicinity of the proposed alignment contains historic resources and additional planned developments and poses engineering challenges owing to a combination of topography and overhead crossings of existing transmission lines.

2.2 Route Identification

The proposed alignment was developed based on routing opportunities and constraints. The proposed alignment was deemed feasible for construction, meets the Company's identified electric planning needs for the Project, and minimizes adverse impacts to the surrounding environment to the greatest extent

practicable. The Project was split into three Components, each with its own alignment described below in Section 2.3. Impacts associated with construction and operation of the proposed alignment, including transmission lines, substations, and switching stations, are included in the discussions of the existing and affected resources for each project Component route in Section 3 of this report.

2.3 Proposed Alignment Components

The Components are depicted in the aerial and topographic based maps provided as Figure 2.3-1 and 2.3-2 in Appendix A.

Component 1 Proposed Route

The Component1 Proposed Route is approximately 1.2 miles in length and is located entirely within Chesterfield County, Virginia. The Component 1 Proposed Route begins at the cut-in location just west of Discovery Road on Line #2050 and just north of structure #2050/13 and extends west along the edge of Customer A's proposed development to the proposed Bermuda Hundred Station, and further west from the Bermuda Hundred Station to the proposed Sloan Drive Station. This route is located entirely on the customer's parcel.

For the Component 1 Proposed Route, the minimum structure height is 110 feet, the maximum structure height is 120 feet, and the average structure height is 118 feet, based on preliminary conceptual design, not including foundation reveal, and subject to change based on final engineering design.

Component 2 Proposed Route

The Component 2 Proposed Route is approximately 1.6 miles in length for Line #2363 and approximately 1.4 miles in length for Line #2364, and is located entirely within Chesterfield County, Virginia. Line #2363 and #2364 extend south from the Sloan Drive Station and then heads west perpendicularly crossing N Enon Church Road and over undeveloped forested land owned by EDA for 0.88 mile until they reach Meadowville Technology Parkway. From Meadowville Technology Parkway, Line #2363 runs adjacent to the Parkway for 0.3 mile before turning west across Customer B and Chesterfield EDA property for 0.4 mile until reaching Meadowville Station. Line #2364 continues north along Meadowville Technology Parkway, where Line #2363 turns west to the Station, and continues another 0.17 mile north to White Mountain Station. Line #2365 connects White Mountain Station to Meadowville Station by following the same 0.17 mile corridor south and then 0.4 mile west to Meadowville Station.

For the Component 2 Proposed Route, the minimum structure height is 110 feet, the maximum structure height is 120 feet, and the average structure height is 115 feet, based on preliminary conceptual design, not including foundation reveal, and subject to change based on final engineering design.

Component 3 Proposed Route

The Component 3 Proposed Route is approximately 4.23 miles in total length and is located entirely within Chesterfield County, Virginia. Looping Lines #211, #228, and #2049 into Sycamore Springs Station, on property owned by Chesterfield County, and extending Line #2360 and Line #2406 (formerly Line #2049) north out of Sycamore Springs Station, which will require a rebuild of the existing transmission line within existing electric transmission right of way to Enon Substation. The existing right of way crosses one CSX railroad, Route I-295, E. Hundred Road, and North Enon church Road before reaching the existing Enon Substation. Line #2361 and #2362 continue from Enon Substation along the existing corridor for 0.43 mile before turning north into a new greenfield ROW corridor on Chesterfield County EDA and Customer A property for 0.47 mile to converge with Component 2. The Component 3 Proposed Route expands the corridor for Component 2 an additional 60 feet, widening the total ROW to 160 feet from the proposed ROW colocation point just south of Sloan Drive Substation, heading west and perpendicularly crossing North Enon Church Road and traversing undeveloped forested land owned by Chesterfield EDA for approximately

0.55 mile until they reach Meadowville Technology Parkway. From Meadowville Technology Parkway, Lines #2361 and #2362 run adjacent to the Parkway for 0.3 mile before turning west across Customer B and Chesterfield EDA property for 0.4 mile until reaching Meadowville Station.

For the Component 3 Proposed Route, the minimum structure height is 85 feet, the maximum structure height is 120 feet, and the average structure height is 113 feet, based on preliminary conceptual design, not including foundation reveal, and subject to change based on final engineering design.

2.4 Alternative Routes Rejected from Further Consideration

Alternative routes were considered unfeasible due to the extensive project history, routing restrictions, opportunities to collocate, planned development, and the need to provide service to Customers A and B while avoiding impacts to the surrounding environment to the greatest extent practicable. Natural and cultural resources, environmental justice concerns, and other considerations evaluated during the routing process are enumerated in the following sections.

2.5 Construction, Operation, and Maintenance Process

Construction of new overhead transmission lines involves the following steps:

- Detailed survey of the route alignment;
- Right-of-way acquisition and clearing;
- Construction of access roads, where necessary;
- Installation of tower foundations;
- Assembly and erection of new structures;
- Stringing and tensioning of conductors; and
- Final clean-up and land restoration.

All required materials for the Project's 230 kV structures would be delivered and assembled at each structure location within the proposed right-of-way. Detailed foundation design will be completed prior to construction. The foundation design could include poured concrete requiring excavation or steel piles or caissons that might be vibrated, drilled, or driven into place depending on soil conditions and final design. Structures would be erected with a crane and anchored to the foundation during final assembly. If there is excess soil from foundation construction, it would be evenly distributed at each structure, and the soil would be replanted and stabilized. In wetland areas, excess soil would be removed and evenly distributed on an upland site within Dominion's proposed right-of-way. Typical construction equipment may include hole diggers or drilling equipment, cranes, wire-stringing rigs, tensioners, backhoes, and trucks.

All conductors and shield wires would be strung under tension. This system involves stringing a "lead line" between structures for the conductors and ground wires. The rope pulls a steel cable that is connected to the conductors and shield wires, which are pulled through neoprene stringing blocks to protect the conductor and shield wire from damage. Stringing the conductors and shield wires under tension protects the wires from possible damage should they be allowed to touch the ground, fences, or other objects.

Maintaining the right-of-way under the transmission lines is essential for the reliable operation of the line, as well as for public safety. Operation and maintenance of the Project would include periodic inspections of the line and the right-of-way; occasional replacement of hardware as necessary; periodic clearing of vegetation, either mechanically or by selective, low-volume application of approved herbicides within the corridor; and the cutting of danger trees outside the right-of-way. Danger trees are trees outside the cleared corridor that are sufficiently tall enough to fall into the right-of-way and potentially impact the transmission line. Periodic inspections would use both aerial and walking patrols. Normal operation and maintenance would require only infrequent visits by Dominion Energy Virginia or its contractors.

Most maintenance activities consist of selective, low-volume herbicide applications targeting only tree species on the right-of-way every three to five years and the cutting of danger trees every three years. Dominion uses only herbicides that are approved by the U.S. Environmental Protection Agency (USEPA) on power line rights-of-way.

3. INVENTORY OF EXISTING CONDITIONS and AFFECTED ENVIRONMENTS

After identifying the proposed alignment, Timmons developed a list of features to consider and assess as part of the routing process (Table 3). These include routing constraints (e.g. land uses, planned developments, and biological resources) and routing opportunities (e.g., existing transmission lines, roads, and other linear features). Timmons inventoried existing conditions, routing constraints, and routing opportunities using information from publicly available GIS and other databases, agency websites, and published documents, such as county land use plans.

Table 3: Features Considered for Routing

Feature Type	Description
Existing Corridors	
Existing electric facilities	Transmission or distribution lines
Other utilities	Pipelines
Transportation infrastructure	Roads, railroads, and related corridors
Land Ownership	
Land ownership	Federal, state, and local lands; private lands
Land Uses	
Existing land use and land cover	Existing subdivisions, land cover types (e.g., forested, agricultural, developed), residences, churches, schools, cemeteries
Recreational areas	Federal, state, county, or municipal parks, managed recreation areas, golf courses, trails (biking, hiking, birding, wildlife)
Land use planning and zoning	Zoning districts
Planned developments	Planned, proposed, or conceptual residential, commercial, or industrial developments
Conservation lands and easements	VOF and VDCR conservation land and easements, Chesterfield County conservation easements, wetland mitigation banks, other conservation lands
Transportation	Road crossings, railroad crossings, public and private airport facilities
Natural Resources	
Surface waters	Wetlands, water bodies
Protected or managed areas	Resource protection areas, wildlife management areas, ecological cores
Protected species	Natural heritage resources, threatened and endangered species, bald eagles
Vegetation	Vegetation characteristics, forested lands
Visual Resources	
Visual resources	Viewsheds to and from visually sensitive areas, scenic rivers, scenic byways
Cultural Resources	
Cultural resources	Archaeological sites, historical or architectural sites and districts, NRHP-listed, -eligible, and -potentially eligible properties, battlefields, VDHR-protected easements
Geological Resources	
Mineral resources	Mines or quarries
Environmental Justice	
Environmental justice	Low-income populations, minority populations, vulnerable age groups (under 5 and over 64), linguistically isolated communities

3.1 Land Use

3.1.1 Land Ownership

Timmons reviewed information about land ownership within and around the three project Components using publicly available GIS databases and digital parcel data obtained from Chesterfield County. Throughout the Project, the Company has attempted to utilize land owned by the Customers, land owned by the Chesterfield County Economic Development Authority (EDA), and land located along existing right-of-way to the maximum extent practicable.

The proposed alignment is located primarily within Customer and EDA-owned land. The proposed alignment also crosses private land; however, when private land is crossed, the proposed alignment utilizes existing right-of-way to the maximum extent practicable. Several VDOT-owned rights-of-ways are crossed by the proposed alignment. Figure 3.1.1 in Appendix A depicts land ownership for the proposed alignment.

Parcel data indicates that Component 1 is located primarily within one parcel of Customer A-owned land. Component 2 is located on nine parcels comprised of a mix of Customer B-owned land, EDA-owned land, and privately owned land. Component 2 also crosses several VDOT-owned rights-of-way. Component 3 is located across approximately 37 parcels comprised of a mix of Customer-owned land, EDA-owned land, Company-owned land, and privately-owned land. However, the majority of Component 3 is located within existing electric transmission right-of-way. Component 3 also crosses several VDOT-owned rights-of-way.

3.1.2 Existing Land Use and Land Cover

Land use and land cover within the proposed alignment were classified using a combination of local and state-wide datasets as well as aerial photo interpretation to identify the most current uses for a given area. Land use and land cover within the vicinity of the proposed alignment can be broken down into the following four main categories:

- Developed lands: These are areas characterized by medium to high density constructed buildings, such as certain residential subdivisions, industrial uses, commercial areas, and impervious surfaces. Additional information about residences and residential areas near the Components is provided in Section 3.1.4, Residences, Residential Areas, and Commercial Structures. This category also includes planned developments and properties that are currently under construction.

- Open space: These are areas primarily covered by planted grasses, including vegetation planted in developed settings for erosion control or aesthetic purposes but also natural herbaceous vegetation and undeveloped land, parks, and open-space recreational facilities. Additional information about recreation areas near the Components, including parks and trails, is provided in Section 3.1.3, Recreation Areas.

- Forested lands: These are areas where land cover consists of natural or semi-natural woody vegetation. Additional information about forested lands near the Components is provided in Section 3.3.6, Vegetation.

- National Wetlands Inventory / Hydrology: These are areas where the National Wetlands Inventory depicts hydrology features, including wetlands, rivers, streams, and natural and artificial ponds.

Details on the existing land use/land cover identified per Component are detailed below and depicted in Figure 3.1.2 in Appendix A.

Component 1

Component 1 crosses 1.22 miles of land affecting 19.0 acres. Land use along and within Component 1 consists of 17.6 acres of forested land, 0.53 acres of NWI/hydrology, and 0.90 acres of open space.

Component 2

Component 2 crosses 2.6 miles of land affecting 43.9 acres. Land use along and within Component 2 consists of 36.1 acres of forested land, 0.42 acres of developed lands, 5.7 acres of open space, and 1.7 acres of NWI/hydrology.

Component 3

Component 3 crosses 3.62 miles of land affecting 68.4 acres. Land use along and within Component 3 consists of 34.6 acres of forested land, 7.28 acres of developed lands, 21.5 acres of open space, and 4.97 acres of NWI/hydrology. The majority of Component 3 is located within existing electric transmission easement.

3.1.3 Recreation Areas

Timmons reviewed digital data sets and maps, U.S. Geological Survey (USGS) topographic quadrangles, recent digital aerial photography, and County websites for parks, trails, and other recreational facilities along and near the proposed alignment. Recreation areas within 0.25 mile of the proposed alignment are described below and shown on Figure 3.1.3 in Appendix A. Visual impacts on recreation areas are addressed in Section 3.4, Visual Assessment.

R. Garland Dodd Park at Point of Rocks

The R. Garland Dodd Park at Point of Rocks is a 176-acre park featuring several athletic fields, diverse natural areas, and 3.5 miles of paved and unpaved trails. This park was identified by Department of Conservation and Recreation (DCR) Virginia Outdoors Plan Mapper and is located approximately 0.18 miles south of the southernmost portion of Component 3.

Elizabeth Davis Middle School Trail and Track

The Elizabeth Davis Middle School Trail is a small, paved trail associated with the existing Elizabeth Davis Middle School Track. This trail is identified by DCR Virginia Outdoors Plan Mapper as part of Chesterfield Managed Trails and is located approximately 0.19 miles west of Component 3.

Lower James River Linear Park Trail

The Lower James River Linear Park trail is identified by the DCR Virginia Outdoors Plan Mapper as a part of Chesterfield Managed Trails. This trail runs from River's Bend Golf Course to the confluence of the Appomattox River and James River. This trail runs along the entirety of Component 1 and 2, ranging from approximately 0.04 miles to 0.31 miles north and east, respectively, of each Component.

Brown and Williamson Conservation Area

The Brown and Williamson Conservation Area is associated with a Virginia Outdoors Foundation (VOF) Easement that was identified by the DCR Natural Heritage Data Explorer (NHDE). Component 1 runs adjacent to the southern boundary of the 262.6-acre VOF conservation easement held by Chesterfield County.

Details on the recreation areas identified per Component are detailed below.

Component 1

Component 1 will not cross any of the recreational areas described above. The Brown and Williamson Conservation Area, a VOF easement, and the Lower James River Linear Park trail are located immediately north of the Component.

Component 1 is not anticipated to impact the use or function of the conservation area and trail. However, construction would require tree clearing resulting in potential visual impacts.

Component 2

Component 2 will not cross or affect any of the recreational areas described above. The Lower James River Linear Park trail is located east of the Component.

Component 2 is not anticipated to impact the use, function, or visual conditions of the trail.

Component 3

Notably, a portion of Component 3 runs parallel with and adjacent to Component 2. This portion runs from the Meadowville Station to the three-way intersection north of Bermuda Hundred Road. Recreation areas associated with this area are discussed in the Component 2 section.

Component 3 will not cross or affect any of the recreational areas described above. The R. Garland Dodd Park at Point of Rocks is located approximately 0.18 south of the Component. Additionally, Elizabeth Davis Middle School Trail is located approximately 0.19 miles west of the Component.

Component 3 is not anticipated to impact the use or function of the R. Garland Dodd Park at Point Rocks or Elizabeth Davis Middle School Trail. Additionally, as the majority of Component 3 is located within existing electric transmission right-of-way, there will be no changes in visual conditions.

3.1.4 Residences, Residential Areas, and Commercial Structures

Timmons reviewed structure data from Chesterfield County GIS within the proposed alignment to identify buildings (commercial structures, non-residential structures, single family and multi-family residencies, and associated outbuildings) within 500 feet of the proposed alignment, as the SCC requires that the number of dwellings and businesses within 500 feet of routes be considered.

Table 3.1.4 lists the number of buildings by type within these buffers for each Component. Details on the residences, associated outbuildings, residential areas, and commercial structures identified per Component are detailed narratively below. The locations of dwellings along the proposed alignment are depicted on Figure 3.1.4 in Appendix A.

Table 3.1.4: Residences and Other Structures within 500 Feet of the Proposed Alignment

Component Number	Structure Type	Structures within 500 Feet
1	Commercial	0
	Non-residential	0
	Single Family Residence and associated outbuildings	0

Component Number	Structure Type	Structures within 500 Feet
	Multi-family Residence and associated outbuildings	0
2	Commercial	5
	Non-residential	1
	Single Family Residence and associated outbuildings	2
	Multi-family Residence and associated outbuildings	0
3	Commercial	4
	Non-residential	1
	Single Family Residence and associated outbuildings	>20
	Multi-family Residence and associated outbuildings	>20

Component 1

No residences or associated outbuildings, residential areas, commercial, or non-residential structures are crossed by or located within 500 feet of Component 1.

Component 2

There are no residences, associated outbuildings, residential areas, commercial, or non-residential structures crossed by Component 2.

There is 1 residential area within 500 feet of the Component. The single family Tazewell James Subdivision is located northeast of the Component. Within this residential area, there is one residence and one associated outbuilding within 500 feet of the Component. In most places, a tree buffer will be present between the Component and the residential area, which will help shield views of the route from nearby homes during Project operations.

There are 5 commercial structures, including businesses and associated outbuildings, within 500 feet of the Component.

Component 3

Notably, a portion of Component 3 runs parallel with and adjacent to Component 2. This portion runs from the Meadowville Station to the three-way intersection north of Bermuda Hundred Road. Residencies, residential areas, and commercial structures associated with this area are discussed in the Component 2 section.

There are no commercial structures or non-residential structures crossed by Component 3.

There are 5 residential areas within 500 feet of Component 3. The residential areas are as follows: Montclair at Southbend (Single Family) Subdivision, Rivermont Crossing (Apartment) Subdivision, Rivermont Hills (Single Family) Subdivision, Perkinson Heights (Single Family) Subdivision, Five Point Acres (Single Family) Subdivision.

Within these residential areas, there is 1 multi-family residence within the proposed alignment. There are more than 20 single-family residences and associated outbuildings and one non-residential structure (church) within 500 feet of the Component. There are no commercial structures within 500 feet of the Component.

The majority of Component 3 is located within an existing transmission easement, and therefore, no residences, residential areas, or commercial structures will be impacted or crossed by new transmission infrastructure.

3.1.5 Schools, Cemeteries, and Places of Worship

Timmons reviewed USGS topographic quadrangles, recent digital aerial photography, county parcel data, and information from the Virginia Department of Historic Resources (VDHR) Virginia Cultural Resource Information System (VCRIS) to identify cemeteries, schools, and/or places of worship within 0.25 mile of the proposed alignment.

Details on the schools, cemeteries, and places of worship identified per Component are detailed below. Figure 3.1.5 in Appendix A depicts cemeteries, schools, and/or places of worship in the vicinity of the proposed alignment.

Component 1

No schools, cemeteries, or places of worship are crossed by or located within 0.25 miles of Component 1.

Component 2

No schools or places of worship are crossed by Component 2.

The Bermuda Memorial Park Cemetery is located approximately 0.21 miles west of the southernmost portion of Component 2. Enon Baptist Church is located approximately 0.21 miles north of where Component 2 connects with Component 3.

Component 3

No schools, cemeteries, or places of worship are crossed by Component 3.

Two places of worship and ten cemeteries are located within 0.25 miles of Component 3. Mt. Pleasant Batist Church is located off of North Enon Church Road, and directly abuts Component 3 as it crosses North Enon Church Road. Enon Baptist Church is located at the intersection of North Enon Road and Bermuda Hundred Road and is located approximately 0.21 miles north of where Component 2 connects with Component 3.

The Bermuda Memorial Park Cemetery is located off of Bermuda Hundred Road and is approximately 0.18 miles north of the northernmost portion of Component 3. Additionally, nine unnamed cemeteries within 0.25 miles of Component 3 were identified by the Chesterfield County Parcel Viewer.

3.1.6 Planned Developments

Timmons identified planned developments along the proposed alignment through consultations with the Customers and private clients. The number and distribution of planned developments in the area significantly influenced the location of the proposed alignment. In several cases, Components were adjusted following consultation with developers or landowners to avoid or minimize conflicts with future developments.

Planned developments located in the vicinity of the proposed alignment are described below and listed in Table 3.1.6. Figure 3.1.6 in Appendix A depicts existing and planned developments in the vicinity of the proposed alignment.

Table 3.1.6: Planned Developments within 0.25 miles of the Proposed Alignment

Development Name	Status	Location in Relation to Component
Future Planned Development A	Planned	Immediately west of Component 2
Future Planned Development B	Planned	East of Component 2
Future Planned Development C	Under construction	South of Component 2 and 3
Future Planned Development D	Planned	South of Component 2 and 3
Future Planned Development E	Planned	South of Component 2 and 3, west of Component 2
Future Planned Development F	Planned	East of Component 2
Future Planned Development G	Planned	North of Component 2
Future Planned Development - Customer A	Planned	Immediately south of Component 1
Future Planned Development - Customer B	Planned	Crossed by Component 2 and 3

Future Planned Development A

This planned future development is located between the existing Polytec, Inc. facility and Component 2, south of Bermuda Hundred Road. This proposed development is located on Chesterfield County EDA-owned land. No development has begun on this parcel.

Future Planned Development B

This planned future development is located east of Component 2 and the existing Polytec, Inc. facility and south of the existing Corporate Office Building. This proposed development is located on Chesterfield County EDA-owned land. No development has begun on this parcel.

Future Planned Development C

This future planned development is located immediately north of the intersection of Meadowville Technology Parkway and North Enon Church Road. This proposed development is located on privately owned land. Construction for this proposed development is underway.

Future Planned Development D

This future planned development is located immediately north of Bermuda Hundred Road, south of Component 2 and 3, and west of Component 2. This proposed development is located primarily on Chesterfield owned land. No development has begun on this parcel.

Future Planned Development E

This future planned development is located immediately south of Component 2 and 3, and north of Future Planned Development C. This proposed development is located primarily on Chesterfield owned land. No development has begun on this parcel.

Future Planned Development F

This future planned development is located immediately west of North Enon Church Road and east of Component 2 and the proposed White Mountain Substation. This proposed development is located primarily on Chesterfield County-owned land. No development has begun on this parcel.

Future Planned Development G

This future planned development is located immediately east of Meadowville Technology Parkway and north of the northern terminus of Component 2 This proposed development is located primarily on Chesterfield County- owned land. No development has begun on this parcel.

Future Planned Development – Customer A

A planned future development is located north of Bermuda Hundred Road. This proposed development is the Customer B data center that the proposed Project is being constructed to serve. The Project will provide service to this data center to maintain reliable service for the overall load growth in the area, and to comply with mandatory NERC Reliability Standards. No development has begun for this proposed data center.

Future Planned Development – Customer B

A planned future development is located west of Meadowville Technology Parkway at the site of the existing Capital One data center. This proposed development is the Customer B data center that the proposed Project is being constructed to serve. The Project will provide service to this data center to maintain reliable service for the overall load growth in the area, and to comply with mandatory NERC Reliability Standards.

3.1.7 Land Use Planning and Zoning

Land Use Planning

Section 15.2-2223 of the Va. Code requires local planning commissions to adopt a comprehensive plan that provides guidance for the physical development of the territory within its jurisdiction. The plan considers existing and future land uses, anticipates development trends, and makes recommendations for guiding long-term development decisions of a city or county. Chesterfield County has adopted a comprehensive plan and zoning ordinances within its jurisdiction. The Chesterfield County Comprehensive Plan was updated in 2019.

Local governments often use zoning to implement objectives of the comprehensive plan. A zoning ordinance creates land use categories that separate incompatible uses and establishes development standards to guide orderly and efficient land use. Virginia requires that a comprehensive plan be reviewed at least once every 5 years to adjust to actual or projected changes in land use conditions or needs (Section 15.2-2230). Zoning ordinances may be modified by the local land manager and governing bodies or through requests from residents or businesses to change zoning designations or approved new uses. Under Virginia law, public utilities planning to construct any transmission line of 138 kV or higher may either obtain a Certificate of Public Convenience and Necessity (CPCN) from the SCC or obtain the applicable local zoning ordinance approvals. The SCC's issuance of a CPCN preempts the local zoning ordinances.

Airport Impact Overlay District

Timmons considered existing Airport Impact Overlay District associated with the Chesterfield County Airport. As the proposed alignment is located more than three nautical miles from the Chesterfield County Airport, no potential impacts to Airport Overlay Districts are anticipated.

Economic Development Opportunity Sites

The Project is located in the Meadowville Technology Park - Economic Development Opportunity Site which represents a sizeable opportunity for significant commercial development due to location, size, transportation and utility infrastructure. Meadowville Technology Park (MTP) is a 1,300-acre industrial development. Chesterfield County has completed the zoning, environmental due diligence, and utility infrastructure studies that are necessary for potential industrial users to evaluate, and eventually use, this site. Chesterfield County has also constructed phase one of the utility infrastructure necessary to serve the property. MTP is a potential site for a wide range of businesses such as headquarters, distribution, information technology, office, and research and development.

Zoning

Under Virginia law, public utilities planning to construct any transmission line of 138 kV or higher may either obtain a Certificate of Public Convenience and Necessity (CPCN) from the SCC or obtain the applicable local zoning ordinance approvals. The SCC's issuance of a CPCN preempts the local zoning ordinances.

The Project is exempt under the CPCN, and thus is not subject to the provisions of the local zoning ordinance. Listed below are descriptions of zoning districts crossed by the proposed alignment:

- Single Family Residential (R-12) – This district is established for single family residential areas with lot areas of 12,000 square feet.

- Single Family Residential (R-7) – This district is established for single family residential areas with lot areas of 7,000 square feet. After August 27, 1997, R-7 zoning shall no longer be granted. Property zoned R-7 on or before August 27, 1997, shall continue to be subject to the provisions of this division.

- Agricultural (A) – This district is established for agricultural purposes.

- General Commercial District (C-5) – This District is established to provide areas primarily for motor vehicle oriented uses. Sites should be designed to ensure maximum compatibility with, and minimal impact on, existing and future residential development in the area. A C-5 District should generally be located along arterials or near industrial areas.

- Light industrial District (I-1) – This district is established to encourage the grouping of administrative and research offices, laboratories and light manufacturing uses. Limited retail and service uses should be permitted when they are part of an integrated industrial development and are accessory to other uses within the project. Light manufacturing uses shall be those dependent upon raw materials first processed elsewhere. An I-1 District may be located near residential districts to provide a transition between the residential uses and more intense commercial/industrial projects. Sites should be designed to ensure maximum compatibility with, and minimal impact on, existing and future residential development in the area. Access should be provided to arterials.

- General Industrial District (I-2) – This district is established to provide adequate areas in appropriate locations for manufacturing and other related activities. An I-2 District should generally be located in areas with access to arterials or collector roads and, where practical, in locations where rail and water access is available. Uses within this district should generally be buffered from existing or proposed residential neighborhoods by less intense uses. Sites should be designed to ensure maximum compatibility with, and minimal impact on, existing and future residential development in the area.

- Heavy Industrial District (I-3) – This district is established to provide locations for intense manufacturing uses which process raw materials. This district should not be located adjacent to existing or proposed residential, office or commercial areas. An I-3 District should generally be located in areas with access to arterial or collector roads and, where practical, in locations where rail and water access is available. This district should generally be buffered from residential, office

or commercial districts by less intense uses. Sites should be designed to ensure maximum compatibility with, and minimal impact on, existing and future residential development in the area.

Timmons reviewed Chesterfield Geospace for current zoning data on all parcels crossed by the proposed alignment. Details on the zoning data per Component is discussed below.

Component 1

Component 1 is located entirely in the Heavy Industrial (I-3) zoning district.

Component 2

Component 2 is located primarily in the General Industrial (I-2) and Heavy Industrial (I-3) zoning districts.

Component 3

Notably, a portion of Component 3 runs parallel with and adjacent to Component 2. This portion runs from the Meadowville Station to the three-way intersection north of Bermuda Hundred Road. Zoning associated with this area are discussed in the Component 2 section.

Component 3 crosses several zoning districts. Component 3 is located in the Single Family Residential (R-12 & R-7), Agricultural (A), General Commercial (C-5), Light Industrial (I-1), and Heavy Industrial (I-3) zoning district.

3.1.8 Conservation Easements and Conservation Lands

Timmons reviewed various digital datasets and site plans to identify easements and other protected lands along the proposed alignment. Descriptions of the different easement and conservation land types are defined below.

The Virginia Open-Space Land Act provides for the creation of open-space easements by public bodies as a means of preserving open-space or significant natural, cultural, and recreational resources on public or private lands. Most easements created under the Virginia Open-Space Land Act are held by the Virginia Outdoors Foundation (VOF), but any state agency is authorized to create and hold an open- space easement. The Virginia Conservation Easement Act also provides for the creation of conservation easements on public or private lands but under the auspices of charitable organizations (such as conservation trusts) rather than public agencies. In both cases, these easements are designed to preserve and protect open-space and other resources in perpetuity. Easements negotiated with private landowners allow the lands to remain in private ownership but with protections imposed to limit or restrict land uses on the property. Dominion understands that properties are placed under easement throughout the year, and additional easements may be identified as the Project moves forward. Dominion will continue to consult with the various land managing entities regarding potential new conservations easements in the proposed alignment.

The proposed alignment will not cross any existing conservation easements or conservation lands. However, there are existing conservation easements or conservation lands within a two mile radius of the proposed alignment. Details on the existing conservation easements and conservation land identified per Component are detailed below. Figure 3.1.8 in Appendix A depicts conservation easements and conservation lands within the vicinity of the proposed alignment.

Virginia Outdoors Foundation

The VOF leads Virginia in land conservation, protecting over 850,000 acres across the state. The VOF was created under the Virginia Open-Space Land Act. Most easements created under the Virginia Open Space

Land Act are held by the VOF, but any state agency is authorized to create and hold an open space easement. These easements are designed to preserve and protect open space or other resources and must be held for no less than five years in duration and can be held in perpetuity. Easements negotiated with private landowners allow the lands to remain in private ownership but with protections imposed to limit or restrict land uses on the property. One VOF conservation easement is located within the vicinity of the proposed alignment and is detailed below.

Component 1

One VOF conservation easement is located immediately north of Component 1 and runs adjacent to its northern boundary. This 262.6-acre VOF conservation easement is held by Chesterfield County and is associated with the Brown and Williamson Conservation Area.

Component 2

No VOF conservation easements are crossed by or located within the vicinity of this component.

Component 3

No VOF conservation easements are crossed by or located within the vicinity of this component.

Chesterfield County Conservation Easements

The Chesterfield Parks and Recreation Department manages over 1,700 acres of conservation easements, primarily held by the Department of Historic Resources and the Capital Regional Land Conservancy. These conservation easements are maintained in an effort to retain or protect natural or open-space values of the property, assuring its availability for agricultural, forestal, recreational, or open-space use; protecting natural resources; maintaining or enhancing air or water quality; and preserving historical, architectural, or archaeological aspects of the property.

Component 1

No Chesterfield County conservation easements are crossed by or located within the vicinity of this component.

Component 2

A Chesterfield County conservation easement is located approximately 1.34 miles west of the northernmost portion of Component 2. This 180.84-acre conservation easement is held by Capital Region Land Conservancy.

Component 3

Notably, a portion of Component 3 runs parallel with and adjacent to Component 2. This portion runs from the Meadowville Station to the three-way intersection north of Bermuda Hundred Road. Conservation areas associated with this area are discussed in the Component 2 section.

One deeded conversations easement, the Ramblewood Trust Agreement, managed by Chesterfield County is crossed by the proposed alignment. This 14.25-acre easement is located in the southernmost portion of Component 3. Additionally, a Chesterfield County conservation easement is located approximately 0.5 miles east of the southernmost portion of Component 3. This 31.53-acre conservation easement is held the Department of Historic Resources.

Other Conservation Lands

Timmons obtained information about other conservation lands by reviewing a digital dataset obtained from the DCR NHDE and Chesterfield County. The dataset identifies “Managed Conservation Lands” in Virginia, including federal, state, local, non-profit, and tribal lands. Other than the previously discussed VOF easement and conservation easements, there are no other DHR NHDE conservation lands within the proposed alignment or its immediate vicinity.

3.1.9 Transportation

The road network crossed by the proposed alignment consists of a variety of road types including principal arterials (Route 10 – E. Hundred Road, Interstate 295), minor arterials (North Enon Church Road, Enon Church Road), major collectors (Bermuda Hundred Road, Meadowville Technology Parkway), and local roads (Irvenway Lane, River Tree Drive, River Rock Road, River Fork Terrace, River Haven Avenue, and Elkington Drive).

The proposed alignment will not cross any known planned road projects, according to the Chesterfield County Thoroughfare Plan. Temporary closures of roads and/or traffic lanes may be required during Project construction. No long- term impacts on roads are anticipated. The project will comply with VDOT requirements for access to the rights-of-way from public roads. At the appropriate time, the Project will obtain the necessary VDOT permits, as required, and comply with permit conditions.

Details on the roads crossed per Component is discussed below.

Component 1

Component 1 will cross no existing roads or planned road projects.

Component 2

Component 2 will cross two major collector roads (Bermuda Hundred Road & Meadowville Technology Parkway) and one minor arterial road (North Enon Church Road). No planned road projects will be crossed by this Component.

Component 3

Notably, a portion of Component 3 runs parallel with and adjacent to Component 2. This portion runs from the Meadowville Station to the three-way intersection north of Bermuda Hundred Road. Road crossings associated with this area are discussed in the Component 2 section.

Component 3 will cross two principal arterial road (Route 10 – E. Hundred Road & Interstate 295), one minor arterial road (Enon Church Road), and six local roads (Irvenway Lane, River Tree Drive, River Rock Road, River Fork Terrace, River Haven Avenue, Elkington Drive). No planned road projects will be crossed by this Component.

3.1.10 Airport Facilities

Transmission line structures have the potential to affect airspace in and around airports.

Timmons reviewed the FAA’s website to identify public use airports, airports operated by a federal agency or the U.S. Department of Defense, airports or heliports with at least one FAA-approved instrument approach procedure, and public use or military airports under construction (FAA 2021). Based on this review, there are no airports, private airstrips, or heliports located within three nautical miles of the proposed alignment (Figure 3.1.10 in Appendix A). As no airports are close enough to the proposed alignment for a transmission structure to potentially impact navigable airspace no airport analysis was conducted.

Additionally, Chesterfield County has established restricted-use zones to regulate the use of property in the vicinity of Chesterfield County Airport, called Airport Impact Overlay Districts. As the proposed alignment is located greater than three nautical miles from the Chesterfield County Airport no potential impacts to Airport Overlay Districts are anticipated.

3.2 Environmental Justice

Timmons completed a desktop environmental justice (EJ) review for the Meadowville 230 kV Electric Transmission Project. The review followed federal guidance and recommended methodologies outlined by the Council on Environmental Quality and the Federal Interagency Working Group on Environmental Justice and National Environmental Policy Act Committee. The analysis additionally used definitions provided in the Virginia Environmental Justice Act for different categories of EJ populations (Va. Code §§ 2.2-234, 2.2-235). The purpose of conducting the EJ review was to determine if construction or operation of the proposed alignment would result in disproportionately high and adverse environmental impacts on populations of color, low-income populations, linguistically isolated communities, or age-based vulnerable communities (i.e., EJ populations). This approach is consistent with requirements outlined in the Virginia Clean Economy Act of 2020 pertaining to the development of new, or expansion of existing, energy resources or facilities (Va. Code § 56-585.1).

In identifying potential areas of concern, federal guidelines state that the size of the area surrounding a project selected for the EJ assessment should be an appropriate unit of geographic analysis that does not artificially dilute or inflate the affected minority population. For this review, the Census Block Group (CBG) was used as the primary unit of analysis because it is the smallest geographic unit for which U.S. Census Bureau demographic and economic data are available, providing robust information at a sub-county level. All CBGs crossed by and within a 1-mile radius of all routes were included in the screening area. Figure 3.2.1 in Appendix A depicts where potential EJ populations were identified along the routes.

The Commonwealth of Virginia was used as the reference population for the desktop analysis. Data for the counties were also considered in the review to assess regional demographic variations. Demographic data for the Commonwealth were compared with individual CBGs to help identify the presence of potential EJ populations. For example, in cases where the reported percentage of population of color within an individual CBG is greater than the percentage of population of color in Virginia as a whole, a potential EJ population was identified. The USEPA EJ mapping and screening tool, EJSCREEN 2.0 (USEPA 2022), and census data from the U.S. Census Bureau 2017-2021 American Community Survey (U.S. Census Bureau 2021) were used to collect demographic data for the state, counties, and CBGs.

The Commonwealth of Virginia defines “population of color” as a group of individuals belonging to one or more of the following racial and ethnic categories: Black, African American, Asian, Pacific Islander, Native American, other, nonwhite race, mixed race, Hispanic, Latino or linguistically isolated (Va. Code §§ 2.2-234). The USEPA’s definition of a population of color is analogous to Virginia’s definition of population of color but does not include linguistically isolated individuals; however, EJSCREEN includes a separate demographic indicator for linguistic isolation.

The Commonwealth of Virginia identifies a minority population, or what it terms a “community of color,” if an analysis area has a greater “population of color” percentage than that of the state as a whole. If a “community of color” is composed primarily of a specific “population of color,” however, then the percentage population of that single group in the state is used instead of the percentage for the total “population of color” (Va. Code §§ 2.2-234). The Commonwealth of Virginia’s criteria for an identified “community of color” or “population of color” and what constitutes an EJ population have a lower threshold and are more inclusive than is suggested in the federal guidance. Therefore, the state’s criteria were used to identify CBGs that contain populations of color for this study.

Federal guidelines recommend using an appropriate poverty threshold and comparing the analysis area with a reference population to identify low-income populations. The Commonwealth of Virginia identifies low-income populations as any CBG in which 30% of the population is composed of low-income residents.

It defines low income as “having an annual household income equal to or less than the greater of (i) an amount equal to 80% of the median income of the area in which the household is located, as reported by the Department of Housing and Urban Development, and (ii) 200 percent of the Federal Poverty Level” (Va. Code § 2.2-234). For this review, a low-income population was considered present when the low-income population percentage in the CBG exceeds 30%.

The EJ review assessed the potential for other factors that could limit low-income or minority communities from reviewing and commenting on the proposed route, including age-based vulnerabilities (i.e., the percentage of the people in a CBG under age 5 or over age 64), linguistic isolation (i.e., the percentage of people or households in a CBG in which all members over age 14 speak a language other than English and also speak English less than very well), and the percentage of people over age 25 in a CBG with less than a high school education. These communities were identified using the federal guidance of a meaningfully greater threshold. A CBG was considered to contain a potential EJ community when the percentage of people with language barriers, educational attainment less than high school, and/or populations below age 5 or above age 64 equals or exceeds 200 percent of the corresponding state averages.

3.2.1 Cultural Context

The Virginia Environmental Justice Act defines the term “environment” to include the cultural components of a community in addition to the socioeconomic and natural aspects. Therefore, this assessment was informed by online research to identify potential cultural impacts on underserved communities that may have historically resided in the area. The cultural resources that intersect with the proposed alignment are primarily associated with Civil War battlefield sites and there is no indication that these resources have any significant cultural connection to EJ populations in the vicinity of the proposed alignment.

3.2.2 Environmental Justice Desktop Results

The desktop review identified three (3) CBGs that intersect the proposed alignment. Appendix B, Environmental Justice Information, identifies the demographic indicators for the populations in each CBG located within the vicinity of the proposed alignment.

The results of the analysis are discussed below.

Low-Income Populations

EJSCREEN was used to evaluate the presence of low-income communities intersecting the proposed alignment. No CBGs that intersect the proposed alignment or 1-mile buffer have a low-income population higher than the state average.

Populations of Color

EJSCREEN was used to identify the demographics of the CBGs intersecting the proposed alignment and compare demographics for communities of color to those present within Virginia. The Commonwealth of Virginia has a minority population comprising approximately 38% of the total population. Predominate minority groups include Black (20%), Hispanic (10%), and Asian (7%) populations. Native Americans and Pacific Islanders make up less than 1% each but can occur locally in higher concentrations.

The following communities of color are present within a 1-mile radius of the proposed alignment:

- Combined Minority populations: 8 of 11 CBGs
- Black Populations: 7 of 11 CBGs
- Hispanic populations: 4 of 11 CBGs
- Asian Populations: 3 of 11 CBGs
- Native American populations: 1 of 11 CBGs

- Pacific Islander populations: 0 of 11 CBGs

As depicted in the demographics data above, the 1-mile radius surrounding the proposed alignment intersects multiple CBGs with Black, Hispanic, Asian, and Native American populations above the state average. Eight of the 11 CBGs within a 1-mile radius of the proposed alignment have higher combined minority populations than the state average.

Other Sensitive Populations

EJSCREEN was used to evaluate the presence of linguistically isolated households within the vicinity of the proposed alignment as well as the languages spoken by residents in CBGs intersecting the proposed alignment. One of the 11 CBGs that intersect a 1-mile radius of the proposed alignment is identified as having linguistically isolated populations above the state average. The linguistically isolated households identified in this CBG speak Spanish.

The EJ desktop review analysis area (i.e., the area within 1 mile of the proposed alignment) is broad, extending beyond the areas where Project impacts on EJ populations may occur. Due to the nature and location of the project, the Meadowville Electric Transmission project has a low potential for adversely impacting environmental justice populations. The project involves construction of 4 new switching stations, 1 new substation, and associated transmission lines and is anticipated to require acquisition of right-of-way and/or easements. However, the majority of the proposed alignment is within areas of existing transportation right-of-way, utility corridors, and industrial development. The project is not anticipated to impact existing or proposed land uses. Exposure of adjacent residential communities to construction activities is anticipated to be limited due to the location of the proposed alignment.

To ensure that stakeholder concerns regarding the potential direct and indirect impacts of the Project are understood and considered in routing decisions, Dominion designed and implemented a comprehensive outreach program early in the Project's development phase to identify and engage with all community stakeholders regardless of EJ community status, including federally recognized tribes. The outreach program was designed to share Project materials through written and in-person methods (e.g., letters and open houses), to document comments provided by stakeholders, and to respond to feedback by seeking ways to mitigate or avoid identified impacts, including any potential disproportionate impacts on vulnerable communities.

As part of the regulatory review process, Dominion will complete an evaluation of potential environmental, cultural, and historical impacts of the Project. Dominion will continue to engage with local and state agencies to complete these evaluations and mitigate any impacts from construction. In addition, Dominion will obtain all required environmental permits and comply with applicable permit conditions. Dominion anticipates that environmental impacts generally will be mitigated through design and construction best practices.

In assessing whether a community would bear a disproportionate impact of the negative environmental and health related impacts of the Project, Timmons considered temporary construction impacts, visual impacts, property devaluation, and health impacts related to electric and magnetic fields as discussed in Sections 3.2.3 through 3.2.6.

3.2.3 Construction Activities

Impacts associated with Project construction are considered temporary, lasting between 12 and 18 months. Various regulations, industry standards, and best management practices would guide construction and restoration of the right-of-way. The short-term impacts associated with construction may include equipment noise, potential changes in traffic patterns, and general ground disturbance.

Noise is generally defined as unwanted sound. The primary noise receptors in the Project area would be commercial and industrial properties. During construction, temporary, localized noise from heavy equipment

and increased vehicle traffic is expected to occur during daytime hours. Exceedances of daytime noise limits are not expected; if they occur, the exceedances would be temporary.

Construction could occasionally cause lanes or roadways to be closed, although these closures would only last for the duration of the construction activity in a given area. No long-term impacts on roads are anticipated. At the appropriate time, the Company will obtain the required crossing permits from VDOT and comply with applicable permit conditions and any associated restrictions on the timing of construction or road and lane closures.

During construction, Dominion will minimize ground-disturbing activities to the extent practicable. Following construction, Dominion will remove construction-related equipment and debris from the right-of- way and restore the land within the right-of-way as closely as possible to pre-construction conditions.

3.2.4 Visual Impacts

The Company assessed potential visual impacts associated with the proposed alignment and proposed a route that was harmonious with the landscape to the extent practicable. Mitigation measures include avoiding unique viewsheds, placing structures to take advantage of natural screening (e.g., tall trees), and avoiding the placement of structures directly in front of residences. Timmons evaluated existing visual conditions by identifying visually sensitive areas, describing the landscape and viewer types (e.g., local residents), identifying Key Observation points (KOPs), and preparing photo simulations to represent landscapes, sensitive areas, and viewer types.

The proposed alignment crosses two CBGs that have higher populations of color than the state average. The nearest residential area in these CBGs to the Project is located in between I-295 and Route 10 (near Component 3) and includes a mix of townhomes and apartments. Given there is existing transmission infrastructure currently in place, the impact of visual change resulting from the construction of Component 3 is anticipated to be low for these residences. The proposed alignment for Components 1 and 2 largely cross industrial developments and do not have associated anticipated visual impacts on residential developments.

3.2.5 Property Values

Affected communities and landowners often express concern that the presence of transmission lines in the viewshed of homes could adversely affect aesthetics, resulting in the reduction of property values and deterring potential buyers. Indirect impacts on property values caused by direct visual impacts from high-voltage transmission lines (i.e., lines carrying more than 69 kV) depend on proximity, visibility, size, and type of transmission structures; easement landscaping; and surrounding topography. Based on a review of industry research published in peer-reviewed journals and trade journals, residential property values and sales prices primarily are affected by factors unrelated to the presence of a transmission line. Other factors have been shown through research to have greater influence on the value of residential property than the presence of a transmission line, such as location, type, and condition of improvements to the property; neighborhood; and local real estate market conditions (Jackson and Pitts 2010; Anderson et al. 2017).

3.2.6 Health Impacts

The conclusions of multidisciplinary scientific review panels assembled by national and international scientific agencies during the past two decades are the foundation of Dominion's opinion that no adverse health impacts would result from the operation of the transmission infrastructure. The general scientific consensus of agencies that have reviewed this research, relying on generally accepted scientific methods, is that common sources of electromagnetic fields (EMFs) in the environment, including from transmission lines and other parts of the electric system, appliances, etc., are not a cause of any adverse health impacts. Research on EMF and human health varies widely in approach. Some studies evaluate the impacts of high, short-term EMF exposures not typically found in people's day-to-day lives on biological responses, while others evaluate the impacts of common, lower EMF exposures found throughout communities.

Studies also have evaluated the possibility of impacts (e.g., cancer, neurodegenerative diseases, and reproductive impacts) of long-term exposure. Altogether, this research includes well over 100 epidemiologic studies of people in their natural environment, and many more laboratory studies of animals (in vivo) and isolated cells and tissues (in vitro). Standard scientific procedures, such as weight- of-evidence methods, were used by the expert panels assembled by agencies to identify, review, and summarize the results of this large and diverse research.

The reviews of EMF biological and health research have been conducted by numerous scientific and health agencies, including the European Health Risk Assessment Network on Electromagnetic Fields Exposure, the International Commission on Non-Ionizing Radiation Protection, the World Health Organization, the Institute of Electrical and Electronics Engineers International Committee on Electromagnetic Safety, the Scientific Committee on Emerging and Newly Identified Health Risks of the European Commission, and the Swedish Radiation Safety Authority (formerly the Swedish Radiation Protection Authority) (WHO 2007; SCENIHR 2009, 2015; ICNIRP 2010; SSM 2015, 2016, 2018, 2019,2020, 2021; ICES 2019). The general scientific consensus of the agencies that have reviewed this research, relying on generally accepted scientific methods, is that the scientific evidence does not confirm that common sources of EMF in the environment, including transmission lines and other parts of the electric system, appliances, etc., are a cause of any adverse health impacts.

The desktop review suggests that EJ populations would not bear disproportionate impacts associated with construction, visual aesthetics, property values, and health related impacts of the Project. Should outreach reveal that there are specific EJ community concerns in the proposed alignment, the Company will work directly with the communities to understand their concerns and determine appropriate measures to avoid or minimize impacts where possible.

3.3 Natural Resources

3.3.1 Watershed

Watersheds are used to define the geographic area within the boundaries of drainage divides throughout the country. For purposes of classifying watersheds, the United States is divided into hydrologic units in four levels—regions, subregions, accounting units, and cataloging units—which may contain an entire or part of a watershed. Each level is identified by a hydrologic unit code (HUC), beginning with major geographic areas or regions. The first level—HUC 2—is a major geographic area or region containing either several rivers or the drainage area of a major river. Subsequent levels encompass progressively smaller areas based on the drainage divides of lower order waterbodies.

The proposed alignment is within the following HUC areas:

- The Mid-Atlantic HUC 2 (02) region, which discharges into the Atlantic Ocean, Long Island Sound, and the Riviere Richelieu, a tributary of the St. Lawrence River;

- The Lower Chesapeake HUC 4 (0208) subregion, which drains about 18,500 square miles within the Chesapeake Bay and its tributary drainage south of the Maryland-Virginia state line, excluding the Pocomoke River drainage, and the Coastal drainage from Chincoteague Inlet on the Delmarva Peninsula to the Back Bay drainage boundary;

- The Lower James HUC 8 (02080206) watershed, which drains about 1,440 square miles into the James River; and

- The Appomattox HUC 8 (02080207) watershed, which drains 1,590 square miles into the Appomattox River.

About 1.7 total linear miles (LM) of the proposed alignment is within the Lower James (02080206) HUC 8 watershed which includes all of Component 1, approximately 0.46 LM of Component 2, and approximately 0.1 LM of Component 3. Most of Components 2 and 3 are within the Appomattox (02080207) HUC 8 watershed (USGS 2024).

The proposed alignment is further split into smaller HUC 10 and HUC 12 watersheds, with the majority within the Appomattox River-Ashton Creek (HUC 10: 0208020710 & HUC 12: 020802071002; JA45) watersheds. Surface waters in this area drain to unnamed intermittent and perennial channels and perennial Shand Creek and Johnson Creek, tributaries to the Appomattox River, which is south of the proposed alignment.

Component 1 and portions of Components 2 and 3 are within the James River-Falling Creek (HUC 10: 0208020601) and James River-Curles Creek (HUC 12: 020802060106; JL06) watershed, which contains intermittent and perennial tributaries to the perennial James River north of the proposed alignment.

3.3.2 Wetlands

Riparian wetland systems have a direct impact on rate/volume control, chemical and biological processes, and the larger watershed functionality. Surface flow within wetlands generally drains via gradually sloping swales and drainageways into the closest tributary to a larger stream or river.

Timmons identified and mapped wetlands within the proposed alignment through ground-truthing via field delineation and sub-meter GPS and/or publicly available sources, including these:

- USGS 7.5-minute series topographic quadrangles (USGS 2024)
- NWI maps from the USFWS online data mapping portal (USFWS 2024)
- Soils data from the U.S. Department of Agriculture-Natural Resources Conservation Service (USDA- NRCS) Soil Survey Geographic (SSURGO) Database (USDA-NRCS 2024)
- The 3D Hydrography Program (3DHP) (USGS 2024)
- Recent digital aerial photography (ESRI 2024)

Field delineations were performed using the methodology outlined in the 1987 U.S. Army Corps of Engineers Wetland Delineation Manual, the Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Atlantic and Gulf Coastal Plain Region (Version 2.0), and subsequently issued USACE regulatory guidance regarding the identification of jurisdictional stream channels through the recognition of field indicators of an ordinary high water mark within drainage features. The wetland boundary was flagged with consecutively numbered pink and black ribbon at approximately 50ft intervals. Field data stations were established close to the flagged wetland boundary to document transitional upland and wetland conditions. Field data stations were labeled and marked with blue flagging in the field. Features identified in the field were sub-meter Bluetooth GPS located.

Wetlands have been classified based on the Cowardin classification system as:

- Palustrine Emergent (PEM) – wetlands characterized by erect, rooted, herbaceous hydrophytes (i.e., aquatic plants) and woody species less than 3 feet in height, excluding mosses and lichens;
- Palustrine Scrub-Shrub (PSS) – wetlands characterized by woody vegetation, excluding woody vines, approximately 3 to 20 feet in height;
- Palustrine Forested (PFO) – wetlands characterized by woody vegetation, excluding woody vines, approximately 20 feet or more in height and 3 in. or larger diameter at breast height (DBH);

- Riverine (R) – wetlands within a channel, with two exceptions: (1) wetlands dominated by trees, shrubs, persistent emergent, emergent mosses, or lichens, and (2) habitats with water containing ocean-derived salts in excess of 0.5% (USFWS 2013). Riverine systems were further classified into perennial (R3), intermittent (R4), and ephemeral (R6) streams. Streams found within the proposed alignment are discussed in more detail in Section 3.3.3, Waterbodies.

For reference, an overview map illustrating the locations of delineated wetlands and waters within the proposed alignment is provided as Figure 3.3.2 in Appendix A. Relevant Preliminary Jurisdictional Determination (PJD) confirmation letters, field data sheets (FDS) describing field data stations, and wetland mapping based on the sources listed above are included in Appendix C, Wetlands and Waterbodies.

To minimize impacts to wetland areas, the proposed alignment was designed to span or avoid wetlands to the greatest extent practicable. Most of the wetlands in the area are associated with the Appomattox River and its tributaries. It is anticipated that the majority of these features can be spanned, keeping structure locations outside of wetlands. Where structures are required within wetlands, permanent impacts would be limited to the footprint of the structure. Where the removal of trees or shrubby vegetation occurs within wetlands, the Company would use the least intrusive method reasonably possible to clear the corridor. Hand-cutting of vegetation would be conducted where needed to avoid and minimize impacts on aquatic resources.

There would be no change of contours in wetlands and waterbodies or redirection of water flow, and spoil from foundation installation and structure placement would be minimal. Excess soil in wetlands generated through foundation construction would be removed from the wetland.

Mats would be used for construction equipment to travel over wetlands, as appropriate. Due to the absence of existing right-of-way within some Component areas, new temporary access roads may be necessary. Additionally, if a Component section cannot be accessed from existing roads, Dominion may need to install a culvert, ford, or temporary bridge along the right-of-way to cross small streams, where present. In such cases, some temporary fill material in wetlands adjacent to the crossings may be required. This fill would be placed on erosion control fabric and removed when work is completed, returning ground elevations to original contours.

Where tree clearing is required within the new right-of-way, forested wetlands would be permanently converted to scrub-shrub or emergent types. As previously discussed, forested wetlands provide functions such as peak flood flow reduction, nutrient and sediment capture, filtration of pollutants to adjacent waterbodies, and habitat diversity. The conversion of forested wetlands would reduce or eliminate some of these functions but would not permanently convert wetlands to uplands.

Upon SCC approval and final line engineering, the Company will obtain the appropriate permits from the USACE and VDEQ for work within wetlands and waterbodies to ensure compliance with Sections 404 and 401 of the CWA and to minimize potential impacts on aquatic resources located within the transmission line corridor.

Details on the wetland crossings per Component are detailed in Table 3.3.2 and narratively below.

The acreages provided in the subsections below for wetland and waterbody crossings by Component are based on Timmon's combined desktop analysis and wetland delineation mapping (see Figure 3.3.2 in Appendix A)

Table 3.3.2: Wetland Crossings within Each Project Component

		PFO	PSS	PEM	Totals
Component 1	Acres	0.5			0.5
Component 2		2.2	0.8		3.0
Component 3		7.3	0.6	5.6	13.5
Total		10.0	1.4	5.6	17.0

Component 1

Component 1 is located within the USACE confirmed delineation NAO-2017-0942 dated June 4, 2019 (see Attachment 1 in Appendix C). This confirmation is associated with an active permit, and thus is still valid. Based on this PJD, the Bermuda Hundred Station and the Sloan Drive Station are located at the tops of narrow headwater PFO systems. Component 1 transmission lines will also a small floodplain PFO wetland contiguous to R4 stream. All wetlands crossed by Component 1 drain to Fishpond, which subsequently drains north to the James River.

Component 2

Component 2 crosses multiple areas of confirmed delineations, unconfirmed field delineations, and desktop delineations. USACE confirmed delineations include NAO-2017-0942, NAO-2019-01685, and NAO-2008-00254 (see Attachments 1, 2, and 3 in Appendix C). The parcel located at 2111 Tazewell Avenue has not yet been delineated and has been mapped via desktop using the databases described above. The parcel located at 1900 Meadowville Technology Parkway has an expired PJD. This parcel is currently mapped using a combination of older field delineation linework done by Timmons and desktop delineation. The portion of Component 2 south of Bermuda Hundred Road was field delineated by Timmons personnel based upon the methodology outlined above. Relevant FDS are included in Attachment 4 in Appendix C for the unconfirmed areas.

Based on the confirmed, unconfirmed, and desktop delineations, Component 2 will cross several PFO and PSS wetlands. Most of these wetlands drain to Johnson Creek and Shand Creek and subsequently to the Appomattox River. One PFO wetland is located within the James River-Falling Creek watershed and drains north to the James River.

Component 3

Notably, a portion of Component 3 runs parallel with and adjacent to Component 2. This portion runs from the Meadowville Station to the three-way intersection north of Bermuda Hundred Road. Delineation information for this area is discussed in the Component 2 section above.

Component 3 (the portion not adjacent to Component 2) was field delineated by Timmons personnel using the methods outlined above. Representative FDS near or within the proposed alignment are included in Attachment 4 in Appendix C for all unconfirmed areas.

Based on the field delineation, Component 3 will cross 7.3 acres of PFO, 1.4 acres of PSS, and 5.6 acres of PEM wetlands associated with headwaters, floodplains, and other landforms within the Appomattox River-Ashton Creek watershed. These wetlands drain into unnamed intermittent and perennial tributaries before flowing south into Johnson Creek, Shand Creek, and the Appomattox River. A small portion of Component 3 with no mapped wetlands is within the James River-Falling Creek watershed, and any surface water would drain north to the James River. Component 3 is located almost entirely within existing electric transmission easement.

3.3.3 Waterbodies

Timmons identified and mapped waterbodies, including streams, rivers, and other open waterbody features (e.g., reservoirs, lakes, impoundments, ponds, and stormwater features) within the proposed alignment using publicly available GIS databases, including the USGS NHD, USGS topographic maps (1:24,000) (USGS 2024), and recent (2024) digital aerial photography (ESRI 2022), as well as sub-meter GPS ground-truthing during the field delineations. Waterbody types were classified using the Cowardin Classification System:

- Riverine (R) – wetlands within a channel, with two exceptions: (1) wetlands dominated by trees, shrubs, persistent emergent, emergent mosses, or lichens, and (2) habitats with water containing ocean-derived salts in excess of 0.5% (USFWS 2013). Riverine systems were further classified into perennial (R3), intermittent (R4), and ephemeral (R6) streams.

The routes for Components 1, 2, and 3 all cross unnamed NHD-mapped perennial and intermittent waterbodies (streams and tributaries). Component 3 also crosses the named perennial waterbody Johnson Creek. A small northern portion of Components 2 and 3 crosses a constructed pond excavated between 2008 and 2012 (based on aerial imagery) located north of Digital Drive and west of Meadowville Technology Parkway. There are no waterbodies within any proposed station footprints.

Details on the waterbody crossings per Component are detailed in Table 3.3.2 and narratively below. The acreages provided in the subsections below for wetland and waterbody crossings by Component are based on Timmon's combined desktop analysis and wetland delineation mapping (see Figure 3.3.2 in Appendix A).

Component 1

Component 1 crosses three unnamed intermittent waterbodies and a small portion of one perennial waterbody north of the westernmost intermittent waterbody. All waterbodies crossed by Component 1 are unnamed tributaries to Fishpond, which drains north to the James River.

Component 2

Component 2 and the northern portion of Component 3 cross two unnamed intermittent waterbodies. The northern waterbody is an unnamed tributary to Johnson Creek, and the southern waterbody is an unnamed tributary to Shand Creek, both of which drain to the Appomattox River. In addition, a small portion of Components 2 and 3 crosses a constructed pond located north of Digital Drive and west of Meadowville Technology Parkway.

Component 3

Notably, a portion of Component 3 runs parallel with and adjacent to Component 2. This portion runs from the Meadowville Station to the three-way intersection north of Bermuda Hundred Road. Waterbody crossing information for this area is discussed in the Component 2 section above.

Component 3 crosses one unnamed intermittent tributary, four unnamed perennial tributaries to Johnson Creek, and Johnson Creek itself. The unnamed intermittent waterbody drains to Port Walthall Channel. All five perennial waterbodies drain to the Appomattox River.

Because each Component crosses waterbodies, short-term, minor impacts on water quality could occur during construction as soils from disturbed areas may be transported by storm water into adjacent surface waters during rain events. Increased turbidity and localized sedimentation of stream bottoms may occur as a result of runoff. However, these impacts would be mitigated by the implementation of the Company's erosion-control measures, including the installation of erosion-control structures and materials.

During construction, proper drainage for waterbodies crossed by the proposed alignment will be maintained using culverts or other crossing devices, as needed, in accordance with the Company's standard policies. Where removal of trees and/or woody shrubs is required, clearing within 100 feet of a stream will be conducted by hand. Vegetation will be cut at or slightly above ground level, and stumps will not be grubbed. The Company will use sediment barriers along waterways and steep slopes during construction to protect waterways from soil erosion and sedimentation.

As noted above, if a section of right-of-way cannot be accessed from existing roads, the Company may need to install a culvert or temporary bridge to cross small streams. In such cases, temporary fill material may be required. The fill would be placed on erosion control fabric and removed when work is completed, returning the surface to original contours.

Tree removal adjacent to waterbodies may reduce riparian buffer functions such as stream bank stabilization and erosion control, nutrient and sediment filtration, floodwater storage and peak flow reduction, and water temperature modification from shading. The right-of-way would be maintained with a cover of herbaceous vegetation during operations, which would provide some filtration stabilization to protect waterbodies from runoff.

During the Project routing process, the Company avoided streams and other waterbodies to the extent practicable, while also considering other routing constraints. When avoidance was not possible, the Company minimized the crossing length of these areas by collocating with existing linear corridors, and/or crossing previously cleared or disturbed areas. Construction and maintenance of the new transmission line facilities could have minor effects on wildlife; however, impacts on most species will be short-term in nature, and limited to the period of construction.

No navigable waters are crossed by the proposed alignment; therefore, no Rivers and Harbors Act Section 10 authorization from the USACE would be required. For reference, a general location map illustrating the waterbodies crossed by each Component is included in Figure 3.3.2 in Appendix A.

Many of the waterbodies within the vicinity of the proposed alignment have forested stream buffers. These buffers, as noted by multiple Chesterfield County Department of Environmental Engineering publications, protect water quality by:

- Stabilizing soil and preventing stream bank erosion
- Peak flow reduction, reducing the energy of moving floodwaters
- Contribute to maintaining dry-period baseflow of streams
- Shading streams, keeping water cool and oxygenated
- Filtering impurities from stormwater runoff including sediment and nutrients
- Providing a contiguous and diverse habitat and food source for fish, insects, and wildlife.

3.3.4 Areas of Ecological Significance

Timmons reviewed available ecological datasets for the area within a 100-foot buffer around the proposed alignment for each Component. Timmons also consulted the VDCR's Natural Heritage Program (NHP) (VDCR 2024) to identify any areas of ecological significance near or within the proposed alignment, including natural area preserves, conservation sites, stream conservation units (SCUs), ecological cores, and general location areas for natural heritage resources. These areas collectively delineate habitats containing rare, threatened, or endangered plants and animals, unique or exemplary natural communities, and/or significant geologic formations.

Conservation sites delineate an area that provides habitat and buffer for one or more natural heritage resources (NHRs = rare plants, animals, animal assemblages, significant natural communities, or geologic features).

During the Project routing process, the Company avoided conservation sites to the maximum extent practicable, while also considering other routing constraints. When avoidance was not possible, the Company minimized the crossing length and fragmentation of these areas by following area boundaries to the extent practicable. Where these areas are crossed, the habitat and/or vegetative buffer are not fully lost as the transmission lines are maintained as open meadow/shrub habitat consistent with successional habitat. Construction and maintenance of the new transmission line facilities could have minor effects on wildlife; however, impacts on most species will be short-term in nature, and limited to the period of construction.

Component 1 and parts of Components 2 and 3 intersect Conservation Site 4894 (Bermuda Hundred), a 589-acre area ranked as a non-essential, "General" conservation concern. A managed conservation easement known as the Brown and Williamson Conservation Area (CFD-VOF-1500) is located within the Bermuda Hundred conservation site. This conservation site is a Virginia Outdoors Foundation (VOF) co-held Managed Conservation Land. Component 1 runs parallel to, but does not intersect, the boundary of this managed conservation easement.

SCUs are conservation areas associated with streams in Virginia ranked as "healthy" or "outstanding" by the Interactive Stream Assessment Resource (INSTAR). These stream conservation areas are ranked to guide efforts to:

- Create, maintain, or expand riparian buffers,
- Protect headwater streams,
- Maintain natural stream flow to ensure aquatic habitat consistent with healthy ecosystems, and
- Protect natural stream channels.

Based on the database search, no SCUs were found within the proposed alignment. The nearest SCU is associated with Shand Creek, approximately 0.16 miles to the southeast of the proposed alignment, and the James River approximately 0.33 miles to the northeast; these two reaches are a part of Stream Conservation Site 3274: James River - Proctors Creek to Rt. 156 SCS.

Ecological cores are areas of at least 100 acres of continuous interior, natural cover that provide habitat for a wide range of species, from interior-dependent forest species to habitat generalists, as well as species that use marsh, dune, and beach habitats. Interior ecological core areas begin 100 meters inside the nearest core edges and continue to the deepest parts of the ecological core. Ecological cores also provide natural and economic benefits of open space, recreation, water quality (including drinking water recharge and protection, and erosion prevention), and air quality (including carbon sequestration and oxygen production). Ecological cores are ranked from C1 to C5 (C5 being the least significant) using nine prioritization criteria, including the habitats of the natural heritage resources the cores contain.

The VDCR database identified five ecological core map units intersected by the proposed alignment. These ecological cores are depicted by the VDCR in association with forested vegetation communities, and thus may be affected by tree removal associated with the construction of the proposed alignment. A detailed description of ecological cores is presented in Table 3.3.4-1 below.

Table 3.3.4-1: Ecological Cores within the Proposed Alignment

Ecological Core ID	Ecological Core Rank	Acres	Location	Condition
61689	C3: High	576	***Intersects Components 1, 2, and 3.*** North of Bermuda Hundred Road, south of the James River, east of North Enon Church Drive and	Not fragmented by any existing rights-of-way or roads; slightly encroached on the west side by industrial development and the CSX Railroad.

Ecological Core ID	Ecological Core Rank	Acres	Location	Condition
			industrial development on its east side, and west of Discovery Drive.	
61577	C4: Moderate	465	***Intersects Components 2 and 3.*** North of Bermuda Hundred Road, south and east of Meadowville Technology Parkway, and west of I-295.	Approximately 256 acres of industrial building development including parking lots, stormwater retention, and lawn areas. Remaining forest area further fragmented by roads and powerline easements.
61448	C5: General	197	***Intersects Components 2 and 3.*** North of Tazewell Avenue between Meadowville Technology Parkway and North Enon Church Road and south of Meadowville Road.	Approximately 44 acres containing residential development and associated roads/parking lots in the northern portion. Remaining forested area fragmented in two places by existing powerline easements in the southern portion.
61715	C5: General	122	***Intersects Components 2 and 3.*** Between Meadowville Technology Parkway and North Enon Church Road and south of Tazewell Avenue.	Approximately 45 acres containing commercial development and associated roads/parking lots, and a small pasture area in the northern portion. Remaining forested area fragmented by North Enon Church Road in the southern portion.
62019	C5: General	73	***Intersects Component 3.*** North and west of Burgess Road, south of the existing powerline easement above the CSX Railroad, and east of North Enon Church Road.	Approximately 29 acres of residential development in progress with associated roads and stormwater control. Remaining forest area fragmented by the CSX Railroad along the northern boundary of the Core.

Table 3.3.4-2 below outlines the specific acres of each ecological core impacted by each Component.

Table 3.3.4-2: Ecological Cores within Individual Components

		61689 (C3)	61577 (C4)	61448 (C5)	61715 (C5)	62019 (C5)
Component 1	Acres	18.3				
Component 2		6.2	8.4	5.8	6.0	.5
Component 3		0.8	1.6		3.0	

Component 1

Component 1 intersects 18.3 acres of Ecological Core 61689 of rank C3 (high integrity).

Component 2

Component 2 crosses 6.2 acres of Ecological Core 61689 ranked C3, 8.4 acres of 61577 ranked C4 (moderate integrity), 5.8 acres of 61448 ranked C5 (general integrity), 6.0 acres of 61715 ranked C5, and 0.5 acres of 62019 ranked C5.

Component 3

Notably, a portion of Component 3 runs parallel with and adjacent to Component 2. This portion runs from the Meadowville Station to the three-way intersection north of Bermuda Hundred Road. Areas of Ecological Significance information for this area is discussed in the Component 2 section above.

Component 3 crosses 0.8 acres of Ecological Core 61689 ranked C3, 1.6 acres of 61577 ranked C4, and 3.0 acres of 61715 ranked C5.

3.3.5 Protected Species

To protect and recover imperiled species and the ecosystems they depend on, Congress passed the federal Endangered Species Act (ESA) in 1973, which states that threatened and endangered plant and animal species are of aesthetic, ecological, educational, historic, and scientific value to the United States, and protection of these species and their habitats is required. The ESA is administered by both the National Oceanic and Atmospheric Administration (NOAA) and USFWS. It protects fish, wildlife, plants, and invertebrates that are federally listed as endangered or threatened by prohibiting the "take" of these species and the interstate or international trade of the species, including their parts and products, unless federally permitted.

To take is defined as "to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect or attempt to engage in any such conduct." A federally endangered species is any species that is in danger of extinction throughout all or a significant portion of its range, with exceptions for certain insect pests. A federally threatened species is any species that is likely to become endangered in the near future throughout all or a significant portion of its range.

Virginia has adopted separate acts for protecting animals and plants in the state. The Virginia ESA (Va. Code §§ 29.1-563–29.1-570) designates the Virginia Department of Wildlife Resources (VDWR) as the state agency with jurisdiction over state-listed endangered or threatened fish and wildlife. The Virginia ESA authorizes the Board of the VDWR to adopt the federal list of endangered and threatened species and to identify and protect state-listed wildlife. The Virginia ESA prohibits, by regulation, the taking, transportation, processing, sale, or offer for sale of those species.

Under the Endangered Plant and Insect Species Act (2 VAC 5-320-10), the taking or possession of endangered or threatened plant and insect species is prohibited. The VDCR represents the Virginia Department of Agriculture and Consumer Services, which is responsible for state-listed plants and insects, in providing comments regarding potential impacts on these species.

Timmons conducted online database searches for threatened, endangered, or other protected species in the vicinity of the proposed alignment. The three project Components were assessed, and no notable differences in database search results were identified between the Components. The following agencies and associated databases were reviewed for protected species:

- U.S. Fish and Wildlife Services (USFWS) – Information, Planning and Consultations system (IPaC)
    - Results include ESA-listed species that may occur within the proposed alignment

- Virginia Department of Wildlife Resources (VDWR) – Virginia Fish and Wildlife Information Services (VaFWIS) database

- Results include ESA-listed species that have been documented within a 2-mile radius of the proposed alignment

- VDWR – Northern Long-Eared Bat (NLEB) Regulatory Buffer Interactive Tool and the VDWR – Little Brown Bat and Tri-colored Bat Hibernacula Locator
  - Any mapped hibernacula, roosts, or mist-net and auditory capture data as maintained by DWR

- Virginia Department of Conservation and Recreation (VDCR) – Natural Heritage Data Explorer (NHDE) subwatershed search, Predicted Suitable Habitat (PSH) modeling, and other screening layers that might suggest certain rare communities or species habitat such as the Diabase Screening Layer or the Karst Screening Layer
  - Includes protected species that are known or likely to occur within the same watershed as the proposed alignment
  - PSH modeling maps predicted habitat for individual species using known occurrences, a Species Habitat Model, and expert opinion
  - Any mapped representations of plants, animals, and exemplary natural communities, which are tracked by the VDCR NHP due to their rarity

- Center for Conservation Biology (CCB) – Virginia Eagles Nest Locator
  - Any documented Bald eagle nests and associated buffers

- USFWS – Bald Eagle Concentration Area (BECA) Mapping Tool
  - Any mapped Bald eagle concentration areas

Federally and State-Listed Endangered and Threatened Species

Three federally listed and two state-listed threatened or endangered species were identified that may potentially occur within the proposed alignment. Timmons assessed these five identified species for potential of occurrence within and adjacent to the proposed alignment based on the sources identified above. One federal candidate species (i.e., a species whose status is currently under review to determine whether it warrants listing under the Endangered Species Act) was also reviewed for potential occurrence. A summary of the findings is provided below. As a measure of protection against collection, hunting, or other disturbances, these agencies do not specify exact locations of protected species in publicly available databases. Further coordination may therefore be required to confirm any potential impacts to protected species. A summary of the federally and state-listed species documented within or in the vicinity of the proposed alignment is presented in Table 3.3.5-1.

Table 3.3.5-1: Potential Federally and State-Listed Species in the Vicinity of the Proposed Alignment

Common Name	Scientific Name	Federal Status	State Status	Global Rank	Habitat	Potential Component Occurrence	Source
FEDERALLY LISTED SPECIES							
Mammals							
Northern long-eared bat	*Myotis septentrionalis*	LE	LT	G2	Generally associated with old-growth or late successional interior forests. Partially dead or decaying trees are used for breeding, summer day	All	IPaC VDWR NLEB Regulatory Buffer Interactive Tool Map

					roosting, and foraging. Hibernation occurs primarily in caves, mines, and tunnels.		
Fish							
Atlantic sturgeon	*Acipenser oxyrinchus*	LE	LT	G3	Anadromous species. Lays eggs on hard substrates that are free of silt.	None	VaFWIS
Plants							
Sensitive joint-vetch	*Aeschynomene virginica*	LT	LT	G2	Mucky, sandy, or gravelly soil in the lower edge of the inter-tidal marsh zone that receives daily inundations.	None	DCR-NHDE
Invertebrates							
Monarch Butterfly	*Danaus plexippus*	Candidate	Candidate	G4	Semi-open areas with herbaceous vegetation.	All	IPaC
STATE-LISTED SPECIES							
Mammals							
Tricolored bat	*Perimyotis subflavus*	PE	LE	G3	Typically roost in trees near forest edges during summer. Hibernate deep in caves or mines in areas with warm, stable temperatures during winter.	All	IPaC VDWR Tricolored Bat Winter Habitat and Roost Tree Map
Birds							
Loggerhead shrike	*Lanius ludovicianus*	None	LT	G4	Open country with scattered shrubs and trees or other brushy habitat for nesting.	All	VaFWIS
***Federal / State Status**:*		***LE** Listed as endangered; **LT** Listed as threatened*					

(G)lobal Rank 1 *Critically Imperiled: At very high risk of extinction due to extreme rarity (often five or fewer populations), very steep declines, or other factors*

G2 *Imperiled: At high risk of extinction due to very restricted range, very few populations (often 20 or fewer), steep declines, or other factors*

G3 *Vulnerable: At moderate risk of extinction due to a restricted range, relatively few populations (often 80 or fewer), recent and widespread declines, or other factors*

G4 *Apparently Secure: Uncommon but not rare; some cause for long-term concern due to declines or other factors*

G5 *Secure: Common, widespread, and abundant*

Potential impacts on the species which could result from the proposed alignment are summarized in Table 3.3.5-2 and detailed narratively below.

Based on landscape and vegetation within the vicinity of the proposed alignment, each Component crosses a variety of potential habitat types, including forested land, open grass land, and waterbodies with perennial or intermittent stream flows. These habitat types each have potential to provide suitable habitat for one or more of the species identified in Table 3.3.5-2 below.

Table 3.3.5-2: Federal and State-Listed Species Impacts

Common Name	Scientific Name	Species Info/Habitat	Results/Potential Impacts
FEDERALLY LISTED SPECIES			
Mammals			
Northern long-eared bat	*Myotis septentrionalis*	Generally associated with old-growth or late successional interior forests. Partially dead or decaying trees are used for breeding, summer day roosting, and foraging. Hibernation occurs primarily in caves, mines, and tunnels.	Summer foraging habitat present, but no hibernacula or roost trees were identified within a 0.5-mile radius of the proposed alignment. “May Affect, Not Likely to Adversely Affect” determination issued from USFWS. No impacts are anticipated if trees are cleared outside of the species active season. More information below.
Fish			
Atlantic sturgeon	*Acipenser oxyrinchus*	Anadromous species. Lays eggs on hard substrates that are free of silt.	Confirmed within 2 miles, but not within the proposed alignment. No habitat predicted within the proposed alignment. No in-stream work will be performed. No impacts anticipated.
Plants			
Sensitive joint-vetch	*Aeschynomene virginica*	Mucky, sandy, or gravelly soil in the lower edge of the inter-tidal marsh zone that receives daily inundations.	Predicted habitat within the JL06 subwatershed, but not within the proposed alignment. No habitat predicted within the proposed alignment. No impacts anticipated.
Invertebrates			
Monarch Butterfly	*Danaus plexippus*	Semi-open areas with herbaceous vegetation.	Candidate species. Construction of the proposed alignment should benefit this species by increasing preferred habitat. Any existing habitat disturbed will return to its previous herbaceously vegetated state. More information below.
STATE-LISTED SPECIES			
Mammals			
Tricolored bat	*Perimyotis subflavus*	Typically roost in trees near forest edges during summer. Hibernate deep in caves or mines in areas with warm, stable	Summer foraging habitat present, but no hibernacula or roost trees were identified within a 0.5-mile radius of the proposed alignment. No impacts are anticipated if trees are cleared outside of the species active season. More information below.

		temperatures during winter.	
Birds			
Loggerhead shrike	*Lanius ludovicianus*	Open country with scattered shrubs and trees or other brushy habitat for nesting.	Construction of the proposed alignment should benefit this species by increasing preferred habitat. Any existing habitat disturbed will return to its previous herbaceously vegetated state. No impacts expected. More information below.
Sources: USFWS 2024; VDCR 2024; VDWR 2024 *VaFWIS = Virginia Fish and Wildlife Information Service; VDWR = Virginia Department of Wildlife Resources*			

Northern Long Eared Bat (Myotis septentrionalis)

According to USFWS IPaC, the federally endangered and state threatened Northern long-eared bat (NLEB) (Myotis septentrionalis) has the potential to occur onsite. The NLEB habitat range covers the majority of Virginia west of the Blue Ridge Mountains. This species typically overwinters in caves or mines and spends the remainder of the year in forested habitats. Forested areas within the proposed alignment present suitable summer foraging habitat for this species. Based upon a review of available information, primarily the DWR NLEB Regulatory Interactive Buffer Tool, the edge of the nearest confirmed 3-mile capture buffer is located approximately 2.2 miles from the proposed alignment. There are no known maternity roosts or hibernacula for this species located on or within the vicinity of the proposed alignment. A NLEB Range-wide Determination Key was completed resulting in a “May Affect, but Not Likely to Adversely Affect” (MANLAA) determination for the proposed Project. In addition, tree clearing within the proposed alignment will be minimized by utilizing existing powerline easements where possible. However, as suitable forested summer forage habitat is present within the proposed alignment, official coordination with regulating agencies will be conducted as needed to determine potential impacts to the NLEB.

Tri-colored Bat (Perimyotis subflavus)

According to USFWS IPaC, the federally proposed and state endangered Tri-colored bat (TCB) (Perimyotis subflavus) has the potential to occur within the proposed alignment. Suitable habitat for this species includes roadway bridges, tunnels, abandoned buildings, and contiguous forested areas. Forested areas within the proposed alignment present suitable summer foraging habitat for this species. According to the TCB Winter Habitat & Roosts Locator, no known hibernacula are located within or near the proposed alignment. In addition, VaFWIS has no recorded observances of this species within two miles of the proposed alignment. Tree clearing within the proposed alignment will be minimized by utilizing existing powerline easements where possible. However, as suitable forested summer forage habitat is present within the proposed alignment, official coordination with regulating agencies will be conducted as needed to determine potential impacts to the TCB.

Atlantic sturgeon (Acipenser oxyrinchus)

According to DWR VaFWIS and DCR, the federally and state endangered Atlantic sturgeon (Acipenser oxyrinchus) has been documented within two miles of the proposed alignment. This fish is an anadromous species, meaning it lives in the ocean and comes into fresh and brackish water bodies to breed, and lays eggs on hard substrates free of silt. In Virginia, it occurs in the Chesapeake Bay and upstream of large rivers emptying into the Chesapeake Bay, such as the James River north of the proposed alignment and the Appomattox River south of the proposed alignment. The proposed alignment does not intersect any large rivers, and DCR predicted suitable habitat modeling shows no predicted suitable habitat for the Atlantic sturgeon within the proposed alignment, thus no impacts are anticipated to this species.

Loggerhead Shrike (Lanius ludovicianus)
According to DWR VaFWIS, the state threatened Loggerhead shrike has been documented within two miles of the proposed alignment. Habitat for this species includes open pasture, grassy fields, and agricultural fields with sparsely growing small trees or shrubs. They are often found along mowed roadsides and can sometimes nest in brush piles. Suitable habitat may exist within existing powerline easements and nearby roadsides and landscaped lawns. DCR mapping depicts the nearest predicted habitat in Isle of Wight County approximately 60 miles southeast of the proposed alignment, though this is a migratory species with a broad range. There have been significant declines in Loggerhead shrike populations throughout much of North America and in Virginia specifically; this species has not had a confirmed sighting within 2.0 miles of the proposed alignment since 1985. The lack of recent confirmed observations and decline in Loggerhead shrike populations indicate that this species is unlikely to occur within the proposed alignment, even in areas of potentially suitable habitat where it may have historically occurred. In addition, converting the forested areas of the proposed alignment to maintained open meadow/shrub habitat may increase potential habitat for this species. Official coordination with regulating agencies will be conducted as needed to determine potential impacts to this species.

Monarch Butterfly (Danaus plexippus)
According to the USFWS, the Monarch butterfly is a candidate proposed for listing under the ESA. It can live in a range of habitats but relies solely on the host plant, milkweed, to lay eggs and feed. Milkweed can be found in semi-open areas with herbaceous vegetation and is frequently found in prairies and fields. The Monarch butterfly migrates south to overwintering sites in Mexico. In the spring, the butterflies migrate north through Virginia, and then in fall migrate south to overwinter. Converting the forested areas of the proposed alignment to maintained open meadow/shrub habitat may increase potential habitat for the host plant, milkweed, and therefore increase the potential for suitable habitat for the Monarch butterfly. Existing open meadow/shrub habitat in within maintained areas, especially powerline easements, may be temporarily impacted during construction of the proposed Project, but will return to the previously vegetated state upon completion of construction. Therefore, no existing habitat will be diminished.

Construction and maintenance of the new transmission line facilities could have minor effects on wildlife; however, impacts on most species will be short-term in nature, and limited to the period of construction. The habitat and/or vegetative buffer are not fully lost as the transmission lines are maintained as open meadow/shrub habitat consistent with successional habitat.

The DEQ will initiate the scoping review with DCR, DWR, and USFWS to solicit comments from these and other regulating agencies regarding threatened and endangered species as needed. All comments received during official coordination will be addressed as they arise.

Bald Eagle Management

The Bald eagle (Haliaeetus leucocephalus) is no longer federally listed under the ESA, but it is a state threatened species in Virginia under the Virginia ESA and is protected under Va. Code § 29.1-521 and VDWR regulations (4 VAC 15-30-10). The Bald eagle is also protected under the federal Bald and Golden Eagle Protection Act and the Migratory Bird Treaty Act. The “Management of Bald Eagle Nests, Concentration Areas, and Communal Roosts in Virginia: A Guide for Landowners,” issued by the then Virginia Department of Game and Inland Fisheries (now VDWR) provides management practices for avoiding the take of Bald eagles and outlines restrictions on construction activities within defined management zones around nests. Proposed activities that have the potential to affect Bald eagles are evaluated by the agency on a case-by-case basis (Virginia Department of Game and Inland Fisheries et al. 2012).

To obtain the most current eagle nest data, Timmons reviewed the Center for Conservation Biology (CCB) website (CCB 2024), which provides information about the Virginia Bald eagle population, including the results of the CCB’s annual eagle nest survey. According to the CCB database, there are no known Bald eagle nests within the proposed alignment. The nearest eagle nest (Nest ID CD1102) is approximately 0.22 miles (1,663 feet) north of Component 1 and was documented as occupied in 2021. No portion of the proposed alignment is within the 660-foot management buffer for this or other nests. If additional eagle

nests are identified within 660 feet of proposed alignment, the Company will work with the appropriate jurisdictional agencies to minimize any impacts to the species.

Additionally, the proposed alignment is not located within an eagle concentration area and none of the Components are located within the primary or secondary buffers of any documented eagle nest locations.

Species of Concern and Other Documented Occurrences

Species of concern are typically not afforded the same level of protection as federally and state listed endangered and threatened species. NatureServe, an international network of NHPs, assigns a Global Rank based on rarity and conservation status for these species. Species ranked "G1" (global rank 1/critically imperiled) or "G2" (global rank 2/imperiled) are most at risk. According to publicly available database resources, no species of concern are predicted to occur within 10 miles of the proposed alignment. No federally listed species of concern were identified in the USFWS IPaC review of the proposed alignment.

3.3.6 Vegetation

Local Vegetation Characteristics

Timmons reviewed publicly available Chesterfield County aerial photography (Google Earth Imagery 2024) to calculate impacts on vegetation. Herbaceous vegetation could be temporarily affected by construction and vehicular movement. In forested areas, trees would be cleared during construction and utility easements would be maintained with an herbaceous cover during Project operation. Disturbed areas resulting from use of temporary workspace would revert to pre-construction vegetative conditions. As shown in Table 3.3.6-1, forest is the vegetation resource that would primarily be affected by the proposed alignment, though individually, Component 3 affects more open space.

Table 3.3.6-1: Vegetation Impacts

		Component		
Vegetation Type		**1**	**2**	**3**
Forest	Acres	17.6	36.1	34.6
Open Space		0.9	5.7	21.5
Total		18.5	41.8	56.1

The proposed alignment is located within the Southern Coastal Plain physiographic province. Vegetation in this province has been severely altered by clearing as part of ongoing agricultural, silvicultural, and development practices occurring since European settlement. Prior to the effects of European settlement, the vegetation was influenced by the practices of Native Americans, which included burning the forests to drive game and keep the understory of forests clear for hunting. Upland forests have been so extensively cleared or altered that it is difficult to determine which species/community types were originally present, though some wetlands still contain natural communities. Remaining forest land often consists of plantations or successional stands of Loblolly pine (*Pinus taeda*) or have developed into secondary pine-hardwood forests characterized by early successional mixtures of pine and Sweetgum (*Liquidambar styraciflua*), after repeated cutting or agricultural abandonment. The most mature hardwood stands on mesic uplands are characterized by American beech (*Fagus grandifolia*), several oak species, and American holly (*Ilex opaca*; VDCR 2021).

The area surrounding the proposed alignment is a highly developed portion of Chesterfield County where remnant communities of forested vegetation are fragmented by developed land and supporting infrastructure. Most of the area is described as Class V: Most Vulnerable to development. Larger tracts of less disturbed forested areas are often less likely to be developed due to natural qualities such as wetlands, the desire to maintain greenspace for trails or parks, or areas of conservation value. As such, the vegetation within most of the proposed alignment is often limited to small fragments of mixed pine (*Pinus* sp.) and

hardwood forest communities, turfgrass communities associated with developed land, and forested “edge” communities that border larger forested tracts.

Forested Vegetation

Forested vegetation within the vicinity of the proposed alignment is generally characterized by the Coastal Plain/Piedmont Bottomland Forest ecological group. Upland forests are composed of tree species typically found in the Southern Coastal Plain physiographic province, with vegetation assemblages dominated by Loblolly pine, Red maple (*Acer rubrum*), Sweetgum, Tulip tree (*Liriodendron tulipifera*), American beech, various hickories (*Carya* spp.), and various oaks (*Quercus* spp.). Invasive species such as Japanese stilt-grass (Microstegium vimineum), Japanese honey-suckle (*Lonicera japonica*), and Chinese privet (*Ligustrum sinense*) are common across the region, in some areas entirely replacing native species. Upland forest communities have decreased due to historic encroachment from agricultural land use and residential development, and usually exist in small contiguous tracts or fragmented forests located between developed areas.

Floodplain tree species vary with stream order, soil type, flooding regime, and successional status. Alluvial forests in the vicinity of the proposed alignment are found at lower topographic elevations in floodplains and drainageways associated with wetlands and waterbodies like the James River floodplain. Alluvial forests in the area are typically comprised of species like maples (*Acer* spp.), American sycamore (*Platanus occidentalis*), Sweetgum, hackberries (*Celtis* spp.), American elm (*Ulmus americana*), River birch (*Betula nigra*), and Green ash (*Fraxinus pennsylvanica*). Wetland areas are dominated by Red maple, Sweetgum, Green ash, Willow oak (*Quercus phellos*) and Pin oak (*Quercus palustris*) with an understory of Deciduous holly (*Ilex decidua*), American hornbeam (*Carpinus caroliniana*), blueberry (*Vaccinium* spp.), and Sweet pepperbush (*Clethra alnifolia*) shrubs. The more open understories are dominated by sedges (especially *Carex* spp.), grasses (especially *Glyceria* spp., *Leersia* spp., or common wood reedgrass [*Cinna arundinacea*]), rushes (especially *Juncus* spp.), or other forbs such as lizard's-tail (*Saururus cernuus*), false nettle (*Boehmeria cylindrica*), asters such as small beggar's-ticks (*Bidens discoidea*), or smartweeds (*Persicaria* spp.).

As noted in Section 3.1.2, Existing Land Use and Land Cover, Timmons classified land cover within the Components using a combination of local and state-wide datasets as well as aerial photo interpretation to identify the most current uses for a given area. Figure 3.1.2 in Appendix A depicts land use/land cover, including forested areas, within the proposed alignment.

Forest Conservation Values

The Forest Conservation Value (FCV) model is a tool designed by the Virginia Department of Forestry (VDOF) to strategically identify the highest priority forestland for conservation in Virginia. The intent is to maximize the efficiency of limited resources by focusing conservation efforts on the highest quality, most productive, and most vulnerable forestland statewide. The FCV model identifies five conservation values: 5-Outstanding, 4-Very High, 3-High, 2-Moderate, and 1-Average.

Timmons reviewed publicly available FCV model data prepared by the VDCR and historical aerial imagery available from 1985 to assess the value of forest resources crossed by the proposed alignment. The Components do not cross any “Outstanding” FCVs.

Table 3.3.6-2 summarizes the impact in acres by FCV value for each Component. Of these, Component 3 crosses the highest amount (52.9 acres) of forested habitat with Average to High FCV ratings; Component 1 crosses the least amount (21.2 acres) of forested habitat with Average to Very High FCV ratings. Component 1 crosses 33.4 acres of forest with Average to Very High FCV ratings. Impacts to FCVs are detailed by component below.

Table 3.3.6-2: Forest Conservation Values within Components in Acres

Forest Conservation Values		Component 1	Component 2	Component 3
5. Outstanding	Acres			
4. Very High		0.4	0.7	
3. High		8.6	5.6	1.7
2. Moderate		7.7	18.8	14.9
1. Average		2.3	16.2	31.7
Unrated/developed		0	2.6	20.1

Component 1

Component 1 crosses FCVs ranked 1 through 4, with the majority ranked 3 (approximately 45 percent). Most of this area is unfragmented. According to historical aerial imagery, a small, approximately 1.7-acre area of Component 1 was clearcut sometime prior to 1985, but otherwise this area has remained intact. A small area adjacent to Discovery Road has an existing powerline easement that encroaches upon ranked 1 FCVs. This easement predates the earliest available aerial imagery.

Component 2

Component 2 crosses FCVs ranked 1 through 4, with the majority ranked 2 (approximately 43 percent). Component 2 has experienced much industrial development starting in 2008 with the construction of what is now a parking lot and constructed pond south of a technology park. Meadowville Technology Parkway began construction in 2009 and was completed in 2012. Technology Park began construction in 2012, and Medline in 2014, with roads, sewer, and powerline easements being constructed to support these and other surrounding development. The area of Component 2 south of Bermuda Hundred Road was clearcut in 2009. The farm off Tazewell Avenue has maintained the same pasture areas from earliest available imagery. The necessary cleared areas for the development and the farm have all encroached on mapped FCVs.

Component 3

Component 3 crosses FCVs ranked 1 through 3, with the majority ranked 1 (approximately 46 percent). A portion of Component 3 overlaps with Component 2. The overlap runs from the Meadowville Station to the three-way intersection north of Bermuda Hundred Road and is described in the Component 2 discussion above. This paragraph will discuss the section of Component 3 south of Bermuda Hundred Road. The existing powerline easement that encompasses most of this Component predates the earliest available aerial imagery. The surrounding areas, including within the powerline easement, have been developed for residential use. Screamersville saw new residential development in 2007, and the Greyshire Drive/Elkington Drive development began in 2002 and was completed in 2006. These developments and the existing powerline easement cross multiple areas of mapped FCVs.

During the Project routing process, the Company minimized the size of these areas by collocating with existing linear corridors, crossing previously cleared or disturbed areas, and minimized fragmentation by following area boundaries to the extent practicable. Where these areas are crossed, the habitat and/or vegetative buffer are not fully lost as the transmission lines are maintained as open meadow/shrub habitat consistent with successional habitat.

3.4 Visual Conditions

Timmons conducted the following analyses to understand the existing visual conditions and potential impact from the installation of each of the Components:

- Identification of visually sensitive resources (VSRs) through the review of recent (2024) digital aerial photography;
- Definition of potential user groups; and
- Preparation and review of visual simulations of each of the Components.

VSRs are defined as areas containing resources with unique scenic qualities or sensitive viewsheds and/or areas where a project's components and any associated vegetation clearing would likely contrast with the surrounding landscape. Examples of visually sensitive areas include residential or recreational areas, historic landscapes or districts, open space, natural features, and areas of high public concentration. The VSRs identified within one mile of the Components include:

- Chesterfield County public school facilities (3): Elizabeth Scott Elementary School, Elizabeth Davis Middle School, Enon Elementary School

- Private school facilities and daycares (3): Ronald Reagan Secondary School, Rivers Learning Center, The River Preschool and Childcare Center

- Houses of Worship (7): Enon Baptist Church, Mt. Pleasant Baptist Church, Chester Enon Church of God, Bermuda Hundred United Methodist Church, Rivermont Presbyterian Church, The River Church, Rivermont Church of Christ

- Additional facilities (12): R. Garland Dood Park at Point of Rocks Park, Sergeant James Engle Park, Brown and Williamson Conservation Area, Historic Point of Rocks Park, Elizabeth Davis Middle School Trail, Enon Elementary Trail, Lower James River Linear Park Trail, Appomattox River Trail, Appomattox River Scenic River, Captain John Smith Chesapeake National Historic Trail, and Bermuda Memorial Park

User groups include local residents/workers, commuters/through travelers, recreationalists. Recreational users often experience the greatest visual impact based on their high sensitivity to change in the landscape. Local residents/workers may experience a similar sensitivity to change as recreational users; however, this is often centered around static views from their homes and workplaces. Commuter/through travelers have the lowest sensitivity to visual change in the landscape based on their activity and average speed associated with the roadway. A description of each VSR and its associated user groups is provided in Table 3.4.

Table 3.4: Visually Sensitive Resources and User Groups

VSR Name	Impacted User Groups	General Information/Visual Sensitivity
Elizabeth Scott Elementary School	Local residents/workers	This VSR consists of a Chesterfield County public elementary school equipped to teach approximately 780 grade K-5 students. The most common user group is local residents/workers that have a high sensitivity to visual change, especially from static locations and prolonged views.
Elizabeth Davis Middle School	Local residents/workers	This VSR consists of a Chesterfield County public middle school equipped to teach approximately 1,275 grade 6-8 students. The most common user group is local residents/workers that have a high sensitivity to visual change, especially from static locations and prolonged views.

Enon Elementary School	Local residents/workers	This VSR consists of a Chesterfield County public elementary school equipped to teach approximately 780 grade K-5 students. The most common user group is local residents/workers that have a high sensitivity to visual change, especially from static locations and prolonged views.
Ronald Reagan Secondary School	Local residents/workers	This VSR consists of a private secondary school equipped to teach approximately 180 grade 9-12 students. The most common user group is local residents/workers that have a high sensitivity to visual change, especially from static locations and prolonged views.
Rivers Learning Center	Local residents/workers	This VSR consists of a family home day facility that offers care for infants, toddlers, preschools, and before and after-school services for Elizabeth Scott Elementary School students. The most common user group is local residents/workers that have a high sensitivity to visual change, especially from static locations and prolonged views.
The River Preschool and Childcare Center	Local residents/workers	This VSR consists of a childcare center that offers Pre-K, 2-, 3-, and 4-year-old classes and afterschool services for nearby elementary school students. The most common user group is local residents/workers that have a high sensitivity to visual change, especially from static locations and prolonged views.
Enon Baptist Church, Mt. Pleasant Baptist Church, Chester Enon Church of God, Bermuda Hundred United Methodist Church, Rivermont Presbyterian Church, The River Church, Rivermont Church of Christ	Local residents/workers	These VSRs consist of churches. The most common user groups are local residents/workers that have a high sensitivity to visual change, especially from static locations and prolonged views.
R. Garland Dodd Park at Point of Rocks	Local residents/workers and Recreationalists	This VSR consists of a 176-acre park. The park contains 3.5 miles of trails, baseball fields, basketball courts, playgrounds, and other amenities. Local residents/workers and recreationalists have a high sensitivity to visual change in this area.
Sergeant James Engle Park	Local residents/workers and Recreationalists	This VSR consists of a 12-acre historical park containing 0.4 miles of unpaved trails. Local residents/workers and recreationalists have a high sensitivity to visual change in this area.
Brown and Williamson Conservation Area	Local residents/workers and Recreationalists	This VSR consists of a 262.2 acre VOF easement held by Chesterfield County. Local residents/workers and recreationalists have a high sensitivity to visual change in this area.
Historic Park of Rocks Park	Local residents/workers and Recreationalists	This VSR consists of a 30 acres historic park. Local residents/workers and recreationalists have a high sensitivity to visual change in this area.
Elizabeth Davis Middle School Trail	Local residents/workers and Recreationalists	This VSR consists of a small, paved trail associated with the existing Elizbeth Davis Middle School Track. Local residents/workers and recreationalists have a high sensitivity to visual change in this area.
Enon Elementary School Trail	Local residents/workers and Recreationalists	This VSR consists of a small, paved trail associated with the existing Enon Elementary Track. Local residents/workers and recreationalists have a high sensitivity to visual change in this area.

Lower James River Linear Park Trail	Local residents/workers and Recreationalists	This VSR consists of a Chesterfield managed trail. Local residents/workers and recreationalists have a high sensitivity to visual change in this area.
Appomattox River Trail	Local residents/workers and Recreationalists	This VSR consists of a local and regional managed trail. Local residents/workers and recreationalists have a high sensitivity to visual change in this area.
Appomattox River Scenic River	Local residents/workers and Recreationalists	This VSR consists of a designated scenic river. Local residents/workers and recreationalists have a high sensitivity to visual change in this area.
Captain John Smith Chesapeake National Historic Trail	Local residents/workers, Recreationalists and Commuters	This VSR consists of a scenic byway. Local residents/workers, recreationalists, and commuters have a high sensitivity to visual change in this area.
Bermuda Memorial Park	Local residents/workers	This VSR consists of 48-acre cemetery. Local residents/workers have a high sensitivity to visual change in this area.

3.4.1 Visual Assessment

The purpose of the visual assessment was to:

- Define the aesthetic features to be evaluated for the Project.
- Inventory and evaluate existing visually sensitive features and user groups within each of the Components.
- Describe the appearance of the visible elements of the Project.
- Evaluate potential facility visibility within the proposed alignment.
- Identify KOPs for visual assessment.
- Assess the visual impacts associated with the proposed alignment.

To assess the potential visual impacts on the VSRs associated with each Component, Timmons reviewed aerial photographs and online resources. Specific viewer groups were identified and considered, including commuters/through travelers, local residents/workers, and recreationalists. 3D visual renderings (renderings) were prepared from 9 representative key observation points (KOPs) for the proposed alignment (discussed in more detail in Section 3.4.2, Key Observation Points). The renderings prepared from the KOPs capture potential views representing associated VSRs. These renderings are included as Appendix D, Visual Simulations.

New rights-of way is required for the majority of Component 1 and 2, which would result in a visible change due to vegetation clearing and the introduction of new transmission structures and conductors. The majority of the proposed alignment associated with Component 3 involves the replacement of existing structures with new structures, thus it will not result in a notable visible change.

Additionally, there are existing transmission and distribution corridors within and adjacent to the proposed alignment for all three of the Components. These existing corridors lower the sensitivity to visual change from, around, and near identified VSRs. Nonetheless, changes in visual conditions would be noticeable from the Rivermont Crossing Apartment development as well as numerous residences on both sides of I-295, as far west as Bermuda Orchard Drive and as far east as E Hundred Road. To some extent, all of the Components of the proposed alignment would affect views for commuters along Meadowville Technology Parkway, Bermuda Hundred Road, E Hundred Road, and Bermuda Orchard Lane. However, the required

clearing for the proposed alignment would result in a negligible change to the existing conditions and potential views for individuals traveling these roadways.

3.4.2 Key Observation Points

To illustrate potential changes from the proposed alignment, 9 key observation points (KOPs) were chosen to represent views of potential impacts for users along the three Components of the Project. The KOPs were chosen because they serve the following purposes:

- Illustrate visibility from specific VSRs;
- Illustrate representative views that would be available to identified user groups;
- Illustrate the proposed new transmission infrastructure along the three Components of the Project
- Provide representative views of the proposed structures and associated vegetative clearing.

Table 3.4.2 below identifies the location of each KOP as well as the Components represented in the visual simulations prepared for each KOP.

Table 3.4.2: Key Observation Points

KOP #	Latitude/Longitude	Location	Reason for Inclusion	Project Component
1	37.364867, -77.319680	View south from the intersection of N Enon Church Road and N White Mountain Drive	Illustrates the user experience of a local resident from a stationary viewpoint	Component 2
2	37.367840, -77.330492	View southeast from the roundabout intersection of Meadowville Technology Parkway and Corporate Village Parkway	Illustrates the user experience of a local resident/worker and commuter/through traveler from a stationary viewpoint	Components 2 and 3
3	37.336638, -77.335101	View southwest from the Rivermont Crossing Apartment development of a proposed 2-Pole structure	Illustrates the user experience of a local resident from a stationary viewpoint	Component 3
4	37.335475, -77.334164	View northwest from the Rivermont Crossing Apartment development of a proposed 2-Pole structure	Illustrates the user experience of a local resident from a stationary viewpoint	Component 3
5	37.324115, -77.338264	View west from the intersection of Enon Church Road and Point of Rocks Road	Illustrates the user experience of a local resident/worker and commuter/through traveler from a stationary viewpoint	Component 3
6	37.329365, -77.343010	View southwest from the existing Montclair at Southbend residential development northeast of a proposed Monopole structure and the proposed Sycamore Springs Station	Illustrates the user experience of a local resident from a stationary viewpoint	Component 3

7A	37.326317, -77.349461	View northwest from the existing Sycamore Springs at Southbend residential development southwest of a proposed 2-Pole Structure	Illustrates the user experience of a local resident from a stationary viewpoint	Component 3
7B	37.326317, -77.349461	View north from the existing Sycamore Springs at Southbend residential development southwest of the proposed Sycamore Springs Station	Illustrates the user experience of a local resident from a stationary viewpoint	Component 3
8	37.328058, -77.352962	View southeast from an existing linear easement of a proposed 2-Pole Structure and the proposed Sycamore Springs Station	Illustrates the user experience of a local resident from a stationary viewpoint	Component 3
9	37.323246, -77.353358	View north from a parking lot at Point of Rocks Park	Illustrates the user experience of a local resident/worker and recreationalist	Component 3

3.4.3 Visual Simulations

Visualization Tools Approach

Visual resources in both urban and rural environments are becoming increasingly important to the public. Often these impacts are perceived rather than actual. This analysis relies on visual simulations to accurately depict potential changes to the landscape due to construction and operation of the Project.

A visual simulation is a photorealistic computer representation of a proposed project based on site photography and engineered data. These types of simulations are routinely used to demonstrate before and after construction conditions, alternatives analyses, material/design comparisons, mitigation measures, and long-term maintenance and monitoring plans. Visual simulations explain visual changes to the environment within the context of a public viewshed.

Visual Simulation Methodology

Visual simulations of the KOPs along the proposed alignment were developed according to the steps and conditions described below:

- Photographic imagery: Imagery was captured using the appropriate focal length to accurately represent the proposed technology.
- Reference conditions: The following conditions/information were documented to enhance rendering accuracy:
- Date, time of day (hour/minutes): Determines color of sunlight, shadow location, and irradiance levels.
- Atmospheric conditions: Haze and light diffusion have an impact on contrast at distance and amount of ambient light.
- Lens length: Determines amount of parallax and depth of field between objects in view.

- Available reference photography: Used to accurately represent color, saturation, and contrast.

- Three-dimensional existing conditions modeling: An existing conditions 3D model of the proposed alignment was created, including terrain, vegetation, and structures. The 3D model was geo-referenced and compiled with aerial imagery and available light detection and ranging (LiDAR) data to ensure spatial accuracy. Structures, vegetation clusters, and skylines were cross-referenced with LiDAR data and reference imagery to ensure accurate representation of scale and placement within the visual simulation.

- Three-dimensional sun and atmospheric conditions: Atmospheric data were imported into the 3D model to develop a sun and atmospheric system that matches the location-specific reference data.

- Three-dimensional project development: Based on computer-aided GIS and power line systems design data provided by Dominion, a 3D model was constructed of the proposed alignment. All information was imported into the 3D existing conditions model using the same geo-reference, and the projection was validated for accuracy. Three-dimensional materials and associated specular reflectance information was applied to the 3D information.

- Visual simulation: After all information was properly located in the 3D model, a photograph that best represents the targeted resource was aligned, atmospherics checked, and materials applied. The 3D information was then rendered using highly accurate raytraced render engines. Rendered elements were separated into multiple passes including foreground and background layers to allow for precise compositing and fine-tuning using photo-editing software.

- Photo-editing software: The use of photo-editing software was necessary to achieve realistic representation of referenced 3D components within the photograph. Atmospherics, grunge, and vegetation depicted in the 3D model were fine-tuned to match the existing conditions photo. Additional imagery was cross-referenced to ensure accurate depiction camera effects like chromatic aberration, noise, and depth of field.

The following sections provide an assessment of the existing conditions and potential changes that may occur from the Project at 9 KOPs. The narratives provide a description of the various conditions that may result from the Project with visual simulations from the KOPs provided as Appendix D.

3.4.4 Visual Simulation Results

Key Observation Point 1

Existing Conditions: KOP 1 faces south from the intersection of North Enon Church Road and North White Mountain Drive. The foreground is dominated by southbound North Enon Church Road and mixed pine-hardwood forest. Existing transmission features running north-south along North Enon Road are visible from this KOP.

Simulation Conditions: The simulations illustrate the change in visual conditions at KOP 1 that would result from the installation of the White Mountain Substation associated with Component 2. Due to the density and height of existing trees west of North Enon Church Road, no Project features would be visible from this KOP.

Based on existing user activities in the area, sensitivity to visual change would be high. However, as a result of the change in landscape character that would result from the introduction of the White Mountain Station the overall impact would be minimal. This KOP shows a negligible to low impact* on scenic quality.

*This rating includes a potential for low impact, even though the simulation shows no visibility of the transmission infrastructure, as the specific KOP location is representative of the neighborhood as a whole.

From other locations in the neighborhood, the tops of the proposed structures could be visible from some vantage points.

Key Observation Point 2

Existing Conditions: KOP 2 faces southeast from the roundabout intersection of Meadowville Technology Parkway and Corporate Village Parkway. The foreground shows the roundabout and well as several trees lining the roundabout. No existing transmission features are visible from this KOP.

Simulation Conditions: The simulations illustrate the change in visual conditions at this KOP that would result from the installation of the White Mountain Substation and Meadowville Switching Station associated with Component 2 and 3. Due to the density and height of existing trees, as well as the distance from the proposed White Mountain Substation and Meadowville Switching Station, no Project features would be visible from this KOP.

Based on existing user activities in the area, sensitivity to visual change would be medium. The change in landscape character that would result from the introduction of the White Mountain Substation and Meadowville Switching Station would have an overall impact of low to none. This KOP shows a negligible impact on scenic quality.

Key Observation Point 3

Existing Conditions: KOP 3 faces southwest from a parking lot at the Rivermont Crossing Apartment development. The foreground shows the apartment parking lot. A grassy field and several apartment buildings are visible in the distance beyond the parking lot. There are multiple transmission lines and associated structures running through the grassy field. The existing transmission structures consist of 85-foot Monopoles.

Simulation conditions: The simulation illustrates the change in visual conditions at KOP 3 that would result from the installation of transmission structures associated with Component 3. At this area, the Project would replace the existing 85-foot Monopole structures with 110-foot 2-Pole structures.

Based on existing user activities in the area, sensitivity to visual change would be high. However, the change in landscape character that would result from replacement of the Monopole structures with taller, 2-Pole structures would have an overall minimal impact. This KOP shows a negligible to low impact on scenic quality.

Key Observation Point 4

Existing conditions: KOP 4 faces northwest from the parking lot in front of the fitness center at the Rivermont Crossing Apartment development. The foreground is the fitness center and associated parking lot. Several apartment buildings and associated lawns are visible beyond the fitness center. The top portion of the existing 85-foot Monopole transmission structure is visible from behind the closest apartment building.

Simulation Conditions: The simulation illustrates the change in visual conditions at this KOP that would result from the installation of transmission structures associated with Component 3. At this area, the Project would replace the existing 85-foot Monopole structure with a 110-foot 2-Pole structure.

Based on existing user activities in the area, sensitivity to visual change would be high. However, the change in landscape character that would result from replacement of the Monopole structure with a taller, 2-Pole structure would have an overall minimal impact. This KOP shows a negligible to low impact* on scenic quality.

*This rating includes a potential for low impact, even though the simulation shows minimal visibility of the transmission infrastructure, as the specific KOP location is representative of the Rivermont Crossing

Apartment development as whole. From other residences along apartment complex, the proposed structures could be more visible from some vantage points.

Key Observation Point 5

Existing conditions: KOP 5 faces west from the intersection of Enon Church Road and Point of Rocks Road. The foreground is dominated by westbound Enon Church Road. Mixed pine-hardwood forest is located north of the intersection on the other side of Enon Church Road, followed by Chester Enon Church of God to the northwest. Existing transmission lines and associated structures running east-west along Enon Church Road are visible from this KOP.

Simulation Conditions: The simulations illustrate the change in visual conditions at this KOP that would result from the installation of the proposed Sycamore Springs Station associated with Component 3. Due to the height of Chester Enon Church of God as well as density and height of the trees north of Enon Church Road, no Project features would be visible from this KOP.

Based on existing user activities in the area, sensitivity to visual change would be high. However, the change in landscape character that would result from the introduction of the Sycamore Springs Station would have an overall minimal impact. This KOP shows a negligible to low impact* on scenic quality.

*This rating includes a potential for low impact, even though the simulation shows no visibility of the transmission infrastructure, as the specific KOP location is representative of the surrounding residential area as a whole. From other residences around Enon Church Road and Points of Rocks Drive, the tops of the proposed structures could be visible from some vantage points.

Key Observation Point 6

Existing conditions: KOP 6 faces southwest from Elkington Drive just west of the residence at 14107 Elkington Drive. The foreground is dominated by the residence at 14112 Elkington Drive. To the north, an existing powerline easement is visible spanning northeast-southwest. Existing transmission lines and associated structures running northeast-southwest along the powerline easement are visible from this KOP. The existing transmission structures consist of 100-foot Monopoles.

Simulation Conditions: The simulations illustrate the change in visual condition at this KOP that would result from the installation of the proposed Sycamore Springs Station as well as transmission structures associated with Component 3. At this area, the Project would replace the existing 100-foot Monopole structures with 130-foot Monopole structures. Due to the height of the surrounding residences as well as density and height of the trees north of the powerline easement, Project features associated with the Sycamore Springs Station would not be visible from this KOP.

Based on existing user activities in the area, sensitivity to visual change would be high. However, the change in landscape character that would result from the introduction of the Sycamore Springs Station and the replacement of the Monopole structures with taller structures would have an overall minimal impact. This KOP shows a negligible to low impact* on scenic quality.

*This rating includes a potential for low impact, even though the simulation shows no visibility of the Sycamore Springs Station, as this specific KOP location is representative of the surrounding residential development as whole. From other residences along Elkington Drive, the Sycamore Springs Station structures could be visible from some vantage points.

Key Observation Point 7A

Existing Conditions: KOP 7A faces northwest from the roundabout on Sulphur Springs Terrace, just southwest of the maintained powerline easement. The foreground is dominated by the maintained powerline easement. To the southwest of the easement, the 14436 Sulfur Springs Terrace residence is

visible. To the north beyond the powerline easement, the background is dominated by mixed pine-hardwood forest. Existing transmission lines and associated structures running northwest-southeast along the powerline easement are visible from this KOP. The existing transmission structures consist of 120-foot Monopoles.

Simulation Conditions: The simulation illustrates the change in visual conditions at this KOP that would result from the installation of transmission structures associated with Component 3. At this area, the Project would replace the existing 120-foot Monopole structure with a 110-foot 2-Pole structure.
Based on existing user activities in the area, sensitivity to visual change would be high. However, the change in landscape character that would result from the replacement of the Monopole structure with shorter 2-Pole structure would have an overall minimal impact. This KOP shows a negligible to low impact on scenic quality.

Key Observation Point 7B

Existing Conditions: KOP 7B faces north from the roundabout on Sulphur Springs Terrace, just southwest of the maintained powerline easement. The foreground is dominated by the maintained powerline easement. To the north beyond the powerline easement, the background is dominated by mixed pine-hardwood forest. Existing transmission lines and associated structures running northwest-southeast along the powerline easement are visible from this KOP. The existing transmission structures consist of 120-foot Monopoles.

Simulation Conditions: The simulation illustrates the change in visual conditions at this KOP that would result from the installation of transmission structures and the Sycamore Springs Station associated with Component 3. At this area, the Project would replace the existing 120-foot Monopole structure with a 110-foot 2-Pole structure. Due to the height density and height of the trees north of the powerline easement, no Project features associated with the Sycamore Springs Station would be visible from this KOP.
Based on existing user activities in the area, sensitivity to visual change would be high. However, the change in landscape character that would result from the replacement of the Monopole structure with shorter 2-Pole structure and the introduction of the Sycamore Springs Station would have an overall minimal impact. This KOP shows a negligible to low impact* on scenic quality.

*This rating includes a potential for low impact, even though the simulation shows no visibility of the Sycamore Springs Station, as this specific KOP location is representative of the surrounding residential development as whole. From other residences along Sulphur Springs Terrace, the proposed structures could be visible from some vantage points.

Key Observation Point 8

Existing Conditions: KOP 8 faces southeast from the existing powerline easement east of Bermuda Orchard Lane, northwest of the 600 Sycamore Springs Drive residence. The foreground is dominated by the existing, maintained powerline easement. To the south of the powerline easement, several residences along Sycamore Springs Drive are visible. To the north of the powerline easement, the view is dominated by mixed pine-hardwood forest. There are multiple transmission lines and associated structures running through the easement. The existing transmission structures consist of 120-foot Monopoles.

Simulation Conditions: The simulations illustrate the change in visual conditions at KOP 8 that would result from the installation of the proposed Sycamore Springs Station as well as transmission structures associated with Component 3. At this area, the Project would replace an existing 120-foot Monopole with a 110-foot 2-Pole structure. Due to the density and height of the trees north of the powerline easement, no Project features associated with the Sycamore Springs Station would be visible from this KOP.

Based on existing user activities in the area, sensitivity to visual change would be high. However, the change in landscape character that would result from the replacement of the Monopole structure with

shorter 2-Pole structure and the introduction of the Sycamore Springs Station would have an overall minimal impact. This KOP shows a negligible to low impact* on scenic quality.

*This rating includes a potential for low impact, even though the simulation shows no visibility of the Sycamore Springs Station, as this specific KOP location is representative of the surrounding residential development as whole. From other locations in the surrounding development, the proposed structures could be visible from some vantage points.

Key Observation Point 9

Existing Conditions: KOP 9 faces north from the parking lots northeast of the baseball fields at R. Garland Dodd Park at Point of Rocks. The foreground is dominated by parking lot, followed by a football field to the northwest and a soccer field to the northeast. Beyond the athletic fields, the view is dominated by mixed-pine hardwood forest. Existing transmission lines and associated structures running east-west along Enon Church Road are visible from this KOP.

Simulation Conditions: The simulations illustrate the change in visual conditions at KOP 9 that would result from the installation of the proposed Sycamore Springs Station as well as transmission structures associated with Component 3. Due to the density and height of the trees north of Enon Church Road, no Project features would be visible from this KOP.

Based on existing user activities in the area, sensitivity to visual change would be high. However, the change in landscape character that would result from the introduction of the Sycamore Springs Station and the installation of transmission structures would have an overall minimal impact. This KOP shows a negligible to low impact* on scenic quality.

*This rating includes a potential for low impact, even though the simulation shows no visibility of the transmission infrastructure or Sycamore Springs Station, as this specific KOP location is representative of the park as a whole. From other locations in the park, portions of the proposed structures could be visible from some vantage points.

3.4.5 Impact Assessment for Visually Sensitive Resources

An assessment of impacts on VSRs along the Components is presented in Table 3.4.5. The table discusses the potential impact from each relevant Component on VSRs based on review of the representative visual simulations.

Table 3.4.5: Visually Sensitive Resource Impact Assessment

VSR Number	VSR Name	Representative KOPs	Description of Impact	Potential Impact Rating
Chesterfield County public school facilities				
1	Elizabeth Scott Elementary School	N/A	Component 3 of the proposed alignment is located approximately 0.33 miles southeast of the elementary school. The proposed alignment is separated from the elementary school by I-295 and existing mixed pine-hardwood forest. Additionally, the school is located approximately 0.92 miles northeast of the proposed Sycamore Springs Station. The proposed Sycamore Springs Station is separated from the elementary school by existing residential development and mixed pine-hardwood forest.	Low (Component 3)

2	Elizabeth Davis Middle School	N/A	Component 3 of the proposed alignment is located approximately 0.3 miles southeast of the middle school. The proposed alignment is separated from the middle school by I-295 and existing mixed pine-hardwood forest. Additionally, the school is located approximately 0.64 miles northeast of the proposed Sycamore Springs Station. The proposed Sycamore Springs Station is separated from the middle school by existing residential development and mixed pine-hardwood forest.	Low (Component 3)
3	Enon Elementary School	N/A	Component 3 of the proposed alignment is located approximately 0.67 miles northwest of the elementary school. The proposed alignment is separated from the elementary school by mixed pine-hardwood forest, E Hundred Road, and existing development.	Low (Component 3)
Private school facilities and daycares				
4	Ronald Reagan Secondary School	N/A	Component 3 of the proposed alignment is located approximately 0.61 miles southeast of the school. The proposed alignment is separated from the school by I-295, mixed pine-hardwood forest, Elizabeth Davis Middle School and Elizabeth Scott Elementary School. Additionally, the school is located approximately 0.77 miles north of the proposed Sycamore Springs Station. The proposed Sycamore Springs Station is separated from the school by existing residential development and mixed pine-hardwood forest.	Low (Component 3)
5	Rivers Learning Center	N/A	Component 3 of the proposed alignment is located approximately 0.89 miles east of the learning center. The proposed alignment is separated from the learning center by I-295, existing mixed pine-hardwood forest, and residential development. Additionally, the school is located approximately 0.72 miles northwest of the proposed Sycamore Springs Station. The proposed Sycamore Springs Station is separated from the learning center by existing residential development and mixed pine-hardwood forest.	Low (Component 3)
6	The River Preschool and Childcare Center	N/A	Component 3 of the proposed alignment is located approximately 0.94 miles northwest of the proposed preschool. The proposed alignment is separated from the preschool by existing development, mixed pine-	Low (Component 3)

			hardwood forest, and E Hundred Road.	
Houses of Worship				
7	Enon Baptist Church	N/A	Component 2 of the proposed alignment is located approximately 0.38 miles east of the church. The proposed alignment is separated from the church by Bermuda Memorial Park. Component 3 of the proposed alignment is located approximately 0.29 miles south of the church. The proposed alignment is separated from the church by mixed pine-hardwood forest.	Low (Components 2 and 3)
8	Mt. Pleasant Baptist Church	N/A	Component 2 of the proposed alignment is located approximately 0.42 miles northeast of the church. The proposed alignment is separated from the church by mixed pine-hardwood forest, and Bermuda Memorial Park. Component 3 of the proposed alignment is located immediately adjacent north of the Mt. Pleasant Baptist Church.	High (Components 2 and 3)
9	Chester Enon Church of God	5	Component 3 of the proposed alignment is located approximately 0.36 miles northwest of the church. The proposed alignment is separated from the church by existing residential development and mixed pine-hardwood forest. Additionally, the church is located approximately 0.45 miles southeast of the proposed Sycamore Springs Station. The proposed Sycamore Springs Station is separated from the church by existing residential development and mixed pine-hardwood forest.	Low (Component 3)
10	Bermuda Hundred United Methodist Church	N/A	Component 3 of the proposed alignment is located approximately 0.76 miles northwest of the church. The proposed alignment is separated from the church by existing development, mixed pine-hardwood forest, and E Hundred Road.	Low (Component 3)
11	Rivermont Presbyterian Church	N/A	Component 3 of the proposed alignment is located approximately 0.69 miles northwest of the church. The proposed alignment is separated from the church by existing development, mixed pine-hardwood forest and E Hundred Road.	Low (Component 3)

12	The River Church	N/A	Component 3 of the proposed alignment is located approximately 0.96 miles northwest of the church. The proposed alignment is separated from the church by existing development, mixed pine-hardwood forest and E Hundred Road.	Low (Component 3)
13	Rivermont Church of Christ	N/A	Component 3 of the proposed alignment is located approximately 1.13 miles northwest of the church. The proposed alignment is separated from the church by existing development, mixed pine-hardwood forest and E Hundred Road.	Low (Component 3)
Additional facilities				
14	R. Garland Dodd Park at Point of Rocks	9	Component 3 of the proposed alignment is located approximately 0.55 miles northeast of the park. The proposed alignment is separated from the park by Enon Church Road, existing residential development, and mixed pine-hardwood forest. Additionally, the park is located approximately 0.47 miles southwest of the proposed Sycamore Springs Station. The proposed Sycamore Springs Station is separated from the park by Enon Church Road, existing residential development, and mixed pine-hardwood forest.	Low (Component 3)
15	Sergeant James Engle Park	N/A	Component 3 of the proposed alignment is located approximately 1.14 miles southeast of the park. The proposed alignment is separated from the park by existing residential development and mixed pine-hardwood forest. Additionally, the park is located approximately 1.04 miles northwest of the proposed Sycamore Springs Station. The proposed Sycamore Springs Station is separated from the park by existing residential development and mixed pine-hardwood forest.	Low (Component 3)
16	Brown and Williamson Conservation Area	N/A	Component 1 of the proposed alignment is located immediately south of the conservation area. The proposed alignment is separated from the conservation easement by a small area of mixed pine-hardwood forest.	High (Component 1)

17	Historic Park of Rocks Park	N/A	Component 3 of the proposed alignment is located approximately 0.45 miles northwest of the park. The proposed alignment is separated from the park by existing residential development and mixed pine-hardwood forest. Additionally, the park is located approximately 0.50 miles southeast of the proposed Sycamore Springs Station. The proposed Sycamore Springs Station is separated from the park by existing residential development and mixed pine-hardwood forest.	Low (Component 3)
18	Elizabeth Davis Middle School Trail	N/A	Component 3 of the proposed alignment is located approximately 0.25 miles southeast of the trail. The proposed alignment is separated from the trail by existing residential development, mixed pine-hardwood forest and I-295. Additionally, the park is located approximately 0.66 miles northeast of the proposed Sycamore Springs Station. The proposed Sycamore Springs Station is separated from the park by existing residential development and mixed pine-hardwood forest.	Low (Component 3)
19	Enon Elementary School Trail	N/A	Component 3 of the proposed alignment is located approximately 0.73 miles northwest of the trail. The proposed alignment is separated from the trail by existing residential development, mixed pine-hardwood forest and I-295.	Low (Component 3)

20	Lower James River Linear Park Trail	1	Component 1 of the proposed alignment is located approximately 0.04 miles south of the trail. The proposed alignment is separated from the trail by existing mixed pine-hardwood forest. Component 2 and 3 of the proposed alignment are located approximately 0.31 miles east of the trail. The proposed alignment is separated from the trail by existing mixed pine-hardwood forest. Additionally, the trail is located approximately 0.05 miles north of the proposed Sloan Drive Switching Station. The proposed Sloan Drive Switching Station is separated from the park by existing mixed pine-hardwood forest. The trail is located approximately 0.11 miles northeast of the proposed Bermuda Hundred Switching Station. The proposed Bermuda Hundred Switching Station is separated from the park by existing residential development and mixed pine-hardwood forest. Lastly, the trail is located approximately 0.20 miles east of the proposed White Mountain Substation. The proposed White Mountain Substation is separated from the park by existing residential development and mixed pine-hardwood forest.	High (Components 1, 2, & 3)
21	Appomattox River Trail	N/A	Component 3 of the proposed alignment is located approximately 0.77 miles northeast of the trail. The proposed alignment is separated from the trail by existing residential development, mixed pine-hardwood forest, and R. Garland Dodd Park at Point of Rocks. Additionally, the trail is located approximately 0.62 miles southwest of the proposed Sycamore Springs Station. The proposed Sycamore Springs Station is separated from the park by existing residential development, mixed pine-hardwood forest, and R. Garland Dodd Park at Point of Rocks.	Low (Component 3)

22	Appomattox River Scenic River	N/A	Component 3 of the proposed alignment is located approximately 0.90 miles north of the designated scenic river. The proposed alignment is separated from the trail by existing residential development, and mixed pine-hardwood forest. Additionally, the river is located approximately 0.81 miles southeast of the proposed Sycamore Springs Station. The proposed Sycamore Springs Station is separated from the park by existing residential development and mixed pine-hardwood forest.	Low (Component 3)
23	Captain John Smith Chesapeake National Historic Trail	N/A	Component 3 of the proposed alignment is crosses this trail approximately 0.44 miles south of its intersection with I-295. The proposed alignment crosses at the location of an existing power line easement.	Low (Component 3)
24	Bermuda Memorial Park	N/A	The proposed alignment associated with Component 2 is located approximately 0.13 miles east of the church. The proposed alignment is separated from the park by a paved road and mixed pine-hardwood forest. The proposed alignment associated with Component 3 is located approximately 0.13 miles south of the church. The proposed alignment is separated from the park by mixed pine-hardwood forest.	Medium to high (Components 2 and 3)

3.4.6 Impact Assessment by Component

The impact of changes in visual conditions is a function of both the nature of the change (i.e., the presence of new Project structures and rights-of-way, where no such development currently exists) as well as the sensitivity of user groups to such changes. User group/viewer sensitivity is inherently subjective, and each user group has their own opinion of what constitutes a positive or negative change in visual conditions within the landscape. However, as discussed in Section 3.4, Visual Conditions, specific user groups have a preset interaction with visual changes to the landscape.

This analysis identifies VSRs within the vicinity of the proposed alignment, identifies corresponding user groups and their associated sensitivity to visual changes in the landscape, and provides visual simulations to demonstrate various representative views that would be experienced from selected VSRs and throughout the proposed alignment as a whole. This analysis indicates that overall visual impacts from the Project would vary from low to high depending on Component; however, the impacts would not likely be perceived as a fundamental change in landscape conditions within proposed alignment. Visibility of the proposed transmission structures associated with the three Components due to vegetative clearing at the nine KOPs evaluated above is broadly representative of views and potential Project impacts within the proposed alignment.

The number of affected VSRs, number of road crossings, and impact potential for all Components are summarized and compiled in Table 3.4.6.

Table 3.4.6: Visually Sensitive Resource Impact Results by Component

Project Component	Potentially Impacted VSRs	Description of Impact	Potential Impact Rating
Component 1	16, 20 **Total 2**	Road crossings: **Total - 0**	Low
		Trail crossings: **Total - 0**	Low
		Sensitive VSRs: -Brown and Williamson Conservation Area -Lower James River Linear Park Trail	High
		Impacted User Groups: -Local residents/workers -Recreationalists/tourists	Low to high
Component 2	7, 8, 20, 24 **Total 4**	Road crossings: **Total - 4**	Low
		Trail crossings: **Total - 0**	Low
		Sensitive VSRs: -Enon Baptist Church -Mt. Pleasant Baptist Church -Lower James River Linear Park Trail -Bermuda Memorial Park	Low to high
		Impacted User Groups: -Local residents/workers -Recreationalists/tourists	Medium to high
Component 3	1-15, 17-24 **Total 23**	Road crossings: **Total - 14**	Medium to high
		Trail crossings: **Total - 0**	Low
		Sensitive VSRs: All (excluding Brown and Williamson Conservation Area)	Low to high
		Impacted User Groups: -Local residents/workers -Recreationalists/tourists	Medium to high

3.5 Cultural Resources

Timmons conducted a Stage I Pre-Application Analysis (Stage I Analysis) of potential impacts on cultural resources for the proposed alignment in accordance with the Virginia Department of Historic Resources (VDHR) January 2008 Guidelines for Assessing Impacts of Proposed Electric Transmission Lines and Associated Facilities on Historic Resources in the Commonwealth of Virginia (VDHR 2008) (herein referred to as VDHR Guidelines). For each Component, the analysis identified and considered previously recorded resources within the following study tiers as specified in the VDHR Guidelines:

- National Historic Landmark (NHL) properties located within a 1.5-mile radius of each Component centerline;
- National Register of Historic Places (NRHP) listed properties, NHLs, battlefields, and historic landscapes within a 1-mile radius of each Component centerline;
- NRHP-potentially eligible, -eligible, and NRHP listed properties, NHLs, battlefields, and historic landscapes within a 0.5-mile radius of Component centerline; and
- All of the above qualifying architectural resources as well as archaeological sites located within the right-of-way for each Component centerline.

Many of the previously recorded cultural resource sites along and near the Components have not been assessed for NRHP eligibility and, therefore, are not included in the Pre-Application Analysis Report, according to VDHR Guidelines. Until these resources have been assessed and a determination of their eligibility has been made by VDHR, these resources should be considered as potentially eligible for listing in the NRHP. Likewise, unreported historic and archaeological resources that have not yet been reported may be affected by the proposed undertaking. Any such resources would be addressed during an intensive cultural resources survey to be conducted in a subsequent phase of cultural resource studies for the Project. Assessment of impacts found that the project extends through a heavily suburbanized area of Chesterfield County with a dense development pattern of residential, commercial, and light industrial properties with an extensive network of existing utility infrastructure. Inspection of existing conditions from the vicinity of considered historic properties found that there is not widespread visibility of the existing transmission line corridors due to the dense development patterns and existing vegetation. Where the existing transmission lines and structures are visible, visibility is generally limited to up and down cleared ROW corridors and above tree lines. The potential for visibility of the new and replacement structures associated with the project is similarly anticipated to be minimal and limited to those vantages in which existing transmission line infrastructure is already visible in conjunction with other non-historic and modern development. Because the project is not anticipated to be widely visible or introduce any substantial or cumulatively different views than already characterize the setting for the considered historic properties, it is Timmons' opinion that there will be no more than a minimal impact to any historic property within the study tiers for the Meadowville 230kV Electric Transmission Project. The Stage I Pre-Application Analysis is included in Appendix E.

3.5.1 Archaeological Sites

Crossings of archaeological sites were considered a constraint due to the potential for an electric transmission line to impact archaeological deposits in these areas (e.g., due to transmission structure placement, tree clearing, or heavy equipment usage within a site). The known archaeological sites in the right-of-way for the proposed alignment are listed and described in Table 3.5.1-1. A desktop assessment of potential impacts on the archaeological sites is provided below. A confident and complete assessment of the integrity of each site would require archaeological field investigations, which would be completed in a subsequent phase of studies for the project.

Table 3.5.1-1: Archaeological Sites in the Rights-of-Way for Each Project Component

Project Component	Site Number	Temporal Association	Site Type	NRHP Status
Component 1	44CF0204	17th Century (1600-1699)	Other	Not Evaluated
	44CF0848	Pre-Contact	Lithic scatter	Not Eligible
	44CF0849	Pre-Contact	Lithic scatter	Not Eligible
	44CF0856	Early National Period (1790-1829), Antebellum Period (1830-1860)	Wall/Fence	Not Evaluated
Component 2	44CF0596	19th Century: 2nd half (1850-1899)	Camp	Not Evaluated
Component 3	44CF0173	Reconstruction and Growth (1866-1916), World War I to World War II (1917-1945), The New Dominion (1946-1991), Post Cold War (1992-Present)	Other	Not Eligible

Site 44CF0173

Site 44CF0173 is a twentieth-century site consisting of many circular water-filled depressions with bricks, glass, metal, and ceramics in association. The site was previously determined not eligible for listing in the NRHP. Based upon recent aerial imagery, the site located within a wooded area generally bound by an

existing transmission line ROW, the I-295 corridor, and a residential subdivision. Based upon the boundaries of the site as mapped by VCRIS, the lower portion of the site 44CF0173 overlaps with the proposed alignment associated with Component 3, near one existing structure to be replaced as part of the project. It is D+A's opinion that the site is still not eligible for listing in the NRHP and will not be impacted by the project.

Site 44CF0204

Site 44CF0204 is a seventeenth century site, consisting of artifacts and landscape features associated with Dale's Pale. The site has not been formally evaluated for listing in the NRHP on an individual basis, however, portions of the site are included within the boundaries of the NRHP-listed Dale's Pale Archaeological District. Based upon the boundaries of the site as mapped in VCRIS, a portion of site 44CF0204 is crossed by the proposed alignment associated with Component 1, which entails construction of a new transmission line with one proposed structure location directly within the site boundary. Because the site has not been formally evaluated and the portion crossed by the project has not been subject to formal survey and could be impacted by clearing and construction associated with the project, it is D+A's opinion that the limits of the site within the project ROW be subject to further investigation as project details become finalized.

Site 44CF0596

Site 44CF0596 is a nineteenth century site, consisting of brick fragments, whiteware shards, a Confederacy infantry button, and possible pocketknife. The site has not been formally evaluated for listing in the NRHP. Based upon recent aerial photography, the site is located along the edge of the pond, bordered by woodland. Based upon the boundaries of the site as mapped in VCRIS, the northern portion of the site 44CF0596 is crossed by the proposed alignment associated with Components 2 and 3, which consists of the construction of new transmission line with one proposed structure location directly within the site boundary. Because the site has not been formally evaluated and the site could be further impacted by clearing and construction associated with the project, it is D+A's opinion that the limits of the site within the project ROW be subject to further investigation as project details become finalized.

Site 44CF0848

Site 44CF0848 is a prehistoric lithic scatter. The site was previously determined not eligible for listing in the NRHP. Based upon recent aerial photography, the large site is located within an undeveloped wooded area. Based upon the boundaries of the site as mapped in VCRIS, the northern portion of the site overlaps with the proposed alignment associated with Component 3, which consists of the construction of new transmission line although the nearest proposed structure is located roughly 130 feet to the west. It is D+A's opinion that the site will not be impacted by the project.

Site 44CF0849

Site 44CF0849 is a prehistoric lithic scatter. The site was previously determined not eligible for listing in the NRHP. Based upon recent aerial photography, the large site is located within an undeveloped wooded area. Based upon the boundaries of the site as mapped in VCRIS, the site is located just to the north of the proposed alignment associated with Component 3, which consists of the construction of new transmission line, although the nearest proposed structure is located roughly 280 feet to the west. It is D+A's opinion that the site will not be impacted by the project.

Site 44CF0856

Site 44CF0856 is an Antebellum Period site consisting of five postholes and two amorphous stains with no diagnostic material. The site has not been formally evaluated for listing in the NRHP. Based upon recent aerial photography, the site is located within an undeveloped wooded area in proximity to the map project

alignment of the seventeenth century Dale's Pale. Based upon the boundaries of the site as mapped by VCRIS, the eastern edge of site 44CF0856 is crossed by the proposed alignment associated with Component 3, which consists of the construction of new transmission line although the nearest proposed structure is located roughly 900 feet to the north. Because the site has not been formally evaluated and the portion crossed by the project could be impacted by clearing and construction associated with the project, it is D+A's opinion that the limits of the site within the project ROW be subject to further investigation as project details become finalized.

3.5.2 Historic Resources and Architectural Sites

Each Component reviewed in this study has the potential to affect historic architectural resources and/or districts. This section of the report presents information regarding known architectural resources in the vicinity of the proposed alignment using VDHR's tiered study area model. The locations of resources relevant to the proposed alignment are shown on Figure 3.5 in Appendix A.

Nine previously recorded historic architectural resources fall within the VDHR study tiers for the proposed alignment. Based on desktop analysis and visual simulations, Timmons recommends that construction and operation of the proposed alignment would result in a finding of minimal impact for three resources (020-5318, 020-5319, and 123-5025) and a finding of no impact for six resources (020-0123, 020-0506, 020-5371, 043-0307, 043-5074, and 043-5080).

The specific resources affected by the proposed alignment are described below.

Resource 020-0123 – Point of Rocks

Point of Rocks is a circa-1840 one-story dwelling built upon a sandstone foundation. The property served as an observation point during the Civil War for the Union Army and also was the site of a hospital for Union troops. Due to its architectural distinction and historical associations with events of the Civil War, Point of Rocks is listed on the NRHP and is held under a DHR preservation easement. This resource is located approximately 0.46 miles from the proposed alignment associated with Component 3. The project is not expected to introduce any change in setting or viewshed either of or from publicly accessible vantagepoints in the vicinity of the resource. Therefore, the project will result in no impact to the resource per VDHR's impact characterization scale.

Resource 020-0506 – Earthworks, Enon Park

Enon Park Earthworks are located within what is now called the R. Garland Dodd Park, operated by Chesterfield County since 1980. Historically, the property had included the former Cobbs estate, Civil War earthworks, and early twentieth century yellow ochre mining functions. In February 1979, this resource was determined to be eligible for listing in the NRHP. This resource is located approximately 0.27 miles from the proposed alignment associated with Component 3. The project is not expected to introduce any change in setting or viewshed of or from the park or any of the associated historic features including earthworks or buildings. Therefore, the project will result in no impact to the resource per VDHR's impact characterization scale.

Resource 020-5318 – Swift Creek Battlefield

The Battle of Swift Creek took place in 1864 as part of the Overland Campaign of the Civil War. The battlefield contains monuments, interpretive markers, and period structures and its current uses are agricultural, residential, and industrial in nature. Although the historic landscape and character in portions of the battlefield have been compromised by modern development, large areas of the battlefield maintain a high level of integrity. The site is significant for its associations with notable events of the Civil War and as such, it is considered potentially eligible for listing in the NRHP. A portion of the northeastern edge of the battlefield boundaries are situated within one mile of the proposed alignment associated with Component

3. The nearest structure to be replaced as part of the project is roughly 0.06 miles away and five additional structures are located within one-half mile of the battlefield limits. Because the project improvements are not anticipated to be widely visible, and where they could be seen would not be taller or more visible than existing transmission line infrastructure, the project would not introduce any change in setting or viewshed from the battlefield which is already compromised by modern development. Therefore, the project will pose no more than a minimal impact to the resource per VDHR's impact characterization scale.

Resource 020-5319 – Ware Bottom Church Battlefield

The Battle of Ware Bottom Church was the final encounter between Confederate and Union troops in the Bermuda Hundred Campaign of the Civil War. The battlefield contains interpretive markers, unearthed burials, archaeological sites, and remains of trenches/field fortifications. Its current uses are agricultural, residential, industrial, and commercial in nature. While some portions of the battlefield have been preserved as undeveloped open landscape or woods, large portions of the battlefield have been subject to heavy development that has compromised its historic character. The site is significant for its associations with notable events of the Civil War and as such, it is considered potentially eligible for listing in the NRHP. A portion of the southeastern edge of the battlefield boundaries are directly crossed by a portion of the proposed alignment associated with Component 3. A total of seven (7) existing transmission structure locations spread across a roughly 1-mile length of ROW associated with this project are located directly within the delineated boundaries of the battlefield. Because the project improvements are not anticipated to be widely visible, and where they could be seen, they would not be substantially taller or more visible than existing transmission line infrastructure, the project would not introduce any substantial change in setting or viewshed from the battlefield which is already compromised by modern development. Therefore, the project would pose no more than a minimal impact to the resource per VDHR's impact characterization scale.

Resource 020-5371 – Dale's Pale Archaeological Historic District

The Dale's Pale Archaeological District is a collection of four Chesterfield County-owned archaeological sites, constituting a vitally important area of our nation's early history. The other sites within the district include a Middle Woodland Period (500 BC – AD 200) settlement, and a late-17th- or early-18th century house with its associated dump. Taken together, the Dale's Pale Archaeological District's sites present an extraordinarily rich collection of material with the potential to provide information about defense, community organization, and subsistence in some of the earliest periods of Virginia's history and as such, has been listed in the NRHP. A portion of the proposed alignment associated with Component 1 skirts past the southern corner of the resource. No associated archaeological sites are located within the portion of the district in nearest proximity to the project, and the nearest point of Dale's Pale is located nearly 500 feet away. As such, the project is not anticipated to directly impact the archaeological district or diminish those qualities or characteristics that make the district eligible for listing the NRHP. The project is also not anticipated to directly impact any sites or associated features considered contributing to the district, however, archaeological survey of the portion of the proposed project ROW in proximity to the district is warranted to further assess potential impacts to other archaeological resources. Therefore, the project will result in no impact to the resource per VDHR's impact characterization scale.

Resource 043-0307 – New Market Heights/Chaffins Farm Battlefield

The Battle of New Markey Heights and Chaffin's Farm took place in 1864 as part of the Richmond-Petersburg Campaign. The resource contains archaeological sites, trenches, historic roadbeds, monuments, interpretive markers, and a cemetery. New Market Heights Battlefield is significant on a national level under Criterion A for the role played by Black soldiers in the fight and the subsequent recognition of their gallantry with the award of 14 Medals of Honor. It is also significant under Criterion B for its association with Major General Butler along with a few other northern military leaders. As such, the battlefield is considered potentially eligible for listing in the NRHP. A small portion of the southern limits of the battlefield boundaries are situated within one mile of the proposed alignment associated with Component 2. The nearest portion of the new transmission line to be built as part of the project is roughly

1 mile away. Because the project improvements will not be visible from any vantage points within or in the vicinity of the battlefield, the project will not introduce any change in setting or viewshed from the battlefield. Therefore, the project will result in no impact to the resource per VDHR's impact characterization scale.

Resource 043-5074 – First Deep Bottom Battlefield

The First Battle of Deep Bottom was fought in 1864 at Deep Bottom in Henrico County, Virginia, as part of the Siege of Petersburg of the American Civil War. The site is significant for its associations with notable events of the Civil War and as such, it is considered potentially eligible for listing in the NRHP. A small portion of the southern limits of the battlefield boundaries are situated within one mile of the proposed alignment associated with Component 2. The nearest portion of the new transmission line to be built as part of the project is roughly 0.32 miles away and this is limited to the northern terminus of the project. Because the project improvements will not be visible from any vantage points within or in the vicinity of the battlefield, the project will not introduce any change in setting or viewshed from the battlefield. Therefore, the project will result in no impact to the resource per VDHR's impact characterization scale.

Resource 043-5080 – Second Deep Bottom Battlefield

The Second Battle of Deep Bottom was fought in 1864 at Deep Bottom in Henrico County, Virginia, during the Richmond-Petersburg Campaign (Siege of Petersburg) of the American Civil War. The site is significant for its associations with notable events of the Civil War and as such, it is considered potentially eligible for listing in the NRHP. A small portion of the southern limits of the battlefield boundaries are situated within one mile of the proposed alignment associated with Component 2. The nearest portion of the new transmission line to be built as part of the project is roughly 0.3 mile away. Because the project improvements will not be visible from any vantage points within or in the vicinity of the battlefield, the project will not introduce any change in setting or viewshed from the battlefield. Therefore, the project will result in no impact to the resource per VDHR's impact characterization scale.

Resource 123-5025 – Petersburg Battlefield II

The Second Battle of Petersburg took place in 1864 as part of the Richmond-Petersburg Campaign of the Civil War. The core of the battlefield is located mainly to the east of Petersburg and what is now I-95, although avenues of approach extend through Chesterfield, Charles City, and Prince George Counties, as well as Colonial Heights and Hopewell. Portions of the battlefield, particularly in the northern and western parts of the battlefield and along I-295, have been subject to heavy modern development that has obscured its historic character. Some areas, however, remain relatively undeveloped and intact. Petersburg Battlefield II is significant for its associated with major events of the Civil War, specifically the Richmond-Petersburg Campaign and the sequence of events that led to the end of the Civil War. It is also associated with significant figures of the Civil War including Ulysses S. Grant and Robert E. Lee. As such, this resource is considered potentially eligible for listing in the NRHP. A small portion of the one length of the battlefield avenue of approach is directly crossed by a portion of the proposed alignment associated with Components 2 and 3. With regards to direct impacts, a portion of the battlefield avenue of approach is crossed by the project in two distinct locations, but there are no known earthworks or other landscape features associated with the battle in the vicinity of these crossings. Because the project improvements are not anticipated to be widely visible, and where they could be seen, they would not be substantially taller or more visible than existing transmission line infrastructure, the project would not introduce any substantial change in setting or viewshed from the battlefield which is already compromised by modern development. Therefore, the project will pose no more than a minimal impact to the resource per the VDHR's impact characterization scale.

3.5.3 Summary of Existing Survey Data Performed Under Section 106 or Section 110 of the National Historic Preservation Act

Some portions of the proposed alignment were previously surveyed for cultural resources. Research indicates that six prior Phase I cultural resource surveys have been conducted that overlap portions of the proposed alignment. The previous surveys relevant to the routes are identified in Table 3.5.3 and shown on Figure 3.5.3 in Appendix A.

Table 3.5.3: Cultural Resource Surveys Covering Portions of the Proposed Alignment

VDHR Survey #	Title	Author	Date
CF-277	Phase I Cultural Resources Survey of Capital One Meadowvillle Data Center Project Chesterfield County, Virginia	Circa~ Cultural Resource Management, LLC	2012
CF-267	Addendum to Phase I Archaeological Survey of the Proposed Meadowville Parkway Wetland Bridge Crossing Chesterfield County, Virginia	Circa~ Cultural Resource Management, LLC	2013
HE-072	Phase I Archaeological Survey of I-95	Soil Systems, Inc.	1982
CF-380	A Phase I Cultural Resources Survey of Approximately 8.2 Miles Associated with the Proposed Chesterfield to Hopewell 230 kV Rebuild Project in Chesterfield County, Virginia	Stantec Consulting Services Inc.	2018
CF-074	Bermuda Hundred Sanitary Sewer Extension Phase I Intensive Cultural Resources Survey	Browning & Associates LTD.	1991

3.6 Geological Constraints

The proposed alignment is located within the Southern Coastal Plain geologic province, described as a terraced landscape of topographic scarps and emergent bay and river bottoms extending from the Fall Zone to the Atlantic Ocean. The Coastal Plain province is characterized by accumulated unconsolidated alluvial and colluvial materials collected from the higher Piedmont erosion or deposited by repeated marine transgression during multiple periods.

The Coastal Plain is comprised of Precambrian to early Mesozoic bedrock. Sediments atop this layer are comprised of late Jurassic and Cretaceous clay, sand, and gravel eroded from the Appalachian Mountains, overlain by later Tertiary and Quaternary sand, silt, and clay deposited during interglacial high stands of the sea (William and Mary Department of Geology 2024; USGS 2003).

There are no active mineral operations located within 0.25 miles of the proposed alignment. As such, the proposed alignment would not impact any identified mineral resources.

3.6.1 Mineral Resources

Timmons reviewed publicly available Virginia Energy datasets (2024), USGS topographic quadrangles, and recent (2024) digital aerial photographs to identify mineral resources in the vicinity of the proposed alignment. There are no active mineral resource sites within 0.25 miles of the proposed alignment. The closest active quarry is a Vulcan Materials Company site located in Pocahontas Island approximately 4

miles south of the Project. The closest mineral occurrence is an ocher prospect located approximately 0.45 miles south of the proposed alignment (Virginia Energy 2024).

3.7 Collocation Opportunities

Timmons identified potential routing opportunities (i.e., existing linear corridor features) within the vicinity of the proposed alignment by reviewing recent digital aerial photography and data on the Company's existing transmission system. A summary of the use of routing opportunities by route is as follows:

Component 1

Component 1 (1.22 miles) will be constructed entirely within new transmission right-of-way within EDA and Developer owned lands.

Component 2

0.09 miles of new transmission line will be constructed within the existing easement for Dominion Line #2049. Components 2 and 3 will collocate in the new transmission right-of-way for 1.27 miles.

Component 3

2.07 miles of new transmission line will be constructed within the easement for Dominion's existing Line #2049. Components 2 and 3 will collocate in the newly constructed easement for 1.27 miles. Total collocation will include 0.95 miles (88% of the proposed alignment).

4. ANALYSIS OF ROUTE COMPONENTS

This section of the routing study provides an analysis of the three Components associated with the proposed Meadowville 230 kV Electric Transmission Project in Chesterfield County, Virginia. This analysis highlights the key constraints and opportunities relevant to the selection of the proposed alignment.

Route Length and Construction Footprint

The Meadowville 230 kV Electric Transmission Project consists of three distinct Components. Component 1 involves the construction of the Bermuda Hundred Switching Station west of Discovery Road and the Company's existing Line #2050. Additionally, Component 1 includes the construction of the Sloan Drive Switching Station west of the Bermuda Hundred Station. Component 2 involves the construction of the Meadowville Switching Station east of I-95 and west of Meadowville Technology Parkway. Component 2 also includes the construction of the White Mountain Substation northeast of the Meadowville Station and Meadowville Technology Parkway. Component 3 involves the construction of the Sycamore Springs Switching Station to the east of Bermuda Orchard Lane and west of Interstate 295. Notably, a portion of Component 3 runs parallel with and adjacent to Component 2. This portion runs from the Meadowville Station to the three-way electric transmission junction north of Bermuda Hundred Road.

Routing Opportunities

According to SCC Guideline #1 (existing rights-of-way should be given priority when adding additional facilities), portions of the proposed alignment parallel existing transmission line rights-of-way to the extent practicable. The entirety of the proposed alignment associated with Component 1 will be constructed on new transmission right-of-way. Approximately 0.09 miles of the transmission line associated with Component 2 will be constructed in an existing transmission easement. Components 2 and 3 will be collocated in newly acquired easements for approximately 1.27 miles. Approximately 2.07 miles of the transmission line associated with Component 3 will be constructed in an existing easement. Approximately 88 percent of the proposed route for Component 3 is collocated with an existing easement.

Land Use/Land Cover

Land use/land cover types along the proposed alignment and associated facilities (i.e., developed land, open space, forested land, NWI/Hydrology) are discussed in Section 3.1, Land Use. Component 1 primarily crosses forested land as well as small portions of land showing NWI/hydrology and open space. Component 2 also crosses forested land, along with a small portion of developed land, open space, and areas with NWI/hydrology. Component 3 crosses a mixture of developed land, open space, forested land, and areas with NWI/hydrology.

Installation of the transmission lines will not substantively alter existing land uses or cover types in developed lands and open space areas. In forested areas, installation of the transmission lines will result in a permanent change in conditions (from forested lands to open space) within the maintained right-of-way. Construction of the proposed substations and switching stations will permanently convert existing land uses (currently forested, developed, and/or open space) to developed land within the maintained facility site.

Residences

There are no residences crossed or located within 500 feet of Component 1 or 2. Component 3 crosses five distinct residential areas. Within these residential areas, there are 11 residences and associated outbuildings that are crossed by Component 3. Additionally, there are a multitude of residences and associated outbuildings within 500 feet of Component 3.

The majority of the proposed alignment is within areas of existing transportation right-of-way, utility corridors, and industrial development. Therefore, exposure of adjacent residential communities to construction activities is anticipated to be limited.

Environmental Justice

Timmons' EJ analysis found that due to the nature and location of the Project, the Meadowville 230 kV Electric Transmission Project has a low potential for adversely impacting environmental justice populations.

Wetlands and Waterbodies

As discussed in Section 3.3.1, Wetlands, permanent wetland impacts for the proposed alignment include vegetative clearing (i.e. conversion of PFO wetlands to PSS or PEM wetlands due to maintenance of the right-of-way). Forested wetlands provide a wide range of crucial functions, including peak flood flow reduction, nutrient and sediment capture, filtration of pollutants to adjacent waterbodies, and habitat diversity. PFO wetlands are of especially high value in protecting adjacent waterbodies such as the James River and Appomattox River. The results of Timmons' analysis indicate that Component 1 will cross approximately 0.5 acres of PFO wetlands. Component 2 will cross approximately 3.0 acres of wetlands, including 2.2 acres of PFO wetlands and 0.8 acres of PSS wetlands. Component 3 will affect approximately 13.5 acres of wetlands, including 7.3 acres of PFO wetlands, 1.4 acres of PSS wetlands, and 5.6 acres of PEM wetlands.

Because each Component of the Project crosses waterbodies, short-term, minor impacts on water quality could occur during construction as soils from disturbed areas may be transported by storm water into adjacent surface waters during rain events. Increased turbidity and localized sedimentation of stream bottoms may occur as a result of runoff. However, these impacts will be mitigated by the implementation of the Company's erosion-control measures, including the installation of erosion-control structures and materials. Component 1 crosses three unnamed intermittent waterbodies and a small portion of one perennial waterbody north of the westernmost intermittent waterbody. All waterbodies crossed by Component 1 are unnamed tributaries to Fishpond, which drains north to the James River. Component 2 and the northern portion of Component 3 cross two unnamed intermittent waterbodies. The northern

waterbody is an unnamed tributary to Johnson Creek, and the southern waterbody is an unnamed tributary to Shand Creek, both of which drain to the Appomattox River. In addition, a small portion of Components 2 and 3 crosses a constructed pond located north of Digital Drive and west of Meadowville Technology Parkway. Component 3 crosses one unnamed tributary, four unnamed perennial tributaries to Johnson Creek, and Johnson Creek itself. The unnamed intermittent waterbody drains to Port Walthall Channel. All five perennial waterbodies drain to the Appomattox River.

Recreation Areas

Timmons identified four recreation areas within 0.25 miles of the proposed alignment: R. Garland Dodd Park at Point of Rocks, Elizabeth Davis Middle School and Track, Lower James River Linear Park Trail, and Brown and Williamson Conservation Area. Component 1 is located immediately south of the Brown Williamson Conservation Area, a VOF easement, and the Lower James River Linear Park Trail. Component 1 is not anticipated to impact the use or function of these recreational areas. Component 2 is located to the west if the Lower James River Linear Park Trail. Component 2 is not anticipated to impact the use or function of the trail. Component 3 is located approximately 0.18 north of R. Garland Dodd Park at Point of Rocks Park and 0.19 miles east of Elizabeth Davis Middle School Trail. Component 3 is not anticipated to impact the use or function of these recreational areas.

The proposed alignment of the Project does not cross any the recreational area identified. The only potential impact any of the Components may have on recreational areas will be visual impacts as a result of project-related tree clearing.

Planned Developments

A detailed account of the visual impact analysis for the Project is found in Section 3.1.6 and 4.1.6, Planned Developments. There are six planned developments in varying stages of conceptual design, county review and approval, and construction.

Future Planned Development A is located between the existing CTX Abandoned Rail Line Facility and Component 2, south of Bermuda Hundred Road.

Future Planned Development B is located east of Component 2 and Polytec, Inc. and south of the existing Corporate Office Building.

Future Planned Development C is located immediately north of the intersection of Meadowville Technology Parkway and North Enon Church Road. Construction for this proposed development is underway.

Future Planned Development D is located immediately north of Bermuda Hundred Road and east of Component 2.

Future Development E is located immediately south of Component 2 and 3, and north of Future Planned Development C.

Future Development F is located immediately west of North Enon Church Road and east of Component 2 and the proposed White Mountain Station.

Future Development G is located immediately east of Meadowville Technology Parkway and north of the northern terminus of Component 2.

Future Planned Development – Customer A is a proposed data center located north of Bermuda Hundred Road.

Future Planned Development – Customer B is located west of Meadowville Technology Parkway.

Component 1 runs immediately north of Future Planned Development – Customer A. No conflicts with this proposed development are anticipated. Component 2 crosses or runs adjacent to seven planned future developments, but Component 2 has been strategically located to avoid potential conflicts associated with these developments. No conflicts with proposed developments are anticipated for Component 3.

Cultural Resources

The proposed alignment of the Project crosses six previously recorded archaeological sites. Most of the sites have been determined to be not eligible for listing in the NRHP or have not been formally evaluated for listing. Field investigation will be needed to evaluate the significance of the archaeological deposits at previously recorded sites and to survey for as-yet unrecorded sites.

With regard to historical architectural resources, two resources are associated with the proposed alignment for Component 1: 020-5371 (Dale's Pale Archaeological Historic District) and 123-5025 (Petersburg Battlefield II). Three resources are associated with the proposed alignment for Component 2: 043-5074 (First Deep Bottom Battlefield), 043-5080 (Second Deep Bottom Battlefield), and 123-5025 (Petersburg Battlefield II). Five resources are associated with the proposed alignment for Component 3: 020-0123 (Point of Rocks), 020-0506 (Point of Rocks Park), 020-5318 (Swift Creek Battlefield), 020-0519 (Ware Bottom Church Battlefield), and 123-5025 (Petersburg Battlefield II).

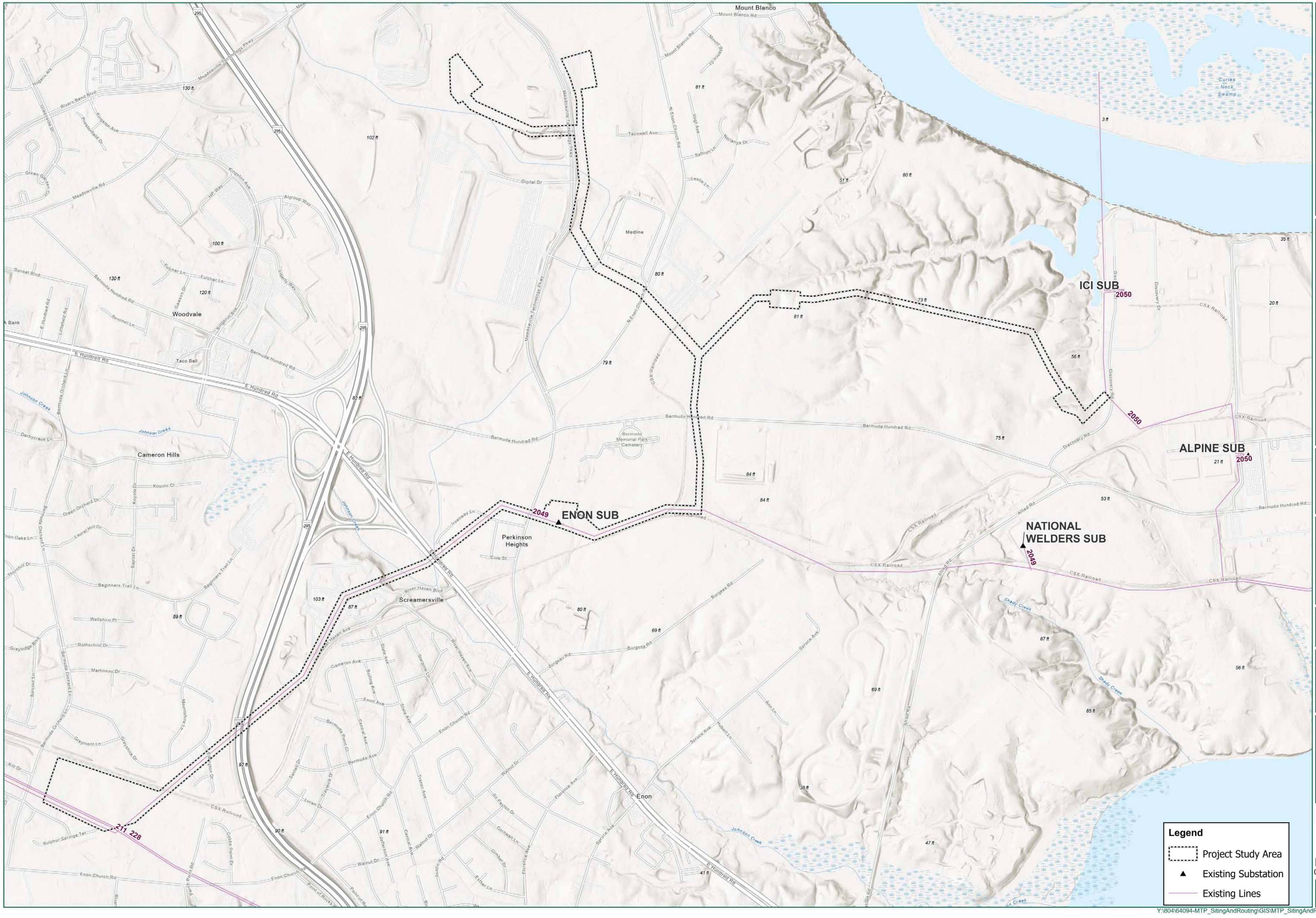
Visual Impacts

A detailed account of the visual impact analysis for the Project is found in Section 3.4, Visual Assessment. The assessment concludes that the Visually Sensitive Resources (VSRs) that are likely to have the highest impact as a result of the proposed Project are Mt. Pleasant Baptist Church, Brown and Williamson Conservation Area, Lower James River Linear Park Trail, and Bermuda Memorial Park.

5. CONCLUSIONS AND RECOMMENDATIONS

On behalf of the Company, Timmons identified and analyzed the proposed alignments of the three Components associated with the proposed Meadowville 230 kV Electric Transmission Project. Only the proposed alignment was considered feasible due to routing restrictions, opportunities to collocate, planned development, and the need to service Customers A and B while avoiding impacts to natural resources as much as practicable. Based on this analysis, the proposed Project will result in minimal adverse impacts to scenic assets, historic and cultural resources, planned developments, and environmental resources, while providing the greatest amount of collocation possible. For the reasons above, Timmons and the Company conclude that the alignment as proposed reasonably minimizes adverse impacts to the greatest extent possible. The proposed alignment represents the least impactful and most practicable route.

APPENDIX A FIGURES



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PROJECT NAME & LOCATION

MEADOWVILLE 230 KV ELECTRIC TRANSMISSION PROJECT

CHESTERFIELD COUNTY, VIRGINIA

DATE	8/1/24
PROJECT NUMBER	64094
PROJECT NAME	MEADOWVILLE
DESIGNED BY / DRAWN BY	C. CHAPPELL

NOTES:

REVISIONS

#	MM/DD/YY	DESCRIPTION

DRAWING DESCRIPTION

ATTACHMENT 1.2
STUDY AREA MAP

SCALE (FEET)

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PLANS PRINTED AS 11X17 ARE HALF SCALE

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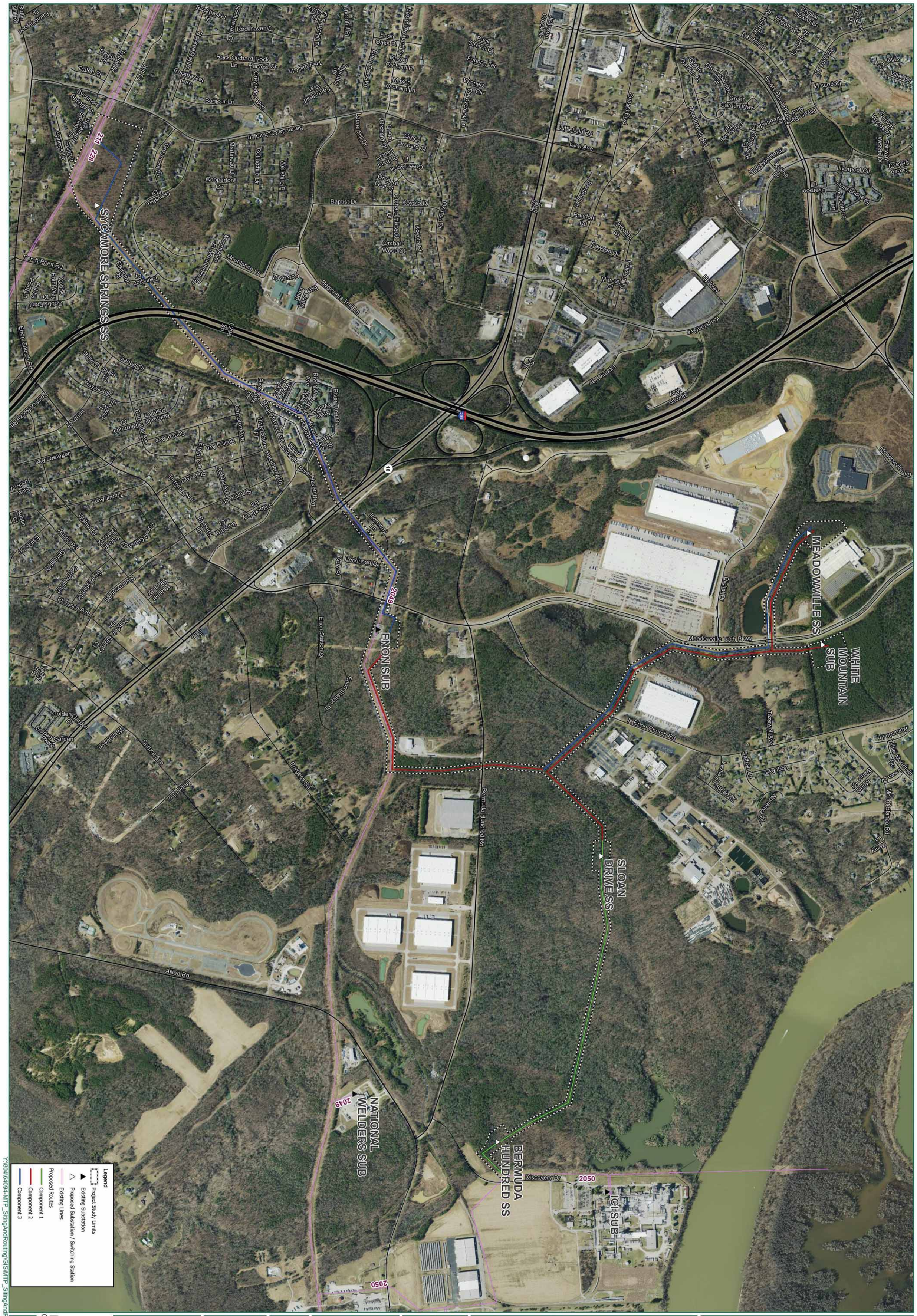

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NOTES:

REVISIONS

#	MM/DD/YY	DESCRIPTION

DRAWING DESCRIPTION
ATTACHMENT 2.3-1
AERIAL OVERVIEW

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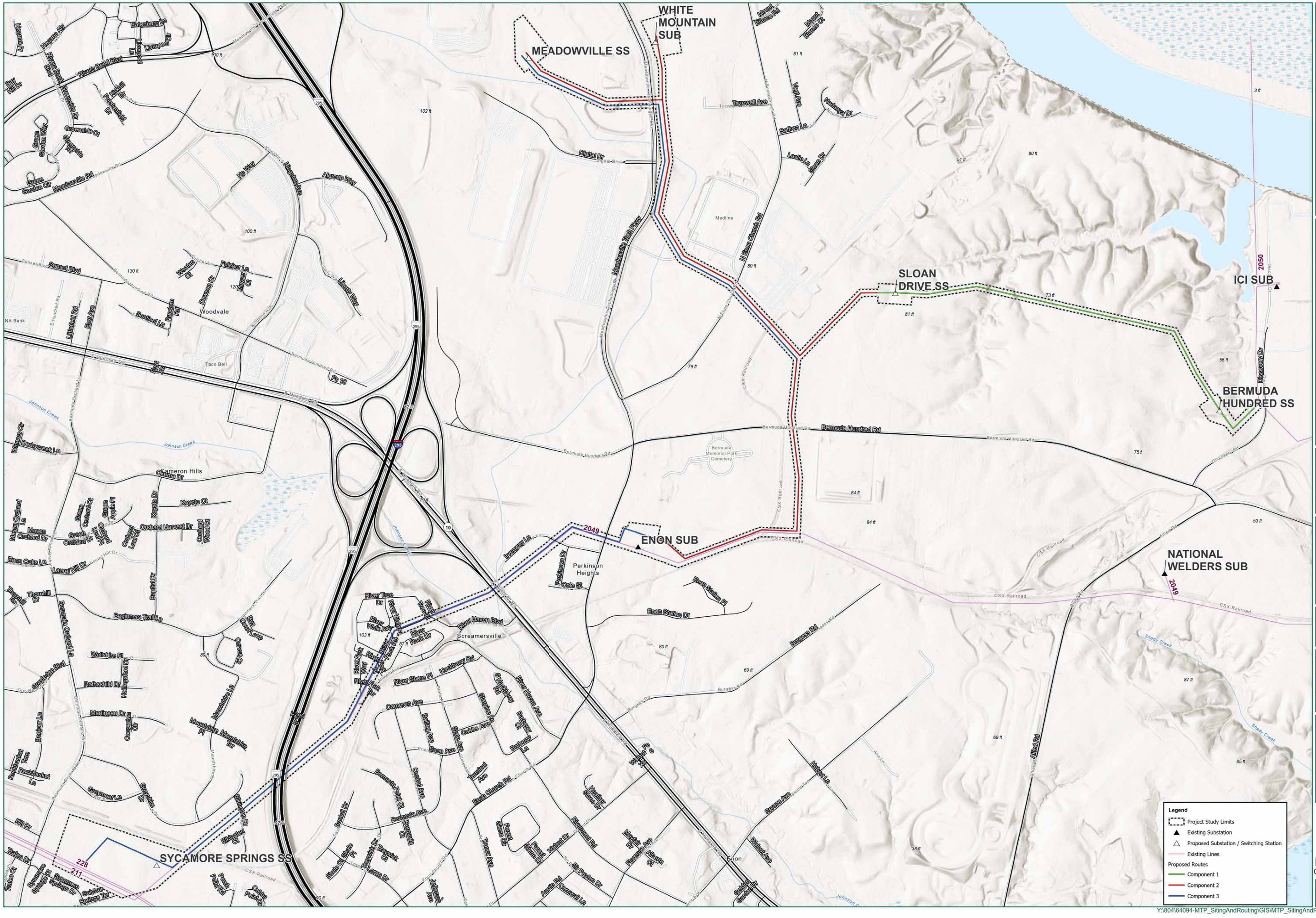

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REVISIONS

#	MM/DD/YY	DESCRIPTION

DRAWING DESCRIPTION

ATTACHMENT 2.3-2
TOPOGRAPHIC OVERVIEW

SCALE (FEET)

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WHITE MOUNTAIN SUB

MEADOWVILLE SS

SLOAN DRIVE SS

ICI SUB

2050

BERMUDA HUNDRED SS

2050

ALPINE SUB

2050

ENON SUB

2049

NATIONAL WELDERS SUB

2049

SYCAMORE SPRINGS SS

228

211

Mount Blanco

Curles Neck Swamp

Woodvale

Cameron Hills

Perkinson Heights

Screamersville

Enon

Medline

Bermuda Memorial Park Cemetery

SNA Bank

Taco Bell

CSX Railroad

Johnson Creek

Shady Creek

Legend

- Project Study Limits
- Existing Substation
- Proposed Substation / Switching Station
- Existing Lines

Proposed Routes

- Component 1
- Component 2
- Component 3
- Chesterfield Owned Properties
- Customer A Properties
- Customer B Properties

SCALE (FEET)

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PLANS PRINTED AS 11X17 ARE HALF SCALE

SCALE: H: 1"=700'

SHEET NUMBER: 1

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DESIGNED BY / DRAWN BY: C. CHAPPELL

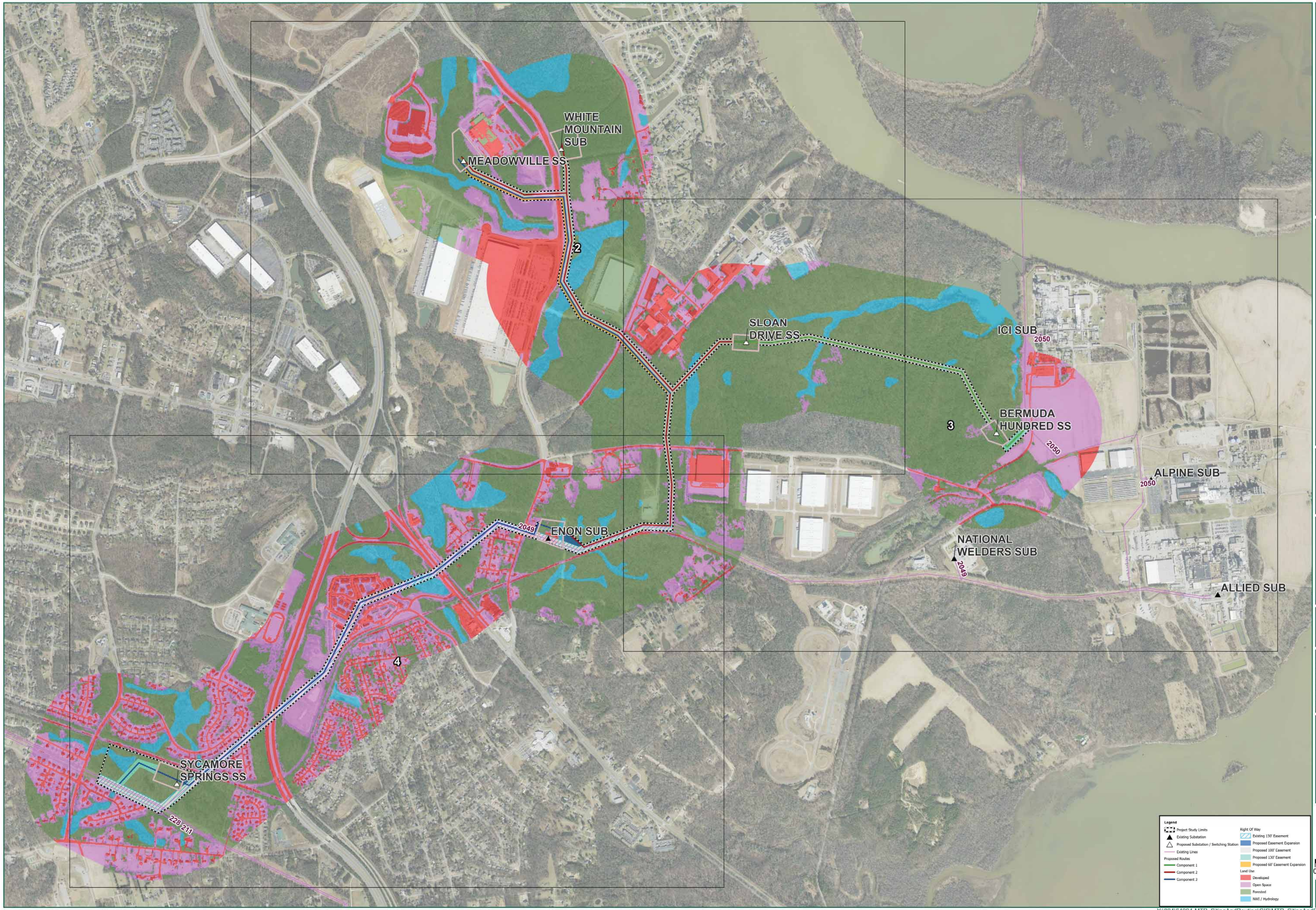
NOTES:

REVISIONS

#	MM/DD/YY	DESCRIPTION

DRAWING DESCRIPTION

ATTACHMENT 3.1.1
LAND OWNERSHIP



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CHESTERFIELD COUNTY, VIRGINIA

DATE 8/1/24

PROJECT NUMBER 64094

PROJECT NAME MEADOWVILLE

DESIGNED BY / DRAWN BY C. CHAPPELL

NOTES:

REVISIONS

#	MM/DD/YY	DESCRIPTION

DRAWING DESCRIPTION

ATTACHMENT 3.1.2
EXISTING LAND USE/ LAND COVER

SCALE (FEET)

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SCALE	SHEET NUMBER
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MEADOWVILLE SS

WHITE MOUNTAIN SUB

SLOAN DRIVE SS

Legend

- Project Study Limits
- Existing Substation
- Proposed Substation / Switching Station
- Existing Lines
- Proposed Routes
- Component 1
- Component 2
- Component 3
- Right Of Way
- Existing 130' Easement
- Proposed Easement Expansion
- Proposed 100' Easement
- Proposed 130' Easement
- Proposed 60' Easement Expansion
- Land Use
- Developed
- Open Space
- Forested
- NWI / Hydrology

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SCALE (FEET)

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SCALE: H: 1":400'

SHEET NUMBER: 2 of 4

DRAWING DESCRIPTION

ATTACHMENT 3.1.2
EXISTING LAND USE/ LAND COVER

REVISIONS

#	MM/DD/YY	DESCRIPTION

NOTES:

DATE: 8/1/24

PROJECT NUMBER: 64094

PROJECT NAME: MEADOWVILLE

DESIGNED BY / DRAWN BY: C. CHAPPELL

MEADOWVILLE 230 KV ELECTRIC TRANSMISSION PROJECT

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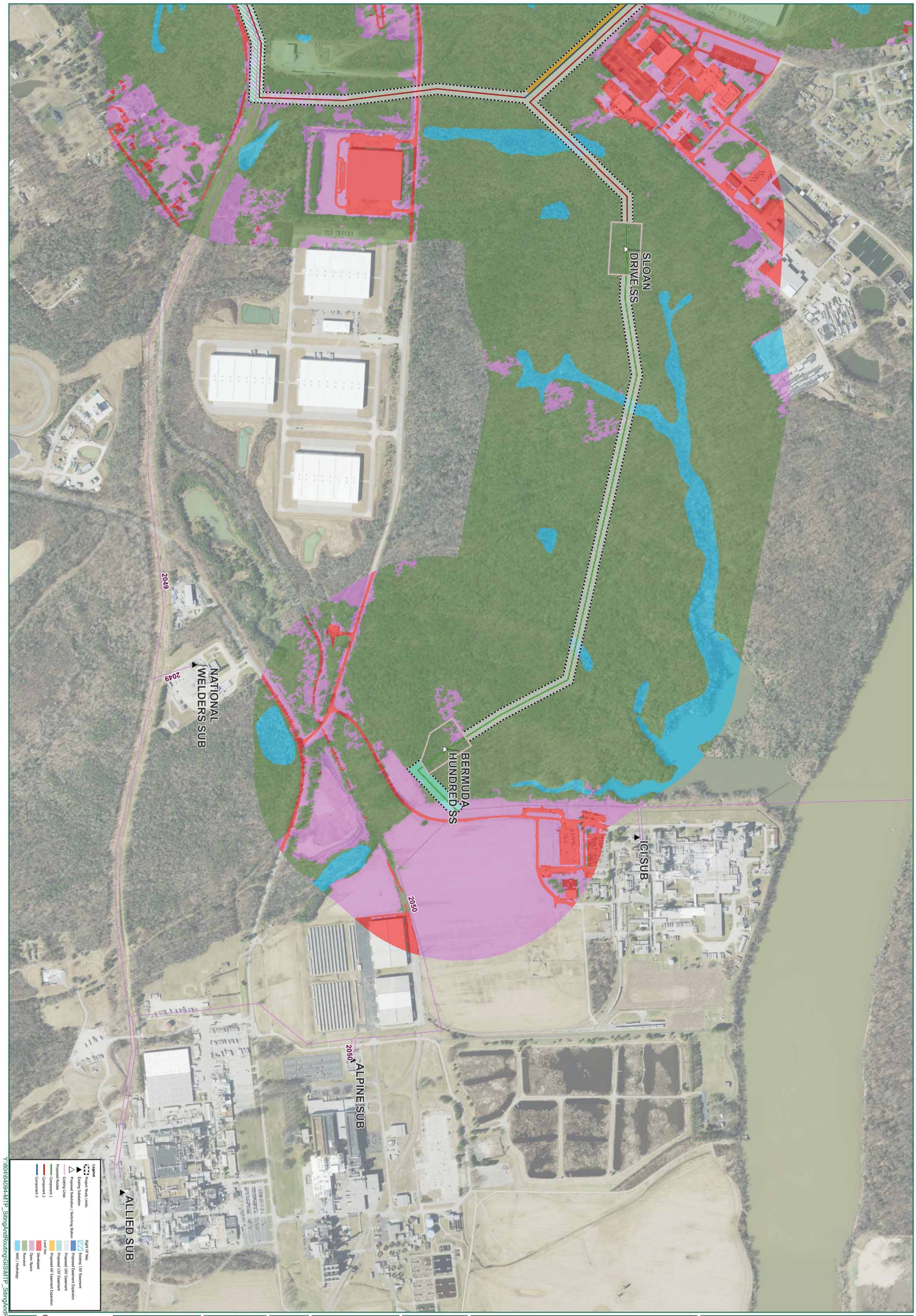

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SCALE (FEET)
0 400 800

PLANS PRINTED AS 11X17 ARE HALF SCALE
SCALE: H: 1"=400'
SHEET NUMBER: 3 of 4

DRAWING DESCRIPTION
ATTACHMENT 3.1.2
EXISTING LAND USE/ LAND COVER

#	MM/DD/YY	DESCRIPTION

REVISIONS

NOTES:

DATE: 8/1/24
PROJECT NUMBER: 64094
PROJECT NAME: MEADOWVILLE
DESIGNED BY/ DRAWN BY: C. CHAPPELL

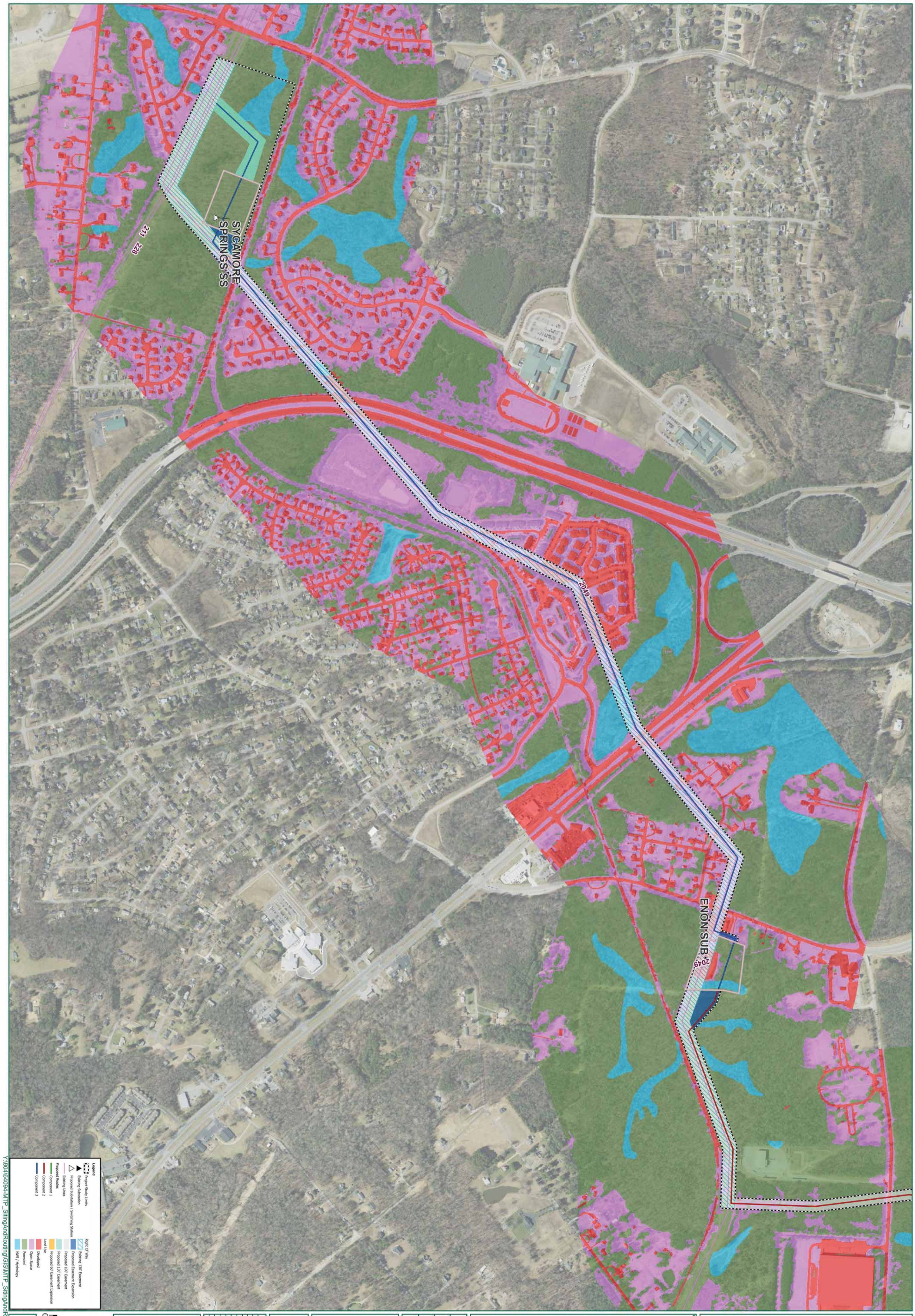
MEADOWVILLE 230 KV ELECTRIC TRANSMISSION PROJECT

CHESTERFIELD COUNTY, VIRGINIA

PROJECT NAME & LOCATION

Dominion Energy®

TIMMONS GROUP
YOUR VISION ACHIEVED THROUGH OURS.



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PROJECT NAME & LOCATION

Dominion Energy®

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MEADOWVILLE 230 KV ELECTRIC TRANSMISSION PROJECT

CHESTERFIELD COUNTY, VIRGINIA

DATE 8/1/24

PROJECT NUMBER 64094

PROJECT NAME MEADOWVILLE

DESIGNED BY DRAWN BY C. CHAPPELL

NOTES:

REVISIONS

#	MM/DD/YY	DESCRIPTION

DRAWING DESCRIPTION

ATTACHMENT 3.1.2
EXISTING LAND USE/ LAND COVER

SCALE (FEET)

0 400 800

PLANS PRINTED AS 11X17 ARE HALF SCALE

SCALE H: 1":400'

SHEET NUMBER 4 of 4

TIMMONS GROUP
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Dominion Energy®

PROJECT NAME & LOCATION

MEADOWVILLE 230 KV ELECTRIC TRANSMISSION PROJECT

CHESTERFIELD COUNTY, VIRGINIA

DATE: 8/1/24

PROJECT NUMBER: 64094

PROJECT NAME: MEADOWVILLE

DESIGNED BY / DRAWN BY: C. CHAPPELL

NOTES:

REVISIONS

#	MM/DD/YY	DESCRIPTION

DRAWING DESCRIPTION

ATTACHMENT 3.1.3 RECREATIONAL AREAS WITHIN 0.25 MILE OF PROPOSED ROUTE

SCALE (FEET)

0 800 1,600

PLANS PRINTED AS 11X17 ARE HALF SCALE

SCALE	SHEET NUMBER
H: 1":800'	1

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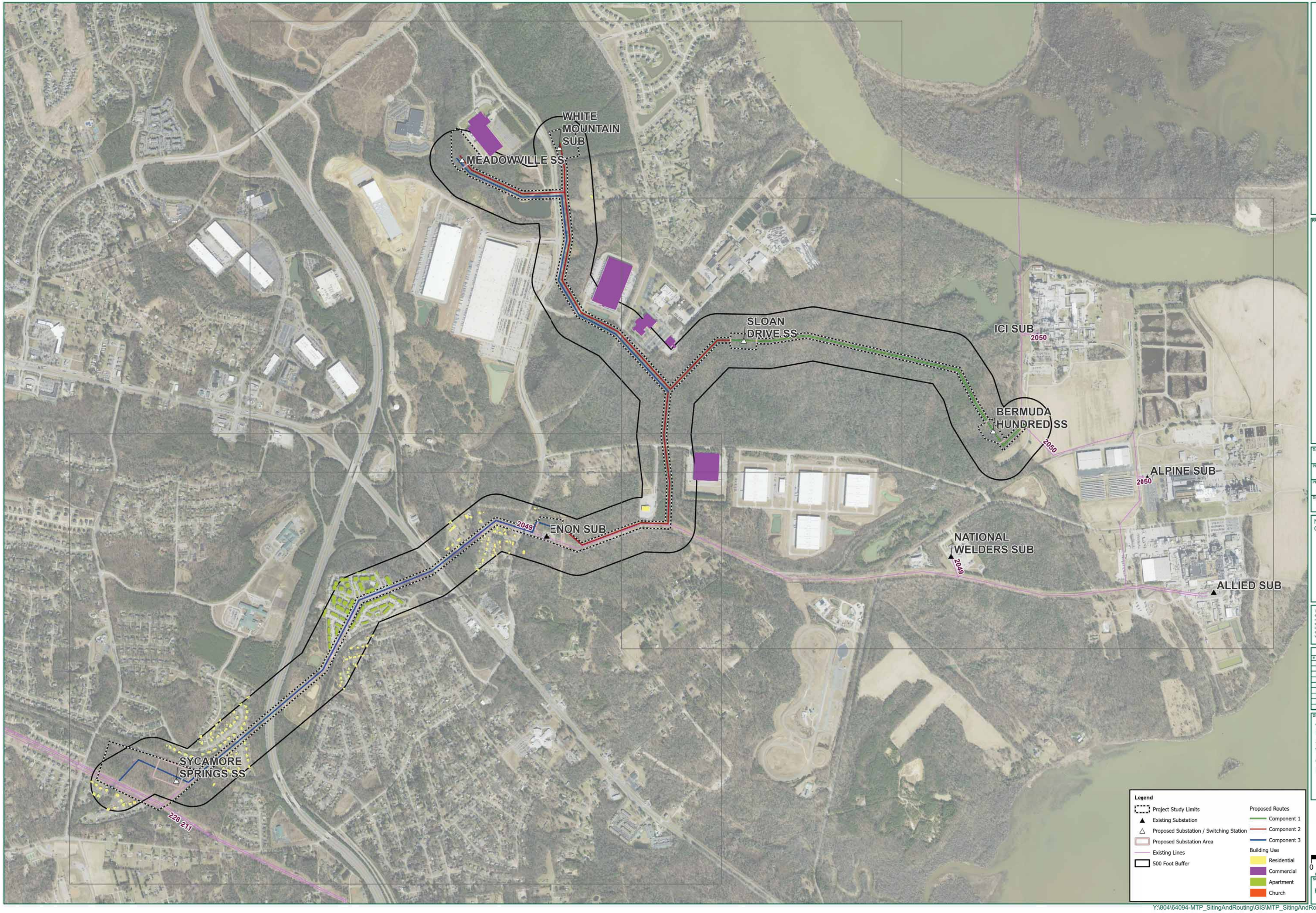

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YOUR VISION ACHIEVED THROUGH OURS.

PROJECT NAME & LOCATION

MEADOWVILLE 230 KV ELECTRIC TRANSMISSION PROJECT

CHESTERFIELD COUNTY, VIRGINIA

DATE: 8/1/24

PROJECT NUMBER: 64094

PROJECT NAME: MEADOWVILLE

DESIGNED BY / DRAWN BY: C. CHAPPELL

NOTES: Structure data from Chesterfield County GIS.

REVISIONS

#	MM/DD/YY	DESCRIPTION

DRAWING DESCRIPTION

ATTACHMENT 3.1.4
EXISTING STRUCTURES WITHIN 500 FEET OF PROPOSED ROUTE

SCALE (FEET)

0 800 1,600

PLANS PRINTED AS 11X17 ARE HALF SCALE

SCALE	SHEET NUMBER
H: 1":800'	1 of 4

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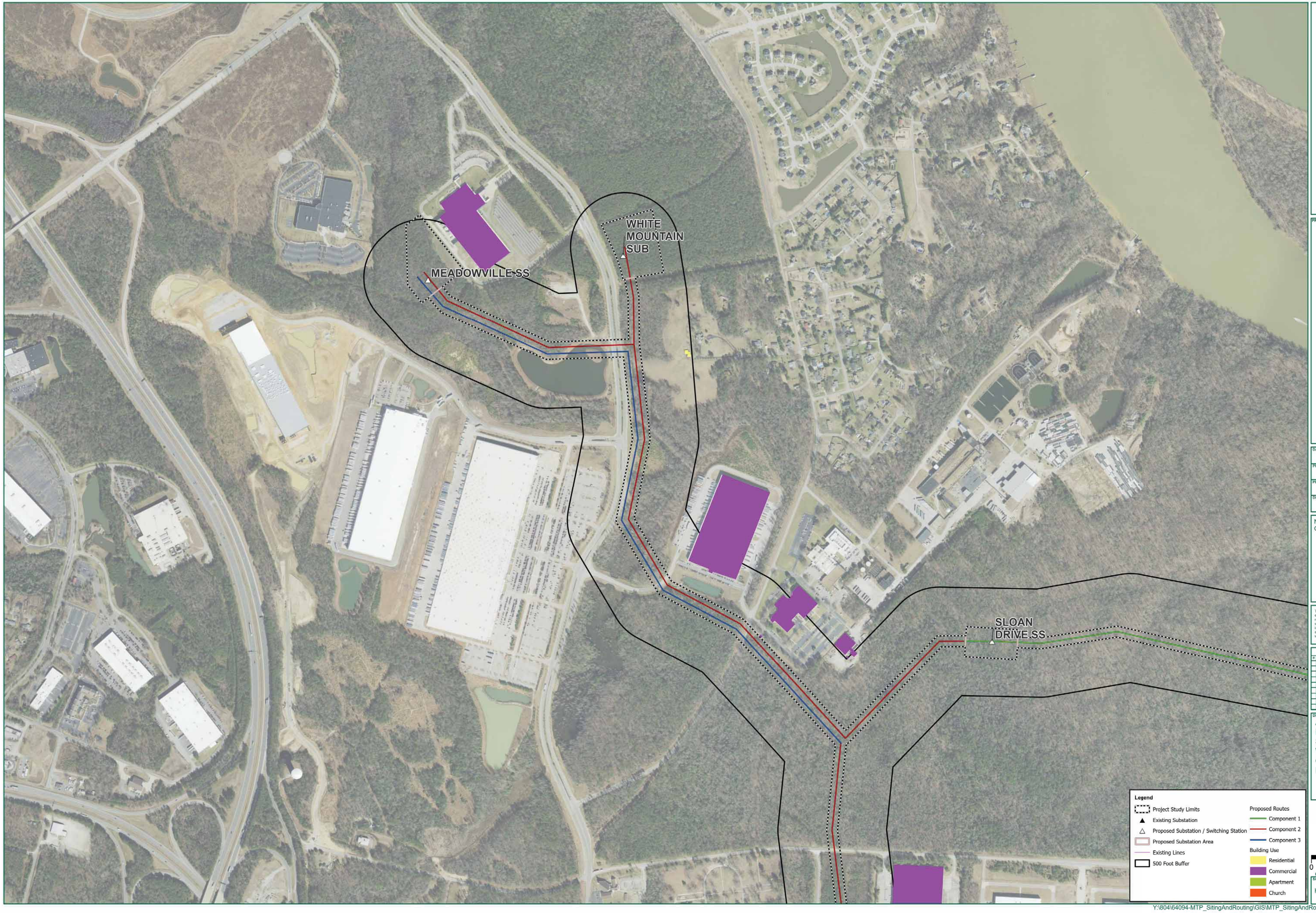

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PROJECT NAME & LOCATION

MEADOWVILLE 230 KV ELECTRIC TRANSMISSION PROJECT

CHESTERFIELD COUNTY, VIRGINIA

DATE: 8/1/24

PROJECT NUMBER: 64094

PROJECT NAME: MEADOWVILLE

DESIGNED BY / DRAWN BY: C. CHAPPELL

NOTES: Structure data from Chesterfield County GIS.

REVISIONS

#	MM/DD/YY	DESCRIPTION

DRAWING DESCRIPTION

ATTACHMENT 3.1.4 EXISTING STRUCTURES WITHIN 500 FEET OF PROPOSED ROUTE

SCALE (FEET)

0 400 800

PLANS PRINTED AS 11X17 ARE HALF SCALE

SCALE: H: 1"=400'

SHEET NUMBER: 2 of 4

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SLOAN DRIVE SS

ICI SUB

BERMUDA HUNDRED SS

2050

ALPINE SUB

2050

NATIONAL WELDERS SUB

2049

2049

ALLIED SUB

Legend

- Project Study Limits
- Existing Substation
- Proposed Substation / Switching Station
- Proposed Substation Area
- Existing Lines
- 500 Foot Buffer

Proposed Routes
- Component 1
- Component 2
- Component 3

Building Use
- Residential
- Commercial
- Apartment
- Church

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Dominion Energy®

PROJECT NAME & LOCATION

MEADOWVILLE 230 KV ELECTRIC TRANSMISSION PROJECT

CHESTERFIELD COUNTY, VIRGINIA

DATE: 8/1/24

PROJECT NUMBER: 64094

PROJECT NAME: MEADOWVILLE

DESIGNED BY / DRAWN BY: C. CHAPPELL

NOTES: Structure data from Chesterfield County GIS.

REVISIONS

#	MM/DD/YY	DESCRIPTION

DRAWING DESCRIPTION

ATTACHMENT 3.1.4 EXISTING STRUCTURES WITHIN 500 FEET OF PROPOSED ROUTE

SCALE (FEET)

0 400 800

PLANS PRINTED AS 11X17 ARE HALF SCALE

SCALE	SHEET NUMBER
H: 1":400'	3 of 4

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TIMMONS GROUP
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PROJECT NAME & LOCATION

MEADOWVILLE 230 KV ELECTRIC TRANSMISSION PROJECT

CHESTERFIELD COUNTY, VIRGINIA

DATE: 8/1/24

PROJECT NUMBER: 64094

PROJECT NAME: MEADOWVILLE

DESIGNED BY / DRAWN BY: C. CHAPPELL

NOTES: Structure data from Chesterfield County GIS.

REVISIONS

#	MM/DD/YY	DESCRIPTION

DRAWING DESCRIPTION

ATTACHMENT 3.1.4
EXISTING STRUCTURES WITHIN 500 FEET OF PROPOSED ROUTE

SCALE (FEET)

0 400 800

PLANS PRINTED AS 11X17 ARE HALF SCALE

SCALE: H: 1":400'

SHEET NUMBER: 4 of 4

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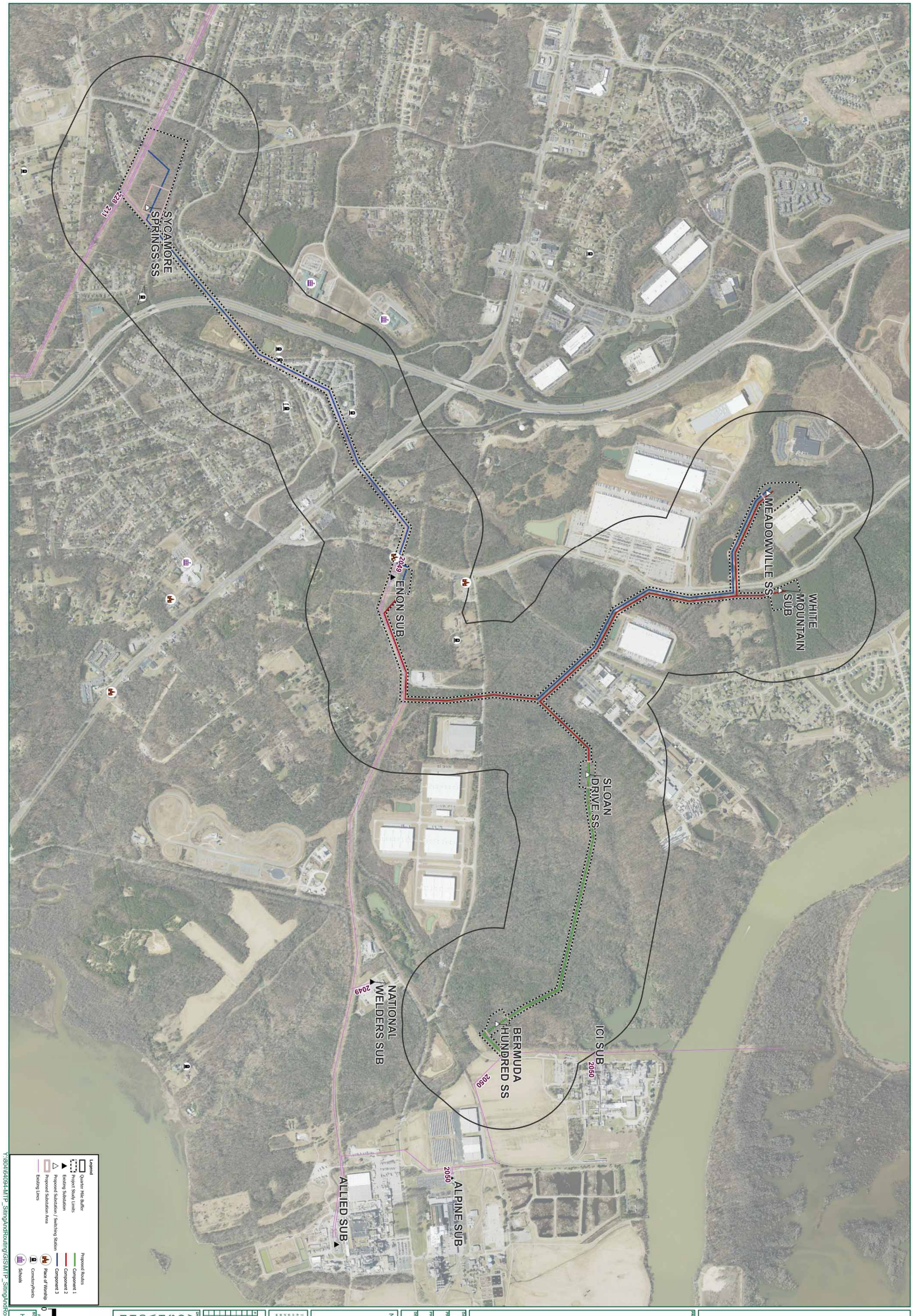

MEADOWVILLE 230 KV ELECTRIC TRANSMISSION PROJECT

CHESTERFIELD COUNTY, VIRGINIA

PROJECT NAME & LOCATION

Dominion Energy®

TIMMONS GROUP
YOUR VISION ACHIEVED THROUGH OURS.

DATE	8/1/24
PROJECT NUMBER	64094
PROJECT NAME	MEADOWVILLE
DESIGNED BY / DRAWN BY	C. CHAPPELL

NOTES:

REVISIONS

#	MM/DD/YY	DESCRIPTION

DRAWING DESCRIPTION

ATTACHMENT 3.1.5
CEMETERIES, SCHOOLS, PLACES OF WORSHIP WITHIN 0.25 MILE OF PROPOSED ROUTE

SCALE (FEET)
0 800 1,600

PLANS PRINTED AS 11X17 ARE HALF SCALE

SCALE	SHEET NUMBER
H: 1"=800'	1

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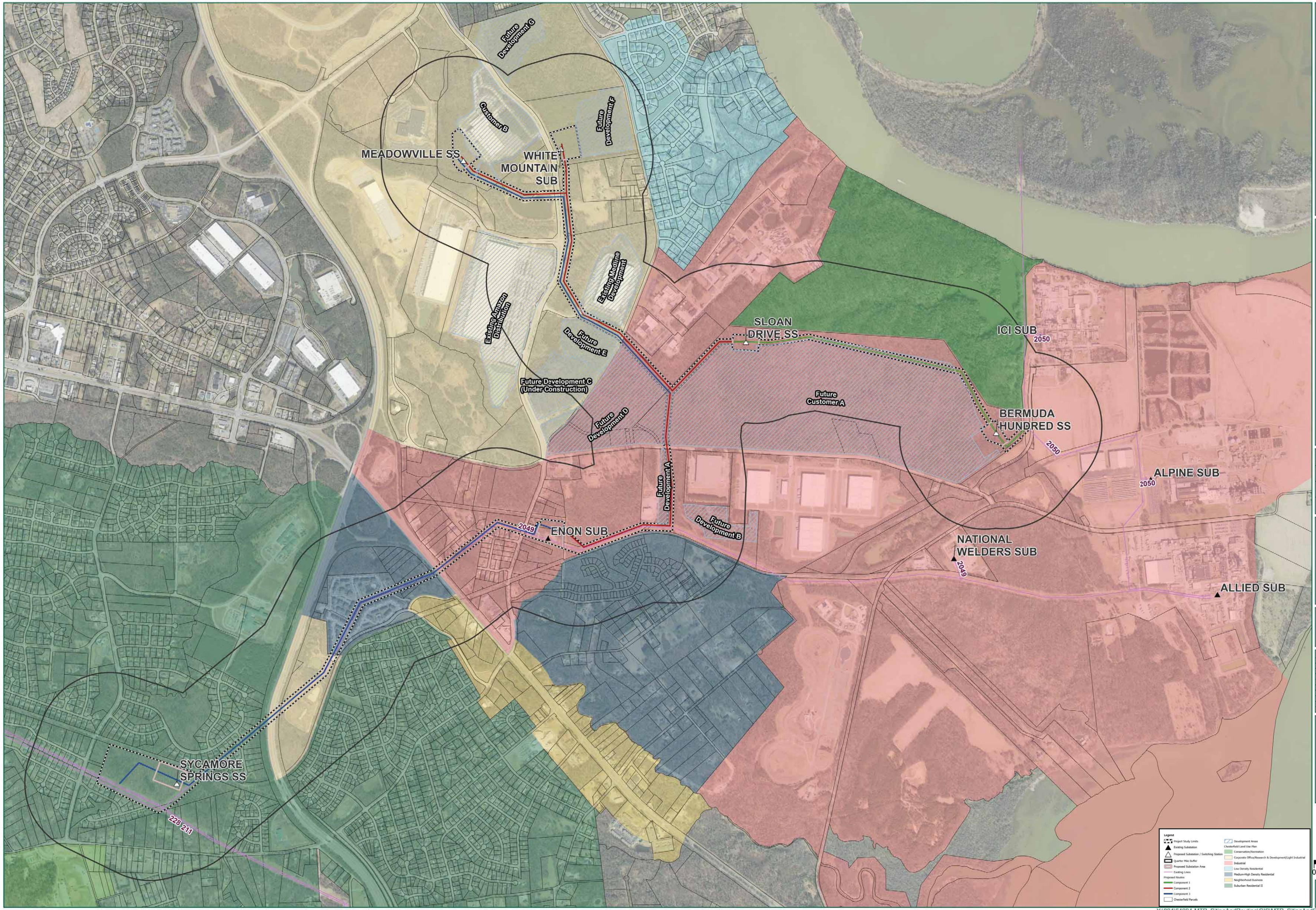

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PROJECT NAME & LOCATION

MEADOWVILLE 230 KV ELECTRIC TRANSMISSION PROJECT

CHESTERFIELD COUNTY, VIRGINIA

DATE	8/1/24
PROJECT NUMBER	64094
PROJECT NAME	MEADOWVILLE
DESIGNED BY / DRAWN BY	C. CHAPPELL

NOTES:

REVISIONS

#	MM/DD/YY	DESCRIPTION

DRAWING DESCRIPTION

ATTACHMENT 3.1.6 PLANNED DEVELOPMENTS WITHIN 0.25 MILES OF PROPOSED ROUTE

SCALE (FEET)

0 800 1,600

PLANS PRINTED AS 11X17 ARE HALF SCALE

SCALE	SHEET NUMBER
H: 1":800'	1 of 4

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MEADOWVILLE SS

WHITE MOUNTAIN SUB

SLOAN DRIVE SS

Existing Amazon Distribution

Existing Medline Development

Future Development C (Under Construction)

Future Development D

Future Development A

Future Development E

Future Development F

Future Development G

Future Customer A

Customer B

Legend

- Project Study Limits
- Existing Substation
- Proposed Substation / Switching Station
- Quarter Mile Buffer
- Proposed Substation Area
- Existing Lines
- Proposed Routes
- Component 1
- Component 2
- Component 3
- Chesterfield Parcels
- Development Areas
- Chesterfield Land Use Plan
- Conservation/Recreation
- Corporate Office/Research & Development/Light Industrial
- Industrial
- Low Density Residential
- Medium-High Density Residential
- Neighborhood Business
- Suburban Residential II

PROJECT NAME & LOCATION

Dominion Energy®

TIMMONS GROUP
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MEADOWVILLE 230 KV ELECTRIC TRANSMISSION PROJECT

CHESTERFIELD COUNTY, VIRGINIA

DATE 8/1/24

PROJECT NUMBER 64094

PROJECT NAME MEADOWVILLE

DESIGNED BY DRAWN BY C. CHAPPELL

NOTES:

REVISIONS

#	MM/DD/YY	DESCRIPTION

DRAWING DESCRIPTION

ATTACHMENT 3.1.6
PLANNED DEVELOPMENTS WITHIN 0.25 MILES OF PROPOSED ROUTE

SCALE (FEET)

0 400 800

PLANS PRINTED AS 11X17 ARE HALF SCALE

SCALE H: 1":400'

SHEET NUMBER 2 of 4

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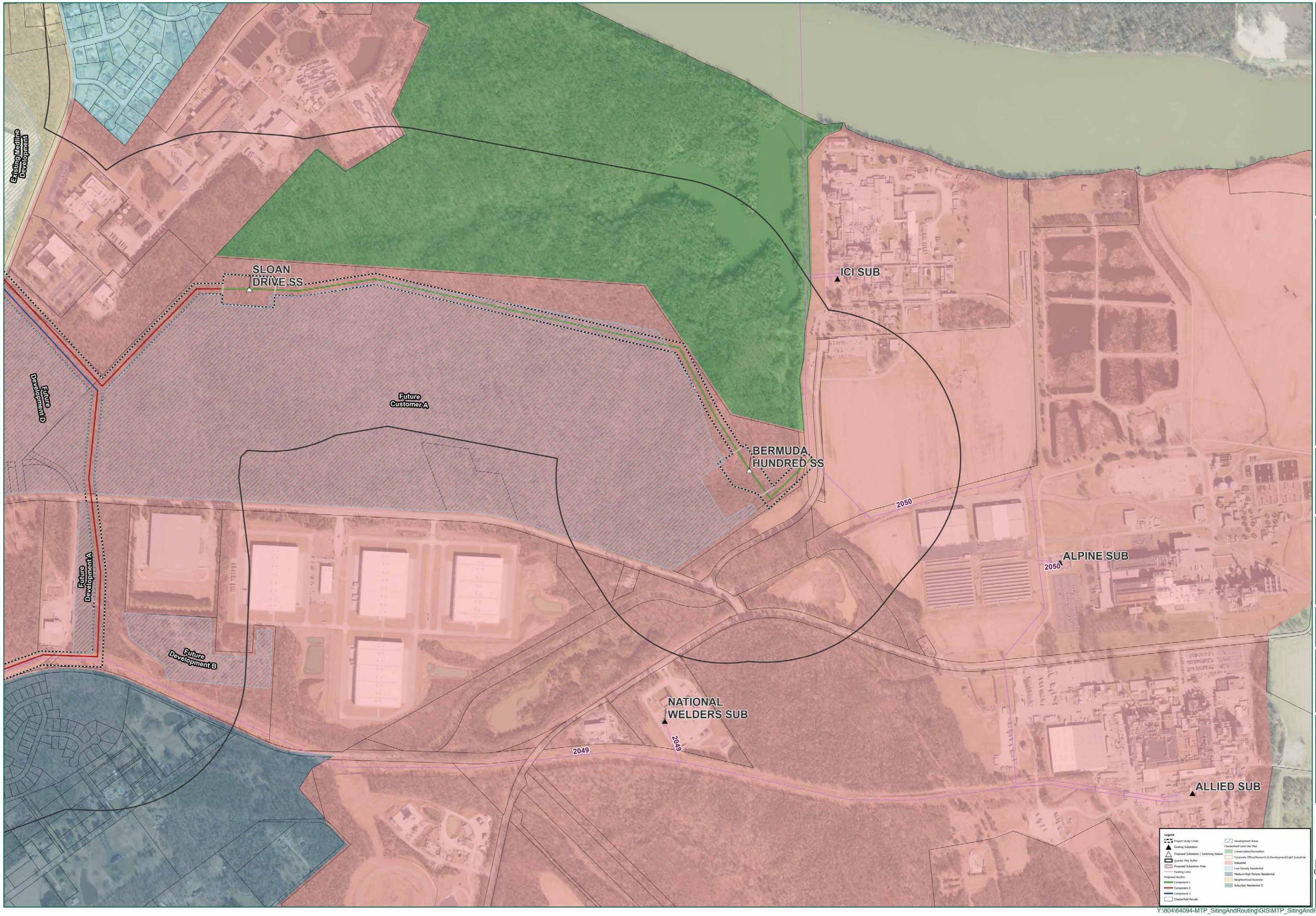

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Dominion Energy®

PROJECT NAME & LOCATION

MEADOWVILLE 230 KV ELECTRIC TRANSMISSION PROJECT

CHESTERFIELD COUNTY, VIRGINIA

DATE	8/1/24
PROJECT NUMBER	64094
PROJECT NAME	MEADOWVILLE
DESIGNED BY / DRAWN BY	C. CHAPPELL

NOTES:

REVISIONS

#	MM/DD/YY	DESCRIPTION

DRAWING DESCRIPTION

ATTACHMENT 3.1.6 PLANNED DEVELOPMENTS WITHIN 0.25 MILES OF PROPOSED ROUTE

SCALE (FEET)

0 400 800

PLANS PRINTED AS 11X17 ARE HALF SCALE

SCALE	SHEET NUMBER
H: 1":400'	3 of 4

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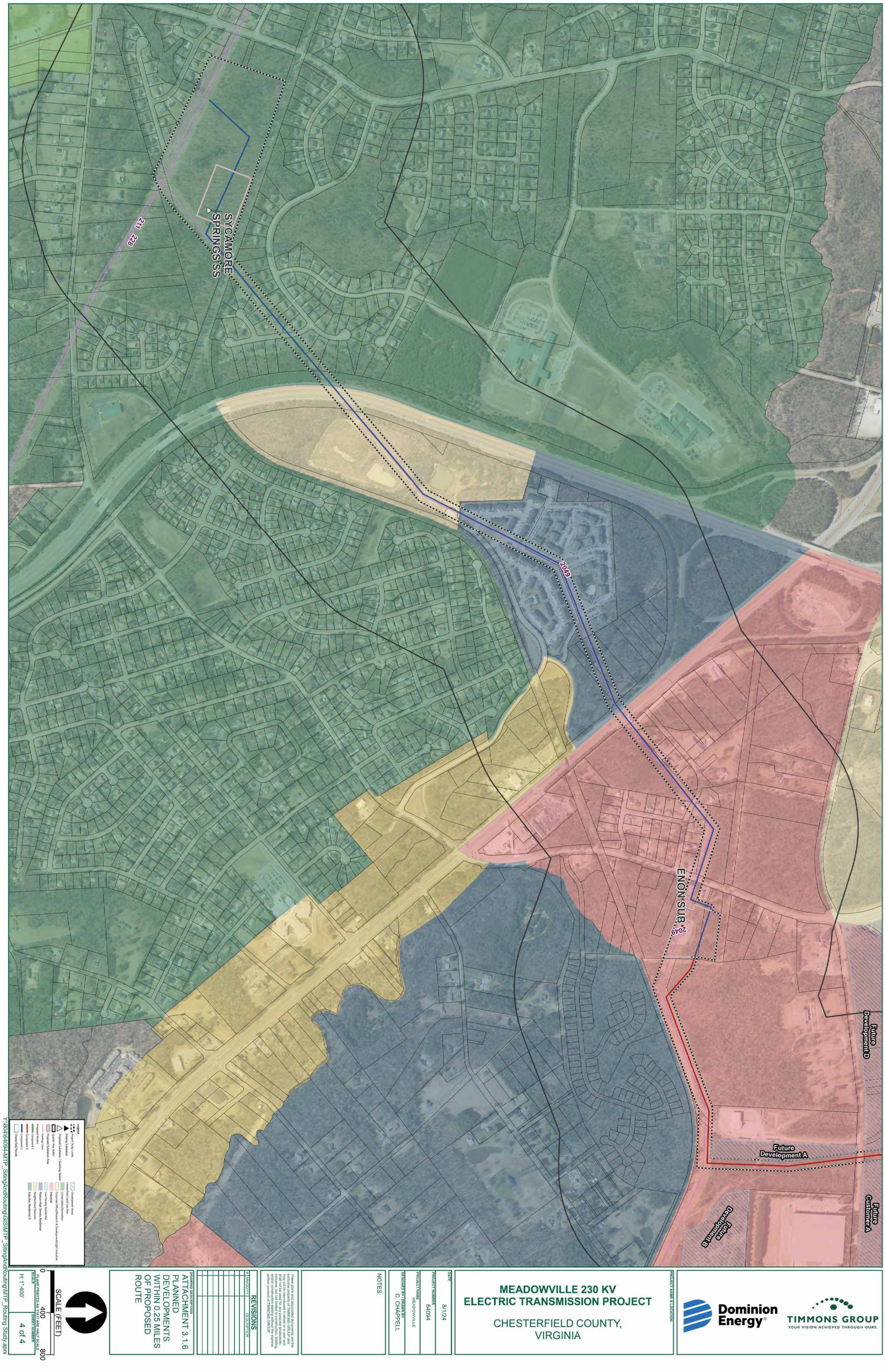

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MEADOWVILLE 230 KV ELECTRIC TRANSMISSION PROJECT

CHESTERFIELD COUNTY, VIRGINIA

Dominion Energy®

TIMMONS GROUP
YOUR VISION ACHIEVED THROUGH OURS.

PROJECT NAME & LOCATION

DATE: 8/1/24
PROJECT NUMBER: 64094
PROJECT NAME: MEADOWVILLE
DESIGNED BY: C. CHAPPELL
DRAWN BY: C. CHAPPELL

NOTES:

REVISIONS

#	MM/DD/YY	DESCRIPTION

DRAWING DESCRIPTION: ATTACHMENT 3.1.6 PLANNED DEVELOPMENTS WITHIN 0.25 MILES OF PROPOSED ROUTE

SCALE (FEET)
0 400 800

PLANS PRINTED AS 11X17 ARE HALF SCALE

SCALE: H: 1"=400'

SHEET NUMBER: 4 of 4

MEADOWVILLE 230 KV ELECTRIC TRANSMISSION PROJECT

CHESTERFIELD COUNTY, VIRGINIA

Dominion Energy®

TIMMONS GROUP
YOUR VISION ACHIEVED THROUGH OURS.

PROJECT NAME & LOCATION

DATE: 8/1/24
PROJECT NUMBER: 64094
PROJECT NAME: MEADOWVILLE
DESIGNED BY / DRAWN BY: C. CHAPPELL

NOTES:

REVISIONS

#	MM/DD/YY	DESCRIPTION

DRAWING DESCRIPTION
ATTACHMENT 3.1.8
CONSERVATION EASEMENTS AND CONSERVATION LANDS

SCALE (FEET)
0 700 1,400
PLANS PRINTED AS 11X17 ARE HALF SCALE
SCALE: H: 1"=700'
SHEET NUMBER: 1

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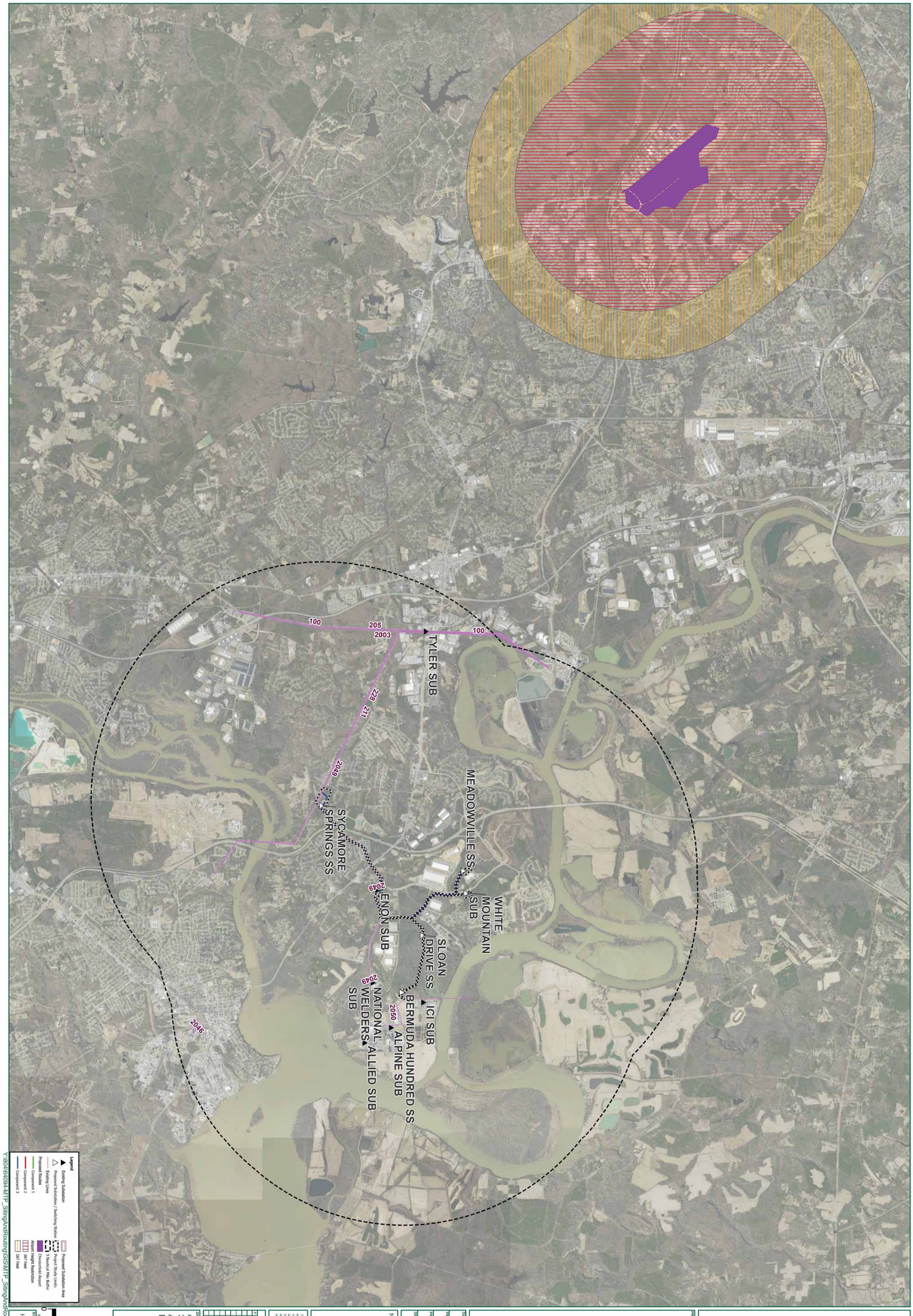

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SCALE (FEET)

0 3,500 7,000

PLANS PRINTED AS 11X17 ARE HALF SCALE

SCALE: H:1"=3,500'

SHEET NUMBER: 1

DRAWING DESCRIPTION

ATTACHMENT
3.1.10
AIRPORT
PROXIMITY MAP

REVISIONS

#	MM/DD/YY	DESCRIPTION

NOTES:

DESIGNED BY / DRAWN BY: C. CHAPPELL

PROJECT NAME: MEADOWVILLE

PROJECT NUMBER: 64094

DATE: 8/1/24

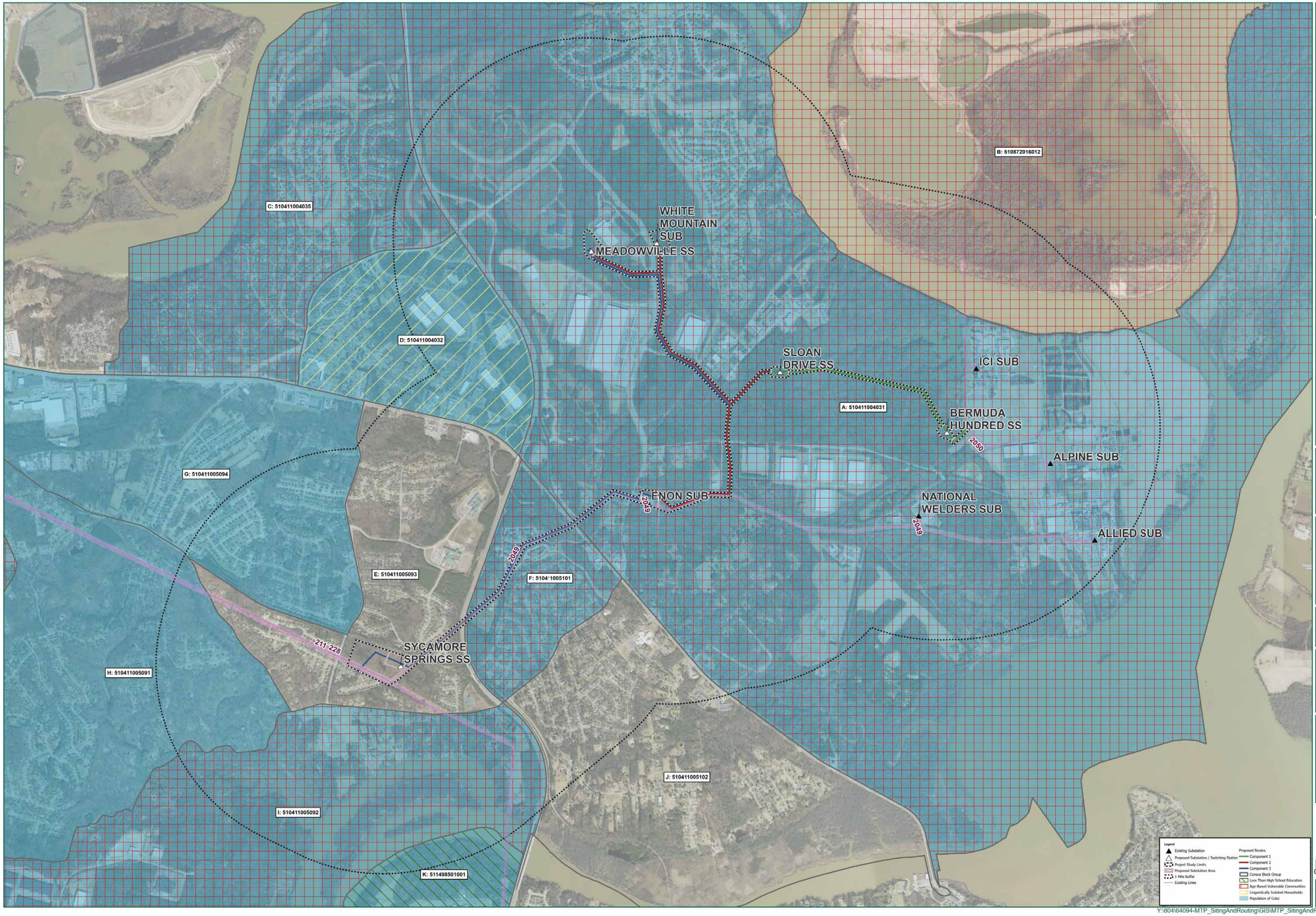
MEADOWVILLE 230 KV ELECTRIC TRANSMISSION PROJECT

CHESTERFIELD COUNTY, VIRGINIA

PROJECT NAME & LOCATION

Dominion Energy®

TIMMONS GROUP
YOUR VISION ACHIEVED THROUGH OURS.



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Dominion Energy®

PROJECT NAME & LOCATION

MEADOWVILLE 230 KV ELECTRIC TRANSMISSION PROJECT

CHESTERFIELD COUNTY, VIRGINIA

DATE	8/1/24
PROJECT NUMBER	64094
PROJECT NAME	MEADOWVILLE
DESIGNED BY / DRAWN BY	C. CHAPPELL

NOTES:

REVISIONS

#	MM/DD/YY	DESCRIPTION

DRAWING DESCRIPTION

ATTACHMENT 3.2.1
ENVIRONMENTAL JUSTICE DEMOGRAPHIC INDICATORS

SCALE (FEET)

0 1,200 2,400

PLANS PRINTED AS 11X17 ARE HALF SCALE

SCALE	SHEET NUMBER
H: 1"=1,200'	1

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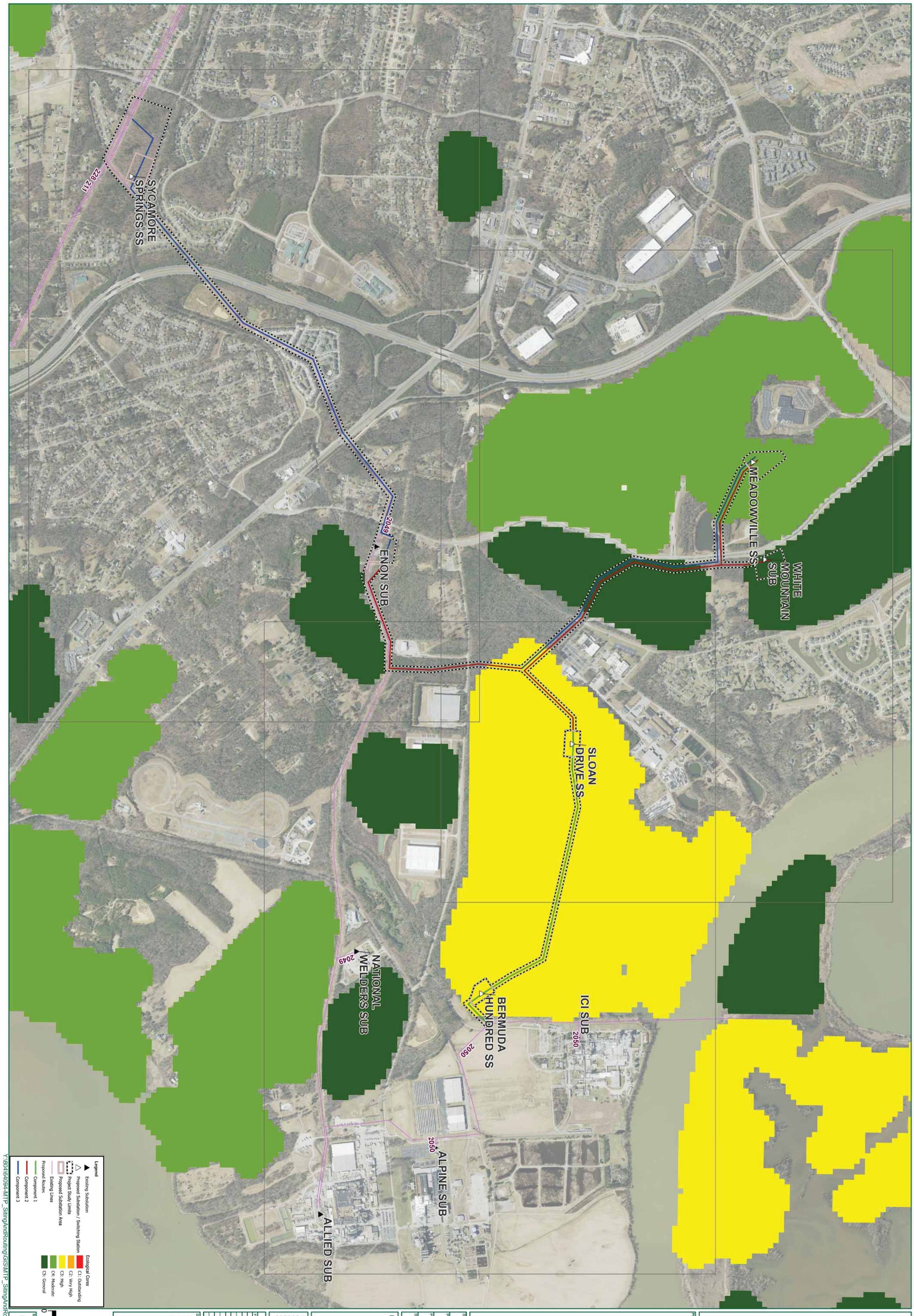

PROJECT NAME & LOCATION

Dominion Energy®

TIMMONS GROUP
YOUR VISION ACHIEVED THROUGH OURS.

MEADOWVILLE 230 KV ELECTRIC TRANSMISSION PROJECT

CHESTERFIELD COUNTY, VIRGINIA

DATE	8/1/24
PROJECT NUMBER	64094
PROJECT NAME	MEADOWVILLE
DESIGNED BY / DRAWN BY	C. CHAPPELL

NOTES:

REVISIONS

#	MM/DD/YY	DESCRIPTION

DRAWING DESCRIPTION

ATTACHMENT 3.3.4
ECOLOGICAL CORES

SCALE (FEET)

0 800 1,600

PLANS PRINTED AS 11X17 ARE HALF SCALE

SCALE: H: 1":800'

SHEET NUMBER: 1 of 4

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MEADOWVILLE 230 KV ELECTRIC TRANSMISSION PROJECT

CHESTERFIELD COUNTY, VIRGINIA

PROJECT NAME & LOCATION

Dominion Energy®

TIMMONS GROUP
YOUR VISION ACHIEVED THROUGH OURS.

DATE	8/1/24
PROJECT NUMBER	64094
PROJECT NAME	MEADOWVILLE
DESIGNED BY / DRAWN BY	C. CHAPPELL

NOTES:

REVISIONS

#	MM/DD/YY	DESCRIPTION

DRAWING DESCRIPTION

ATTACHMENT 3.3.4
ECOLOGICAL CORES

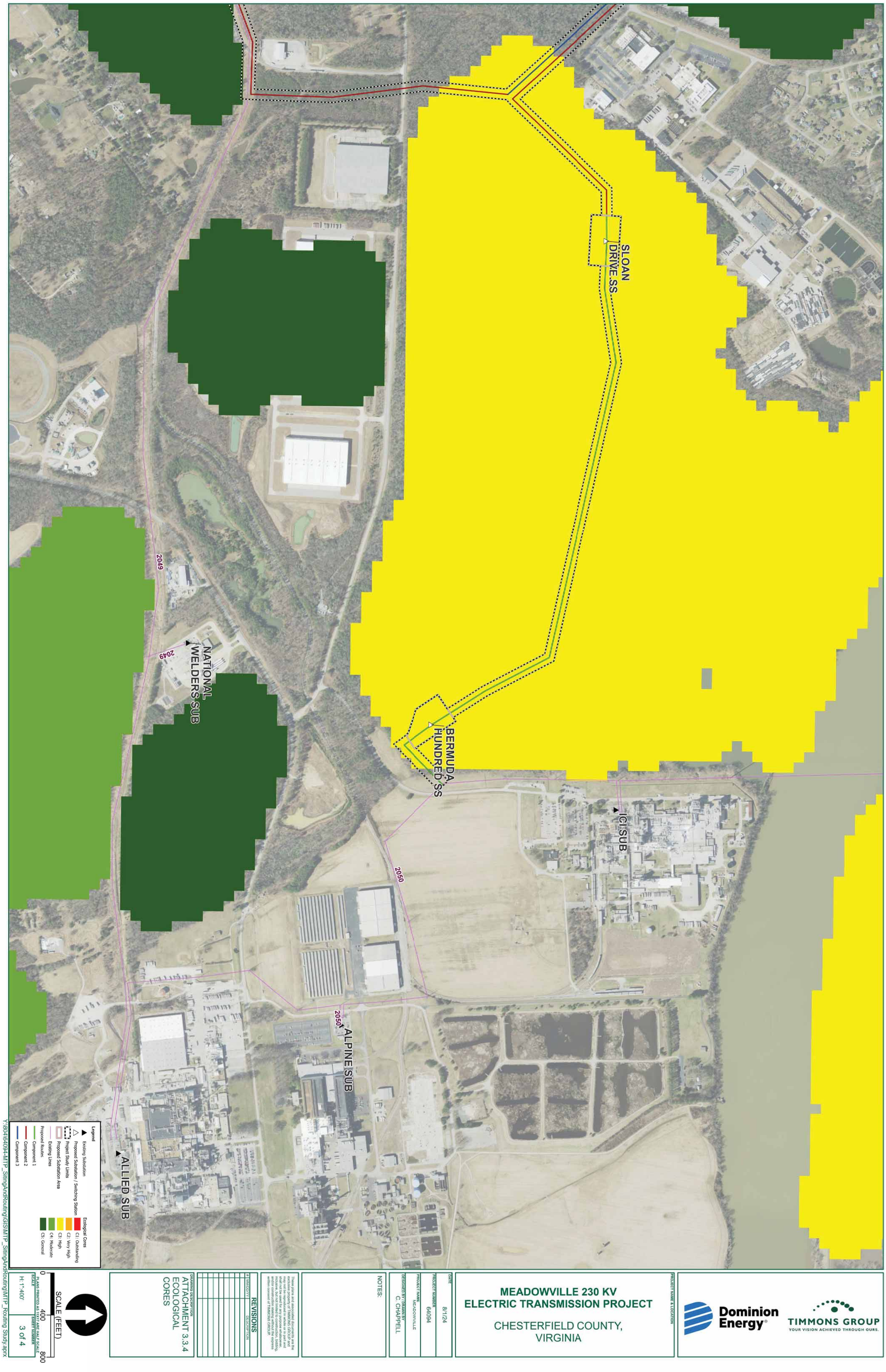
SCALE (FEET)

0 400 800

PLANS PRINTED AS 11X17 ARE HALF SCALE

SCALE: H: 1":400'

SHEET NUMBER: 2 of 4



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PROJECT NAME & LOCATION

Dominion Energy®

TIMMONS GROUP
YOUR VISION ACHIEVED THROUGH OURS.

MEADOWVILLE 230 KV ELECTRIC TRANSMISSION PROJECT

CHESTERFIELD COUNTY, VIRGINIA

DATE	8/1/24
PROJECT NUMBER	64094
PROJECT NAME	MEADOWVILLE
DESIGNED BY	C. CHAPPELL
DRAWN BY	C. CHAPPELL

NOTES:

REVISIONS

#	MM/DD/YY	DESCRIPTION

DRAWING DESCRIPTION

ATTACHMENT 3.3.4
ECOLOGICAL CORES

SCALE (FEET)

0 400 800

PLANS PRINTED AS 11X17 ARE HALF SCALE

SCALE: H: 1"=400'

SHEET NUMBER: 3 of 4

MEADOWVILLE 230 KV ELECTRIC TRANSMISSION PROJECT

CHESTERFIELD COUNTY, VIRGINIA

PROJECT NAME & LOCATION

Dominion Energy®

TIMMONS GROUP
YOUR VISION ACHIEVED THROUGH OURS.

DATE	8/1/24
PROJECT NUMBER	64094
PROJECT NAME	MEADOWVILLE
DESIGNED BY / DRAWN BY	C. CHAPPELL

NOTES:

REVISIONS

#	MM/DD/YY	DESCRIPTION

DRAWING DESCRIPTION

ATTACHMENT 3.3.4
ECOLOGICAL CORES

SCALE (FEET)

0 400 800

PLANS PRINTED AS 11X17 ARE HALF SCALE

SCALE	SHEET NUMBER
H: 1" = 400'	4 of 4

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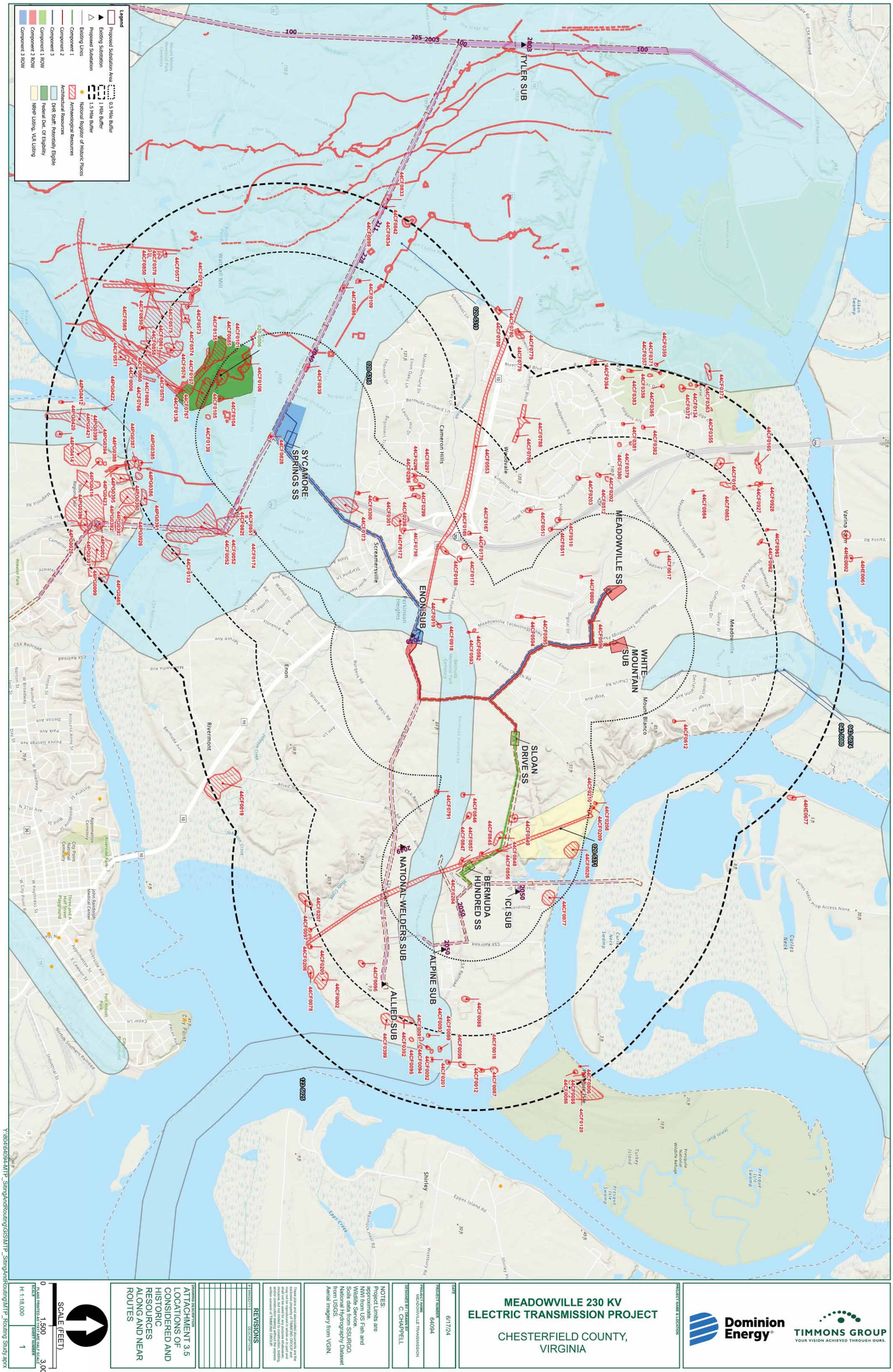

MEADOWVILLE 230 KV ELECTRIC TRANSMISSION PROJECT

CHESTERFIELD COUNTY, VIRGINIA

Dominion Energy®

TIMMONS GROUP
YOUR VISION ACHIEVED THROUGH OURS.

PROJECT NAME & LOCATION

DATE: 6/17/24

PROJECT NUMBER: 64094

PROJECT NAME: MEADOWVILLE TRANSMISSION

DESIGNED BY / DRAWN BY: C. CHAPPELL

NOTES:
Project Limits are approximate.
NWI from US Fish and Wildlife Service.
Soils data from SSURGO.
National Hydrography Dataset from USGS.
Aerial imagery from VGIN.

REVISIONS

#	MM/DD/YY	DESCRIPTION

DRAWING DESCRIPTION

ATTACHMENT 3.5
LOCATIONS OF CONSIDERED AND HISTORIC RESOURCES ALONG AND NEAR ROUTES

SCALE (FEET)
0 1,500 3,000

PLANS PRINTED AS 11X17 ARE HALF SCALE

SCALE: H:1:18,000

SHEET NUMBER: 1

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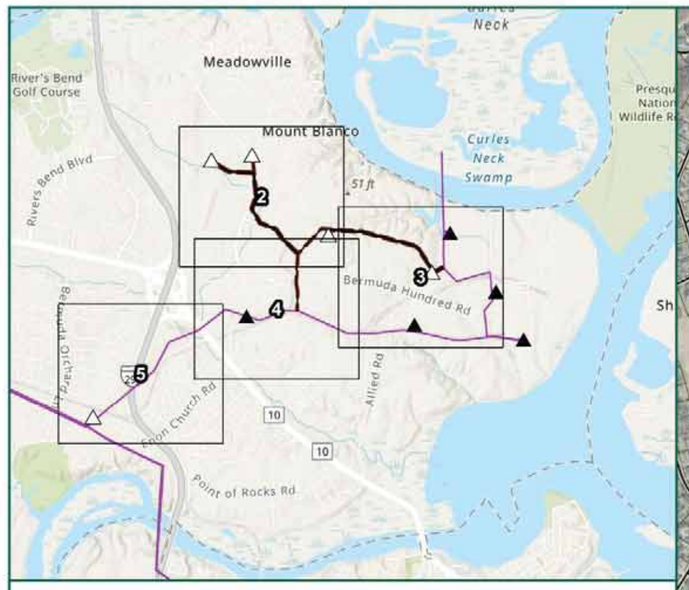


Legend

- Confirmed Delineation
- Out of Date Delineation
- Corps Confirmation Pending
- Desktop Delineation
- Component 1 ROW
- Component 2 ROW
- Component 3 ROW
- Existing Lines
- Ditch
- Culvert
- Perennial Stream (R3)
- Intermittent Stream (R4)
- Ephemeral Stream (R6)
- Desktop Wetlands
- Palustrine Emergent (PEM) Wetland
- Palustrine Forested (PFO) Wetland
- Palustrine Scrub-Shrub (PSS) Wetland
- Palustrine Open Water (POW)
- Parcels

MEADOWVILLE SS
WHITE MOUNTAIN SUB
SLOAN DRIVE SS
ICI SUB
BERMUDA HUNDRED SS
ALPINE SUB
ENON SUB
NATIONAL WELDERS SUB
ALLIED SUB
SYCAMORE SPRINGS SS
295
10

TIMMONS GROUP
YOUR VISION ACHIEVED THROUGH OURS.

Dominion Energy®

PROJECT NAME & LOCATION

MEADOWVILLE 230 KV ELECTRIC TRANSMISSION PROJECT

CHESTERFIELD COUNTY, VIRGINIA

DATE	7/11/24
PROJECT NUMBER	64094
PROJECT NAME	MEADOWVILLE
DESIGNED BY / DRAWN BY	C. CHAPPELL

1. Wetlands and waters within the project study limits have been desktop delineated by Timmons Group.
2. Wetlands and waters have not been confirmed by the U.S. Army Corps of Engineers until stamped.
3. Project limits are approximate.
4. Topography based on USGS LiDAR.

REVISIONS

#	MM/DD/YY	DESCRIPTION

DRAWING DESCRIPTION

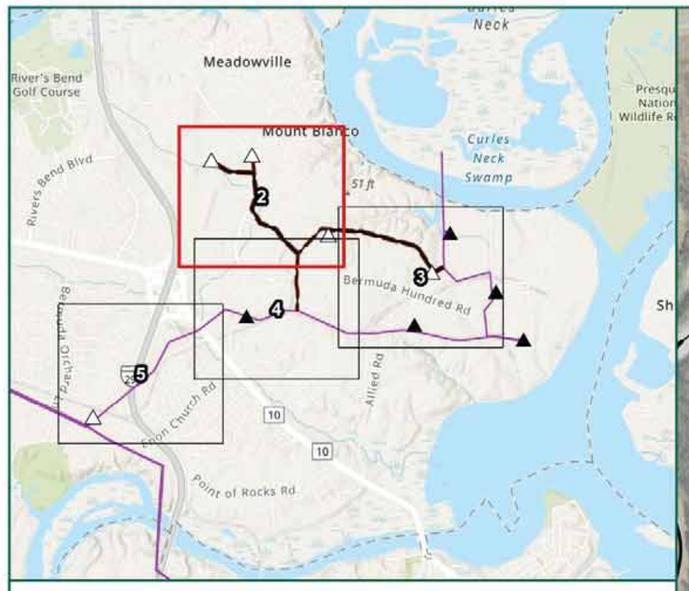
ATTACHMENT 3.3.2
WETLAND DELINEATION AND DESKTOP MAP

SCALE (FEET)

0 900 1,800

PLANS PRINTED AS 11X17 ARE HALF SCALE

SCALE	SHEET NUMBER
H: 1"=900'	1 of 5



Legend

- Confirmed Delineation
- Out of Date Delineation
- Corps Confirmation Pending
- Desktop Delineation
- Component 1 ROW
- Component 2 ROW
- Component 3 ROW
- Existing Lines
- Ditch
- Culvert
- Perennial Stream (R3)
- Intermittent Stream (R4)
- Ephemeral Stream (R6)
- Desktop Wetlands
- Palustrine Emergent (PEM) Wetland
- Palustrine Forested (PFO) Wetland
- Palustrine Scrub-Shrub (PSS) Wetland
- Palustrine Open Water (POW)
- Parcels

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Dominion Energy®

PROJECT NAME & LOCATION

MEADOWVILLE 230 KV ELECTRIC TRANSMISSION PROJECT

CHESTERFIELD COUNTY, VIRGINIA

DATE	7/11/24
PROJECT NUMBER	64094
PROJECT NAME	MEADOWVILLE
DESIGNED BY / DRAWN BY	C. CHAPPELL

1. Wetlands and waters within the project study limits have been desktop delineated by Timmons Group.
2. Wetlands and waters have not been confirmed by the U.S. Army Corps of Engineers until stamped.
3. Project limits are approximate.
4. Topography based on USGS LiDAR.

REVISIONS

#	MM/DD/YY	DESCRIPTION

DRAWING DESCRIPTION

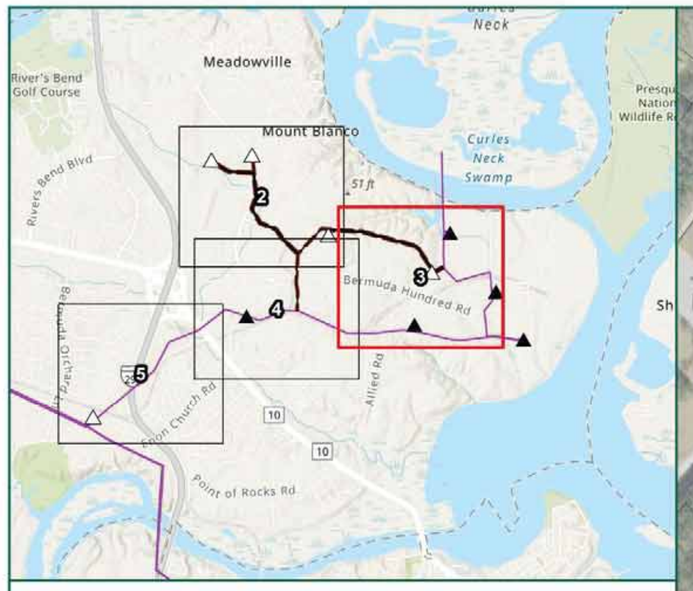
ATTACHMENT 3.3.2
WETLAND DELINEATION AND DESKTOP MAP

SCALE (FEET)

0 400 800

PLANS PRINTED AS 11X17 ARE HALF SCALE

SCALE	SHEET NUMBER
H: 1"=400'	2 of 5



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SLOAN DRIVE SS

ICI SUB

BERMUDA HUNDRED SS

ALPINE SUB

NATIONAL WELDERS SUB

ALLIED SUB

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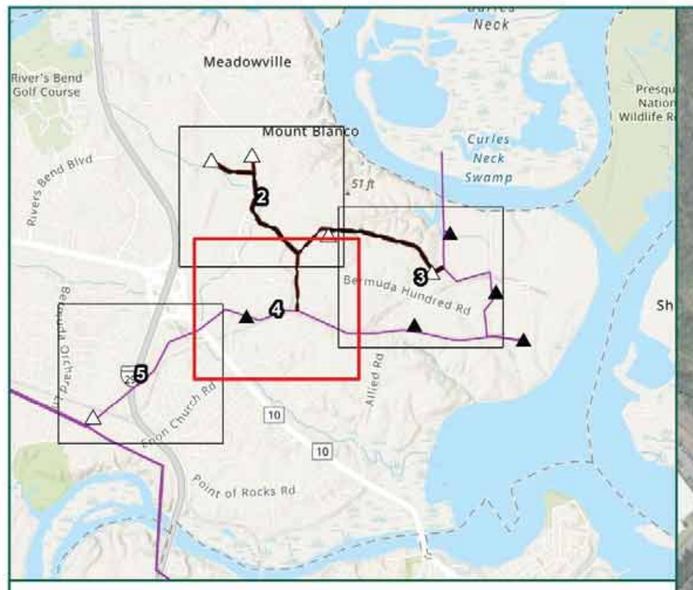
SHEET NUMBER: 3 of 5



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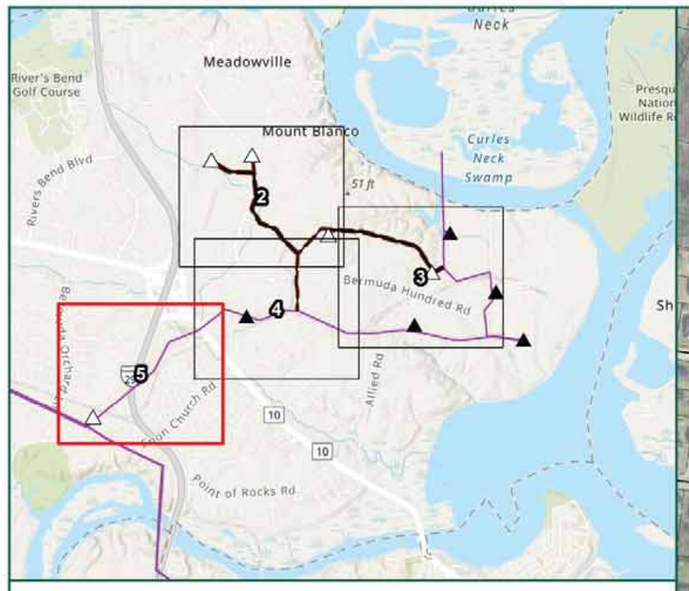

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ENON SUB

SYCAMORE SPRINGS SS

10

295

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SCALE: H: 1"=400'

SHEET NUMBER: 5 of 5

APPENDIX B ENVIRONMENTAL JUSTICE INFORMATION

State/County Census Block Group (Census Tract, Block Group)	Population	Total Population of Color (%)	White, Non-Hispanic (%)	Black or African American (%)	American Indian and Alaska Native (%)	Asian (%)	Native Hawaiin or Other Pacific Islander (%)	Some Other Race Alone (%)	Two or More Races (%)	Hispanic or Latino (%)	Low-Income Population (%)	Linguistically Isolated Population (%)	Population with Less than High School Education (%)	Population Under Age 5 (%)	Population Over Age 64 (%)	Component Nearest to CBG
510411004031 (CT 1004.03, BG 1)	1,502	39	61	27	0	0	0	0	0	12	11	0	2	8	14	1, 2
510872016012 (CT 2016.01, BG 2)	2,029	32	68	25	0	0	0	0	3	4	18	0	5	6	18	1
510411004035 (CT 1004.03, BG 5)	1,457	40	60	14	0	11	0	0	6	9	4	0	0	1	24	2, 3
510411004032 (CT 1004.03, BG 2)	1,602	57	43	27	0	0	0	0	2	28	4	5	0	3	12	2, 3
510411005093 (CT 1005.09, BG 3)	1,365	30	70	11	0	2	0	0	5	12	7	0	0	3	12	3
510411005101 (CT 1005.10, BG 1)	2,054	58	42	28	0	12	0	0	10	8	14	0	7	9	11	3
510411005094 (CT 1005.09, BG 4)	2,158	57	43	51	0	1	0	0	6	0	1	0	1	4	7	3
510411005091 (CT 1005.09, BG 1)	2,774	44	56	19	0	7	0	0	0	17	10	0	6	3	14	3
510411005092 (CT 1005.09, BG 2)	504	57	43	57	0	0	0	0	0	0	11	0	2	0	19	3
510411005102 (CT 1005.10, BG 2)	2,112	22	78	15	0	0	0	0	4	3	12	9	8	9	17	3
511498501001 (CT 8501.00, BG 1)	4,080	61	39	48	2	0	0	0	2	7	0	0	21	0	2	3

APPENDIX C WETLANDS AND WATERBODIES

DEPARTMENT OF THE ARMY
US ARMY CORPS OF ENGINEERS
NORFOLK DISTRICT
FORT NORFOLK
803 FRONT STREET
NORFOLK VA 23510-1011

June 4, 2019

PRELIMINARY JURISDICTIONAL DETERMINATION

Southern Virginia Regulatory Section
NAO-2017-0942 (James River)

Mr. Garrett Hart
Chesterfield Economic Development Authority
9401 Courthouse Road
Chesterfield, Virginia 23832

Dear Mr. Hart:

This letter is in regard to your request for a preliminary jurisdictional determination for waters of the U.S. (including wetlands) on property known as Project Peanut, located on a 61.9 acre parcels at 1800 Bermuda Hundred Road/13401 N. Enon Church Road and west of Discover Drive/north of Bermuda Hundred Road, in Chesterfield County, Virginia (tax map parcel #8256513514, 8266523702, 8336503653, 8336501279).

The map entitled "Project Peanut, Figure 4. Wetlands and Waters of the US Delineation Map", by Timmons Group dated June 3, 2019 and Corps date stamped as received June 3, 2019 (copy enclosed) provides the location(s) of waters and/or wetlands on the property listed above. The basis for this delineation includes application of the Corps' 1987 Wetland Delineation Manual and Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Atlantic and Gulf Coastal Plain Region and the positive indicators of wetland hydrology, hydric soils, and hydrophytic vegetation and the presence of an ordinary high water mark. This letter is not confirming the Cowardin classifications of these aquatic resources.

Discharges of dredged or fill material, including those associated with mechanized landclearing, into waters and/or wetlands on this site may require a Department of the Army permit and authorization by state and local authorities including a Virginia Water Protection Permit from the Virginia Department of Environmental Quality (DEQ), a permit from the Virginia Marine Resources Commission (VMRC) and/or a permit from your local wetlands board. This letter is a confirmation of the Corps preliminary jurisdiction for the waters and/or wetlands on the subject property and does not authorize any work in these areas. Please obtain all required permits before starting work in the delineated waters/wetland areas.

This is a preliminary jurisdictional determination and is therefore not a legally binding determination regarding whether Corps jurisdiction applies to the waters or wetlands in question. Accordingly, you may either consent to jurisdiction as set out in this preliminary jurisdictional determination and the attachments hereto if you agree with the

determination, or you may request and obtain an approved jurisdictional determination. This preliminary jurisdictional determination and associated wetland delineation map may be submitted with a permit application.

Enclosed is a copy of the “Preliminary Jurisdictional Determination Form”. Please review the document, sign, and return one copy to Ms. Julie S. Hamilton, either via email (julie.s.hamilton@usace.army.mil) or via standard mail to US Army Corps of Engineers, Regulatory Office, and ATTN: Julie Hamilton, 9100 Arboretum Parkway, Suite 235, Richmond, Virginia, 23236 within 30 days of receipt and keep one for your records. This delineation of waters and/or wetlands is valid for a period of five years from the date of this letter unless new information warrants revision prior to the expiration date.

Copies of this letter have been provided to the Virginia Department of Environmental Quality, Chesterfield County Department of Environmental Engineering and Timmons Group. If you have any questions, please contact the office either via telephone at (804) 436-4725 or via email at julie.s.hamilton@usace.army.mil.

Sincerely,

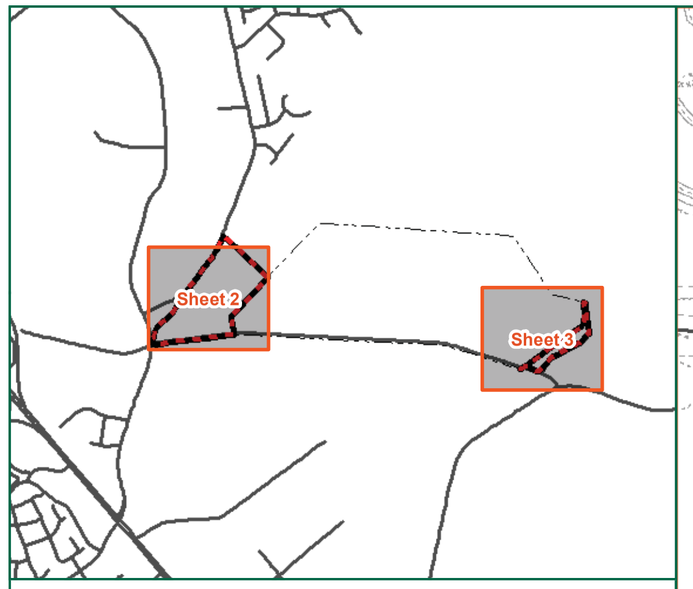
Julie S. Hamilton

Digitally signed by Julie S. Hamilton
Date: 2019.06.04 15:40:14 -04'00'

Julie S. Hamilton
Environmental Scientist
Southern Virginia Regulatory Section

Enclosure(s)

Norfolk District USACE
JSH-Received 6/3/2019



Resource Identification	Pending JD								Resource Description Notes*
	PFO (sq ft)	PSS (sq ft)	PEM (sq ft)	POW (sq ft)	R3 (lf)	R4 (lf)	R6 (lf)	Ditch (lf)	
AA	80,430		1,482						NT/V
X						133			NT/NV
GG	53,180								NT/V
HH	19,794								NT/V
II	168,075								NT/V
LL								946	NT/NV
Total	**321,479**	**0**	**1,482**	**0**	**0**	**133**	**0**	**946**	
Total Wetland Area =			**322,961 sq ft**			**7.41 ac**			
Total Stream Length =			**1,079 lf**						

Resource Identification	Confirmed per NAO-2017-0942								Resource Description Notes*
	PFO (sq ft)	PSS (sq ft)	PEM (sq ft)	POW (sq ft)	R3 (lf)	R4 (lf)	R6 (lf)	Ditch (lf)	
A	346,741								NT/V
B	46,082								ISO/NT/V
C	12,282								NT/V
D								24	NT/NV
E						2,435			NT/NV
F						727			NT/NV
G	6,978								NT/V
J							82		NT/NV
K						229	62		NT/NV
M	29,711								NT/V
N							115		NT/NV
O	778								NT/V
Q						526	238		NT/NV
R	369								NT/V
S	48,495								ISO/NT/V
T	37,858								NT/V
U						40			NT/NV
V	4,943								NT/V
W	21,572								ISO/NT/V
X						562			NT/NV
Y						122	226		NT/NV
Z	5,762								NT/V
AA	95,944								NT/V
BB			2,361						NT/V
DD							156		NT/NV
EE							60		NT/NV
FF								635	NT/NV
Total	**657,515**	**0**	**2,361**	**0**	**0**	**4,641**	**939**	**659**	
Total Wetland Area =			**659,876 sq ft**			**15.15 ac**			
Total Stream Length =			**6,239 lf**						

* T=Tidal; NT=Non-tidal; V=Vegetated; NV=Non-Vegetated; PFO=Palustrine Forested Wetland; PSS=Palustrine Scrub-Shrub Wetland; PEM=Palustrine Emergent Wetland; POW= Palustrine Open Water; EIW= Estuarine Intertidal Wetlands; R3= Upper Perennial Streams; R4=Intermittent Streams; R6 = Ephemeral Streams

Legend

- Project Limits - 61.9 Acres
- Previously Confirmed Limits - NAO-2017-0942
- Stream Identifier
- Wetland Identifier
- Culvert
- Perennial Stream (R3)
- Intermittent Stream (R4)
- Ephemeral Stream (R6)
- Ditch
- Palustrine Emergent (PEM) Wetlands
- Palustrine Forested (PFO) Wetlands

Topographic Contours

- Major - 10 Feet
- Minor - 5 Feet

CONFIRMED BY THE USACE (NAO-2017-0942)

Sheet 2

Sheet 3

Bermuda Hundred Rd

CSX Railroad

Y:\80\42493-Project_Peanut\GIS\Wetland Delineation (from Project Echo)\42493-WTDM_SecondAddition.mxd

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Richmond, VA 23225
TEL 804.200.6500
www.timmons.com

PROJECT NAME & LOCATION

PROJECT PEANUT
CHESTERFIELD COUNTY, VIRGINIA

DATE: 06/03/2019
PROJECT NUMBER: 42493
PROJECT NAME: PROJECT PEANUT
DESIGNED BY / DRAWN BY: L. MAJOR

1. Waters of the U.S. within the project study limits have been located using submeter, Bluetooth GPS antennas by Timmons Group.
2.Waters of the U.S. have not been confirmed by the U.S. Army Corps of Engineers.
3. Project limits are approximate.
4. Topography based on USGS LIDAR.
5. Cowardin Stream Classifications are based solely on field observations. No formal Stream assessment methodology was completed to determine these Cowardin Classifications.

REVISIONS

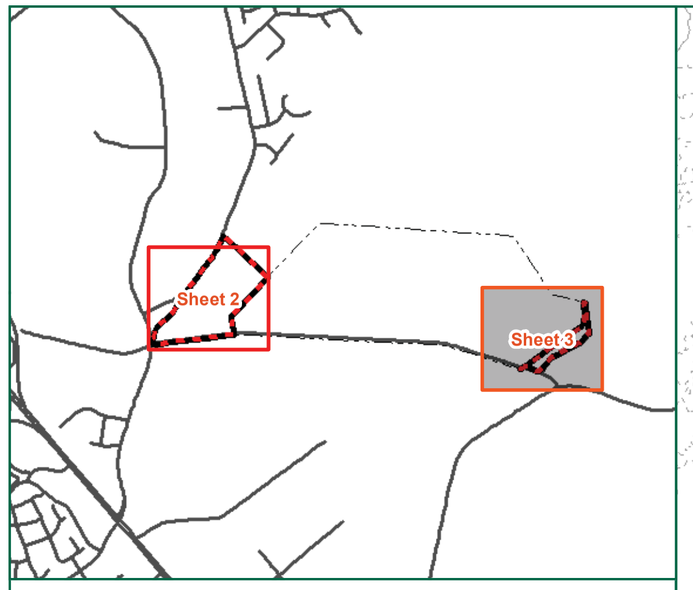
#	DATE	DESCRIPTION

DRAWING DESCRIPTION

FIGURE 4:
WETLANDS AND WATERS OF THE U.S. DELINEATION MAP

SCALE (FEET)
0 400 800
PLANS PRINTED AS 11X17 ARE HALF SCALE

SCALE: H:1 " = 400 '
SHEET NUMBER: 1 of 3



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X						133			NT/NV
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- Major - 10 Feet
- Minor - 1 Foot

FDS-03C1-1
07B1-4
FDS-07B1-1
07B1-22
07B1-17
FDS-03B1-2
07B1-10
03A1-2
03A1-9
03B1-8
03B1-1
03B1-5
03A1-14
03A1-19
07A1-10
03A1-24
07A1-23
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FDS-07A1-2
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CONFIRMED BY THE USACE (NAO-2017-0942)
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DRAWING DESCRIPTION

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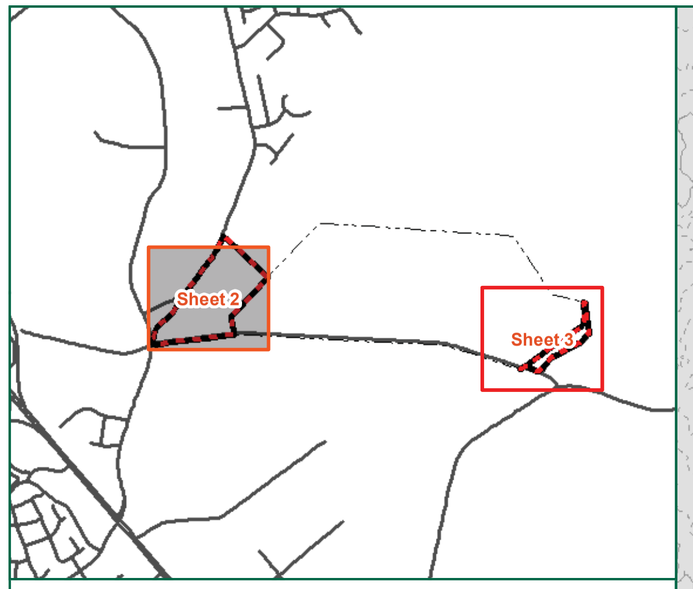
SCALE	SHEET NUMBER
H:1 " = 100 '	2 of 3

Norfolk District USACE
JSH-Received 6/3/2019



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* T=Tidal; NT=Non-tidal; V=Vegetated; NV=Non-Vegetated; PFO=Palustrine Forested Wetland; PSS=Palustrine Scrub-Shrub Wetland; PEM=Palustrine Emergent Wetland; POW= Palustrine Open Water; EIW= Estuarine Intertidal Wetlands; R3= Upper Perennial Streams; R4=Intermittent Streams; R6 = Ephemeral Streams

Legend

- Project Limits - 61.9 Acres
- Previously Confirmed Limits - NAO-2017-0942
- Wetland Flag
- Field Data Station
- Stream Identifier
- Wetland Identifier
- Culvert
- Perennial Stream (R3)
- Intermittent Stream (R4)
- Ephemeral Stream (R6)
- Ditch
- Palustrine Emergent (PEM) Wetlands
- Palustrine Forested (PFO) Wetlands

Topographic Contours

- Major - 10 Feet
- Minor - 1 Foot

CONFIRMED BY THE USACE (NAO-2017-0942)

35C1-2
FDS-35A1-2
FDS-35A1-1
35A1-12
35A1-10
35A1-2
35A1-5
Bermuda Hundred Rd
Chesterfield Rd
CSX Railroad
Alt 1 Rd

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PROJECT NAME & LOCATION
PROJECT PEANUT
CHESTERFIELD COUNTY, VIRGINIA

DATE
06/03/2019

PROJECT NUMBER
42493

PROJECT NAME
PROJECT PEANUT

DESIGNED BY / DRAWN BY
L. MAJOR

1. Waters of the U.S. within the project study limits have been located using submeter, Bluetooth GPS antennas by Timmons Group.
2.Waters of the U.S. have not been confirmed by the U.S. Army Corps of Engineers.
3. Project limits are approximate.
4. Topography based on USGS LiDAR.
5. Cowardin Stream Classifications are based solely on field observations. No formal Stream assessment methodology was completed to determine these Cowardin Classifications.

REVISIONS

#	DATE	DESCRIPTION

DRAWING DESCRIPTION
FIGURE 4: WETLANDS AND WATERS OF THE U.S. DELINEATION MAP

SCALE (FEET)
0 100 200
PLANS PRINTED AS 11X17 ARE HALF SCALE

SCALE: H:1 " = 100 '
SHEET NUMBER: 3 of 3

Y:\804\42493-Project_Peanut\GIS\Wetland Delineation (from Project Echo)\42493-WTDM_SecondAddition.mxd

DEPARTMENT OF THE ARMY
US ARMY CORPS OF ENGINEERS
NORFOLK DISTRICT
FORT NORFOLK
803 FRONT STREET
NORFOLK VA 23510-1011

April 27, 2020

PRELIMINARY JURISDICTIONAL DETERMINATION

Southern Virginia Regulatory Section
NAO-2019-01685 (Johnson Creek, James River)

Mr. Garrett Hart
Chesterfield County Economic Development Authority
C/O Timmons Group
1001 Boulders Parkway, Suite 300
Richmond, VA 23225

Dear Mr. Hart:

This letter is in response to your request for a revised preliminary jurisdictional determination of waters of the United States, including wetlands on a project area containing approximately 901.9 acres of land being the remainder of Meadowville Technology Park located in the northeast quadrant of the intersection of Interstate Route 295 and State Route 10 in Chesterfield County, Virginia. Your request has been reviewed.

The enclosed revised maps prepared by Timmons Group, entitled, "Figure 4: Wetlands and Waters of the U.S. Delineation Map, Meadowville Technology Park, Chesterfield County, Virginia," Sheets 1 through 6, dated 10-23-19, last revised on 4-15-20, received by this office on 4-15-20, and on file at this office provides the accurate location of waters of the United States, including wetlands. The basis for this delineation includes application of the Corps' 1987 Wetland Delineation Manual, the Regional Supplement to the Corps of Engineers' Wetland Delineation Manual: Atlantic and Gulf Coastal Plain Region, the presence of positive indicators of wetland hydrology, hydric soils, and hydrophytic vegetation, and the presence of an ordinary high water mark.

Discharges of dredged or fill material, including those associated with mechanized landclearing, into waters and/or wetlands on this site may require a Department of the Army permit and authorization by state and local authorities including a Virginia Water Protection Permit from the Virginia Department of Environmental Quality (DEQ), a permit from the Virginia Marine Resources Commission (VMRC) and/or a permit from your local wetlands board. This letter is a confirmation of the Corps preliminary jurisdiction for the waters and/or wetlands on the subject property and does not authorize any work in these areas. Please obtain all required permits before starting work in the delineated waters/wetland areas.

This is a preliminary jurisdictional determination and is therefore not a legally binding determination regarding whether Corps jurisdiction applies to the waters and wetlands in question. Accordingly, you may either consent to jurisdiction as set out in this preliminary jurisdictional determination, if you agree with the determination, or you may request and obtain an approved jurisdictional determination.

This delineation of waters and wetlands is valid for a period of five years from the date of this letter unless new information warrants revision prior to the expiration date.

If you have any questions, please contact Ms. Elaine Holley in the Richmond Field Office at 9100 Arboretum Parkway, Suite 235, Richmond, Virginia 23236, (804) 323-3781, elaine.k.holley@usace.army.mil.

Sincerely,

Elaine Holley

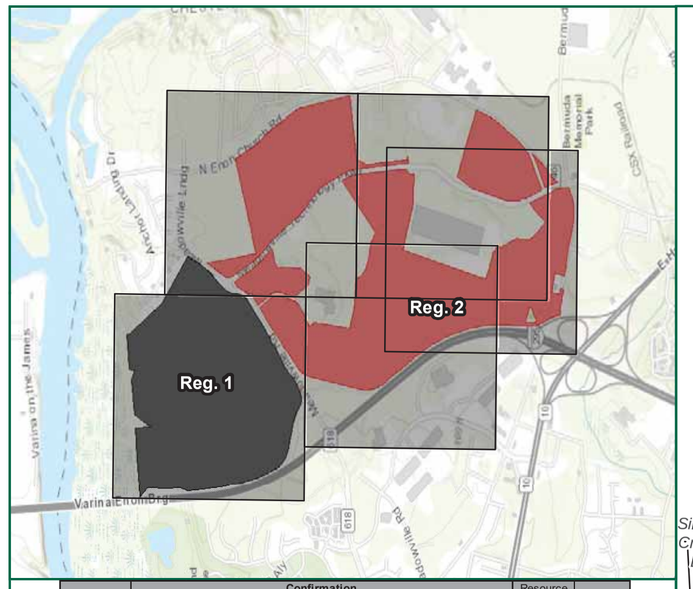
Digitally signed by Elaine Holley
Date: 2020.04.26 17:01:39 -04'00'

Elaine K. Holley, Environmental Scientist
Southern Virginia Regulatory Section

Enclosures

Copies furnished with enclosures:

Chesterfield County Department of Environmental Engineering, Chesterfield, VA
Virginia Department of Environmental Quality, Glen Allen, VA



Resource Identification	Confirmation								Resource Description Notes*	Region
	PFO (sq ft)	PSS (sq ft)	PEM (sq ft)	POW (sq ft)	R3 (lf)	R4 (lf)	R6 (lf)	Ditch (lf)		
A	977								NTV	1
B	30,042								NTV	1
C	492,729								NTV	1
D	37,005								NTV	1
E	8,222								NTV	1
F	192,591								NTV	1
G	6,558								NTV	1
H						1,157	502		NTINV	1
I						357			NTINV	1
J					1,226	1,970	280		NTINV	1
K					40	509			NTINV	1
L						212	74		NTINV	1
M	588,378								NTV	1
N						20			NTINV	1
O	1,033								NTV	1
P	586								NTV	1
Q	1,014								NTV	1
R							60		NTINV	1
S	28,461								NTV	2
T	59,879		1,256						NTV	2
U	155,452		5,971						NTV	2
V			1,279						NTV	2
W			11,298						NTV	2
X	1,106,845								NTV	2
Y	355,729								NTV	2
Z	781,128	54,777	222,904						NTV	2
A2	154,763		355,492						NTV	2
B2	4,667								NTV	2
C2	369								NTV	2
D2	837								NTV	2
E2	397								NTV	2
F2	1,763,904								NTV	2
G2								721	NTINV	2
H2						844			NTINV	2
I2						161			NTINV	2
J2					2,728				NTINV	2
K2	38,349								NTV	2
Total	**5,809,915**	**54,777**	**598,200**	**0**	**3,994**	**5,230**	**916**	**721**		
Total Wetland Area =	**6,462,892 sq ft**				**148.37 ac**					
Total Stream Length =	**10,861 lf**									

* T=Tidal; NT=Non-tidal; V=Vegetated; NV=Non-Vegetated; PFO=Palustrine Forested Wetland; PSS=Palustrine Scrub-Shrub Wetland; PEM=Palustrine Emergent Wetland; POW= Palustrine Open Water; EIW= Estuarine Intertidal Wetlands; R3= Upper Perennial Streams; R4=Intermittent Streams; R6 = Ephemeral Streams

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- Wetland Identifier
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- Field Data Station
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- Ditch
- Ephemeral
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- Palustrine Scrub-Shrub (PSS) Wetlands

Topographic Contours

- 5 ft
- 10 ft

Sheet 2

Sheet 3

Sheet 4

Sheet 5

Sheet 6

only wetland boundary not reflagged/re-evaluated in 2019

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REVISIONS

#	MM/DD/YY	DESCRIPTION
1	11/20/19	Updated symbology of wetlands D, E, F, O, P, Q, X, Z, A2, & K2.
2	4/8/20	*Note added per USCOE request*
3	4/15/20	Revised per updated project limits.

DRAWING DESCRIPTION

FIGURE 4: WETLANDS AND WATERS OF THE U.S. DELINEATION MAP

SCALE (FEET)

0 500 1,000

PLANS PRINTED AS 11X17 ARE HALF SCALE

SCALE: H:1 " = 500 '

SHEET NUMBER: 1

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PROJECT NAME & LOCATION

MEADOWVILLE TECHNOLOGY PARK
CHESTERFIELD COUNTY, VIRGINIA

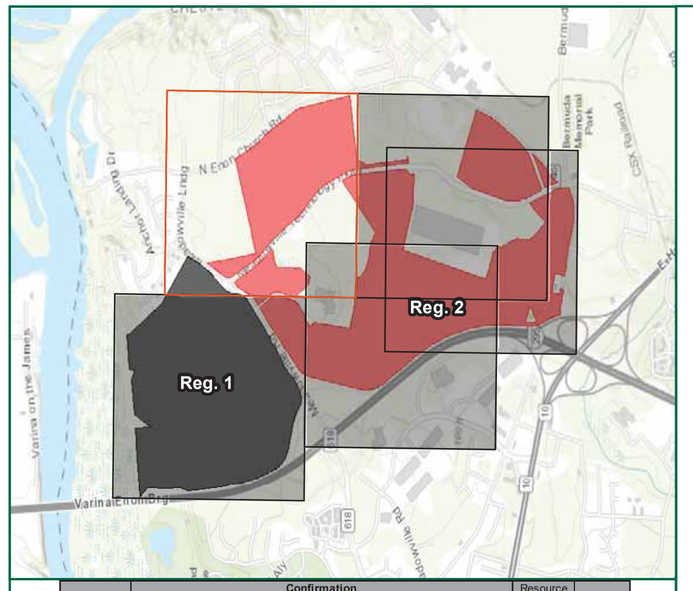
DATE: 10/23/2019

PROJECT NUMBER: 34670

PROJECT NAME: MEADOWVILLE TECHNOLOGY PARK

DESIGNED BY / DRAWN BY: A. MEHFOUD

Y:\804\34670-Meadowville_Tech\GIS\WTDM\34670-WTDM.mxd



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N						20			NT/NV	1
O	1,033								NT/V	1
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Topographic Contours

- 5 ft
- 10 ft

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PROJECT NAME & LOCATION

MEADOWVILLE TECHNOLOGY PARK
CHESTERFIELD COUNTY, VIRGINIA

DATE: 10/23/2019

PROJECT NUMBER: 34670

PROJECT NAME: MEADOWVILLE TECHNOLOGY PARK

DESIGNED BY / DRAWN BY: A. MEHFOUD

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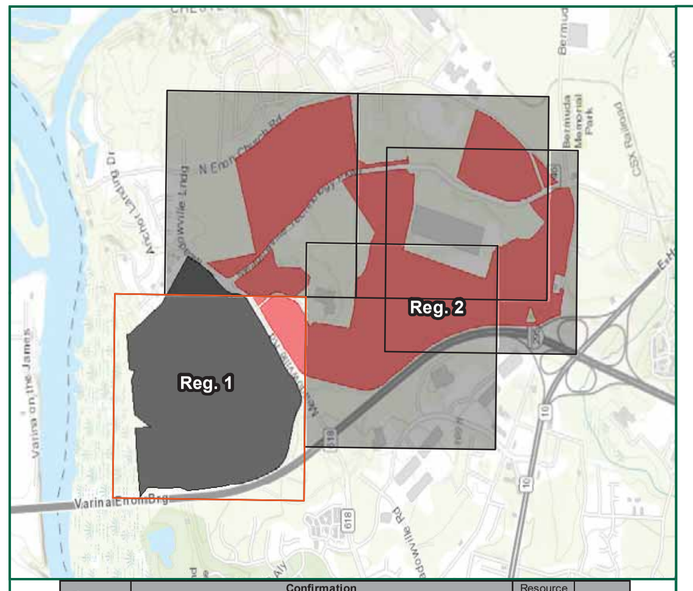
Y:\804\34670-Meadowville_Tech\GIS\WTDM\34670-WTDM.mxd



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Topographic Contours

- 5 ft
- 10 ft

FDS-A3-1
FDS-A3-2
FDS-B1-1
FDS-35H1-1
FDS-35H1-2
FDS-35D1-1
FDS-E2-1
FDS-G2-1
FDS G2-2
Meadowville Rd
Meadowville Ln
Meadowville Ln
Shallow Cove Dr
Bluewater Dr
N-I-295
S-I-295

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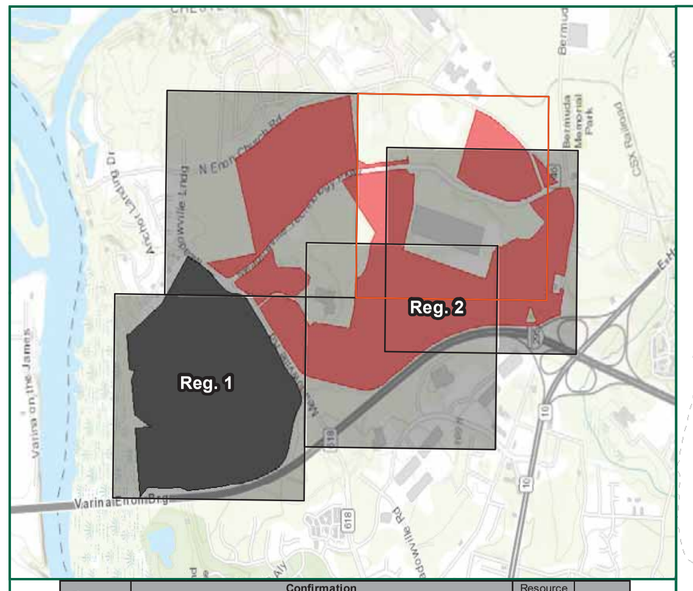

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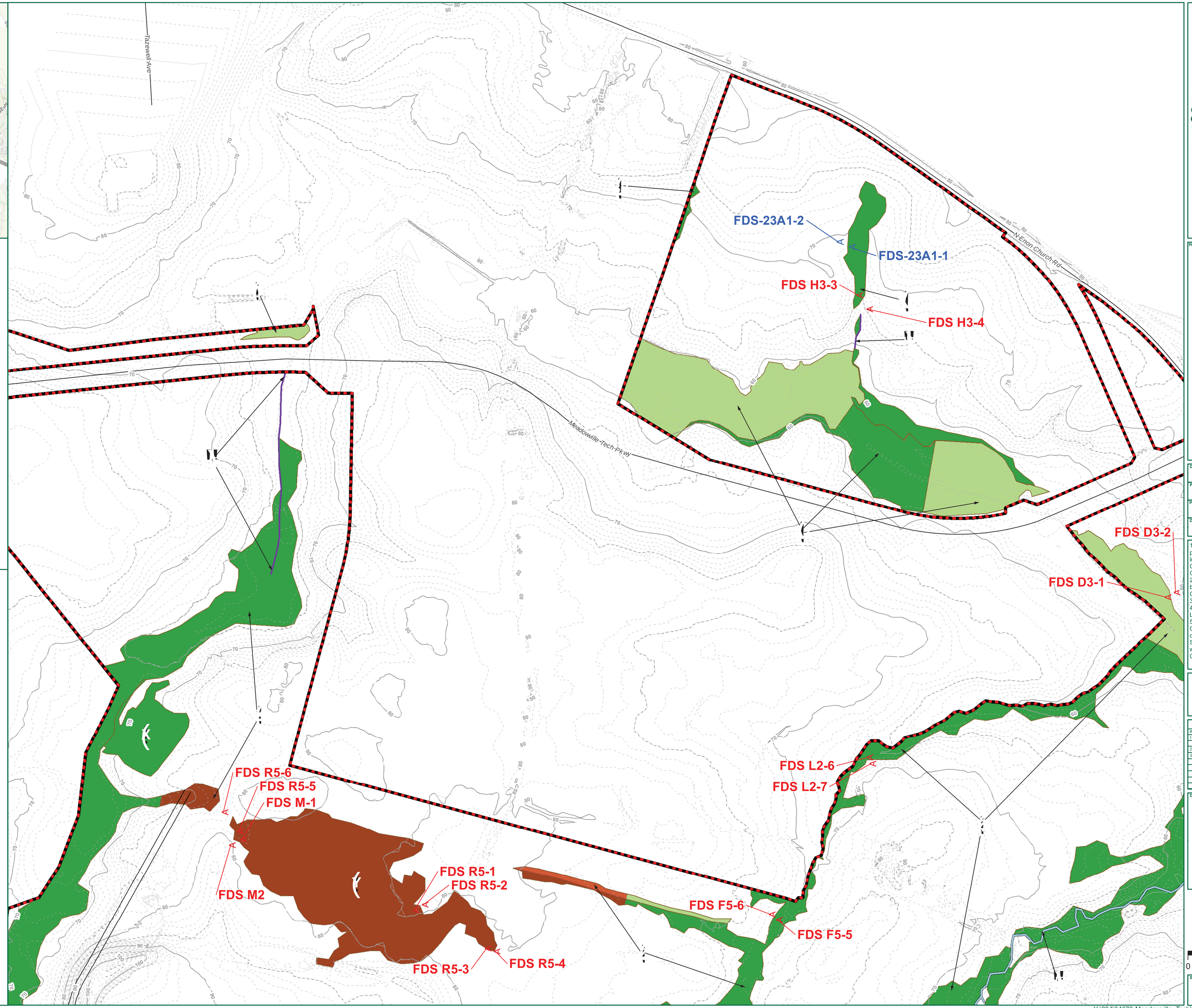

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Richmond, VA 23225
TEL 804.200.6500
www.timmons.com

PROJECT NAME & LOCATION

MEADOWVILLE TECHNOLOGY PARK
CHESTERFIELD COUNTY, VIRGINIA

DATE: 10/23/2019

PROJECT NUMBER: 34670

PROJECT NAME: MEADOWVILLE TECHNOLOGY PARK

DESIGNED BY / DRAWN BY: A. MEHFOUD

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3. Project limits are approximate.
4. Topography based on USGS LiDAR.
5. Cowardin Stream Classifications are based solely on field observations. No formal Stream assessment methodology was completed to determine these Cowardin Classifications.

REVISIONS

#	MM/DD/YY	DESCRIPTION
1	11/20/19	Updated symbology of wetlands
		D, E, F, O, P, Q, X, Z, A2, & K2
2	4/8/20	*Note added per USCOE request*
3	4/15/20	Revised per updated project limits.

DRAWING DESCRIPTION

FIGURE 4: WETLANDS AND WATERS OF THE U.S. DELINEATION MAP

SCALE (FEET)
0 200 400

PLANS PRINTED AS 11X17 ARE HALF SCALE

SCALE: H:1 " = 200 '

SHEET NUMBER: 4

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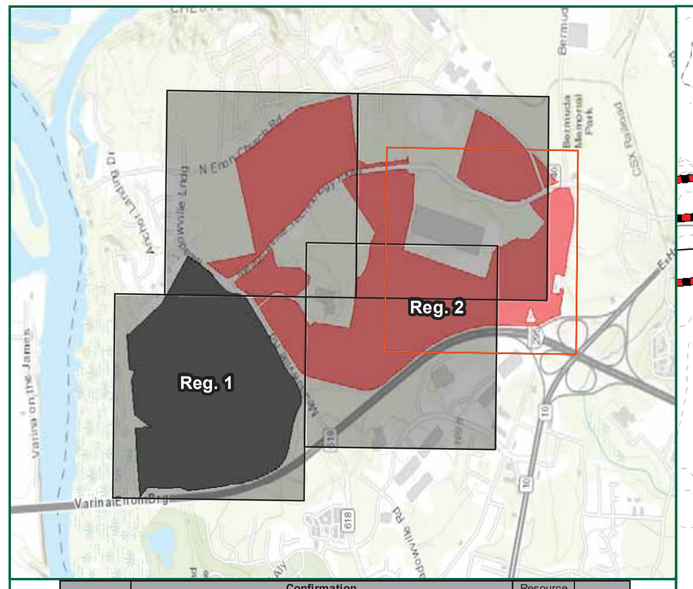

Resource Identification	Confirmation								Resource Description Notes*	Region
	PFO (sq ft)	PSS (sq ft)	PEM (sq ft)	POW (sq ft)	R3 (lf)	R4 (lf)	R6 (lf)	Ditch (lf)		
A	977								NT/V	1
B	30,042								NT/V	1
C	492,729								NT/V	1
D	37,005								NT/V	1
E	8,222								NT/V	1
F	192,591								NT/V	1
G	6,558								NT/V	1
H						1,157	502		NT/NV	1
I						357			NT/NV	1
J					1,226	1,970	280		NT/NV	1
K					40	509			NT/NV	1
L						212	74		NT/NV	1
M	588,378								NT/V	1
N						20			NT/NV	1
O	1,033								NT/V	1
P	586								NT/V	1
Q	1,014								NT/V	1
R							60		NT/NV	1
S	28,461								NT/V	2
T	59,879		1,256						NT/V	2
U	155,452		5,971						NT/V	2
V			1,279						NT/V	2
W			11,298						NT/V	2
X	1,106,845								NT/V	2
Y	355,729								NT/V	2
Z	781,128	54,777	222,904						NT/V	2
A2	154,763		355,492						NT/V	2
B2	4,667								NT/V	2
C2	369								NT/V	2
D2	837								NT/V	2
E2	397								NT/V	2
F2	1,763,904								NT/V	2
G2								721	NT/NV	2
H2						844			NT/NV	2
I2						161			NT/NV	2
J2					2,728				NT/NV	2
K2	38,349								NT/V	2
Total	**5,809,915**	**54,777**	**598,200**	**0**	**3,994**	**5,230**	**916**	**721**		
Total Wetland Area =	**6,462,892 sq ft**				**148.37 ac**					
Total Stream Length =	**10,861 lf**									

* T=Tidal; NT=Non-tidal; V=Vegetated; NV=Non-Vegetated; PFO=Palustrine Forested Wetland; PSS=Palustrine Scrub-Shrub Wetland; PEM=Palustrine Emergent Wetland; POW= Palustrine Open Water; EtW= Estuarine Intertidal Wetlands; R3= Upper Perennial Streams; R4=Intermittent Streams; R6 = Ephemeral Streams

Legend

- Region 1 Study Limits - 341.5 Acres
- Region 2 Project Limits- 560.4 Acres
- Stream Identifier
- Wetland Identifier
- A Field Data Stations (2014 Wetland Confirmation)
- A Field Data Station
- Proposed Road Layout
- Permitted Road Stream Impacts (Not Taken) - 2008-00254;15-V0331
- Culvert
- Ditch
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- Palustrine Emergent (PEM) Wetlands
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- Palustrine Scrub-Shrub (PSS) Wetlands

Topographic Contours

- 5 ft
- 10 ft

FDS H3-3
FDS H3-4
FDS D3-2
FDS D3-1
only wetland boundary not reflagged/re-evaluated in 2019
FDS K2-1
FDS K2-2
FDS L2-6
FDS L2-7
FDS R5-6
FDS R5-5
FDS M-1
FDS M2
FDS R5-1
FDS R5-2
FDS R5-3
FDS R5-4
FDS F5-6
FDS F5-5
FDS F5-4
FDS F5-3
FDS F5-7
FDS F5-8
FDS F5-1
FDS F5-2
FDS O5-1
FDS O5-2
FDS H2-1
Culvert
FDS G1-1
FDS G1-2
Meadowville-Tech-Pkwy
N-Enon-Church-Rd
Bermuda-Hundred-Rd
I-295-Rp
N-I-295
S-I-295

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CHESTERFIELD COUNTY, VIRGINIA

DATE: 10/23/2019
PROJECT NUMBER: 34670
PROJECT NAME: MEADOWVILLE TECHNOLOGY PARK
DESIGNED BY / DRAWN BY: A. MEHFOUD

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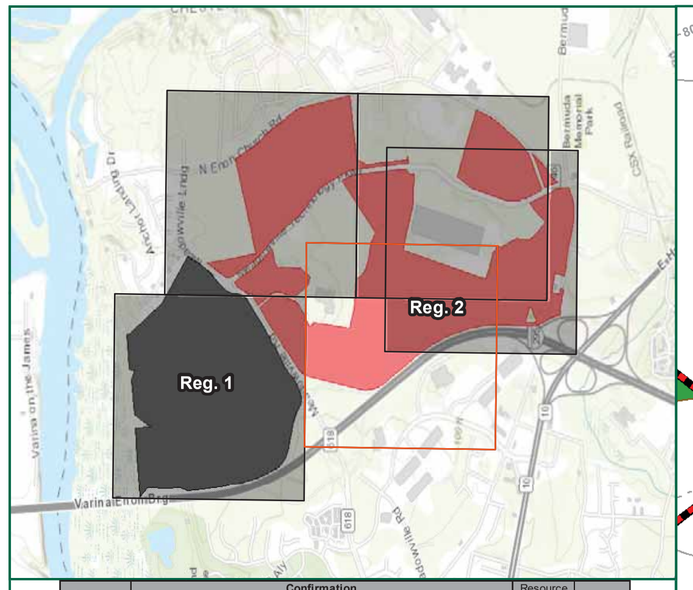

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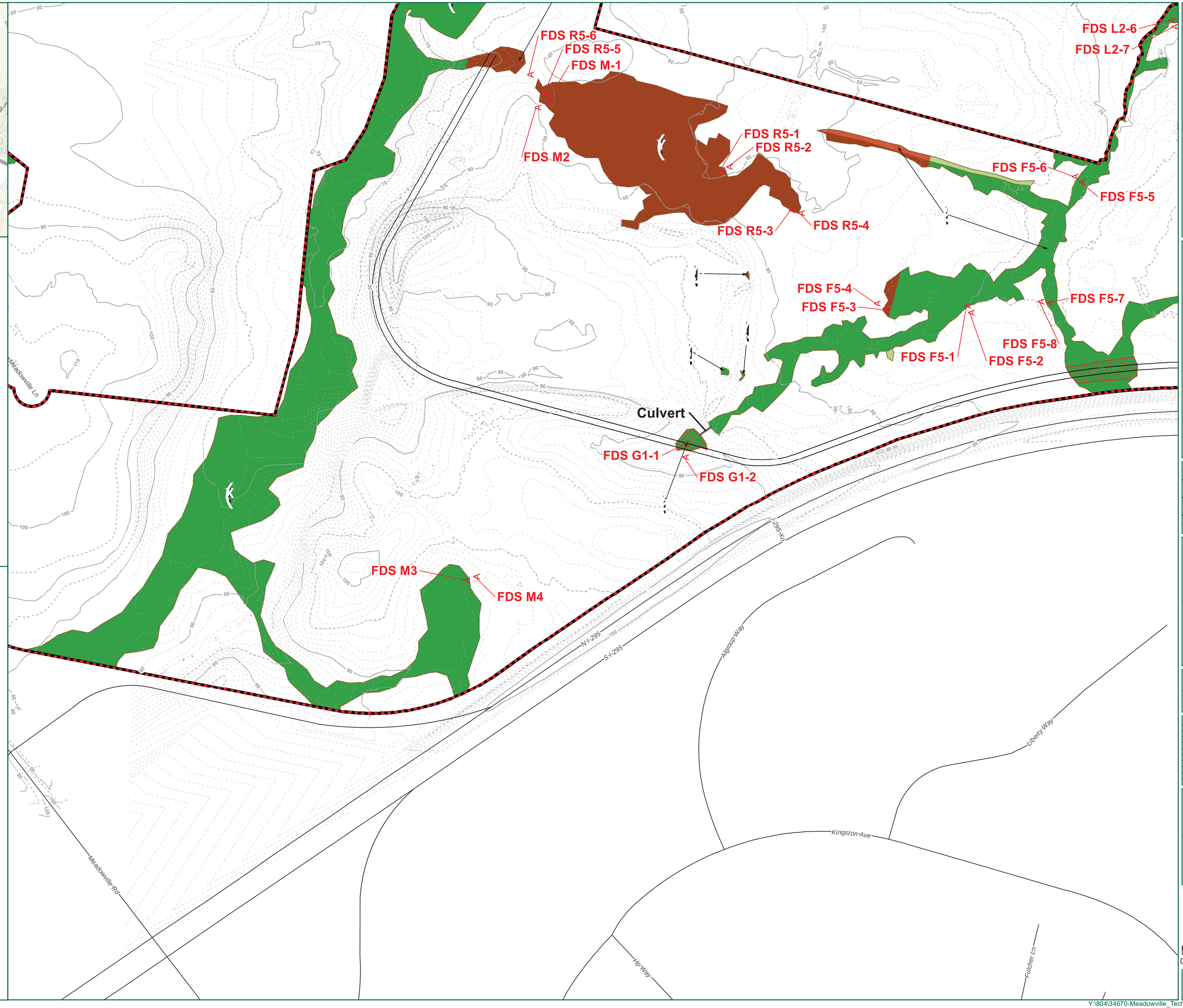

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DESIGNED BY / DRAWN BY A. MEHFOUD

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Y:\804\34670-Meadowville_Tech\GIS\WTDM\34670-WTDM.mxd

November 6, 2020

Ref: 34476.00

Mr. Clif White
Capital One
15070 Capital One Drive
Richmond, VA 23238
Click here to enter an Address

Re: Data Center Wetland Permits

Dear Clif,

Please find attached to this letter copies of the wetland permits acquired for the Data Center property at Meadowville Technology Park. These permits authorize the impact of 2.56 acres of non-tidal forested wetlands.

The agencies have placed certain conditions important to maintaining compliance with the permits. Those conditions requiring specific action are itemized below.

U.S. Army Corps of Engineers Permit NAO-2008-00254 (Expiration December 5, 2029)

- Notification must be made in writing 2 weeks prior to start of construction.
- A compliance certification form must be returned to the USACE at the close of construction.

Virginia Department of Environmental Quality Permit 19-0029 (Expiration March 12, 2030)

- 5.12 credits of non-tidal wetlands must be purchased prior to construction. Capital One has already purchased 3.6 credits associated with the earlier permits that expired. Capital One is obligated to purchase an additional 1.52 wetland credits from a private mitigation bank before work can begin.
- Notification must be made in writing to the VDEQ at least 10 days prior to the start of construction.
- Site inspections must be performed monthly during construction and recorded on the *Permit Inspection Checklist*. Each checklist must be kept at the construction site.
- A *Permit Construction Status Update Form* must be completed and returned to VDEQ twice each year (June and December) summarizing the status of construction. VHB has

Engineers | Scientists | Planners | Designers

351 McLaws Circle
Suite 3
Williamsburg, Virginia 23185
P 757.220.0500
F 757.903.2794

been submitting this form to VDEQ on behalf of Capital One, and we will continue to do so.

- Each submittal to VDEQ must contain the following statement:
    - "*I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.*"

We hope this package will be helpful to you. If you should have any questions regarding these permits, please do not hesitate to contact Neville Reynolds (RReynolds@vhb.com) or me (TDavis@vhb.com). I can also be reached by direct phone at 757-279-2830.

Sincerely,

Vanasse Hangen Brustlin, Inc.

R. Timothy Davis, PWS

Senior Environmental Scientist
tdavis@vhb.com

Attachment A

U.S. Army Corps of Engineers Permit (2019)

DEPARTMENT OF THE ARMY
US ARMY CORPS OF ENGINEERS
NORFOLK DISTRICT
FORT NORFOLK
803 FRONT STREET
NORFOLK VA 23510-1011

December 5, 2019

Southern Virginia Regulatory Section
NAO-2008-00254 / 19-V0029 (Johnson Creek)

Mr Reginald Martin
Capital One Financial Services, Inc
4871 Cox Road
Glen Allen, Virginia

Dear Mr Martin·

Enclosed are two copies of the Department of the Army permit authorizing you to perform certain work in waters of the United States Both copies must be signed by you in the space provided for the permittee's signature and returned to this office, Norfolk District, Corps of Engineers, CENAO-WRR, Fort Norfolk, 803 Front Street, Norfolk, VA 23510-1011 Upon receipt, the District Engineer or his authorized representative will sign both copies and return an original to you **The permit is not valid until signed by both parties.**

You must pay a permit fee of $100 00. Make your check out to "U.S. Treasurer", mail it to the address on the letterhead, and mark the envelope "Attn· RMO/Christy Alexander" Please include your name and permit number (NAO-2008-00254) on the correspondence

This letter contains an initial proffered permit for your proposed project If you object to this decision, you may request an administrative appeal under Corps regulations at 33 CFR Part 331. Enclosed you will find a Notification of Appeal Process (NAP) fact sheet and Request for Appeal (RFA) form If you request to appeal this decision you must submit a completed RFA form to the Norfolk District Office at the following address

United States Army Corps of Engineers
CENAO-WRR
C/O Mr William T Walker, Regulatory Branch Chief
Fort Norfolk
803 Front Street
Norfolk, Virginia 23510-1011

In order for an RFA to be accepted by the Corps, the Corps must determine that it is complete, that it meets the criteria for appeal under 33 CFR part 331 5, and that it has been received by the District Office within 60 days of the date of the NAP. Should you

decide to submit an RFA form, it must be received at the above address by **February 5, 2020**. It is not necessary to submit an RFA form to the District office if you do not object to the decision in this letter.

Please take note of project specific, special and general conditions incorporated in this permit. You may not begin work until such time as you have satisfied certain project specific conditions. A "compliance certification" form is enclosed which must be signed and returned within 30 days of completion of the project, including any required mitigation. Your signature on this form certifies that you have completed the work in accordance with the permit terms and conditions. If you decide to change any aspect of your proposal, you must first apply for and be granted a permit modification.

Please note that you cannot begin work until you have obtained a Section 401 Water Quality Certificate/Virginia Water Protection Permit or a waiver. All the conditions in the 401 certificate/Water Protection Permit automatically are conditions of your Department of the Army Permit.

If any material change in the plan of the work is found necessary, revised plans must be submitted and approved before any work is begun.

Copies of this permit are being furnished to the Chesterfield County Department of Environmental Engineering, Chesterfield, Virginia and the Virginia Department of Environmental Quality, Glen Allen, Virginia. If you have any questions, you may contact Elaine Holley at (804) 323-3781, or elaine.k.holley@usace.army.mil.

Sincerely,

Todd M. Miller

Todd M. Miller
Chief, Southern Virginia Regulatory Section

Enclosures

NOTIFICATION OF ADMINISTRATIVE APPEAL OPTIONS AND PROCESS AND REQUEST FOR APPEAL

Applicant: Capital One Financial Services, Inc.	File Number: NAO-2008-00254	Date: 12-5-2019
Attached is:		See Section below

X	INITIAL PROFFERED PERMIT (Standard Permit or Letter of permission)	A
	PROFFERED PERMIT (Standard Permit or Letter of permission)	B
	PERMIT DENIAL	C
	APPROVED JURISDICTIONAL DETERMINATION	D
	PRELIMINARY JURISDICTIONAL DETERMINATION	E

SECTION I - The following identifies your rights and options regarding an administrative appeal of the above decision. Additional information may be found at http://www.usace.army.mil/Missions/CivilWorks/RegulatoryProgramandPermits/appeals.aspx or Corps regulations at 33 CFR Part 331.

A: INITIAL PROFFERED PERMIT: You may accept or object to the permit.

- ACCEPT: If you received a Standard Permit, you may sign the permit document and return it to the district engineer for final authorization. If you received a Letter of Permission (LOP), you may accept the LOP and your work is authorized. Your signature on the Standard Permit or acceptance of the LOP means that you accept the permit in its entirety, and waive all rights to appeal the permit, including its terms and conditions, and approved jurisdictional determinations associated with the permit.
- OBJECT: If you object to the permit (Standard or LOP) because of certain terms and conditions therein, you may request that the permit be modified accordingly. You must complete Section II of this form and return the form to the district engineer. Your objections must be received by the district engineer within 60 days of the date of this notice, or you will forfeit your right to appeal the permit in the future. Upon receipt of your letter, the district engineer will evaluate your objections and may: (a) modify the permit to address all of your concerns, (b) modify the permit to address some of your objections, or (c) not modify the permit having determined that the permit should be issued as previously written. After evaluating your objections, the district engineer will send you a proffered permit for your reconsideration, as indicated in Section B below.

B: PROFFERED PERMIT: You may accept or appeal the permit

- ACCEPT: If you received a Standard Permit, you may sign the permit document and return it to the district engineer for final authorization. If you received a Letter of Permission (LOP), you may accept the LOP and your work is authorized. Your signature on the Standard Permit or acceptance of the LOP means that you accept the permit in its entirety, and waive all rights to appeal the permit, including its terms and conditions, and approved jurisdictional determinations associated with the permit.
- APPEAL: If you choose to decline the proffered permit (Standard or LOP) because of certain terms and conditions therein, you may appeal the declined permit under the Corps of Engineers Administrative Appeal Process by completing Section II of this form and sending the form to the division engineer. This form must be received by the division engineer within 60 days of the date of this notice.

C: PERMIT DENIAL: You may appeal the denial of a permit under the Corps of Engineers Administrative Appeal Process by completing Section II of this form and sending the form to the division engineer. This form must be received by the division engineer within 60 days of the date of this notice.

D: APPROVED JURISDICTIONAL DETERMINATION: You may accept or appeal the approved JD or provide new information.

- ACCEPT: You do not need to notify the Corps to accept an approved JD. Failure to notify the Corps within 60 days of the date of this notice, means that you accept the approved JD in its entirety, and waive all rights to appeal the approved JD.
- APPEAL: If you disagree with the approved JD, you may appeal the approved JD under the Corps of Engineers Administrative Appeal Process by completing Section II of this form and sending the form to the division engineer. This form must be received by the division engineer within 60 days of the date of this notice.

E: PRELIMINARY JURISDICTIONAL DETERMINATION: You do not need to respond to the Corps regarding the preliminary JD. The Preliminary JD is not appealable. If you wish, you may request an approved JD (which may be appealed), by contacting the Corps district for further instruction. Also you may provide new information for further consideration by the Corps to reevaluate the JD.

SECTION II - REQUEST FOR APPEAL or OBJECTIONS TO AN INITIAL PROFFERED PERMIT

REASONS FOR APPEAL OR OBJECTIONS: (Describe your reasons for appealing the decision or your objections to an initial proffered permit in clear concise statements. You may attach additional information to this form to clarify where your reasons or objections are addressed in the administrative record.)

ADDITIONAL INFORMATION: The appeal is limited to a review of the administrative record, the Corps memorandum for the record of the appeal conference or meeting, and any supplemental information that the review officer has determined is needed to clarify the administrative record. Neither the appellant nor the Corps may add new information or analyses to the record. However, you may provide additional information to clarify the location of information that is already in the administrative record.

POINT OF CONTACT FOR QUESTIONS OR INFORMATION:

If you have questions regarding this decision and/or the appeal process you may contact: U.S. Army Corps of Engineers, Norfolk District ATTN: Elaine Holley (CENAO-WRR-S) ADDRESS: 9100 Arboretum parkway, Suite 235 Richmond, Virginia 23236 Telephone: (804) 323-3781 Email: elaine.k.holley @usace.army.mil	If you only have questions regarding the appeal process you may also contact: Mr. James W. Haggerty Regulatory Program Manager (CENAD-PD-OR) U.S. Army Corps of Engineers Fort Hamilton Military Community 301 General Lee Avenue Brooklyn, New York 11252-6700 Telephone number: 347-370-4650

RIGHT OF ENTRY: Your signature below grants the right of entry to Corps of Engineers personnel, and any government consultants, to conduct investigations of the project site during the course of the appeal process. You will be provided a 15 day notice of any site investigation, and will have the opportunity to participate in all site investigations.

_____ Signature of appellant or agent.	Date:	Telephone number:

U.S. Army Corps
Of Engineers
Norfolk District

CERTIFICATE OF COMPLIANCE
WITH
ARMY CORPS OF ENGINEERS PERMIT

Permit Number: NAO-2008-00254
VMRC Number: 19-V0029

Corps Contact: Elaine Holley

Name of Permittee: Capital One Financial Services, Inc. C/O Mr. Reginald Martin

Date of Issuance: December 5, 2019

Permit Type: Individual Permit

Within 30 days of completion of the activity authorized by this permit and any mitigation required by the permit, sign this certification and return it to the following address:

elaine.k.holley@usace.army.mil

Please note that your permitted activity is subject to a compliance inspection by a U.S. Army Corps of Engineers representative. If you fail to comply with this permit you are subject to permit suspension, modification or revocation.

I hereby certify that the work authorized by the above referenced permit has been completed in accordance with the terms and conditions of the said permit, and required mitigation has been completed in accordance with the permit conditions.

_____ _____
Signature of Permittee Date

U.S. Army Corps
Of Engineers
Norfolk District

Fort Norfolk, 803 Front Street
Norfolk, Virginia 23510-1011

DEPARTMENT OF THE ARMY PERMIT

Permittee: Capital One Financial Services, Inc. C/O Mr. Reginald Martin
Permit No.: NAO-2008-00254; 19-V0029
Issuing Office: U.S. Army Corps of Engineers Norfolk District Regulatory Branch (CENAO-WRR-S)

Note: The term "you" and its derivatives, as used in this permit, means the permittee or any future transferee. The term "this office" refers to the appropriate district or division office of the Corps of Engineers having jurisdiction over the permitted activity or the appropriate official of that office acting under the authority of the commanding officer.

You are authorized to perform work in accordance with the terms and conditions specified below pursuant to:

- ☐ Section 10 of the Rivers and Harbors Act of 1899 (33 U.S.C. 403).
- ☒ Section 404 of the Clean Water Act (33 U.S.C. 1344).
- ☐ Section 103 of the Marine Protection, Research and Sanctuaries Act of 1972 (33 U.S.C. 1413).

Project Description: You are hereby authorized to discharge fill material in 2.56 acres of palustrine forested wetlands for the purpose of constructing an office building and attendant structures including access roads and parking lots to expand an existing on-site financial services call and data center as shown on the attached permit drawing prepared by VHB, Inc., entitled, "Capital One Data Center, Overall Site," dated December, 2018.

Project Location: The project is located on approximately 75 acres of land at 1401 Meadowville Parkway in Chesterfield County, Virginia. The site drains to Johnson Creek, a tributary to the Appomattox River in the James River watershed.

Project Specific Conditions:

1. Prior to the commencement of any work authorized by this permit, you shall advise the project manager, Elaine Holley at elaine.k.holley@usace.army.mil or in writing at: Norfolk District, Corps of Engineers, Corps of Engineers, Richmond Field Office, 9100 Arboretum Parkway, Suite 235, Richmond, Virginia 23236, at least two weeks in advance of starting work authorized by this permit. Alert the project manager of

the anticipated start date of the authorized activity and the name and telephone number of all contractors or other persons performing the work. A copy of this permit and drawings must be provided to the contractor and kept on site at all times, available to any regulatory representative during an inspection of the project site

2 The time limit for completing the work authorized ends on **December 5, 2029.** Should you be unable to complete the authorized activity in the time limit provided, you must submit your request for a time extension to this office for consideration at least one month before the permit expiration date

3. Destruction or alteration of waters of the U S. (including wetlands) other than those impacts authorized under this permit are prohibited

4 To assure that the unavoidable adverse impacts to aquatic resources do not result in significant environmental consequence, the applicant will apply the 3.6 previously purchased Scandia Mitigation Bank wetland credits and purchase an additional 1 52 wetland credits (2 1 compensation ratio) from an approved Mitigation Bank that services HUC 02080207

5 No work hereby authorized may commence until we have received evidence that you have purchased the full amount of compensatory mitigation.

6 Enclosed is a "compliance certification" form, which must be signed and returned within 30 days of completion of the project, including any required mitigation Your signature on this form certifies that you have completed the work in accordance with the permit terms and conditions

7 Final plans and specifications for authorized activities shall be submitted to the Corps prior to construction of the permitted activities It is your responsibility to identify any discrepancy or change from the preliminary drawings listed above and communicate those discrepancies and changes to the Corps with the submittal of the final plans.

8 All pipes and culverts placed in streams will be countersunk at both, the inlet and outlet ends, Pipes that are 24" or less in diameter shall be countersunk 3" below the natural stream bottom. Pipes that are greater than 24" in diameter shall be countersunk at least 6" below the natural stream bottom The countersinking requirement does not apply to bottomless pipes/culverts or pipe arches All single pipes or culverts (with bottoms) shall be depressed (countersunk) below the natural streambed at both the inlet and outlet of the structure. In sets of multiple pipes or culverts (with bottoms) at least one pipe or culvert shall be depressed (countersunk) at both the inlet and outlet to convey low flows.

9 When countersinking culverts, you must ensure reestablishment of a surface water channel (within 15 days post construction) that allows for the movement of aquatic organisms and maintains the same hydrologic regime that was present pre-

construction (i.e the depth of surface water through the permit area should match the upstream and downstream depths). This may require the addition of finer materials to choke the larger stone and/or placement of riprap to allow for a low flow channel.

10 Pipes should be adequately sized to allow for the passage of ordinary high water with the countersinking and invert restrictions taken into account.

Stormwater Management

1 All erosion and sediment controls, except as shown on the attached permit drawing, will be located in upland areas

2 All stormwater discharges will be dissipated and spread prior to entry into wetlands

3 All stormwater will be discharged in line with (not perpendicular to) existing flow patterns

4 Strict sediment and erosion control measures consistent with those contained in the standards and criteria of the current Virginia Sediment and Erosion Control handbook shall be used The disposal site for any excavated material as part of the project shall be located in a non-wetland area and shall be retained using silt fences and staked hay bales and/or other measures consistent with the Virginia Sediment and Erosion Control handbook

Pre-Construction Meeting/Requirements

1 Conduct a pre-construction meeting with the contractors in the field to identify the limits of the on-site wetlands and streams not hereby authorized for impact to emphasize the importance of avoiding and minimizing impacts to those areas This meeting must be held prior to the start of land disturbance in wetlands and streams hereby authorized. The most landward limit, or the limit nearest an area of authorized impact of all wetlands and stream, shall be marked in highly visible manner in the field prior to any land disturbing activity.

2 This letter shall be attached to the construction plans for the project for distribution to all contractors, subcontractors and builders.

3 Should sediments accrue in the wetland and stream areas during construction of the project, compensatory mitigation might be required at a minimum of a one to one ratio, if the Corps determines that removal of sediments and restoration is not feasible.

Special Conditions:

All project specific conditions listed above are special conditions of this permit

1 No discharge of dredged or fill material may consist of unsuitable material (e g · trash, debris, car bodies, asphalt etc.) and material discharged must be free from toxic pollutants in toxic amounts (see Section 307 of the Clean Water Act)

2. Any temporary fills must be removed in their entirety and the affected areas returned to their preexisting elevation.

3 Appropriate erosion and siltation controls must be used and maintained in effective operating condition during construction, and all exposed soil and other fills, as well as any work below the ordinary high water mark or high tide line, must be permanently stabilized at the earliest practicable date

4 The construction or work authorized by this permit will be conducted in a manner so as to minimize any degradation of water quality and/or damage to aquatic life Also, you will employ measures to prevent or control spills of fuels or lubricants from entering the waterway.

5 Any heavy equipment working in wetlands other than those permitted for permanent impact must be placed on mats or other measures must be taken to minimize soil disturbance

6 Failure to comply with the terms and conditions of this permit can result in enforcement actions against the permittee and/or contractor.

7 In granting an authorization pursuant to this permit, the Norfolk District has relied on the information and data provided by the permittee If, subsequent to notification by the Corps that a project qualifies for this permit, such information and data prove to be materially false or materially incomplete, the authorization may be suspended or revoked, in whole or in part, and/or the Government may institute appropriate legal proceedings

8. All dredging and/or filling will be done so as to minimize disturbance of the bottom or turbidity increases in the water which tend to degrade water quality and damage aquatic life.

9 Your use of the permitted activity must not interfere with the public's right to reasonable navigation on all navigable waters of the United States

General Conditions:

1 You must maintain the activity authorized by this permit in good condition and in conformance with the terms and conditions of this permit You are not relieved of this requirement if you abandon the permitted activity, although you may make a good faith transfer to a third party in compliance with General Condition **3** below

Should you wish to cease to maintain the authorized activity or should you desire to abandon it without a good faith transfer, you must obtain a modification of this permit from this office, which may require restoration of the area

2. If you discover any previously unknown historic or archaeological remains while accomplishing the activity authorized by this permit, you must immediately stop work and notify this office of what you have found. We will initiate the Federal and state coordination required to determine if the remains warrant a recovery effort or if the site is eligible for listing in the National Register of Historic Places

3 If you sell the property associated with this permit, you must obtain the signature of the new owner in the space provided and forward a copy of the permit to this office to validate the transfer of this authorization

4 If a conditioned water quality certification has been issued for your project, you must comply with the conditions specified in the certification as special conditions to this permit.

5. You must allow representatives from this office to inspect the authorized activity at any time deemed necessary to ensure that it is being or has been accomplished in accordance with the terms and conditions of your permit

Further Information:

1 Limits of this authorization:
   a. This permit does not obviate the need to obtain other Federal, state or local authorizations required by law
   b This permit does not grant any property rights or exclusive privileges
   c This permit does not authorize any injury to the property or rights of others
   d. This permit does not authorize interference with any existing or proposed Federal projects

2. Limits of Federal Liability In issuing this permit, the Federal Government does not assume any liability for the following.
   a Damages to the permitted project or uses thereof as a result of other permitted or unpermitted activities or from natural causes
   b Damages to the permitted project or uses thereof as a result of current or future activities undertaken by or on behalf of the United States in the public interest
   c Damages to persons, property, or to other permitted or unpermitted activities or structures caused by the activity authorized by this permit
   d Design or construction deficiencies associated with the permitted work
   e Damage claims associated with any future modification, suspension, or revocation of this permit

3 Reliance on Applicant's Data The determination of this office that issuance of this permit is not contrary to the public interest was made in reliance on the information you provided

4 Reevaluation of Permit Decision. This office may reevaluate its decision on this permit at any time the circumstances warrant. Circumstances that could require a reevaluation include, but are not limited to, the following:
   a You fail to comply with the terms and conditions of this permit.
   b The information provided by you in support of your permit application proves to have been false, incomplete, or inaccurate (See 3 above)
   c. Significant new information surfaces which this office did not consider in reaching the original public interest decision

   Such a reevaluation may result in a determination that it is appropriate to use the suspension, modification, and revocation procedures contained in 33 CFR 325.7 or enforcement procedures such as those contained in 33 CFR 326 4 and 326 5 The referenced enforcement procedures provide for the issuance of an administrative order requiring you to comply with the terms and conditions of your permit and for the initiation of legal action where appropriate You will be required to pay for any corrective measures ordered by this office, and if you fail to comply with such directive, this office may in certain situations (such as those specified in 33 CFR 209.170) accomplish the corrective measures by contract or otherwise and bill you for the cost

5 Extensions: Project Specific Condition #2 establishes a time limit for the completion of the activity authorized by this permit Unless there are circumstances requiring either a prompt completion of the authorized activity or a reevaluation of the public interest decision, the Corps will normally give favorable consideration to a request for an extension of this time limit

Your signature below, as a permittee, indicates that you accept and agree to comply with the terms and conditions of this permit

_____
(Permittee)

1-15-2020
(Date)

This permit becomes effective when the Federal official, designated to act for the Secretary of the Army, has signed below.

William T. Walker

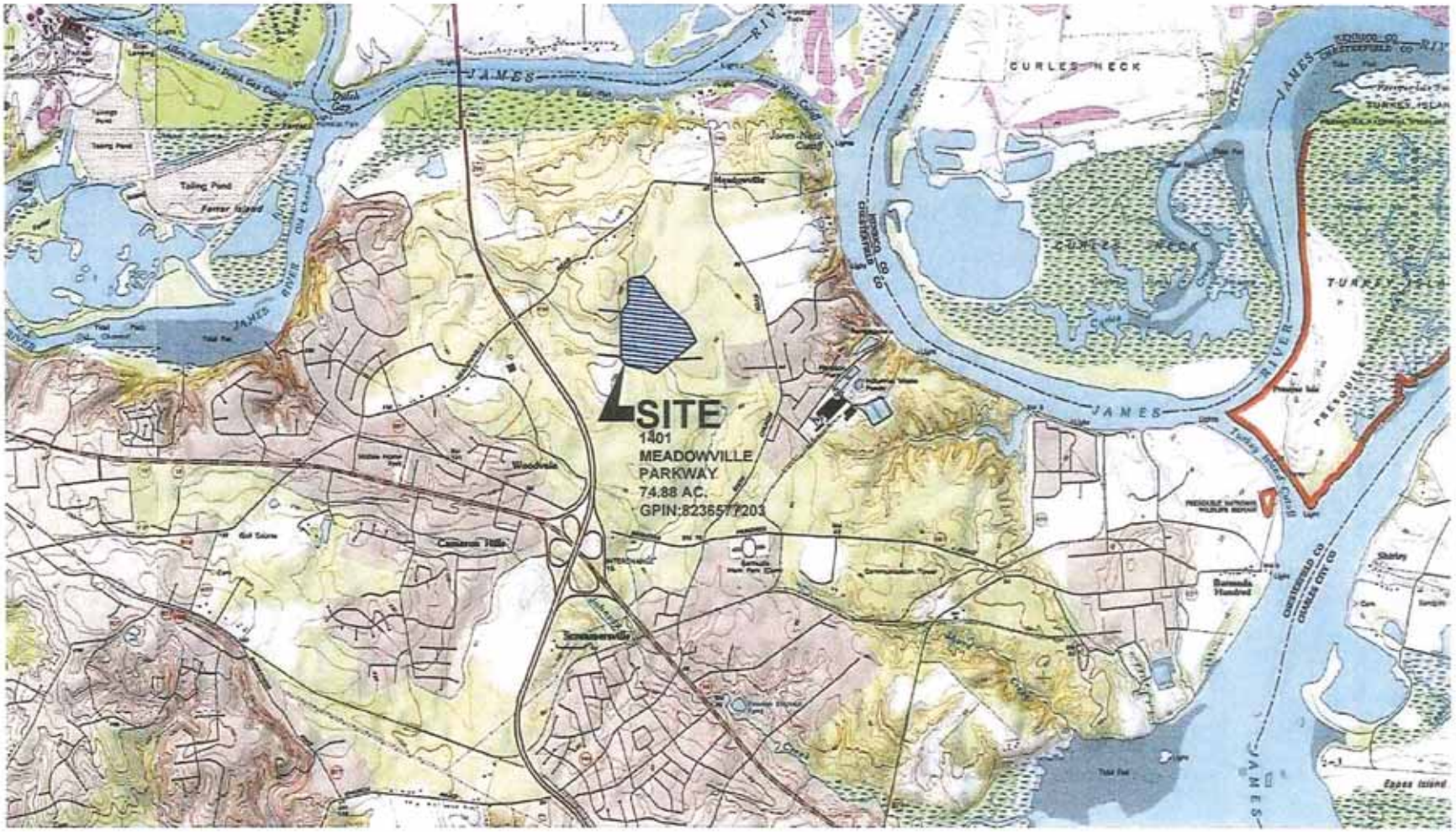
FOR Patrick V Kinsman, PE
Colonel, U.S. Army
Commanding

03/31/2020
(Date)

When the structures or work authorized by this permit are still in existence at the time the property is transferred, the terms and conditions of this permit will continue to be binding on the new owner(s) of the property To validate the transfer of this permit and the associated liabilities associated with compliance with its terms and conditions, have the transferee sign and date below

(Transferee)

(Date)



USGS QUADRANGLE: HOPEWELL

vhb
351 McLaws Circle, Suite 3
Williamsburg, Virginia 23185
(757) 220-0500 • Fax: (757) 903-2794

ADJACENT PROPERTY OWNERS:

1. ECONOMIC DEVELOPMENT AUTHORITY OF CHESTERFIELD
2. COPT RICHMOND I, LLC

CAPITAL ONE DATA CENTER

LOCATION MAP

AT: MEADOWVILLE TECHNOLOGY PARK

IN: CHESTERFIELD COUNTY, VIRGINIA

PURPOSE: SITE EXPANSION

APPLICATION BY:
CAPITAL ONE FINANCIAL SERVICES, INC.

DATE: DECEMBER, 2018

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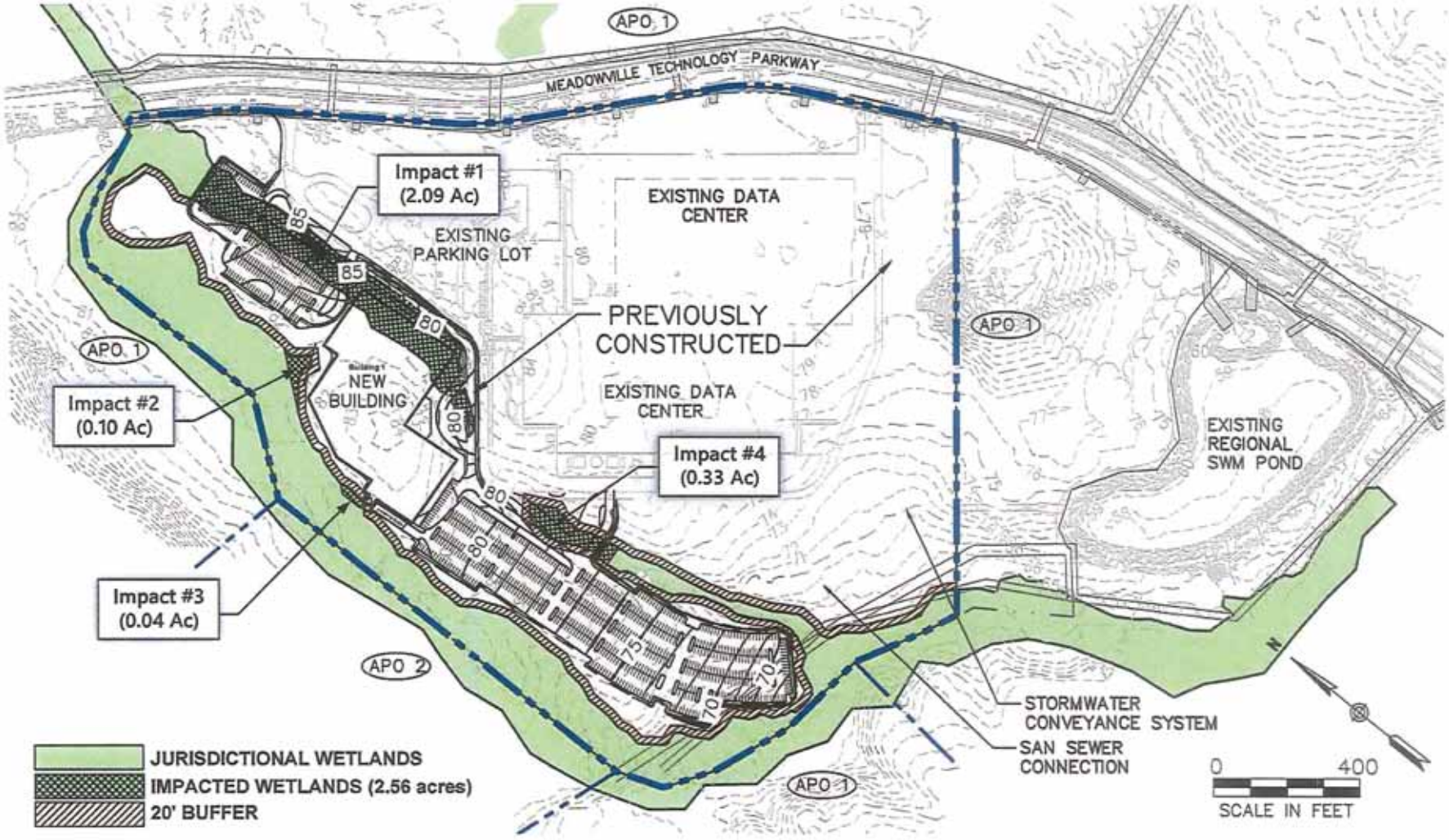

vhb
351 McLaws Circle, Suite 3
Williamsburg, Virginia 23185
(757) 220-0500 • Fax (757) 903-2794

ADJACENT PROPERTY OWNERS:

1. ECONOMIC DEVELOPMENT AUTHORITY OF CHESTERFIELD
2. 11751 MEADOWVILLE OWNER LLC.

CAPITAL ONE DATA CENTER

OVERALL SITE

AT: MEADOWVILLE TECHNOLOGY PARK

IN: CHESTERFIELD COUNTY, VIRGINIA

PURPOSE: SITE EXPANSION

APPLICATION BY:
CAPITAL ONE FINANCIAL SERVICES, INC.

DATE: DECEMBER , 2018

SHEET 2 OF 5

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Attachment B

Virginia Department of Environmental Quality Permit (2020)

Commonwealth of Virginia

VIRGINIA DEPARTMENT OF ENVIRONMENTAL QUALITY

PIEDMONT REGIONAL OFFICE
4949-A Cox Road, Glen Allen, Virginia 23060
(804) 527-5020 FAX (804) 527-5106
www.deq.virginia.gov

Matthew J. Strickler
Secretary of Natural Resources

David K. Paylor
Director
(804) 698-4000

James J. Golden
Regional Director

March 12, 2020

Capital One Services, LLC
Attn: Reginald Martin
1680 Capital One Drive
McLean, VA 22102

SENT VIA E-MAIL: Reginald.Martin@capitalone.com
RECEIPT CONFIRMATION REQUESTED

Re: Virginia Water Protection (VWP) Individual Permit Number 19-0029
Capital One Data Center, Chesterfield County, Virginia
Final VWP Individual Permit

Dear Mr. Martin:

Pursuant to the VWP Permit Program Regulation 9VAC25-210 of the Virginia Administrative Code and § 401 of the Clean Water Act Amendments of 1977, Public Law 95-217, the Department of Environmental Quality has enclosed the VWP Individual Permit for the "Capital One Data Center" project.

This permit is valid for ten years from the date of issuance. The permit term, including any extensions, cannot exceed 15 years. An extension of the permit may be requested through written notification to the Department of Environmental Quality, Piedmont Regional Office.

As provided by Rule 2A:2 of the Supreme Court of Virginia, you have **30 calendar days** from the date of service (the date you actually received this decision or the date it was e-mailed to you, whichever occurred first) within which to appeal this decision by filing a notice of appeal in accordance with the Rules of the Supreme Court of Virginia with the Director, Department of Environmental Quality. In the event that this decision is served on you by mail, three days are added to that period. Refer to Part 2A of the Rules of the Supreme Court of Virginia for additional requirements governing appeals from administrative agencies.

Alternatively, an owner may request a formal hearing for the formal taking of evidence upon relevant fact issues under Section 2.2-4020 of the Administrative Process Act. A petition for a

formal hearing must meet the requirements set forth in the board's Procedural Rule Number 1 (9VAC25-230-130 B). In cases involving actions of the board, such petition must be filed within **30 calendar days** after notice of such action is sent to such owner by certified mail.

Should you have any questions, please contact Justin Brown by phone at 804-527-5054, email at justin.brown@deq.virginia.gov, or at the above address.

Respectfully,

Jaime B. Robb

Jaime B. Robb
Regional VWPP Program Manager

Enclosures: Permit Cover Page, Part I - Special Conditions, Part II - General Conditions, Attachment 1 - VWP Permit Construction Status Update Form, Attachment 2 - Monthly VWP Permit Inspection Checklist

Cc: Tim Davis, VHB, Inc. – VIA EMAIL
Elaine Holley, U.S. Army Corps of Engineers, Richmond Field Office – VIA EMAIL

COMMONWEALTH of VIRGINIA

DEPARTMENT OF ENVIRONMENTAL QUALITY

VWP Individual Permit Number 19-0029
Effective Date: March 12, 2020
Expiration Date: March 11, 2030

VIRGINIA WATER PROTECTION PERMIT ISSUED PURSUANT TO THE STATE WATER CONTROL LAW AND SECTION 401 OF THE CLEAN WATER ACT

In compliance with § 401 of the Clean Water Act, as amended (33 USC § 1341) and the State Water Control Law and regulations adopted pursuant thereto, the board has determined that there is a reasonable assurance that this VWP permit, if complied with, will protect instream beneficial uses, will not violate applicable water quality standards, and will not cause or contribute to a significant impairment of state waters or fish and wildlife resources. In issuing this VWP permit, the board has not taken into consideration the structural stability of any proposed activities.

Permittee: Capital One Services, LLC

Address: 1680 Capital One Drive, McLean, VA 22102

Activity Location: The project is located southwest of Meadowville Technology Parkway, within Meadowville Technology Park, in Chesterfield County, VA.

Activity Description: The permittee proposes to construct a data center along with associated infrastructure known as "Capital One Data Center." Permitted activities shall be conducted as described in the Joint Permit Application dated January 7, 2019, received on January 8, 2019, and supplemental materials, revisions and clarifications received through October 11, 2019.

Authorized Surface Water Impacts:
This permit authorizes the permanent impact of 2.56 acres of forested wetland in order to construct the data center building, parking, and other associated infrastructure.

- Authorized surface water impacts described under this condition shall be as depicted on the impacts map entitled "Capital One Data Center – Overall Site & Sheet Index", "Capital One Data Center – Impact Area 1 & 2", and "Capital One Data Center – Impact Area 3 & 4" dated February 2019 and received February 21, 2019.

Approved Compensation:

The permittee shall compensate for the authorized surface water impacts through the following:

1. Compensation for permanent wetland impacts shall be provided through the purchase of 5.12 wetland credits from a DEQ approved mitigation bank, in-lieu fee fund, or a combination thereof that is authorized and approved by DEQ to sell credits in the area in which the impacts will occur and has credits available (as released by DEQ).

2. The credit sale shall be in accordance with the approved Mitigation Banking Instrument for the mitigation bank. Purchase of required mitigation credits shall occur first through the purchase of available released credits followed by the purchase of advance credits.

3. Documentation of the purchase of 5.12 wetland mitigation credits shall be submitted to and received by DEQ prior to initiating work in the impact areas authorized by this permit.

The permitted activity shall be in accordance with this Permit Cover Page, Part I - Special Conditions, and Part II - General Conditions.

March 12, 2020

Kyle Ivar Winter, P.E. Deputy Regional Director — Date

Part I – Special Conditions

A. Authorized Activities

1. This permit authorizes the total impact to 2.56 acres of forested wetland.

    a. Permanent impacts are to 2.56 acres of forested wetland.
    b. Authorized surface water impacts described under this condition shall be as depicted on the impacts map entitled "Capital One Data Center – Overall Site & Sheet Index", "Capital One Data Center – Impact Area 1 & 2", and "Capital One Data Center – Impact Area 3 & 4" dated February 2019 and received February 21, 2019.

2. The permittee shall conduct authorized activities as described in the Joint Permit Application dated January 7, 2019, and received January 8, 2019, and supplemental materials, revisions and clarifications received through October 11, 2019. Any changes to the authorized activities or impacts map that affect permitted areas shall be submitted to DEQ immediately upon determination that changes are necessary, and DEQ approval shall be required prior to implementing the changes.

3. The permittee shall notify the DEQ of any changes in authorized impacts to surface waters or any changes to the design or type of construction activities in surface waters authorized by this permit. DEQ approval shall be required prior to implementing the changes. Any additional impacts, modifications, or changes shall be subject to individual permit review and/or modification of this permit.

B. Permit Term

1. This permit is valid for **ten (10) years** from the date of issuance. An extension of this permit term or a new permit may be necessary for the continuance of the authorized activities or any permit requirement that has not been completed, including compensation provisions. The permit term, including any granted extensions, shall not exceed 15 years.

2. The permittee shall notify DEQ in writing at least 120 calendar days prior to the expiration of this permit if reissuance will be requested.

C. Standard Project Conditions

1. The activities authorized by this permit shall be executed in such a manner that any impacts to beneficial uses are minimized. As defined in § 62.1-44.3of the Code, "beneficial use" means both instream and offstream uses. Instream beneficial uses include, but are not limited to, the protection of fish and wildlife habitat, maintenance of waste assimilation, recreation, navigation, and cultural and aesthetic values. The preservation of instream flows for purposes of the protection of navigation, maintenance of waste assimilation capacity, the protection of fish and wildlife resources and habitat, recreation, cultural and aesthetic values is an instream beneficial use of Virginia's waters. Offstream beneficial uses include, but are not limited to, domestic (including public water supply), agricultural uses, electric power generation, commercial, and industrial uses.

2. No activity shall substantially disrupt the movement of aquatic life indigenous to the water body, including those species which normally migrate through the area, unless the primary purpose of the activity is to impound water.

3. Flows downstream of the project area shall be maintained to protect all uses.

4. No activity shall cause more than minimal adverse effect on navigation, and no activity shall block more than half of the width of the stream at any given time.

5. The activity shall not impede the passage of normal or expected high flows, and any associated structure shall withstand expected high flows.

6. Continuous flow of perennial springs shall be maintained by the installation of spring boxes, French drains, or other similar structures.

7. All excavation, dredging, or filling in surface waters shall be accomplished in a manner that minimizes bottom disturbance and turbidity.

8. All in-stream activities shall be conducted during low-flow conditions whenever practicable.

9. Erosion and sedimentation controls shall be designed in accordance with the Virginia Erosion and Sediment Control Handbook, Third Edition, 1992. These controls shall be placed prior to clearing and grading and maintained in good working order to minimize impacts to state waters. These controls shall remain in place until the area is stabilized and shall then be removed.

10. All construction, construction access, and demolition activities associated with this project shall be accomplished in a manner that minimizes construction materials or waste materials from entering surface waters, unless authorized by this permit. Wet, excess, or waste concrete shall be prohibited from entering surface waters.

11. All fill material placed in surface waters shall be clean and free of contaminants in toxic concentrations or amounts in accordance with all applicable laws and regulations.

12. Measures shall be employed at all times to prevent and contain spills of fuels, lubricants, or other pollutants into surface waters.

13. Machinery or heavy equipment in temporarily impacted wetlands shall be placed on mats or geotextile fabric, or other suitable means shall be implemented, to minimize soil disturbance to the maximum extent practical. Mats, fabrics, or other measures shall be removed as soon as the work is complete in the temporarily impacted wetland.

14. Temporary disturbances to wetlands, stream channels, and/or stream banks during project construction activities shall be avoided and minimized to the maximum extent practicable.

15. All temporarily disturbed wetland areas shall be restored to preconstruction conditions within 30 calendar days of completing work in the areas, which shall include re-establishing pre-construction

contours, and planting or seeding with appropriate wetland vegetation according to cover type (emergent, scrub/shrub, or forested), except for invasive species identified on DCR's Virginia Invasive Plant Species List. The permittee shall take all appropriate measures to promote and maintain the revegetation of temporarily disturbed surface waters through the second year post-disturbance.

16. All temporarily impacted streams and stream banks shall be restored to their original elevations and contours within 30 calendar days following the construction at that stream segment, and the banks shall be seeded or planted with the same vegetative cover type originally present along the banks, including supplemental erosion control grasses if necessary but not including invasive species identified on DCR's Virginia Invasive Plant Species List. The permittee shall take all appropriate measures to promote and maintain the revegetation of temporarily disturbed surface waters through the second year post-disturbance.

17. All materials (including fill, construction debris, excavated materials, and woody materials, that are temporarily placed in wetlands, in stream channels, or on stream banks) shall be placed on mats or geotextile fabric, shall be immediately stabilized to prevent the material or leachate from entering surface waters, and shall be entirely removed within 30 calendar days following completion of that construction activity. After removal, disturbed areas shall be returned to original contours, shall be stabilized, and shall be restored to the original vegetated state within 30 calendar days. The permittee shall take all appropriate measures to promote and maintain the revegetation of temporarily disturbed surface waters through the second year post-disturbance.

18. Temporary in-stream construction features such as cofferdams shall be made of non-erodible materials.

19. Virginia Water Quality Standards shall not be violated in any surface waters as a result of the project activities.

20. All non-impacted surface waters that are within the project or right-of-way limits, and that are within fifty feet of any project activities, shall be clearly flagged or demarcated for the life of the construction activity within that area. The permittee shall notify all contractors and subcontractors that *no activities are to occur in these marked areas.*

21. All required notifications and submittals shall include project name and permit number and be submitted electronically to pro.vwpcompliance@deq.virginia.gov or mailed to the DEQ office stated below, to the attention of the VWP project manager, unless directed in writing by DEQ subsequent to the issuance of this permit: Department of Environmental Quality- Piedmont Regional Office, 4949-A Cox Road Glen Allen, VA 23060.

22. All reports required by this permit and other information requested by DEQ shall be signed by the permittee or a person acting in the permittee's behalf, with the authority to bind the permittee. A person is a duly authorized representative only if *both* criteria below are met. If a representative authorization is no longer valid because of a change in responsibility for the overall operation of the facility, a new authorization shall be immediately submitted to DEQ.

a. The authorization is made in writing by the permittee.

b. The authorization specifies either an individual or a position having responsibility for the overall operation of the regulated facility or activity, such as the position of plant manager, superintendent, or position of equivalent responsibility. A duly authorized representative may thus be either a named individual or any individual occupying a named position.

23. All submittals shall contain the following signed certification statement:

"I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations."

24. Any fish kills or spills of fuels or oils shall be reported to DEQ immediately upon discovery at (804) 527-5020. If DEQ cannot be reached, the spill or fish kill shall be reported to the Virginia Department of Emergency Management (VDEM) at 1-800-468-8892 or the National Response Center (NRC) at 1-800-424-8802. Any spill of oil as defined in § 62.1-44.34:14 of the Code of Virginia that is less than 25 gallons and that reaches, or that is expected to reach, land only is not reportable, if recorded per § 62.1-44.34:19.2 of the Code of Virginia and if properly cleaned up.

25. DEQ shall be notified in writing within 24 hours or as soon as possible on the next business day when potential environmentally threatening conditions are encountered which require debris removal or involve potentially toxic substances. Measures to remove the obstruction, material, or toxic substance or to change the location of any structure are prohibited until approved by DEQ.

D. Stream Modifications, Including Intake/Outfall Structures

1. Redistribution of existing stream substrate for erosion control purposes is prohibited.

2. Material removed from the stream bottom shall not be deposited into surface waters unless otherwise authorized in this permit.

3. Riprap apron for all outfalls shall be designed in accordance with Virginia Erosion and Sediment Control Handbook, Third Edition, 1992, or the most recent version in effect at the time of construction.

4. For streambank protection activities, structures and backfill shall be placed as close to the streambank as practical, while still avoiding and minimizing impacts to surface waters to the maximum extent practical. No material shall be placed in excess of the minimum necessary for erosion protection.

5. Asphalt and materials containing asphalt or other toxic substances shall not be used in the construction of submerged sills, breakwaters, dams, or weirs.

E. Installation of Utilities

1. All utility line work in surface waters shall be performed in a manner that minimizes disturbance in each area. Temporarily disturbed surface waters shall be restored in accordance with Part I.C.15, C.16, and C.17, unless otherwise authorized by this permit.

2. Material resulting from trench excavation may be temporarily sidecast into wetlands not to exceed a total of 90 calendar days, provided the material is not placed in a manner such that it is dispersed by currents or other forces.

3. The trench for a utility line cannot be constructed in a manner that drains wetlands (e.g., backfilling with extensive gravel layers creating a French drain effect).

F. Road Crossings

1. Access roads authorized by this permit shall be constructed to minimize the adverse effects on surface waters to the maximum extent practicable and to follow as near as possible pre-construction contours and elevations.

2. Installation of pipes and road crossings shall occur in the dry via the implementation of cofferdams, sheetpiling, stream diversions or other similar structures.

3. All surface waters temporarily affected by a road crossing shall be restored to their original elevations immediately following the removal of that particular temporary crossing. Temporary access roads shall be removed entirely following activity completion.

G. Stormwater Management Structures

1. The outfall and overflow structure shall be constructed and maintained to prevent downstream sediment deposition, erosion, or scour that may be associated with normal flow and any expected storm flows. Construction shall include the use of an appropriately sized riprap outlet protection apron at the outfall site.

2. Maintenance excavation shall follow the stormwater management plan approved by the Virginia Stormwater Management Program Authority, and shall not exceed the original contours or designated maintenance areas of the facility.

3. Draining of a stormwater management facility shall be performed by a method that prevents downstream sediment deposition, erosion, or scour.

H. Project Construction Monitoring and Submittals (Impact Sites)

1. The permittee shall submit written notification at least **ten (10) calendar days** prior to the initiation of land disturbance or construction activities in permitted areas. The notification shall include a projected schedule for initiating and completing work at each permitted impact area.

2. Site inspections shall be conducted **once every calendar month** and recorded on the *Monthly VWP Permit Inspection Checklist* (*Attachment 2)* by the permittee or the permittee's qualified designee during active construction within authorized surface water impact areas. Monthly inspections shall be conducted in the following areas: all authorized permanent and temporary impact areas; all avoided surface waters, including wetlands, stream channels, and open water; surface water areas within 50 feet of any land disturbing activity; and all on-site areas designated for permanent preservation. The *Monthly VWP Permit Inspection Checklist* (*Attachment 2)* shall be completed in its entirety for each monthly inspection and shall be kept on-site and made available for review by DEQ staff upon request during normal business hours.

3. The *VWP Permit Construction Status Update Form* (*Attachment 1)* enclosed with this permit shall be completed in June and December of every year for the duration of this permit. The *VWP Permit Construction Status Update Form* (*Attachment 1)* shall include reference to the VWP permit authorization number and one of the following statements for each authorized surface water impact location:

   a. Construction activities not yet started;

   b. Construction activities started;

   c. Construction activities started but are currently inactive, or;

   d. Construction activities complete.

4. The *VWP Permit Construction Status Update Form* (*Attachment 1)* shall be submitted and must be received by DEQ no later than January 10 and July 10 of every year.

5. The permittee shall notify DEQ within 24 hours of discovering impacts to surface waters including wetlands, stream channels, and open water that are not authorized by this permit. The notification shall include photographs, estimated acreage and/or linear footage of impacts, and a description of the impacts.

6. The permittee shall submit written notification of completion within 30 calendar days after the completion of all activities in all permitted impact areas authorized under this permit.

I. Compensatory Mitigation

1. As compensation for permanent wetland impacts, the permittee shall purchase 5.12 wetland mitigation credits. All compensatory mitigation credits shall be purchased from a DEQ approved mitigation bank, an approved in-lieu fee (ILF) program, or a combination thereof as specified below.

The bank or program must be authorized and approved by DEQ to sell credits in the area in which the impacts will occur and have credits available (as released by DEQ). Any credit sale shall be in accordance with the approved Mitigation Banking Instrument or ILF Program Instrument. Purchase of required mitigation credits shall occur first through the purchase of available released credits followed by the purchase of advance credits. Multiple banks may be used to fulfill compensation requirements.

2. To fulfill mitigation requirements of this permit, the permittee shall first purchase available mitigation bank released credits. The permittee shall then fulfill its remaining credit obligation through the purchase of released mitigation credits from an ILF program. The permittee shall then fulfill its remaining credit obligation through the purchase of advance mitigation credits from an ILF program.

3. If the permittee proposes to purchase credits from an ILF program, no more than 45 days prior to initiating work within impact areas authorized by the permit, the permittee shall determine the availability of any mitigation bank released credits with a service area that covers the project and submit its proposed mitigation credit sources to DEQ for approval. Within 15 calendar days of receipt, DEQ shall review and provide any objections to the proposal, or the proposal shall be deemed approved.

4. Documentation of the purchase of 5.12 wetland mitigation credits shall be submitted to and received by DEQ prior to initiating work in the impact areas authorized by this permit.

Part II – General Conditions

A. Duty to Comply

The permittee shall comply with all conditions and limitations of the VWP permit. Nothing in this chapter shall be construed to relieve the permittee of the duty to comply with all applicable federal and state statutes, regulations, toxic standards, and prohibitions. Any VWP permit violation or noncompliance is a violation of the Clean Water Act and State Water Control Law and is grounds for enforcement action, VWP permit termination, VWP permit revocation, VWP permit modification, or denial of an application for a VWP permit extension or reissuance.

Nothing in this VWP permit shall be construed to relieve the permittee from civil and criminal penalties for noncompliance.

B. Duty to Cease or Confine Activity

It shall not be a defense for a permittee in an enforcement action that it would have been necessary to halt or reduce the activity for which a VWP permit has been granted in order to maintain compliance with the conditions of the VWP permit.

C. Duty to Mitigate

The permittee shall take all reasonable steps to minimize or prevent any impacts in violation of the VWP permit that may have a reasonable likelihood of adversely affecting human health or the environment.

D. VWP Permit Actions

A VWP permit may be modified in whole or in part, revoked and reissued, extended, transferred, or terminated in accordance with 9 VAC 25-210-180.

1. During the drafting and authorization of a permit modification, only those conditions to be modified shall be addressed with preparing a draft modified permit. VWP permit terms and conditions of the existing permit shall remain in full force and effect during the modification of the permit.

2. This VWP permit may be modified upon the request of the permittee or upon board initiative when any of the following developments occur:

    a. When new information becomes available about the project or activity covered by the VWP permit, including project additions or alterations, that was not available at VWP permit issuance and would have justified the application of different VWP permit conditions at the time of VWP permit issuance;

b. When a change is made in the promulgated standards or regulations on which the VWP permit was based;

c. When changes occur that are subject to "reopener clauses" in the VWP permit; or

d. When developments applicable to surface water withdrawals as specified in 9VAC25-210-380 occur.

3. When this VWP permit authorizes surface water withdrawals, it may be modified when any of the following developments occur:

a. When the board determines that minimum instream flow levels resulting directly from the permittee's withdrawal of surface water are detrimental to the instream beneficial use, existing at the time of permit issuance, and the withdrawal of surface water should be subject to further net limitations or when an area is declared a surface water management area pursuant to §§ 62.1-242 through 62.1-253 of the Code of Virginia, during the term of the VWP permit.

b. Significant changes to the location of the surface water withdrawal system are proposed such that the Department of Environmental Quality determines a new review is warranted due to the potential effect of the surface water withdrawal to existing beneficial uses of the new location.

c. Changes to the permitted project or the surface water withdrawal, including increasing the storage capacity for the surface water withdrawal, that propose an increase in the maximum permitted withdrawal volumes or rate of withdrawal or that cause more than a minimal change to the instream flow requirements with potential to result in a detrimental effect to existing beneficial uses.

d. A revision to the purpose of the surface water withdrawal that proposes to include a new use or uses that were not identified in the permit application or a modification of the existing authorized use or uses such that the use description in the permit application and permit is no longer applicable. Examples of uses include, but are not limited to agricultural irrigation, golf course irrigation, public water supply, manufacturing, and electricity generation.

4. When the permittee has submitted a timely and complete application for reissuance of an existing VWP individual permit, but through no fault of the permittee, the board does not reissue or reissue with conditions a VWP individual permit or the board does not provide notice of its tentative decision to deny the application before an existing VWP individual permit expires, the conditions of the expiring VWP individual permit shall be administratively continued in full force and effect until the effective date of a reissued permit or the date on which the board denies the application. Timely application shall be a minimum of 180 days for an individual permit or a minimum of 270 days for an individual permit for a surface water withdrawal, unless otherwise specified in the existing permit.

5. Any permittee desiring to continue a previously permitted activity after the expiration date of this VWP permit shall apply for and obtain a new permit or, if applicable, shall request an extension in accordance with 9VAC25-210-180. Any permittee with an effective VWP permit for an activity that is expected to continue after the expiration date of the VWP permit, without any change in the activity authorized by the VWP permit other than as may be allowed under 9VAC25-210-180, shall submit written notification requesting an extension. The permittee must file the request 90 days prior to the expiration date of the VWP permit. VWP permit modifications shall not be used to extend the term of a VWP permit beyond 15 years from the date of original issuance. When a permit term, other than that of an Emergency Virginia Water Protection Permit, is less than 15 years, an extension of the permit terms and conditions may be granted in accordance with 9VAC25-210-180. Emergency Virginia Water Protection Permits shall not exceed a duration of one year or shall expire upon the issuance of a regular Virginia Water Protection Permit, whichever comes first.

6. This VWP permit may be transferred to a new permittee only by modification to reflect the transfer, by revoking and reissuing the permit, or by automatic transfer. Automatic transfer to a new permittee shall occur if the current permittee: a) Notifies the board of the proposed transfer of the permit and provides a written agreement between the current and proposed permittees containing the date of transfer of VWP permit responsibility, authorization, and liability to the new permittee; and b) the board does not within 15 days notify the existing permittee of its intent to modify the VWP permit.

7. After notice and opportunity for a formal hearing pursuant to § 62.1-44.15:02 of the Code of Virginia, a VWP permit can be terminated for cause. Reasons for termination for cause are as follows:

    a. Noncompliance by the permittee with any condition of the VWP permit;

    b. The permittee's failure in the application or during the VWP permit process to disclose fully all relevant facts or the permittee's misrepresentation of any relevant facts at any time;

    c. The permittee's violation of a special or judicial order;

    d. A determination by the board that the permitted activity endangers human health or the environment and can be regulated to acceptable levels by VWP permit modification or termination;

    e. A change in any condition that requires either a temporary or permanent reduction or elimination of any activity controlled by the VWP permit; and

    f. A determination that the permitted activity has ceased and that the compensation for unavoidable adverse impacts has been successfully completed.

8. The board may terminate this permit without cause when the permittee is no longer a legal entity due to death, dissolution, or when a company is no longer authorized to conduct business in the

Commonwealth. The termination shall be effective 30 days after notice of the proposed termination is sent to the last known address of the permittee or registered agent, unless the permittee objects within that time. If the permittee does object during that period, the board shall follow the applicable procedures for termination under § 62.1-44.15:25 of the Code of Virginia and 9VAC25-230.

9. This VWP permit may be terminated by consent, as initiated by the permittee. The permittee shall submit a request for termination by consent within 30 days of completing or canceling all permitted activities and all required compensatory mitigation requirements. When submitted for project completion, the request for termination by consent shall constitute a notice of project completion. The director may accept this termination on behalf of the board. The permittee shall submit the following information:

   a. Name, mailing address, and telephone number;

   b. Name and location of the activity;

   c. The VWP permit number; and

   d. One of the following certifications:

      i. For project completion: "I certify under penalty of law that all activities and any required compensatory mitigation authorized by a VWP permit have been completed. I understand that by submitting this notice of termination that I am no longer authorized to perform activities in surface waters in accordance with the VWP permit, and that performing activities in surface waters is unlawful where the activity is not authorized by a VWP permit, unless otherwise excluded from obtaining a permit. I also understand that the submittal of this notice does not release me from liability for any violations of this VWP permit."

      ii. For project cancellation: "I certify under penalty of law that the activities and any required compensatory mitigation authorized by this VWP permit will not occur. I understand that by submitting this notice of termination that I am no longer authorized to perform activities in surface waters in accordance with the VWP permit, and that performing activities in surface waters is unlawful where the activity is not authorized by a VWP permit, unless otherwise excluded from obtaining a permit. I also understand that the submittal of this notice does not release me from liability for any violations of this VWP permit, nor does it allow me to resume the permitted activities without reapplication and issuance of another permit."

      iii. For events beyond permittee control, the permittee shall provide a detailed explanation of the events, to be approved by DEQ, and the following certification statement: "I certify under penalty of law that the activities or the required compensatory mitigation authorized by this VWP permit have changed as the result of events beyond my control (see attached). I understand that by submitting this notice of termination that I am no longer authorized to perform activities in surface waters in accordance with the VWP permit, and that performing activities in surface waters is unlawful where the activity is not authorized by a VWP permit,

unless otherwise excluded from obtaining a permit. I also understand that the submittal of this notice does not release me from liability for any violations of this VWP permit, nor does it allow me to resume the permitted activities without reapplication and issuance of another permit.

E. Inspection and Entry

Upon presentation of credentials, the permittee shall allow the board or any duly authorized agent of the board, at reasonable times and under reasonable circumstances, to conduct the actions listed in this section. For the purpose of this section, the time for inspection shall be deemed reasonable during regular business hours. Nothing contained herein shall make an inspection time unreasonable during an emergency.

1. Enter upon any permittee's property, public or private, and have access to, inspect and copy any records that must be kept as part of the VWP permit conditions;

2. Inspect any facilities, operations or practices (including monitoring and control equipment) regulated or required under the VWP permit; and

3. Sample or monitor any substance, parameter, or activity for the purpose of ensuring compliance with the conditions of the VWP permit or as otherwise authorized by law.

F. Duty to Provide Information

The board may request (i) such plans, specifications, and other pertinent information as may be necessary to determine the effect of an applicant's discharge on the quality of state waters or (ii) such other information as may be necessary to accomplish the purposes of this chapter. Any owner, permittee, or person applying for a VWP permit or general permit coverage shall provide the information requested by the board.

G. Monitoring and Records Requirements

1. Monitoring of parameters, other than pollutants, shall be conducted according to approved analytical methods as specified in the VWP permit. Analysis of pollutants will be conducted according to 40 CFR Part 136 (2017), Guidelines Establishing Test Procedures for the Analysis of Pollutants.

2. Samples and measurements taken for the purpose of monitoring shall be representative of the monitored activity.

3. The permittee shall retain records of all monitoring information, including all calibration and maintenance records and all original strip chart or electronic recordings for continuous monitoring instrumentation, copies of all reports required by the VWP permit, and records of all data used to complete the application for the VWP permit, for a period of at least three years from the date of permit expiration. This period may be extended by request of the board at any time.

4. Records of monitoring information shall include:

   a. The date, exact place and time of sampling or measurements;

   b. The name of the individuals who performed the sampling or measurements;

   c. The date and time the analyses were performed;

   d. The name of the individuals who performed the analyses;

   e. The analytical techniques or methods supporting the information such as observations, readings, calculations and bench data used;

   f. The results of such analyses; and

   g. Chain of custody documentation.

H. Property rights

The issuance of a VWP permit does not convey any property rights in either real or personal property, or any exclusive privileges, nor does it authorize injury to private property or any invasion of personal rights or any infringement of federal, state or local laws or regulations.

I. Reopener

This VWP permit may be reopened for the purpose of modifying the conditions of the VWP permit to meet new regulatory standards duly adopted by the board. Cause for reopening VWP permits includes, but is not limited to when the circumstances on which the previous VWP permit was based have materially and substantially changed, or special studies conducted by the board or the permittee show material and substantial change, since the time the VWP permit was issued and thereby constitute cause for VWP permit modification or revocation and reissuance.

J. Compliance with State and Federal Law

As to the permitted activity(ies), compliance with a VWP permit constitutes compliance with the VWP permit requirements of the Law and regulations. .

K. Severability

The provisions of this VWP permit are severable.

L. Oil and Hazardous Substance Liability

Nothing in this VWP permit shall be construed to preclude the institution of legal action or relieve the permittee from any responsibilities, liabilities, or penalties to which the permittee is or may be subject under § 311 of the Clean Water Act or §§ 62.1-44.34:14 through 62.1-44.34:23 of the State Water Control Law.

M. Unauthorized Discharge of Pollutants

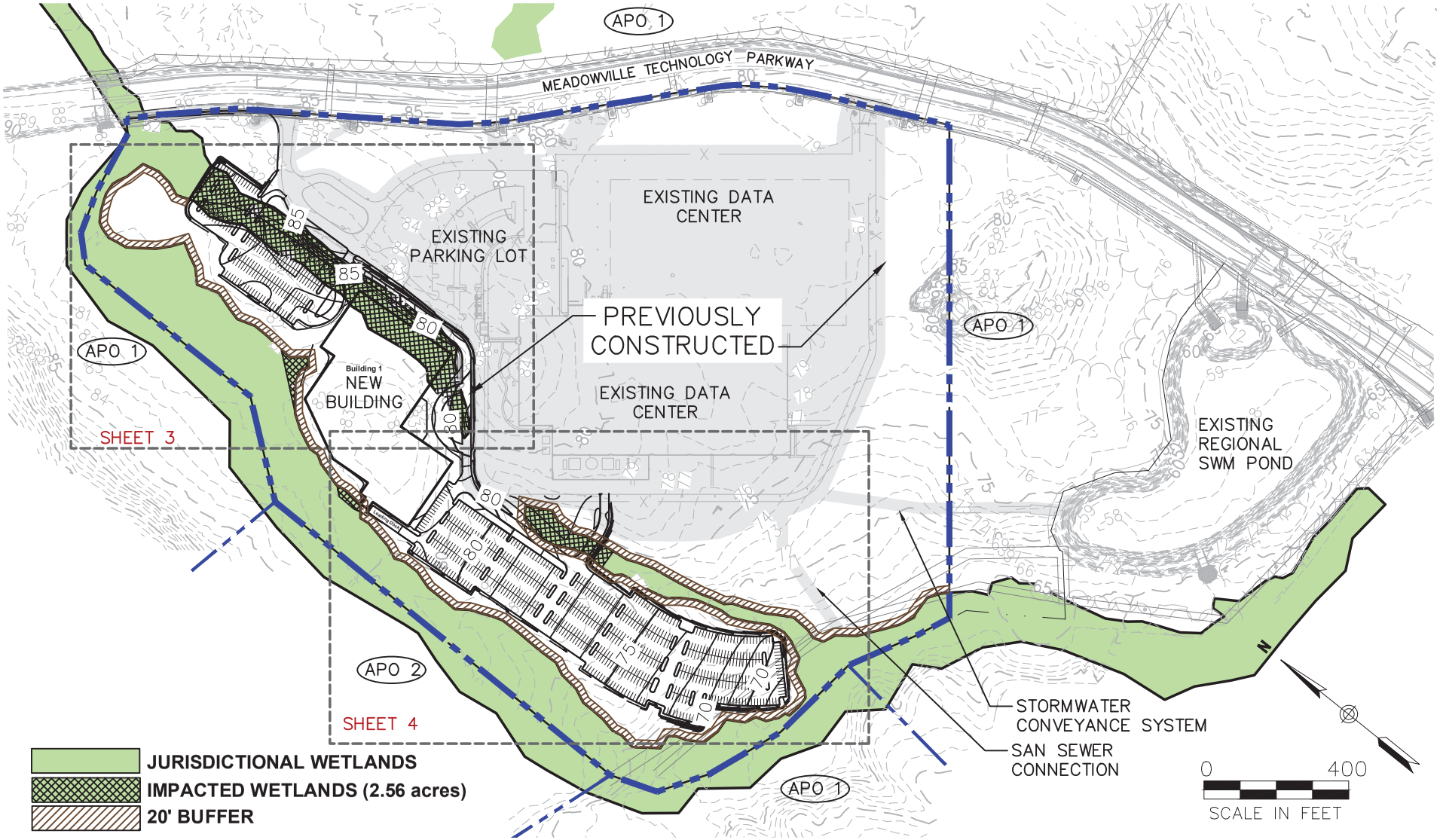
Except in compliance with a VWP permit, unless the activity is otherwise exempted or excluded, no person shall dredge, fill, or discharge any pollutant into, or adjacent to surface waters; withdraw surface water; otherwise alter the physical, chemical, or biological properties of state waters regulated under this chapter and make them detrimental to the public health, to animal or aquatic life, or to the uses of such waters for domestic or industrial consumption, for recreation, or for other uses; excavate in wetlands; or on or after October 1, 2001, conduct the following activities in a wetland:

1. New activities to cause draining that significantly alters or degrades existing wetland acreage or functions;

2. Filling or dumping;

3. Permanent flooding or impounding; or

4. New activities that cause significant alteration or degradation of existing wetland acreage or functions.



vhb
351 McLaws Circle, Suite 3
Williamsburg, Virginia 23185
(757) 220-0500 • Fax: (757) 903-2794

ADJACENT PROPERTY OWNERS:

1. ECONOMIC DEVELOPMENT AUTHORITY OF CHESTERFIELD
2. 11751 MEADOWVILLE OWNER LLC.

CAPITAL ONE DATA CENTER

OVERALL SITE & SHEET INDEX

AT: MEADOWVILLE TECHNOLOGY PARK

IN: CHESTERFIELD COUNTY, VIRGINIA

PURPOSE: SITE EXPANSION

APPLICATION BY:
CAPITAL ONE FINANCIAL SERVICES, INC.

DATE: FEBRUARY , 2019

SHEET 2 OF 5

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vhb
351 McLaws Circle, Suite 3
Williamsburg, Virginia 23185
(757) 220-0500 • Fax: (757) 903-2794

ADJACENT PROPERTY OWNERS:

1. ECONOMIC DEVELOPMENT AUTHORITY OF CHESTERFIELD
2. 11751 MEADOWVILLE OWNER LLC.

CAPITAL ONE DATA CENTER

IMPACT AREA 1 & 2

AT: MEADOWVILLE TECHNOLOGY PARK

IN: CHESTERFIELD COUNTY, VIRGINIA

PURPOSE: SITE EXPANSION

APPLICATION BY:
CAPITAL ONE FINANCIAL SERVICES, INC.

DATE: FEBRUARY , 2019

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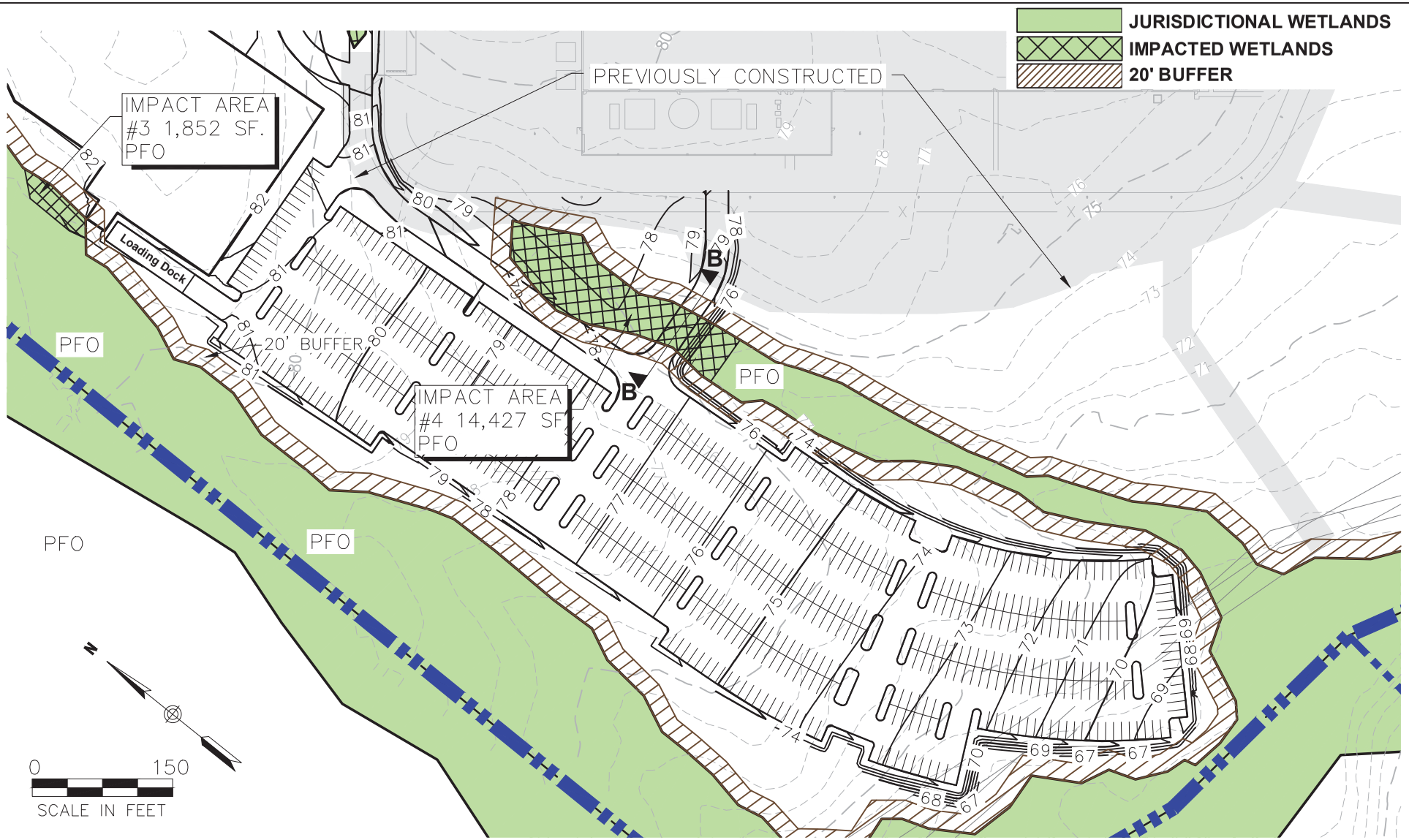

vhb
351 McLaws Circle, Suite 3
Williamsburg, Virginia 23185
(757) 220-0500 • Fax: (757) 903-2794

ADJACENT PROPERTY OWNERS:

1. ECONOMIC DEVELOPMENT AUTHORITY OF CHESTERFIELD
2. 11751 MEADOWVILLE OWNER LLC.

CAPITAL ONE DATA CENTER

IMPACT AREA 3 & 4

AT: MEADOWVILLE TECHNOLOGY PARK

IN: CHESTERFIELD COUNTY, VIRGINIA

PURPOSE: SITE EXPANSION

APPLICATION BY:
CAPITAL ONE FINANCIAL SERVICES, INC.

DATE: FEBRUARY , 2019

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Attachment 1: VWP PERMIT CONSTRUCTION STATUS UPDATE FORM

Attached to VWP INDIVIDUAL PERMIT NUMBER 19-0029

March 12, 2020

Individual Permit Coverage

Date (check one):

☐ June____, _____

☐ December _____, _____

VWP Individual Permit Number: _____

Project Name and Location: _____

Status within each authorized surface water impact location, as identified on "Capital One Data Center – Overall Site & Sheet Index", "Capital One Data Center – Impact Area 1 & 2", and "Capital One Data Center – Impact Area 3 & 4" dated February 2019 and received February 21, 2019: (check one of the following status options for each impact number/location. Attach additional sheet(s) if needed.)

Authorized impact number	Construction activities not started	Construction activities started	Construction activities started but currently not active	Does this impact involve culvert(s)[1]?	Construction activities complete[2]

[1] Provide spot elevations of the stream bottom within the thalweg at the beginning and end of the pipe or culvert, extending to a minimum of 10 feet beyond the limits of the impact, with completion of all culvert installations.

[2] If all construction activities and compensatory mitigation requirements are complete, the permittee completes and signs the Termination Agreement section below within 30 days of last authorized activity and/or compensation completion. A completed and signed Agreement serves as Notice of Project Completion (9VAC25-210-130 F).

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violation.

Authorized Signature: _____

Print Name: _____

Title: _____ Phone: _____

Date: _____ Email: _____

TERMINATION AGREEMENT BY CONSENT – PROJECT COMPLETION

Permittee Name:_____

Permittee Mailing Address: _____

Permittee Phone: _____

I hereby consent to the termination of coverage for VWP Individual Permit Number 19-0029.

"I certify under penalty of law that all activities and any required compensatory mitigation authorized by a VWP permit have been completed. I understand that by submitting this notice of termination that I am no longer authorized to perform activities in surface waters in accordance with the VWP permit, and that performing activities in surface waters is unlawful where the activity is not authorized by a VWP permit, unless otherwise excluded from obtaining a permit. I also understand that the submittal of this notice does not release me from liability for any violations of this VWP permit."

Permittee Signature: _____

Impact Construction Status Table Continued (if needed)

Additional Page [#] of [#]					
Authorized impact number	**Construction activities not started**	**Construction activities started**	**Construction activities started but currently not active**	**Does this impact involve culvert(s)[1]?**	**Construction activities complete[2]**

Attachment 2: MONTHLY VWP PERMIT INSPECTION CHECKLIST

An inspection of all permitted impact areas, avoided waters and wetlands, and permanently preserved waters, wetlands and upland areas must be conducted at least once every month during active construction activities. Maintain this record on-site and available for inspection by DEQ staff.

Project Name	Capital One Data Center	**VWP Permit #**	19-0029	**Inspection Date**	
Inspector Name & Affiliation		**Phone # & Email Address**			

Based on reading of VWP permit No. 19-0029 including authorized impacts map entitled "Capital One Data Center – Overall Site & Sheet Index", "Capital One Data Center – Impact Area 1 & 2", and "Capital One Data Center – Impact Area 3 & 4" dated February 2019 and received February 21, 2019, and my inspection on the date referenced above, to the best of my knowledge this project (____is in compliance / ____ is not in compliance) with the VWP Permit.

I certify that the information contained in this report is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

_____ Signature of Inspector

_____ Date

REVIEWED DURING SITE INSPECTION	Yes	No	N/A	Notes & Corrective Action Taken / Date Completed (use back of page if necessary)
Unauthorized impacts to surface waters, including wetlands, or upland preservation areas **have occurred**.* *(This includes sedimentation impacts due to inadequate or failed erosion controls.)*	☐	☐		
Non-impacted wetlands, streams and preservations areas within 50 feet of construction are clearly marked to prevent unpermitted impacts.	☐	☐	☐	
Temporary impacts are being restored to original contours, stabilized, and allowed to re-establish with wetland vegetation.	☐	☐	☐	
Construction activities are **not** substantially disrupting aquatic life movement.	☐	☐	☐	
E&S controls are present, properly maintained, and functioning.	☐	☐	☐	
In-stream work is being performed in the dry with the appropriate use of cofferdams, sheetpiling, etc., to minimize stream bottom disturbance and turbidity.	☐	☐	☐	
Pipes and/or culverts for road crossings are countersunk to provide for the re-establishment of low flow fish passage and/or a natural stream bottom, unless otherwise authorized.	☐	☐	☐	
Time-of-year restrictions regarding impacts to surface waters are being adhered to.	☐	☐	☐	
Water quality monitoring is being conducted during stream impacts.	☐	☐	☐	
Streams and wetlands are free from any sheen or discoloration that may indicate a spill of oil, lubricants, concrete or other pollutants. **	☐	☐	☐	
Heavy equipment is placed on mats or geotextile fabric when working in wetlands.	☐	☐	☐	
Exposed slopes/stream banks are stabilized immediately upon completion of work in each impact area.	☐	☐	☐	

* If unauthorized impacts have occurred, you **must** email or fax a copy of this report to DEQ within 24 hours of discovery. Email pro.vwpcompliance@deq.virginia.gov Fax: (804)-527-5106

** Any fish kills or spills of fuels or oils shall be reported to DEQ immediately upon discovery at (804) 527-5020. If DEQ cannot be reached, the spill or fish kill shall be reported to the Virginia Department of Emergency Management (VDEM) at 1-800-468-8892 or the National Response Center (NRC) at 1-800-424-8802. Any spill of oil as defined in § 62.1-44.34:14 of the Code of Virginia that is less than 25 gallons and that reaches, or that is expected to reach, land only is not reportable, if recorded per § 62.1-44.34:19.2 of the Code of Virginia and if properly cleaned up.

Notes

March 12, 2020

FACT SHEET
Virginia Water Protection Individual Permit No. 19-0029
Capital One Data Center

DEQ has reviewed the application for the Virginia Water Protection (VWP) Individual Permit Number 19-0029 and has determined that the project qualifies for an individual permit.

The following details the application review process and summarizes relevant information for developing the Part I - Special Conditions for permit issuance.

1. Contact Information:

Permittee Legal Name and Address:

Capital One Services, LLC.
Attn: Reginald Martin
1680 Capital One Drive
McLean, VA 22102
Reginald.Martin@capitalone.com

Agent Legal Name and Address:

VHB, Inc.
Attn: Tim Davis
351 McLaws Circle, Suite 3
Williamsburg, VA 23185
TDavis@vhb.com

2. Processing Dates:

Received Application:	January 8, 2019
Application Complete:	December 13, 2019
Permit Fee Deposited by Accounting:	December 13, 2019
Processing Deadline (120 days from Complete Application):	April 11, 2020
1st Request for Additional Information Sent:	January 22, 2019
Final Request for Additional Information Received:	October 11, 2019
Notification of JPA sent to Local Government(s):	February 25, 2019
Request for comments sent to VDH, VDGIF, VDCR, VMRC:	February 8, 2019
Letters sent to Riparian Land Owners:	March 5, 2019
Draft Permit Package Issued:	January 22, 2020
Copy of Public Notice sent to DEQ Central Office:	January 28, 2020
Copy of Public Notice sent to Local Gov't and Planning District:	January 22, 2020

Public Notice Published:	January 28, 2020
End of 30-Day Public Comment Period:	February 27, 2020
Received Verification of Publication:	January 31, 2020
Permit Issued:	March 12, 2020

3. Project Location:

The project is located southwest of Meadowville Technology Parkway, within Meadowville Technology Park, in Chesterfield County, VA.

City/County: Chesterfield
Waterbody: JA45
Basin: James River Basin
Subbasin: Lower James
Section: 5c
Class: III
Special Standards: None
HUC: 02080207
Latitude & Longitude: 37.36318, -77.32937
U.S.G.S. Quadrangle: Hopewell
State Watershed No.: JA45

4. Project Description:

The permittee proposes to construct the second phase of a data center project, including a new building and parking areas, located within Meadowville Technology Park in Chesterfield County, VA.

5. Avoidance and Minimization Efforts:

The applicant evaluated both onsite and offsite alternatives in an effort to avoid and minimize surface water impacts while still achieving the projects purpose.

Off-site alternatives
The search for suitable locations for this project began prior to the issuance of the previous VWP permit (WP4-12-1595) for this project. During this search, twenty three alternative sites were evaluated, but ultimately narrowed down to three sites based on a variety of site suitability factors including the proximity to existing infrastructure as well as security considerations. Of the three remaining sites, one was eliminated from consideration because it was not large enough for the project and another was eliminated from consideration because surface water impacts appeared as though they would be greater than on the selected alternative site.

On-site alternatives
As part of Phase II of this project, the applicant intended to construct a 170,000 square foot service center along with infrastructure needed to support a facility of this size. This original plan would have impacted 3.92 acres of forested wetland. In an effort to avoid and minimize

impacts, the applicant reduced the size of the proposed service center by 20,000 square feet, which allowed them to proportionally reduce the infrastructure needed to support a smaller building. These changes reduced forested wetland impacts from 3.92 acres to 2.56 acres, a reduction of 1.36 acres.

Ideally, the applicant would construct 7-8 parking spaces per 1,000 square feet of building space, but they opted to ultimately construct 6 spaces per 1,000 square feet in order to reduce surface water impacts. Additionally, the applicant also opted to construct the lot further away from the building in an effort to reduce surface water impacts. The applicant also explored constructing a parking garage was it was determined to not be cost effective for the project.

For additional information, see pages 1-4 of the additional information response dated June 4, 2019.

Based upon staff review, the proposed plan represents the least environmentally damaging and practicable alternative and all unavoidable permanent impacts will be adequately mitigated through the proposed compensation plan.

6. Project Impacts:

This permit authorizes the total permanent impact to 2.56 acres of forested wetland in order to construct the data center building, parking, and other associated infrastructure.

- Authorized surface water impacts described under this condition shall be as depicted on the impacts map entitled "Capital One Data Center – Overall Site & Sheet Index", "Capital One Data Center – Impact Area 1 & 2", and "Capital One Data Center – Impact Area 3 & 4" dated February 2019 and received February 21, 2019.

7. Compensation for Unavoidable Impacts:

The permittee shall compensate for permanent wetland impacts through the purchase of 5.12 wetland credits from a DEQ approved mitigation bank, an approved in-lieu fee fund, or a combination thereof that is authorized and approved by DEQ to sell credits in the area in which the impacts will occur and has credits available (as released by DEQ). The credit sale shall be in accordance with the approved Mitigation Banking Instrument for the mitigation bank. Purchase of required mitigation credits shall occur first through the purchase of available released credits followed by the purchase of advance credits.

The permittee has already purchased 3.6 wetland credits from Scandia Mitigation Bank. A bill of sale for these credits was provided in the February 21, 2019 response to additional information request. **Therefore, an additional 1.52 wetland mitigation credits are required to be purchased and received by DEQ prior to initiating work in any surface waters as authorized by this permit.** The permittee has provided a letter of credit availability from Chickahominy Environmental Bank and Bailey Mitigation Bank for the remaining 1.52 credits.

The compensation package conforms with the preference hierarchy of the 2008 Compensatory Mitigation Rule issued by the U.S. Environmental Protection Agency and the U.S. Army Corps of Engineers (USACE) and DEQ's Guidance Memorandum No. 09-2004 (Applying Compensatory Mitigation Preferences Provided in the EPA Mitigation Rule to Virginia Water Protection Permitting).

8. Site Inspection:

A site visit was conducted on December 4, 2019 by VWP staff Cara Witte. The first phase of the project has been completed and stabilized. No surface water impacts were associated with this phase. A summary of the site inspection is located in VWP Permit File No. WP4-12-1595.

9. Relevant Regulatory Agency Comments:

As part of the application review process, DEQ contacted the appropriate state regulatory agencies and coordinated with various federal regulatory agencies, including the National Oceanic and Atmospheric Association (NOAA). No comments received required a change to VWP individual permit Part I - Special Conditions. Therefore, the staff anticipates no adverse effect on water quality and fish and wildlife resources provided the applicant adheres to the permit conditions.

Summary of State Agency Comments and Actions
By email/letter dated February 8, 2019, comments were requested from the following state agencies: Virginia Department of Game and Inland Fisheries (DGIF), Virginia Department of Conservation and Recreation (DCR), Virginia Marine Resources Commission (VMRC), and Virginia Department of Health (VDH). Failure to provide comments within 45 calendar days of the DEQ request for comments infers that the agency has no comments on the project activities.

DCR
DCR provided the following comments in memorandums dated March 25, 2019 and September 9, 2019.

- Recommends the implementation of and strict adherence to applicable state and local erosion and sediment control/storm water management laws and regulations.

  Oversight of stormwater management and erosion and sediment control measures is the responsibility of DEQ-Stormwater Management or the locality, if such responsibility has been delegated. Any such requirements will be implemented under the oversight of that program.

- Recommends coordination with DGIF and NOAA as those agencies have regulatory authority for the management and protection of the identified threatened and endangered species (Atlantic sturgeon).

Staff requested comments from DGIF on the proposed project on February 8, 2019 and from NOAA on June 19, 2019.

- Recommends efforts to minimize edge in remaining fragments, retain natural corridors that allow movement between fragments and designing the intervening landscape to minimize its hostility to native wildlife (natural cover versus lawns).

  This recommendation was not included in the permit because it does not pertain to threatened or endangered species.

DGIF
DGIF responded to DEQ's request for comments by email on June 19, 2019. This email stated that DGIF did not have significant concerns regarding threatened and endangered species for this project.

VDH
VDH provided comments in a memorandum dated February 11, 2019, and received on February 19, 2019. The nearest downstream raw water intake is located approximately 6 miles from the construction site. The name of the facility is Virginia American-Hopewell WTP and operates under PWSID 3670800.

VMRC
VMRC provided comments in a letter dated and transmitted by email on March 14, 2019. No permit will be required from VMRC for this project.

Summary of Federal Agency Comments and Actions
The project is being reviewed by the U.S. Army Corps of Engineers (USACE) for an individual permit, which the USACE issued on December 5, 2019.

10. Riparian Landowner Notification:

Staff notified riparian landowners located adjacent to the impact area and within one-half mile downstream of each distinct impact area by letter dated March 5, 2019. Notifications of riparian and adjacent landowners were conducted in accordance with DEQ's Guidance Memorandum No. 11-2005 (Revised Local Government, Riparian Property Owner, Adjacent Property Owner or Resident, and General Public Notification Procedures for VPDES, VPSA and VWP Permit Applications and Draft Permits).

11. Changes in Permit Part I - Special Conditions Due to Public Comments:

The public notice was published in Richmond Times-Dispatch on January 28, 2020. The public comment period ran from January 28, 2020 to February 27, 2020.

One comment was received from the Richmond Regional Planning District to say that they have no comments on the proposed project.

12. Special Conditions:

The following conditions were developed to protect instream beneficial uses, to ensure compliance with applicable water quality standards, to prevent significant impairment of state waters or fish and wildlife resources, to provide for no net loss of wetland acreage, and to provide no net loss of functions in all surface waters through compensatory mitigation and monitoring and reporting.

Section A Authorized Activities

Nos. 1-3 addresses the activities authorized by this permit, including impact types and limits.

Section B Permit Term

Nos. 1-2 addresses the permit term and re-issuance process to ensure that all permit conditions are completed.

Section C Standard Project Conditions

No. 1 addresses the requirement for the minimization of adverse impacts to instream beneficial uses.
No. 2 ensures that the project will be executed in a manner that limits the disruption of the movement of aquatic life.
No. 3 ensures that downstream flows will be maintained to protect both instream and off-stream beneficial uses.
No. 4 ensures the minimization of adverse effects on navigation.
No. 5 ensures the passage of high flows.
No. 6 requires maintenance of continuous flow of perennial springs for the protection of instream beneficial use.
No. 7 ensures that dredging and filling operations will minimizes stream bottom disturbances and turbidity.
No. 8 requires instream activities to be conducted during low-flow conditions to protect instream beneficial uses.
No. 9 requires adherence to VESCH and controls maintained in good, working order
Nos. 10 through 12 provide requirements and limitations on the entry of various materials (including concrete, fill, construction and waste material, fuels, lubricants, and untreated stormwater runoff) into state waters.
No. 13 limit the use of machinery and equipment in surface waters to protect beneficial uses.
Nos. 14 through 18 require temporary disturbances to surface waters during construction to be avoided and minimized to the maximum extent practicable and the restoration of such temporary disturbances.
No. 19 prohibits the violation of Water Quality Standards in surface waters as a result of project activities.
No. 20 requires the identification of all non-impacted surface waters in the vicinity of the proposed activity to prevent unpermitted impacts.

Nos. 21 through 25 set forth all reporting requirements concerning construction, monitoring, compensation, and restoration as required by current law and regulations.

Section D Stream Modifications, Including Intake/Outfall Structures

No. 1 prohibits the use of stream substrate for erosion control to avoid additional impacts to state waters.
No. 2 requires upland disposal of material removed from stream substrate to avoid unpermitted impacts to surface waters.
No. 3 ensures riprap placement conforms to current law and regulation.
Nos. 4 and 5 direct the placement and contents of materials for the construction of submerged structures, and on-bank storage and staging of materials, to protect water quality and fish and wildlife resources.

Section E Installation of Utilities

No. 1 requires the minimization of disturbance to surface waters and restoration to preconstruction conditions following utility line installation.
No. 2 sets a 90-day time limit for temporary sidecasting during trench excavation to minimize impacts to surface waters.
No. 3 provides the requirements for trench construction to avoid the drainage of surface waters.

Section F Road Crossings

No. 1 provides specifications for access road construction to minimize adverse effects to surface waters.
No. 2 ensures pipes and culvert construction is conducted in the dry to protect water quality and wildlife habitat.
No. 3 requires that temporary impacts be restored immediately following construction to minimize impacts to water quality and fish and wildlife resources.

Section G Stormwater Management Facilities

No. 1 defines the general requirements for stormwater management facility construction to minimize adverse effects to aquatic resources and provide for long-term aquatic resources protection and enhancement.
No. 2 provides limits and guidance for maintenance excavation to avoid unpermitted impacts to surface waters.
No. 3 requires correct draining methods to minimize sedimentation of surface waters.

Section H Project Construction Monitoring and Submittals (Impact Sites)

Nos. 1 through 6 address monitoring and submittals required for pre-construction, during construction and post-construction for the impact areas on site.

Section I Compensatory Mitigation

No. 1 describes the compensatory mitigation required to mitigate for the permitted impacts.
Nos. 2 through 3 detail the steps required for the use of in lieu fee credits instead of bank credits.
No. 4 describes the documentation requirement for the purchase of the required amount of credits.

13. General Conditions:

The general conditions specified in the effective VWP Permit Program Regulation 9VAC25-210 apply to all VWP individual permits.

14. General Criteria (9VAC25-260-20 A):

State waters, including wetlands, shall be free from substances attributable to sewage, industrial waste, or other waste in concentrations, amounts, or combinations which contravene established standards or interfere directly or indirectly with designated uses of such water or which are inimical or harmful to human, animal, plant, or aquatic life.

Specific substances to be controlled include, but are not limited to: floating debris, oil, scum, and other floating materials; toxic substances (including those which bioaccumulate); substances that produce color, tastes, turbidity, odors, or settle to form sludge deposits; and substances which nourish undesirable or nuisance aquatic plant life. Effluents which tend to raise the temperature of the receiving water will also be controlled. Conditions within mixing zones established according to 9VAC25-260-20 B do not violate the provisions of this subsection.

15. Staff Findings and Recommendations:

- The proposed activity is consistent with the provisions of the Clean Water Act and State Water Control Law, and will protect instream beneficial uses.
- The proposed permit addresses avoidance and minimization of wetland impacts to the maximum extent practicable.
- The effect of the impact, together with other existing or proposed impacts to wetlands, will not cause or contribute to significant impairment of state waters or fish and wildlife resources.
- The proposed permit conditions address no net loss of wetland acreage and no net loss of functions in all surface waters, through compensatory mitigation and adequately assess compensation implementation via reporting.
- The draft permit reflects the required consultation with and full consideration of the written recommendations of VMRC, VDH, DCR and DGIF.

Staff recommends VWP Individual Permit Number 19-0029 be issued as proposed.

WETLAND DETERMINATION DATA FORM – Atlantic and Gulf Coastal Plain Region

Project/Site: Meadowville Technology Parkway Extension City/County: Chesterfield/ Chesterfield Sampling Date: 9/6/13

Applicant/Owner: Chesterfield Economic Development Authority State: VA Sampling Point: FDS-1

Investigator(s): Jason Bohdan Section, Township, Range: Chesterfield

Landform (hillslope, terrace, etc.): floodplain Local relief (concave, convex, none): none Slope (%): 0.0

Subregion (LRR or MLRA): LRR P Lat: N 37.351236 Long: W 77.323194 Datum: NAD83

Soil Map Unit Name: Aquults (191) NWI classification: none

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ✓ No _____ (If no, explain in Remarks.)

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes ✓ No _____

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ✓	No _____	**Is the Sampled Area within a Wetland?** Yes ✓ No _____
Hydric Soil Present?	Yes ✓	No _____	
Wetland Hydrology Present?	Yes ✓	No _____	

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ✓ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ✓ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ Marl Deposits (B15) **(LRR U)**
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Drainage Patterns (B10)
- ___ Moss Trim Lines (B16)
- ✓ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ✓ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)
- ___ Sphagnum moss (D8) (LRR T, U)

Field Observations:

Surface Water Present?	Yes _____	No ✓	Depth (inches): 0
Water Table Present?	Yes _____	No ✓	Depth (inches): >14
Saturation Present? (includes capillary fringe)	Yes ✓	No _____	Depth (inches): 10

Wetland Hydrology Present? Yes ✓ No _____

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION (Five Strata) – Use scientific names of plants.

Sampling Point: FDS-1

Tree Stratum (Plot sizes: 30)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
5.			
6.			
	0 = Total Cover		
50% of total cover: 0	20% of total cover: 0		
Sapling Stratum (15)			
1. Liquidambar styraciflua	20	yes	FAC
2. Ilex opaca	5	yes	FACU
3.			
4.			
5.			
6.			
	25 = Total Cover		
50% of total cover: 12.5	20% of total cover: 5		
Shrub Stratum (15)			
1. Liquidambar styraciflua	30	yes	FAC
2. Clethra alnifolia	30	yes	FAC
3. Rubus argutus	10	no	FACU
4.			
5.			
6.			
	70 = Total Cover		
50% of total cover: 35	20% of total cover: 14		
Herb Stratum (5)			
1. Scirpus cyperinus	50	yes	FACW
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	50 = Total Cover		
50% of total cover: 25	20% of total cover: 10		
Woody Vine Stratum (30)			
1.			
2.			
3.			
4.			
5.			
	0 = Total Cover		
50% of total cover: 0	20% of total cover: 0		

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 4 (A)

Total Number of Dominant Species Across All Strata: 5 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 80% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	50	x 2 =	100
FAC species	80	x 3 =	240
FACU species	15	x 4 =	60
UPL species	0	x 5 =	0
Column Totals:	145 (A)		400 (B)

Prevalence Index = B/A = 2.8

Hydrophytic Vegetation Indicators:

__ 1 - Rapid Test for Hydrophytic Vegetation

✓ 2 - Dominance Test is >50%

✓ 3 - Prevalence Index is ≤3.0[1]

__ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present.

Definitions of Vegetation Strata:

Tree – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and 3 in. (7.6 cm) or larger in diameter at breast height (DBH).

Sapling – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH.

Shrub – Woody plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height.

Herb – All herbaceous (non-woody) plants, including herbaceous vines, regardless of size. Includes woody plants, except woody vines, less than approximately 3 ft (1 m) in height.

Woody vine – All woody vines, regardless of height.

Hydrophytic Vegetation Present? Yes ✓ No __

Remarks: (If observed, list morphological adaptations below).

FDS-1 is located along the border of the PFO/PEM boundary; therefore, the vegetation plots sampled contained vegetation from both wetland types.

SOIL

Sampling Point: FDS-1

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-3	10YR 3/1	100				M	FSL	
3-4	2.5Y 5/2	65	10YR 3/1	30	D	M	FSL	
			7.5YR 4/6	5	C	M	FSL	
4-14	2.5Y 5/2	90	7.5YR 4/6	10	C	M	FSL	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ Organic Bodies (A6) **(LRR P, T, U)**
- ___ 5 cm Mucky Mineral (A7) **(LRR P, T, U)**
- ___ Muck Presence (A8) **(LRR U)**
- ___ 1 cm Muck (A9) **(LRR P, T)**
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Coast Prairie Redox (A16) **(MLRA 150A)**
- ___ Sandy Mucky Mineral (S1) **(LRR O, S)**
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7) **(LRR P, S, T, U)**
- ___ Polyvalue Below Surface (S8) **(LRR S, T, U)**
- ___ Thin Dark Surface (S9) **(LRR S, T, U)**
- ___ Loamy Mucky Mineral (F1) **(LRR O)**
- ___ Loamy Gleyed Matrix (F2)
- ✓ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Marl (F10) **(LRR U)**
- ___ Depleted Ochric (F11) **(MLRA 151)**
- ___ Iron-Manganese Masses (F12) **(LRR O, P, T)**
- ___ Umbric Surface (F13) **(LRR P, T, U)**
- ___ Delta Ochric (F17) **(MLRA 151)**
- ___ Reduced Vertic (F18) **(MLRA 150A, 150B)**
- ___ Piedmont Floodplain Soils (F19) **(MLRA 149A)**
- ___ Anomalous Bright Loamy Soils (F20) **(MLRA 149A, 153C, 153D)**

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) **(LRR O)**
- ___ 2 cm Muck (A10) **(LRR S)**
- ___ Reduced Vertic (F18) **(outside MLRA 150A,B)**
- ___ Piedmont Floodplain Soils (F19) **(LRR P, S, T)**
- ___ Anomalous Bright Loamy Soils (F20) **(MLRA 153B)**
- ___ Red Parent Material (TF2)
- ___ Very Shallow Dark Surface (TF12) (LRR T, U)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** ✓ **No** _____

Remarks:

WETLAND DETERMINATION DATA FORM – Atlantic and Gulf Coastal Plain Region

Project/Site: Meadowville Technology Parkway Extension City/County: Chesterfield/ Chesterfield Sampling Date: 9/6/13

Applicant/Owner: Chesterfield Economic Development Authority State: VA Sampling Point: FDS-2

Investigator(s): Jason Bohdan Section, Township, Range: Chesterfield

Landform (hillslope, terrace, etc.): hillslope Local relief (concave, convex, none): none Slope (%): 0.5

Subregion (LRR or MLRA): LRR P Lat: N 37.351361 Long: W 77.323319 Datum: NAD83

Soil Map Unit Name: Lonoir silt loam (30B) NWI classification: none

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ✓ No _____ (If no, explain in Remarks.)

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes ✓ No _____

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes _____	No ✓	**Is the Sampled Area within a Wetland?** Yes _____ No ✓
Hydric Soil Present?	Yes _____	No ✓	
Wetland Hydrology Present?	Yes _____	No ✓	

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ Marl Deposits (B15) **(LRR U)**
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Drainage Patterns (B10)
- ___ Moss Trim Lines (B16)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)
- ___ Sphagnum moss (D8) (LRR T, U)

Field Observations:

Surface Water Present?	Yes _____	No ✓	Depth (inches): 0
Water Table Present?	Yes _____	No ✓	Depth (inches): >14
Saturation Present? (includes capillary fringe)	Yes _____	No ✓	Depth (inches): >14

Wetland Hydrology Present? Yes _____ No ✓

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION (Five Strata) – Use scientific names of plants.

Sampling Point: FDS-2

Tree Stratum (Plot sizes: 30)	Absolute % Cover	Dominant Species?	Indicator Status
1. Ilex opaca	25	yes	FACU
2. Quercus alba	25	yes	FACU
3.			
4.			
5.			
6.			
	50 = Total Cover		
50% of total cover: 25	20% of total cover: 12.5		
Sapling Stratum (15)			
1. Liquidambar styraciflua	10	yes	FAC
2. Quercus alba	5	yes	FACU
3. Quercus phellos	2	no	FAC
4.			
5.			
6.			
	17 = Total Cover		
50% of total cover: 8.5	20% of total cover: 3.4		
Shrub Stratum (15)			
1. Gaylussacia baccata	40	yes	FACU
2. Ilex opaca	5	no	FACU
3. Quercus alba	5	no	FACU
4.			
5.			
6.			
	50 = Total Cover		
50% of total cover: 25	20% of total cover: 12.5		
Herb Stratum (5)			
1. Gaylussacia baccata	5	yes	FACU
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	5 = Total Cover		
50% of total cover: 2.5	20% of total cover: 1		
Woody Vine Stratum (30)			
1.			
2.			
3.			
4.			
5.			
	0 = Total Cover		
50% of total cover: 0	20% of total cover: 0		

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 6 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 17% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	0	x 2 =	0
FAC species	12	x 3 =	36
FACU species	110	x 4 =	440
UPL species	0	x 5 =	0
Column Totals:	122 (A)		476 (B)

Prevalence Index = B/A = 3.9

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

___ 2 - Dominance Test is >50%

___ 3 - Prevalence Index is ≤3.0[1]

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present.

Definitions of Vegetation Strata:

Tree – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and 3 in. (7.6 cm) or larger in diameter at breast height (DBH).

Sapling – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH.

Shrub – Woody plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height.

Herb – All herbaceous (non-woody) plants, including herbaceous vines, regardless of size. Includes woody plants, except woody vines, less than approximately 3 ft (1 m) in height.

Woody vine – All woody vines, regardless of height.

Hydrophytic Vegetation Present? Yes _____ No ✓

Remarks: (If observed, list morphological adaptations below).

SOIL

Sampling Point: FDS-2

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-4	2.5Y 5/2	100				M	FSL	
4-14	2.5Y 5/3	100				M	FSL	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

___ Histosol (A1)
___ Histic Epipedon (A2)
___ Black Histic (A3)
___ Hydrogen Sulfide (A4)
___ Stratified Layers (A5)
___ Organic Bodies (A6) **(LRR P, T, U)**
___ 5 cm Mucky Mineral (A7) **(LRR P, T, U)**
___ Muck Presence (A8) **(LRR U)**
___ 1 cm Muck (A9) **(LRR P, T)**
___ Depleted Below Dark Surface (A11)
___ Thick Dark Surface (A12)
___ Coast Prairie Redox (A16) **(MLRA 150A)**
___ Sandy Mucky Mineral (S1) **(LRR O, S)**
___ Sandy Gleyed Matrix (S4)
___ Sandy Redox (S5)
___ Stripped Matrix (S6)
___ Dark Surface (S7) **(LRR P, S, T, U)**
___ Polyvalue Below Surface (S8) **(LRR S, T, U)**
___ Thin Dark Surface (S9) **(LRR S, T, U)**
___ Loamy Mucky Mineral (F1) **(LRR O)**
___ Loamy Gleyed Matrix (F2)
___ Depleted Matrix (F3)
___ Redox Dark Surface (F6)
___ Depleted Dark Surface (F7)
___ Redox Depressions (F8)
___ Marl (F10) **(LRR U)**
___ Depleted Ochric (F11) **(MLRA 151)**
___ Iron-Manganese Masses (F12) **(LRR O, P, T)**
___ Umbric Surface (F13) **(LRR P, T, U)**
___ Delta Ochric (F17) **(MLRA 151)**
___ Reduced Vertic (F18) **(MLRA 150A, 150B)**
___ Piedmont Floodplain Soils (F19) **(MLRA 149A)**
___ Anomalous Bright Loamy Soils (F20) **(MLRA 149A, 153C, 153D)**

Indicators for Problematic Hydric Soils[3]:

___ 1 cm Muck (A9) **(LRR O)**
___ 2 cm Muck (A10) **(LRR S)**
___ Reduced Vertic (F18) **(outside MLRA 150A,B)**
___ Piedmont Floodplain Soils (F19) **(LRR P, S, T)**
___ Anomalous Bright Loamy Soils (F20) **(MLRA 153B)**
___ Red Parent Material (TF2)
___ Very Shallow Dark Surface (TF12) (LRR T, U)
___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes _____ **No** ✓

Remarks:

WETLAND DETERMINATION DATA FORM – Atlantic and Gulf Coastal Plain Region

Project/Site: Meadowville Technology Parkway Extension City/County: Chesterfield/ Chesterfield Sampling Date: 9/9/13

Applicant/Owner: Chesterfield Economic Development Authority State: VA Sampling Point: FDS-3

Investigator(s): Jason Bohdan Section, Township, Range: Chesterfield

Landform (hillslope, terrace, etc.): floodplain Local relief (concave, convex, none): none Slope (%): 0.0

Subregion (LRR or MLRA): LRR P Lat: N 37.350683 Long: W 77.320311 Datum: NAD83

Soil Map Unit Name: Atlee silt loam (21B) NWI classification: none

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ✓ No _____ (If no, explain in Remarks.)

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes ✓ No _____

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ✓	No _____	**Is the Sampled Area within a Wetland?** Yes ✓ No _____
Hydric Soil Present?	Yes ✓	No _____	
Wetland Hydrology Present?	Yes ✓	No _____	

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ✓ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ✓ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ Marl Deposits (B15) **(LRR U)**
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ✓ Sparsely Vegetated Concave Surface (B8)
- ✓ Drainage Patterns (B10)
- ___ Moss Trim Lines (B16)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)
- ___ Sphagnum moss (D8) (LRR T, U)

Field Observations:

Surface Water Present?	Yes _____	No ✓	Depth (inches): 0
Water Table Present?	Yes _____	No ✓	Depth (inches): >14
Saturation Present? (includes capillary fringe)	Yes ✓	No _____	Depth (inches): 10

Wetland Hydrology Present? Yes ✓ No _____

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION (Five Strata) – Use scientific names of plants.

Sampling Point: FDS-3

Tree Stratum (Plot sizes: 30)	Absolute % Cover	Dominant Species?	Indicator Status
1. Acer rubrum	75	yes	FAC
2. Ilex opaca	10	no	FACU
3.			
4.			
5.			
6.			
	85 = Total Cover		
50% of total cover: 42.5	20% of total cover: 17		
Sapling Stratum (15)			
1. Ilex opaca	30	yes	FACU
2. Carpinus caroliniana	20	yes	FACW
3.			
4.			
5.			
6.			
	50 = Total Cover		
50% of total cover: 25	20% of total cover: 10		
Shrub Stratum (15)			
1. Ilex opaca	5	yes	FACU
2. Vaccinium corymbosum	1	no	FACW
3.			
4.			
5.			
6.			
	6 = Total Cover		
50% of total cover: 3	20% of total cover: 1.2		
Herb Stratum (5)			
1. Woodwardia areolata	15	yes	FACW
2. Microstegium vimineum	15	yes	FAC
3. Lonicera japonica	2	no	FAC
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	32 = Total Cover		
50% of total cover: 16	20% of total cover: 6.4		
Woody Vine Stratum (30)			
1.			
2.			
3.			
4.			
5.			
	0 = Total Cover		
50% of total cover: 0	20% of total cover: 0		

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 4 (A)

Total Number of Dominant Species Across All Strata: 6 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 67% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	16	x 2 =	32
FAC species	112	x 3 =	336
FACU species	45	x 4 =	180
UPL species	0	x 5 =	0
Column Totals:	173 (A)		548 (B)

Prevalence Index = B/A = 3.2

Hydrophytic Vegetation Indicators:

__ 1 - Rapid Test for Hydrophytic Vegetation

✓ 2 - Dominance Test is >50%

__ 3 - Prevalence Index is ≤3.0[1]

__ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present.

Definitions of Vegetation Strata:

Tree – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and 3 in. (7.6 cm) or larger in diameter at breast height (DBH).

Sapling – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH.

Shrub – Woody plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height.

Herb – All herbaceous (non-woody) plants, including herbaceous vines, regardless of size. Includes woody plants, except woody vines, less than approximately 3 ft (1 m) in height.

Woody vine – All woody vines, regardless of height.

Hydrophytic Vegetation Present? Yes ✓ No __

Remarks: (If observed, list morphological adaptations below).

SOIL

Sampling Point: FDS-3

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-4	2.5Y 4/2	95	7.5YR 4/6	5	C	M	SIL	
4-12	2.5Y 5/3	90	7.5YR 4/6	10	C	M	SIL	
12-14	2.5Y 6/3	75	7.5YR 5/8	25	C	M	L	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ Organic Bodies (A6) **(LRR P, T, U)**
- ___ 5 cm Mucky Mineral (A7) **(LRR P, T, U)**
- ___ Muck Presence (A8) **(LRR U)**
- ___ 1 cm Muck (A9) **(LRR P, T)**
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Coast Prairie Redox (A16) **(MLRA 150A)**
- ___ Sandy Mucky Mineral (S1) **(LRR O, S)**
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7) **(LRR P, S, T, U)**
- ___ Polyvalue Below Surface (S8) **(LRR S, T, U)**
- ___ Thin Dark Surface (S9) **(LRR S, T, U)**
- ___ Loamy Mucky Mineral (F1) **(LRR O)**
- ___ Loamy Gleyed Matrix (F2)
- ✓ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Marl (F10) **(LRR U)**
- ___ Depleted Ochric (F11) **(MLRA 151)**
- ___ Iron-Manganese Masses (F12) **(LRR O, P, T)**
- ___ Umbric Surface (F13) **(LRR P, T, U)**
- ___ Delta Ochric (F17) **(MLRA 151)**
- ___ Reduced Vertic (F18) **(MLRA 150A, 150B)**
- ___ Piedmont Floodplain Soils (F19) **(MLRA 149A)**
- ___ Anomalous Bright Loamy Soils (F20) **(MLRA 149A, 153C, 153D)**

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) **(LRR O)**
- ___ 2 cm Muck (A10) **(LRR S)**
- ___ Reduced Vertic (F18) **(outside MLRA 150A,B)**
- ___ Piedmont Floodplain Soils (F19) **(LRR P, S, T)**
- ___ Anomalous Bright Loamy Soils (F20) **(MLRA 153B)**
- ___ Red Parent Material (TF2)
- ___ Very Shallow Dark Surface (TF12) (LRR T, U)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** ✓ **No** _____

Remarks:

WETLAND DETERMINATION DATA FORM – Atlantic and Gulf Coastal Plain Region

Project/Site: Meadowville Technology Parkway Extension City/County: Chesterfield/ Chesterfield Sampling Date: 9/9/13

Applicant/Owner: Chesterfield Economic Development Authority State: VA Sampling Point: FDS-4

Investigator(s): Jason Bohdan Section, Township, Range: Chesterfield

Landform (hillslope, terrace, etc.): hillslope Local relief (concave, convex, none): none Slope (%): 0-0.5

Subregion (LRR or MLRA): LRR P Lat: N 37.350628 Long: W 77.320469 Datum: NAD83

Soil Map Unit Name: Atlee silt loam (21B) NWI classification: none

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ✓ No _____ (If no, explain in Remarks.)

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes ✓ No _____

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ✓	No _____	**Is the Sampled Area within a Wetland?** Yes _____ No ✓
Hydric Soil Present?	Yes _____	No ✓	
Wetland Hydrology Present?	Yes _____	No ✓	

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ Marl Deposits (B15) **(LRR U)**
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Drainage Patterns (B10)
- ___ Moss Trim Lines (B16)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)
- ___ Sphagnum moss (D8) (LRR T, U)

Field Observations:

Surface Water Present?	Yes _____	No ✓	Depth (inches): 0
Water Table Present?	Yes _____	No ✓	Depth (inches): >14
Saturation Present? (includes capillary fringe)	Yes _____	No ✓	Depth (inches): >14

Wetland Hydrology Present? Yes _____ No ✓

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION (Five Strata) – Use scientific names of plants.

Sampling Point: FDS-4

Tree Stratum (Plot sizes: 30)	Absolute % Cover	Dominant Species?	Indicator Status
1. Quercus alba	40	yes	FACU
2. Acer rubrum	10	no	FAC
3. Quercus phellos	10	no	FAC
4. Liquidambar styraciflua	5	no	FAC
5. Liriodendron tulipifera	5	no	FACU
6.			
	70	= Total Cover	
50% of total cover: 35	20% of total cover: 14		
Sapling Stratum (15)			
1. Acer rubrum	10	yes	FAC
2.			
3.			
4.			
5.			
6.			
	10	= Total Cover	
50% of total cover: 5	20% of total cover: 2		
Shrub Stratum (15)			
1. Ilex opaca	20	yes	FACU
2. Clethra alnifolia	20	yes	FAC
3. Liquidambar styraciflua	5	no	FAC
4. Vaccinium corymbosum	2	no	FACW
5.			
6.			
	47	= Total Cover	
50% of total cover: 23.5	20% of total cover: 9.4		
Herb Stratum ( )			
1. Clethra alnifolia	20	yes	FAC
2. Vitis rotundifolia	10	yes	FAC
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	30	= Total Cover	
50% of total cover: 15	20% of total cover: 6		
Woody Vine Stratum (30)			
1.			
2.			
3.			
4.			
5.			
	0	= Total Cover	
50% of total cover: 0	20% of total cover: 0		

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 4 (A)

Total Number of Dominant Species Across All Strata: 6 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 67% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	2	x 2 =	4
FAC species	90	x 3 =	270
FACU species	65	x 4 =	260
UPL species	0	x 5 =	0
Column Totals:	157 (A)		534 (B)

Prevalence Index = B/A = 3.4

Hydrophytic Vegetation Indicators:

__ 1 - Rapid Test for Hydrophytic Vegetation

✓ 2 - Dominance Test is >50%

__ 3 - Prevalence Index is ≤3.0[1]

__ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present.

Definitions of Vegetation Strata:

Tree – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and 3 in. (7.6 cm) or larger in diameter at breast height (DBH).

Sapling – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH.

Shrub – Woody plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height.

Herb – All herbaceous (non-woody) plants, including herbaceous vines, regardless of size. Includes woody plants, except woody vines, less than approximately 3 ft (1 m) in height.

Woody vine – All woody vines, regardless of height.

Hydrophytic Vegetation Present? Yes ✓ No __

Remarks: (If observed, list morphological adaptations below).

SOIL

Sampling Point: FDS-4

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-2	10YR 2/2	100				M	L	
2-4	2.5Y 4/4	100				M	L	
4-14	2.5Y 6/4	100				M	L	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

___ Histosol (A1)
___ Histic Epipedon (A2)
___ Black Histic (A3)
___ Hydrogen Sulfide (A4)
___ Stratified Layers (A5)
___ Organic Bodies (A6) **(LRR P, T, U)**
___ 5 cm Mucky Mineral (A7) **(LRR P, T, U)**
___ Muck Presence (A8) **(LRR U)**
___ 1 cm Muck (A9) **(LRR P, T)**
___ Depleted Below Dark Surface (A11)
___ Thick Dark Surface (A12)
___ Coast Prairie Redox (A16) **(MLRA 150A)**
___ Sandy Mucky Mineral (S1) **(LRR O, S)**
___ Sandy Gleyed Matrix (S4)
___ Sandy Redox (S5)
___ Stripped Matrix (S6)
___ Dark Surface (S7) **(LRR P, S, T, U)**
___ Polyvalue Below Surface (S8) **(LRR S, T, U)**
___ Thin Dark Surface (S9) **(LRR S, T, U)**
___ Loamy Mucky Mineral (F1) **(LRR O)**
___ Loamy Gleyed Matrix (F2)
___ Depleted Matrix (F3)
___ Redox Dark Surface (F6)
___ Depleted Dark Surface (F7)
___ Redox Depressions (F8)
___ Marl (F10) **(LRR U)**
___ Depleted Ochric (F11) **(MLRA 151)**
___ Iron-Manganese Masses (F12) **(LRR O, P, T)**
___ Umbric Surface (F13) **(LRR P, T, U)**
___ Delta Ochric (F17) **(MLRA 151)**
___ Reduced Vertic (F18) **(MLRA 150A, 150B)**
___ Piedmont Floodplain Soils (F19) **(MLRA 149A)**
___ Anomalous Bright Loamy Soils (F20) **(MLRA 149A, 153C, 153D)**

Indicators for Problematic Hydric Soils[3]:

___ 1 cm Muck (A9) **(LRR O)**
___ 2 cm Muck (A10) **(LRR S)**
___ Reduced Vertic (F18) **(outside MLRA 150A,B)**
___ Piedmont Floodplain Soils (F19) **(LRR P, S, T)**
___ Anomalous Bright Loamy Soils (F20) **(MLRA 153B)**
___ Red Parent Material (TF2)
___ Very Shallow Dark Surface (TF12) (LRR T, U)
___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** _____ **No** ✓

Remarks:

WETLAND DETERMINATION DATA FORM – Atlantic and Gulf Coastal Plain Region

Project/Site: Meadowville Technology Parkway Extension City/County: Chesterfield/ Chesterfield Sampling Date: 9/9/13

Applicant/Owner: Chesterfield Economic Development Authority State: VA Sampling Point: FDS-5

Investigator(s): Jason Bohdan Section, Township, Range: Chesterfield

Landform (hillslope, terrace, etc.): hillslope Local relief (concave, convex, none): none Slope (%): _____

Subregion (LRR or MLRA): LRR P Lat: N 37.351011 Long: W 77.321283 Datum: NAD83

Soil Map Unit Name: Atlee silt loam (21B) NWI classification: none

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ✓ No _____ (If no, explain in Remarks.)

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes ✓ No _____

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes _____	No ✓	**Is the Sampled Area within a Wetland?** Yes _____ No ✓
Hydric Soil Present?	Yes _____	No ✓	
Wetland Hydrology Present?	Yes ✓	No _____	

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ✓ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ Marl Deposits (B15) **(LRR U)**
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Sparsely Vegetated Concave Surface (B8)
- ✓ Drainage Patterns (B10)
- ___ Moss Trim Lines (B16)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)
- ___ Sphagnum moss (D8) (LRR T, U)

Field Observations:

Surface Water Present?	Yes _____	No ✓	Depth (inches): 0	
Water Table Present?	Yes _____	No ✓	Depth (inches): >14	
Saturation Present? (includes capillary fringe)	Yes _____	No ✓	Depth (inches): >14	**Wetland Hydrology Present?** Yes ✓ No _____

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION (Five Strata) – Use scientific names of plants.

Sampling Point: FDS-5

Tree Stratum (Plot sizes: 30)	Absolute % Cover	Dominant Species?	Indicator Status
1. Acer rubrum	20	yes	FAC
2. Quercus alba	15	yes	FACU
3. Carya glabra	15	yes	FACU
4. Liriodendron tulipifera	5	no	FACU
5. Nyssa sylvatica	5	no	FAC
6. Carya alba	5	no	FACU
	65	= Total Cover	
50% of total cover: 32.5	20% of total cover: 13		
Sapling Stratum (15)			
1. Ilex opaca	10	yes	FACU
2. Acer rubrum	5	yes	FAC
3.			
4.			
5.			
6.			
	15	= Total Cover	
50% of total cover: 7.5	20% of total cover: 3		
Shrub Stratum (15)			
1. Quercus alba	2	yes	FACU
2.			
3.			
4.			
5.			
6.			
	2	= Total Cover	
50% of total cover: 1	20% of total cover: 0.4		
Herb Stratum (5)			
1. Chasmanthium laxum	2	yes	FAC
2. Quercus alba	1	yes	FACU
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	3	= Total Cover	
50% of total cover: 1.5	20% of total cover: 0.6		
Woody Vine Stratum (30)			
1.			
2.			
3.			
4.			
5.			
	0	= Total Cover	
50% of total cover: 0	20% of total cover: 0		

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 3 (A)

Total Number of Dominant Species Across All Strata: 8 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 38% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	0	x 2 =	0
FAC species	32	x 3 =	96
FACU species	53	x 4 =	212
UPL species	0	x 5 =	0
Column Totals:	85 (A)		308 (B)

Prevalence Index = B/A = 3.6

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

___ 2 - Dominance Test is >50%

___ 3 - Prevalence Index is ≤3.0[1]

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present.

Definitions of Vegetation Strata:

Tree – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and 3 in. (7.6 cm) or larger in diameter at breast height (DBH).

Sapling – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH.

Shrub – Woody plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height.

Herb – All herbaceous (non-woody) plants, including herbaceous vines, regardless of size. Includes woody plants, except woody vines, less than approximately 3 ft (1 m) in height.

Woody vine – All woody vines, regardless of height.

Hydrophytic Vegetation Present? Yes _____ No ✓

Remarks: (If observed, list morphological adaptations below).

SOIL

Sampling Point: FDS-5

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-6	2.5Y 4/2	100				M	FSL	
6-14	2.5Y 5/4	100				M	FSL	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ Organic Bodies (A6) **(LRR P, T, U)**
- ___ 5 cm Mucky Mineral (A7) **(LRR P, T, U)**
- ___ Muck Presence (A8) **(LRR U)**
- ___ 1 cm Muck (A9) **(LRR P, T)**
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Coast Prairie Redox (A16) **(MLRA 150A)**
- ___ Sandy Mucky Mineral (S1) **(LRR O, S)**
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7) **(LRR P, S, T, U)**
- ___ Polyvalue Below Surface (S8) **(LRR S, T, U)**
- ___ Thin Dark Surface (S9) **(LRR S, T, U)**
- ___ Loamy Mucky Mineral (F1) **(LRR O)**
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Marl (F10) **(LRR U)**
- ___ Depleted Ochric (F11) **(MLRA 151)**
- ___ Iron-Manganese Masses (F12) **(LRR O, P, T)**
- ___ Umbric Surface (F13) **(LRR P, T, U)**
- ___ Delta Ochric (F17) **(MLRA 151)**
- ___ Reduced Vertic (F18) **(MLRA 150A, 150B)**
- ___ Piedmont Floodplain Soils (F19) **(MLRA 149A)**
- ___ Anomalous Bright Loamy Soils (F20) **(MLRA 149A, 153C, 153D)**

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) **(LRR O)**
- ___ 2 cm Muck (A10) **(LRR S)**
- ___ Reduced Vertic (F18) **(outside MLRA 150A,B)**
- ___ Piedmont Floodplain Soils (F19) **(LRR P, S, T)**
- ___ Anomalous Bright Loamy Soils (F20) **(MLRA 153B)**
- ___ Red Parent Material (TF2)
- ___ Very Shallow Dark Surface (TF12) (LRR T, U)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** _____ **No** ✓

Remarks:

WETLAND DETERMINATION DATA FORM – Atlantic and Gulf Coastal Plain Region

Project/Site: Altria Parcel City/County: Chesterfield County Sampling Date: 05/16/2024

Applicant/Owner: Dominion Energy State: VA Sampling Point: FDS-62D1-1

Investigator(s): K. Ratcliffe, A. Whitlock Section, Township, Range: N/A

Landform (hillslope, terrace, etc.): Depression Local relief (concave, convex, none): Concave Slope (%): 3

Subregion (LRR or MLRA): LRR P; MLRA 133A Lat: 37.340316 Long: -77.3151 Datum: NAD83

Soil Map Unit Name: Atlee silt loam NWI classification: None

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ____ No ✓ (If no, explain in Remarks.)

Are Vegetation ____, Soil ____, or Hydrology ____ significantly disturbed? N Are "Normal Circumstances" present? Yes ✓ No ____

Are Vegetation ____, Soil ____, or Hydrology ____ naturally problematic? N (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ✓	No	**Is the Sampled Area within a Wetland?**	**Yes ✓ No**
Hydric Soil Present?	Yes ✓	No		
Wetland Hydrology Present?	Yes ✓	No		

Remarks:

USACE Antecedent Precipitation Tool indicates the site was within "Wetter than Normal Conditions" during the dry season with a condition normalcy index product of 16. The Palmer Drought Severity Index indicates the area is under "Mild Wetness" conditions.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ✓ Surface Water (A1)
- ✓ High Water Table (A2)
- ✓ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ✓ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ Marl Deposits (B15) **(LRR U)**
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Sparsely Vegetated Concave Surface (B8)
- ✓ Drainage Patterns (B10)
- ___ Moss Trim Lines (B16)
- ___ Dry-Season Water Table (C2)
- ✓ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)
- ___ Sphagnum moss (D8) (LRR T, U)

Field Observations:

Surface Water Present?	Yes ✓	No ____	Depth (inches): 2	
Water Table Present?	Yes ✓	No ____	Depth (inches): 0	
Saturation Present? (includes capillary fringe)	Yes ✓	No ____	Depth (inches): 0	**Wetland Hydrology Present? Yes ✓ No ____**

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION (Five Strata) – Use scientific names of plants.

Sampling Point: FDS-62D1-1

Tree Stratum (Plot sizes: 30 ft.)	Absolute % Cover	Dominant Species?	Indicator Status
1. Liquidambar styraciflua	35	YES	FAC
2. Acer rubrum	30	YES	FAC
3. Pinus taeda	25	YES	FAC
4. Quercus phellos	20	NO	FACW
5.			
6.			
	110	= Total Cover	
50% of total cover: 55.0	20% of total cover: 22.0		
Sapling Stratum (30 ft.)			
1. Acer rubrum	25	YES	FAC
2. Liquidambar styraciflua	25	YES	FAC
3. Quercus phellos	15	YES	FACW
4.			
5.			
6.			
	65	= Total Cover	
50% of total cover: 32.5	20% of total cover: 13.0		
Shrub Stratum (30 ft.)			
1. N/A			
2.			
3.			
4.			
5.			
6.			
	0	= Total Cover	
50% of total cover: 0.0	20% of total cover: 0.0		
Herb Stratum (30 ft.)			
1. Microstegium vimineum	50	YES	FAC
2. Boehmeria cylindrica	15	YES	FACW
3. Carex lurida	15	YES	OBL
4. Toxicodendron radicans	10	NO	FAC
5. Acer rubrum	5	NO	FAC
6. Onoclea sensibilis	5	NO	FACW
7. Parthenocissus quinquefolia	5	NO	FACU
8.			
9.			
10.			
11.			
	105	= Total Cover	
50% of total cover: 52.5	20% of total cover: 21.0		
Woody Vine Stratum (30 ft.)			
1. N/A			
2.			
3.			
4.			
5.			
	0	= Total Cover	
50% of total cover: 0.0	20% of total cover: 0.0		

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 9 (A)

Total Number of Dominant Species Across All Strata: 9 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100.0% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	15	x 1 =	15
FACW species	55	x 2 =	110
FAC species	205	x 3 =	615
FACU species	5	x 4 =	20
UPL species	0	x 5 =	0
Column Totals:	280 (A)		760 (B)

Prevalence Index = B/A = 2.71

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

✓ 2 - Dominance Test is >50%

✓ 3 - Prevalence Index is ≤3.0[1]

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present.

Definitions of Vegetation Strata:

Tree – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and 3 in. (7.6 cm) or larger in diameter at breast height (DBH).

Sapling – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH.

Shrub – Woody plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height.

Herb – All herbaceous (non-woody) plants, including herbaceous vines, regardless of size. Includes woody plants, except woody vines, less than approximately 3 ft (1 m) in height.

Woody vine – All woody vines, regardless of height.

Hydrophytic Vegetation Present? Yes ✓ No ___

Remarks: (If observed, list morphological adaptations below).

SOIL

Sampling Point: FDS-62D1-1

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-5	2.5Y 5/2	85	10YR 4/6	15	C	M	SC	
5-12	2.5Y 5/2	80	10YR 5/8	10	C	M	SC	
			10YR 4/4	10	C	M		
12-24	2.5Y 6/2	80	10YR 5/8	20	C	M	C	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

___ Histosol (A1)
___ Histic Epipedon (A2)
___ Black Histic (A3)
___ Hydrogen Sulfide (A4)
___ Stratified Layers (A5)
___ Organic Bodies (A6) **(LRR P, T, U)**
___ 5 cm Mucky Mineral (A7) **(LRR P, T, U)**
___ Muck Presence (A8) **(LRR U)**
___ 1 cm Muck (A9) **(LRR P, T)**
___ Depleted Below Dark Surface (A11)
___ Thick Dark Surface (A12)
___ Coast Prairie Redox (A16) **(MLRA 150A)**
___ Sandy Mucky Mineral (S1) **(LRR O, S)**
___ Sandy Gleyed Matrix (S4)
___ Sandy Redox (S5)
___ Stripped Matrix (S6)
___ Dark Surface (S7) **(LRR P, S, T, U)**
___ Polyvalue Below Surface (S8) **(LRR S, T, U)**
___ Thin Dark Surface (S9) **(LRR S, T, U)**
___ Loamy Mucky Mineral (F1) **(LRR O)**
___ Loamy Gleyed Matrix (F2)
✓ Depleted Matrix (F3)
___ Redox Dark Surface (F6)
___ Depleted Dark Surface (F7)
___ Redox Depressions (F8)
___ Marl (F10) **(LRR U)**
___ Depleted Ochric (F11) **(MLRA 151)**
___ Iron-Manganese Masses (F12) **(LRR O, P, T)**
___ Umbric Surface (F13) **(LRR P, T, U)**
___ Delta Ochric (F17) **(MLRA 151)**
___ Reduced Vertic (F18) **(MLRA 150A, 150B)**
___ Piedmont Floodplain Soils (F19) **(MLRA 149A)**
___ Anomalous Bright Loamy Soils (F20) **(MLRA 149A, 153C, 153D)**

Indicators for Problematic Hydric Soils[3]:

___ 1 cm Muck (A9) **(LRR O)**
___ 2 cm Muck (A10) **(LRR S)**
___ Reduced Vertic (F18) **(outside MLRA 150A,B)**
___ Piedmont Floodplain Soils (F19) **(LRR P, S, T)**
___ Anomalous Bright Loamy Soils (F20) **(MLRA 153B)**
___ Red Parent Material (TF2)
___ Very Shallow Dark Surface (TF12) (LRR T, U)
___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** ✓ **No** _____

Remarks:

WETLAND DETERMINATION DATA FORM – Atlantic and Gulf Coastal Plain Region

Project/Site: Altria Parcel City/County: Chesterfield County Sampling Date: 05/16/2024

Applicant/Owner: Dominion Energy State: VA Sampling Point: FDS-62D1-2

Investigator(s): K. Ratcliffe, A. Whitlock Section, Township, Range: N/A

Landform (hillslope, terrace, etc.): Slope Local relief (concave, convex, none): Convex Slope (%): 2

Subregion (LRR or MLRA): LRR P; MLRA 133A Lat: 37.340387 Long: -77.315311 Datum: NAD83

Soil Map Unit Name: Atlee silt loam NWI classification: Upland

Are climatic / hydrologic conditions on the site typical for this time of year? Yes _____ No ✓ (If no, explain in Remarks.)

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? N Are "Normal Circumstances" present? Yes ✓ No _____

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? N (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes		No	✓
Hydric Soil Present?	Yes		No	✓
Wetland Hydrology Present?	Yes		No	✓

Is the Sampled Area within a Wetland? Yes _____ No ✓

Remarks:

USACE Antecedent Precipitation Tool indicates the site was within "Wetter than Normal Conditions" during the dry season with a condition normalcy index product of 16. The Palmer Drought Severity Index indicates the area is under "Mild Wetness" conditions.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ Marl Deposits (B15) **(LRR U)**
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Drainage Patterns (B10)
- ___ Moss Trim Lines (B16)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)
- ___ Sphagnum moss (D8) (LRR T, U)

Field Observations:

Surface Water Present? Yes _____ No ✓ Depth (inches): N/A

Water Table Present? Yes _____ No ✓ Depth (inches): >24

Saturation Present? (includes capillary fringe) Yes _____ No ✓ Depth (inches): >24

Wetland Hydrology Present? Yes _____ No ✓

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION (Five Strata) – Use scientific names of plants.

Sampling Point: FDS-62D1-2

Tree Stratum (Plot sizes: 30 ft.)	Absolute % Cover	Dominant Species?	Indicator Status
1. Pinus taeda	25	YES	FAC
2. Quercus alba	25	YES	FACU
3. Ilex opaca	20	YES	FAC
4. Liquiambar styraciflua	15	NO	FAC
5. Quercus phellos	15	NO	FACW
6.			
	100	= Total Cover	

50% of total cover: 50.0 20% of total cover: 20.0

Sapling Stratum (30 ft.)			
1. Quercus alba	25	YES	FACU
2. Quercus marilandica	25	YES	UPL
3. Ilex opaca	20	YES	FAC
4. Quercus phellos	15	NO	FACW
5.			
6.			
	85	= Total Cover	

50% of total cover: 42.5 20% of total cover: 17.0

Shrub Stratum (30 ft.)			
1. N/A			
2.			
3.			
4.			
5.			
6.			
	0	= Total Cover	

50% of total cover: 0.0 20% of total cover: 0.0

Herb Stratum (30 ft.)			
1. Lonicera japonica	20	YES	FACU
2. Parthenocissus quinquefolia	10	YES	FACU
3. Polystichum acristichoides	10	YES	FACU
4. Duchesnea indica	5	NO	FACU
5. Ilex opaca	5	NO	FAC
6.			
7.			
8.			
9.			
10.			
11.			
	50	= Total Cover	

50% of total cover: 25.0 20% of total cover: 10.0

Woody Vine Stratum (30 ft.)			
1. Vitis rotundifolia	20	YES	FAC
2.			
3.			
4.			
5.			
	20	= Total Cover	

50% of total cover: 10.0 20% of total cover: 4.0

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 4 (A)

Total Number of Dominant Species Across All Strata: 10 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 40.0% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	30	x 2 =	60
FAC species	105	x 3 =	315
FACU species	95	x 4 =	380
UPL species	25	x 5 =	125
Column Totals:	255 (A)		880 (B)

Prevalence Index = B/A = 3.45

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

___ 2 - Dominance Test is >50%

___ 3 - Prevalence Index is ≤3.0[1]

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present.

Definitions of Vegetation Strata:

Tree – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and 3 in. (7.6 cm) or larger in diameter at breast height (DBH).

Sapling – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH.

Shrub – Woody plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height.

Herb – All herbaceous (non-woody) plants, including herbaceous vines, regardless of size. Includes woody plants, except woody vines, less than approximately 3 ft (1 m) in height.

Woody vine – All woody vines, regardless of height.

Hydrophytic Vegetation Present? Yes _____ No ✓

Remarks: (If observed, list morphological adaptations below).

SOIL

Sampling Point: FDS-62D1-2

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-2	10YR 2/2	100					SCL	
2-5	10YR 4/3	100					SCL	
5-24	2.5Y 6/4	80	2.5Y 6/8	20	C	M	SC	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

___ Histosol (A1)
___ Histic Epipedon (A2)
___ Black Histic (A3)
___ Hydrogen Sulfide (A4)
___ Stratified Layers (A5)
___ Organic Bodies (A6) **(LRR P, T, U)**
___ 5 cm Mucky Mineral (A7) **(LRR P, T, U)**
___ Muck Presence (A8) **(LRR U)**
___ 1 cm Muck (A9) **(LRR P, T)**
___ Depleted Below Dark Surface (A11)
___ Thick Dark Surface (A12)
___ Coast Prairie Redox (A16) **(MLRA 150A)**
___ Sandy Mucky Mineral (S1) **(LRR O, S)**
___ Sandy Gleyed Matrix (S4)
___ Sandy Redox (S5)
___ Stripped Matrix (S6)
___ Dark Surface (S7) **(LRR P, S, T, U)**
___ Polyvalue Below Surface (S8) **(LRR S, T, U)**
___ Thin Dark Surface (S9) **(LRR S, T, U)**
___ Loamy Mucky Mineral (F1) **(LRR O)**
___ Loamy Gleyed Matrix (F2)
___ Depleted Matrix (F3)
___ Redox Dark Surface (F6)
___ Depleted Dark Surface (F7)
___ Redox Depressions (F8)
___ Marl (F10) **(LRR U)**
___ Depleted Ochric (F11) **(MLRA 151)**
___ Iron-Manganese Masses (F12) **(LRR O, P, T)**
___ Umbric Surface (F13) **(LRR P, T, U)**
___ Delta Ochric (F17) **(MLRA 151)**
___ Reduced Vertic (F18) **(MLRA 150A, 150B)**
___ Piedmont Floodplain Soils (F19) **(MLRA 149A)**
___ Anomalous Bright Loamy Soils (F20) **(MLRA 149A, 153C, 153D)**

Indicators for Problematic Hydric Soils[3]:

___ 1 cm Muck (A9) **(LRR O)**
___ 2 cm Muck (A10) **(LRR S)**
___ Reduced Vertic (F18) **(outside MLRA 150A,B)**
___ Piedmont Floodplain Soils (F19) **(LRR P, S, T)**
___ Anomalous Bright Loamy Soils (F20) **(MLRA 153B)**
___ Red Parent Material (TF2)
___ Very Shallow Dark Surface (TF12) (LRR T, U)
___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** _____ **No** ✓

Remarks:

WETLAND DETERMINATION DATA FORM – Atlantic and Gulf Coastal Plain Region

Project/Site: Altria Parcel City/County: Chesterfield County Sampling Date: 05/16/2024

Applicant/Owner: Dominion Energy State: VA Sampling Point: FDS-62U1-2

Investigator(s): K. Ratcliffe, A. Whitlock Section, Township, Range: N/A

Landform (hillslope, terrace, etc.): Slope Local relief (concave, convex, none): Convex Slope (%): 4

Subregion (LRR or MLRA): LRR P; MLRA 133A Lat: 37.340158 Long: -77.316173 Datum: NAD83

Soil Map Unit Name: Atlee silt loam NWI classification: Upland

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ____ No ✓ (If no, explain in Remarks.)

Are Vegetation ____, Soil ____, or Hydrology ____ significantly disturbed? N Are "Normal Circumstances" present? Yes ✓ No ____

Are Vegetation ____, Soil ____, or Hydrology ____ naturally problematic? N (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ☐	No ✓	**Is the Sampled Area within a Wetland?**	**Yes** ____ **No** ✓
Hydric Soil Present?	Yes ☐	No ✓		
Wetland Hydrology Present?	Yes ✓	No ☐		

Remarks:

USACE Antecedent Precipitation Tool indicates the site was within "Wetter than Normal Conditions" during the dry season with a condition normalcy index product of 16. The Palmer Drought Severity Index indicates the area is under "Mild Wetness" conditions.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ✓ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ Marl Deposits (B15) **(LRR U)**
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Drainage Patterns (B10)
- ___ Moss Trim Lines (B16)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)
- ___ Sphagnum moss (D8) (LRR T, U)

Field Observations:

Surface Water Present?	Yes ____	No ✓	Depth (inches): N/A	
Water Table Present?	Yes ____	No ✓	Depth (inches): >24	
Saturation Present? (includes capillary fringe)	Yes ____	No ✓	Depth (inches): >24	**Wetland Hydrology Present? Yes** ✓ **No** ____

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION (Five Strata) – Use scientific names of plants.

Sampling Point: FDS-62U1-2

Tree Stratum (Plot sizes: 30 ft.)	Absolute % Cover	Dominant Species?	Indicator Status
1. N/A			
2.			
3.			
4.			
5.			
6.			
	0 = Total Cover		

50% of total cover: 0.0 20% of total cover: 0.0

Sapling Stratum (30 ft.)			
1. N/A			
2.			
3.			
4.			
5.			
6.			
	0 = Total Cover		

50% of total cover: 0.0 20% of total cover: 0.0

Shrub Stratum (30 ft.)			
1. N/A			
2.			
3.			
4.			
5.			
6.			
	0 = Total Cover		

50% of total cover: 0.0 20% of total cover: 0.0

Herb Stratum (30 ft.)			
1. Anthoxanthum odoratum	45	YES	FACU
2. Agrostis gigantea	30	YES	FACW
3. Andropogon virginicus	20	NO	FAC
4. Taraxacum officinale	20	NO	FACU
5. Rubus pensilvanicus	15	NO	FAC
6. Eupatorium capillifolium	10	NO	FACU
7. Packera aurea	5	NO	FACW
8.			
9.			
10.			
11.			
	145 = Total Cover		

50% of total cover: 72.5 20% of total cover: 29.0

Woody Vine Stratum (30 ft.)			
1. N/A			
2.			
3.			
4.			
5.			
	0 = Total Cover		

50% of total cover: 0.0 20% of total cover: 0.0

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 2 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 50.0% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	35	x 2 =	70
FAC species	35	x 3 =	105
FACU species	75	x 4 =	300
UPL species	0	x 5 =	0
Column Totals:	145 (A)		475 (B)

Prevalence Index = B/A = 3.28

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

___ 2 - Dominance Test is >50%

___ 3 - Prevalence Index is ≤3.0[1]

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present.

Definitions of Vegetation Strata:

Tree – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and 3 in. (7.6 cm) or larger in diameter at breast height (DBH).

Sapling – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH.

Shrub – Woody plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height.

Herb – All herbaceous (non-woody) plants, including herbaceous vines, regardless of size. Includes woody plants, except woody vines, less than approximately 3 ft (1 m) in height.

Woody vine – All woody vines, regardless of height.

Hydrophytic Vegetation Present? Yes _____ No ✓

Remarks: (If observed, list morphological adaptations below).

SOIL

Sampling Point: FDS-62U1-2

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-24	7.5YR 5/6	100					C	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ Organic Bodies (A6) **(LRR P, T, U)**
- ___ 5 cm Mucky Mineral (A7) **(LRR P, T, U)**
- ___ Muck Presence (A8) **(LRR U)**
- ___ 1 cm Muck (A9) **(LRR P, T)**
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Coast Prairie Redox (A16) **(MLRA 150A)**
- ___ Sandy Mucky Mineral (S1) **(LRR O, S)**
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7) **(LRR P, S, T, U)**
- ___ Polyvalue Below Surface (S8) **(LRR S, T, U)**
- ___ Thin Dark Surface (S9) **(LRR S, T, U)**
- ___ Loamy Mucky Mineral (F1) **(LRR O)**
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Marl (F10) **(LRR U)**
- ___ Depleted Ochric (F11) **(MLRA 151)**
- ___ Iron-Manganese Masses (F12) **(LRR O, P, T)**
- ___ Umbric Surface (F13) **(LRR P, T, U)**
- ___ Delta Ochric (F17) **(MLRA 151)**
- ___ Reduced Vertic (F18) **(MLRA 150A, 150B)**
- ___ Piedmont Floodplain Soils (F19) **(MLRA 149A)**
- ___ Anomalous Bright Loamy Soils (F20) **(MLRA 149A, 153C, 153D)**

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) **(LRR O)**
- ___ 2 cm Muck (A10) **(LRR S)**
- ___ Reduced Vertic (F18) **(outside MLRA 150A,B)**
- ___ Piedmont Floodplain Soils (F19) **(LRR P, S, T)**
- ___ Anomalous Bright Loamy Soils (F20) **(MLRA 153B)**
- ___ Red Parent Material (TF2)
- ___ Very Shallow Dark Surface (TF12) (LRR T, U)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** _____ **No** ✓

Remarks:

WETLAND DETERMINATION DATA FORM – Atlantic and Gulf Coastal Plain Region

Project/Site: Altria Parcel City/County: Chesterfield County Sampling Date: 05/16/2024

Applicant/Owner: Dominion Energy State: VA Sampling Point: FDS-62U1-3

Investigator(s): K. Ratcliffe, A. Whitlock Section, Township, Range: N/A

Landform (hillslope, terrace, etc.): Flat Local relief (concave, convex, none): None Slope (%): 0

Subregion (LRR or MLRA): LRR P; MLRA 133A Lat: 37.341194 Long: -77.316143 Datum: NAD83

Soil Map Unit Name: Atlee silt loam NWI classification: Upland

Are climatic / hydrologic conditions on the site typical for this time of year? Yes _____ No ✓ (If no, explain in Remarks.)

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? N Are "Normal Circumstances" present? Yes ✓ No _____

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? N (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ✓	No	**Is the Sampled Area within a Wetland?**	**Yes** _____ **No** ✓
Hydric Soil Present?	Yes	No ✓		
Wetland Hydrology Present?	Yes	No ✓		

Remarks:

USACE Antecedent Precipitation Tool indicates the site was within "Wetter than Normal Conditions" during the dry season with a condition normalcy index product of 16. The Palmer Drought Severity Index indicates the area is under "Mild Wetness" conditions.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ Marl Deposits (B15) **(LRR U)**
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Drainage Patterns (B10)
- ___ Moss Trim Lines (B16)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)
- ___ Sphagnum moss (D8) (LRR T, U)

Field Observations:

Surface Water Present?	Yes _____	No ✓	Depth (inches): N/A	
Water Table Present?	Yes _____	No ✓	Depth (inches): >24	
Saturation Present? (includes capillary fringe)	Yes _____	No ✓	Depth (inches): >24	**Wetland Hydrology Present? Yes** _____ **No** ✓

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION (Five Strata) – Use scientific names of plants.

Sampling Point: FDS-62U1-3

Tree Stratum (Plot sizes: 30 ft.)	Absolute % Cover	Dominant Species?	Indicator Status
1. Pinus taeda	40	YES	FAC
2. Liquidambar styraciflua	35	YES	FAC
3.			
4.			
5.			
6.			
	75 = Total Cover		
50% of total cover: 37.5	20% of total cover: 15.0		
Sapling Stratum (30 ft.)			
1. Pinus taeda	25	YES	FAC
2. Liquidambar styraciflua	20	YES	FAC
3. Ilex opaca	15	NO	FAC
4. Nyssa sylvatica	10	NO	FAC
5. Quercus phellos	10	NO	FACW
6.			
	80 = Total Cover		
50% of total cover: 40.0	20% of total cover: 16.0		
Shrub Stratum (30 ft.)			
1. N/A			
2.			
3.			
4.			
5.			
6.			
	0 = Total Cover		
50% of total cover: 0.0	20% of total cover: 0.0		
Herb Stratum (30 ft.)			
1. Vitis rotundifolia	15	YES	FAC
2. Ilex opaca	3	NO	FAC
3. Quercus phellos	3	NO	FACW
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	21 = Total Cover		
50% of total cover: 10.5	20% of total cover: 4.2		
Woody Vine Stratum (30 ft.)			
1. N/A			
2.			
3.			
4.			
5.			
	0 = Total Cover		
50% of total cover: 0.0	20% of total cover: 0.0		

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 5 (A)

Total Number of Dominant Species Across All Strata: 5 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100.0% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	13	x 2 =	26
FAC species	163	x 3 =	489
FACU species	0	x 4 =	0
UPL species	0	x 5 =	0
Column Totals:	176 (A)		515 (B)

Prevalence Index = B/A = 2.93

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

✓ 2 - Dominance Test is >50%

✓ 3 - Prevalence Index is ≤3.0[1]

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present.

Definitions of Vegetation Strata:

Tree – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and 3 in. (7.6 cm) or larger in diameter at breast height (DBH).

Sapling – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH.

Shrub – Woody plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height.

Herb – All herbaceous (non-woody) plants, including herbaceous vines, regardless of size. Includes woody plants, except woody vines, less than approximately 3 ft (1 m) in height.

Woody vine – All woody vines, regardless of height.

Hydrophytic Vegetation Present? Yes ✓ No ___

Remarks: (If observed, list morphological adaptations below).

SOIL

Sampling Point: FDS-62U1-3

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-15	2.5Y 5/3	98	10YR 6/8	2	C	PL	SCL	
15-24	2.5Y 5/6	100					CL	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

___ Histosol (A1)
___ Histic Epipedon (A2)
___ Black Histic (A3)
___ Hydrogen Sulfide (A4)
___ Stratified Layers (A5)
___ Organic Bodies (A6) **(LRR P, T, U)**
___ 5 cm Mucky Mineral (A7) **(LRR P, T, U)**
___ Muck Presence (A8) **(LRR U)**
___ 1 cm Muck (A9) **(LRR P, T)**
___ Depleted Below Dark Surface (A11)
___ Thick Dark Surface (A12)
___ Coast Prairie Redox (A16) **(MLRA 150A)**
___ Sandy Mucky Mineral (S1) **(LRR O, S)**
___ Sandy Gleyed Matrix (S4)
___ Sandy Redox (S5)
___ Stripped Matrix (S6)
___ Dark Surface (S7) **(LRR P, S, T, U)**
___ Polyvalue Below Surface (S8) **(LRR S, T, U)**
___ Thin Dark Surface (S9) **(LRR S, T, U)**
___ Loamy Mucky Mineral (F1) **(LRR O)**
___ Loamy Gleyed Matrix (F2)
___ Depleted Matrix (F3)
___ Redox Dark Surface (F6)
___ Depleted Dark Surface (F7)
___ Redox Depressions (F8)
___ Marl (F10) **(LRR U)**
___ Depleted Ochric (F11) **(MLRA 151)**
___ Iron-Manganese Masses (F12) **(LRR O, P, T)**
___ Umbric Surface (F13) **(LRR P, T, U)**
___ Delta Ochric (F17) **(MLRA 151)**
___ Reduced Vertic (F18) **(MLRA 150A, 150B)**
___ Piedmont Floodplain Soils (F19) **(MLRA 149A)**
___ Anomalous Bright Loamy Soils (F20) **(MLRA 149A, 153C, 153D)**

Indicators for Problematic Hydric Soils[3]:

___ 1 cm Muck (A9) **(LRR O)**
___ 2 cm Muck (A10) **(LRR S)**
___ Reduced Vertic (F18) **(outside MLRA 150A,B)**
___ Piedmont Floodplain Soils (F19) **(LRR P, S, T)**
___ Anomalous Bright Loamy Soils (F20) **(MLRA 153B)**
___ Red Parent Material (TF2)
___ Very Shallow Dark Surface (TF12) (LRR T, U)
___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes _____ **No** ✓

Remarks:

WETLAND DETERMINATION DATA FORM – Atlantic and Gulf Coastal Plain Region

Project/Site: Altria Parcel City/County: Chesterfield County Sampling Date: 05/16/2024

Applicant/Owner: Dominion Energy State: VA Sampling Point: FDS-62U1-4

Investigator(s): K. Ratcliffe, A. Whitlock Section, Township, Range: N/A

Landform (hillslope, terrace, etc.): Depression Local relief (concave, convex, none): Concave Slope (%): 3

Subregion (LRR or MLRA): LRR P; MLRA 133A Lat: 37.341789 Long: -77.315436 Datum: NAD83

Soil Map Unit Name: Lenoir silt loam NWI classification: Upland

Are climatic / hydrologic conditions on the site typical for this time of year? Yes _____ No ✓ (If no, explain in Remarks.)

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? N Are "Normal Circumstances" present? Yes ✓ No _____

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? N (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ✓	No	**Is the Sampled Area within a Wetland?**	**Yes** _____ **No** ✓
Hydric Soil Present?	Yes	No ✓		
Wetland Hydrology Present?	Yes	No ✓		

Remarks:

USACE Antecedent Precipitation Tool indicates the site was within "Wetter than Normal Conditions" during the dry season with a condition normalcy index product of 16. The Palmer Drought Severity Index indicates the area is under "Mild Wetness" conditions.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ Marl Deposits (B15) **(LRR U)**
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Drainage Patterns (B10)
- ___ Moss Trim Lines (B16)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)
- ___ Sphagnum moss (D8) (LRR T, U)

Field Observations:

Surface Water Present?	Yes _____	No ✓	Depth (inches): N/A
Water Table Present?	Yes _____	No ✓	Depth (inches): >24
Saturation Present? (includes capillary fringe)	Yes _____	No ✓	Depth (inches): >24

Wetland Hydrology Present? Yes _____ **No** ✓

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION (Five Strata) – Use scientific names of plants.

Sampling Point: FDS-62U1-4

Tree Stratum (Plot sizes: 30 ft.)	Absolute % Cover	Dominant Species?	Indicator Status
1. Liquidambar styraciflua	35	YES	FAC
2. Pinus taeda	20	YES	FAC
3. Ilex glabra	15	YES	FACW
4.			
5.			
6.			
	70	= Total Cover	

50% of total cover: 35.0 20% of total cover: 14.0

Sapling Stratum (30 ft.)			
1. Liquidambar styraciflua	30	YES	FAC
2. Ilex glabra	15	YES	FACW
3.			
4.			
5.			
6.			
	45	= Total Cover	

50% of total cover: 22.5 20% of total cover: 9.0

Shrub Stratum (30 ft.)			
1. N/A			
2.			
3.			
4.			
5.			
6.			
	0	= Total Cover	

50% of total cover: 0.0 20% of total cover: 0.0

Herb Stratum (30 ft.)			
1. Microstegium vimineum	60	YES	FAC
2. Actaea racemosa	10	NO	FACU
3. Galium aparine	10	NO	FACU
4. Ilex opaca	5	NO	FAC
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	85	= Total Cover	

50% of total cover: 42.5 20% of total cover: 17.0

Woody Vine Stratum (30 ft.)			
1. N/A			
2.			
3.			
4.			
5.			
	0	= Total Cover	

50% of total cover: 0.0 20% of total cover: 0.0

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 6 (A)

Total Number of Dominant Species Across All Strata: 6 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100.0% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	30	x 2 =	60
FAC species	150	x 3 =	450
FACU species	20	x 4 =	80
UPL species	0	x 5 =	0
Column Totals:	200 (A)		590 (B)

Prevalence Index = B/A = 2.95

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

✓ 2 - Dominance Test is >50%

✓ 3 - Prevalence Index is ≤3.0[1]

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present.

Definitions of Vegetation Strata:

Tree – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and 3 in. (7.6 cm) or larger in diameter at breast height (DBH).

Sapling – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH.

Shrub – Woody plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height.

Herb – All herbaceous (non-woody) plants, including herbaceous vines, regardless of size. Includes woody plants, except woody vines, less than approximately 3 ft (1 m) in height.

Woody vine – All woody vines, regardless of height.

Hydrophytic Vegetation Present? Yes ✓ No ___

Remarks: (If observed, list morphological adaptations below).

SOIL

Sampling Point: FDS-62U1-4

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-24	2.5YR 5/3	100					FSL	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

___ Histosol (A1)
___ Histic Epipedon (A2)
___ Black Histic (A3)
___ Hydrogen Sulfide (A4)
___ Stratified Layers (A5)
___ Organic Bodies (A6) **(LRR P, T, U)**
___ 5 cm Mucky Mineral (A7) **(LRR P, T, U)**
___ Muck Presence (A8) **(LRR U)**
___ 1 cm Muck (A9) **(LRR P, T)**
___ Depleted Below Dark Surface (A11)
___ Thick Dark Surface (A12)
___ Coast Prairie Redox (A16) **(MLRA 150A)**
___ Sandy Mucky Mineral (S1) **(LRR O, S)**
___ Sandy Gleyed Matrix (S4)
___ Sandy Redox (S5)
___ Stripped Matrix (S6)
___ Dark Surface (S7) **(LRR P, S, T, U)**
___ Polyvalue Below Surface (S8) **(LRR S, T, U)**
___ Thin Dark Surface (S9) **(LRR S, T, U)**
___ Loamy Mucky Mineral (F1) **(LRR O)**
___ Loamy Gleyed Matrix (F2)
___ Depleted Matrix (F3)
___ Redox Dark Surface (F6)
___ Depleted Dark Surface (F7)
___ Redox Depressions (F8)
___ Marl (F10) **(LRR U)**
___ Depleted Ochric (F11) **(MLRA 151)**
___ Iron-Manganese Masses (F12) **(LRR O, P, T)**
___ Umbric Surface (F13) **(LRR P, T, U)**
___ Delta Ochric (F17) **(MLRA 151)**
___ Reduced Vertic (F18) **(MLRA 150A, 150B)**
___ Piedmont Floodplain Soils (F19) **(MLRA 149A)**
___ Anomalous Bright Loamy Soils (F20) **(MLRA 149A, 153C, 153D)**

Indicators for Problematic Hydric Soils[3]:

___ 1 cm Muck (A9) **(LRR O)**
___ 2 cm Muck (A10) **(LRR S)**
___ Reduced Vertic (F18) **(outside MLRA 150A,B)**
___ Piedmont Floodplain Soils (F19) **(LRR P, S, T)**
___ Anomalous Bright Loamy Soils (F20) **(MLRA 153B)**
___ Red Parent Material (TF2)
___ Very Shallow Dark Surface (TF12) (LRR T, U)
___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** _____ **No** ✓

Remarks:

WETLAND DETERMINATION DATA FORM – Atlantic and Gulf Coastal Plain Region

Project/Site: Altria Parcel City/County: Chesterfield County Sampling Date: 05/16/2024

Applicant/Owner: Dominion Energy State: VA Sampling Point: FDS-62U1-5

Investigator(s): K. Ratcliffe, A. Whitlock Section, Township, Range: N/A

Landform (hillslope, terrace, etc.): Depression Local relief (concave, convex, none): Concave Slope (%): 3

Subregion (LRR or MLRA): LRR P; MLRA 133A Lat: 37.342433 Long: -77.315342 Datum: NAD83

Soil Map Unit Name: Coxville loam NWI classification: Upland

Are climatic / hydrologic conditions on the site typical for this time of year? Yes _____ No ✓ (If no, explain in Remarks.)

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? N Are "Normal Circumstances" present? Yes ✓ No _____

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? N (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ✓	No	**Is the Sampled Area within a Wetland?**	**Yes** _____ **No** ✓
Hydric Soil Present?	Yes	No ✓		
Wetland Hydrology Present?	Yes	No ✓		

Remarks:

USACE Antecedent Precipitation Tool indicates the site was within "Wetter than Normal Conditions" during the dry season with a condition normalcy index product of 16. The Palmer Drought Severity Index indicates the area is under "Mild Wetness" conditions.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ Marl Deposits (B15) **(LRR U)**
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Drainage Patterns (B10)
- ___ Moss Trim Lines (B16)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)
- ___ Sphagnum moss (D8) (LRR T, U)

Field Observations:

Surface Water Present? Yes _____ No ✓ Depth (inches): N/A

Water Table Present? Yes _____ No ✓ Depth (inches): >24

Saturation Present? (includes capillary fringe) Yes _____ No ✓ Depth (inches): >24

Wetland Hydrology Present? Yes _____ **No** ✓

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION (Five Strata) – Use scientific names of plants.

Sampling Point: FDS-62U1-5

Tree Stratum (Plot sizes: 30 ft.)	Absolute % Cover	Dominant Species?	Indicator Status
1. Pinus taeda	25	YES	FAC
2. Liquidambar styraciflua	20	YES	FAC
3. Liriodendron tulipifera	20	YES	FACU
4. Quercus marilandica	15	NO	UPL
5.			
6.			
	80	= Total Cover	
50% of total cover: 40.0	20% of total cover: 16.0		
Sapling Stratum (30 ft.)			
1. Liquidambar styraciflua	25	YES	FAC
2. Quercus marilandica	10	YES	UPL
3.			
4.			
5.			
6.			
	35	= Total Cover	
50% of total cover: 17.5	20% of total cover: 7.0		
Shrub Stratum (30 ft.)			
1. N/A			
2.			
3.			
4.			
5.			
6.			
	0	= Total Cover	
50% of total cover: 0.0	20% of total cover: 0.0		
Herb Stratum (30 ft.)			
1. Microstegium vimineum	60	YES	FAC
2. Stellaria media	20	YES	FACU
3. Lonicera japonica	15	NO	FACU
4. Amphicarpaea bracteata	10	NO	FAC
5. Vitis rotundifolia	10	NO	FAC
6.			
7.			
8.			
9.			
10.			
11.			
	115	= Total Cover	
50% of total cover: 57.5	20% of total cover: 23.0		
Woody Vine Stratum (30 ft.)			
1. Vitis rotundifolia	20	YES	FAC
2.			
3.			
4.			
5.			
	20	= Total Cover	
50% of total cover: 10.0	20% of total cover: 4.0		

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 5 (A)

Total Number of Dominant Species Across All Strata: 8 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 62.5% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	0	x 2 =	0
FAC species	170	x 3 =	510
FACU species	55	x 4 =	220
UPL species	25	x 5 =	125
Column Totals:	250 (A)		855 (B)

Prevalence Index = B/A = 3.42

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

✓ 2 - Dominance Test is >50%

___ 3 - Prevalence Index is ≤3.0[1]

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present.

Definitions of Vegetation Strata:

Tree – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and 3 in. (7.6 cm) or larger in diameter at breast height (DBH).

Sapling – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH.

Shrub – Woody plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height.

Herb – All herbaceous (non-woody) plants, including herbaceous vines, regardless of size. Includes woody plants, except woody vines, less than approximately 3 ft (1 m) in height.

Woody vine – All woody vines, regardless of height.

Hydrophytic Vegetation Present? Yes ✓ No ___

Remarks: (If observed, list morphological adaptations below).

SOIL

Sampling Point: FDS-62U1-5

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-4	2.5Y 4/3	100					SCL	
4-13	2.5Y 5/3	100					SCL	
13-24	2.5Y 6/3	98	2.5Y 6/8	2	C	M	SCL	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ Organic Bodies (A6) **(LRR P, T, U)**
- ___ 5 cm Mucky Mineral (A7) **(LRR P, T, U)**
- ___ Muck Presence (A8) **(LRR U)**
- ___ 1 cm Muck (A9) **(LRR P, T)**
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Coast Prairie Redox (A16) **(MLRA 150A)**
- ___ Sandy Mucky Mineral (S1) **(LRR O, S)**
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7) **(LRR P, S, T, U)**
- ___ Polyvalue Below Surface (S8) **(LRR S, T, U)**
- ___ Thin Dark Surface (S9) **(LRR S, T, U)**
- ___ Loamy Mucky Mineral (F1) **(LRR O)**
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Marl (F10) **(LRR U)**
- ___ Depleted Ochric (F11) **(MLRA 151)**
- ___ Iron-Manganese Masses (F12) **(LRR O, P, T)**
- ___ Umbric Surface (F13) **(LRR P, T, U)**
- ___ Delta Ochric (F17) **(MLRA 151)**
- ___ Reduced Vertic (F18) **(MLRA 150A, 150B)**
- ___ Piedmont Floodplain Soils (F19) **(MLRA 149A)**
- ___ Anomalous Bright Loamy Soils (F20) **(MLRA 149A, 153C, 153D)**

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) **(LRR O)**
- ___ 2 cm Muck (A10) **(LRR S)**
- ___ Reduced Vertic (F18) **(outside MLRA 150A,B)**
- ___ Piedmont Floodplain Soils (F19) **(LRR P, S, T)**
- ___ Anomalous Bright Loamy Soils (F20) **(MLRA 153B)**
- ___ Red Parent Material (TF2)
- ___ Very Shallow Dark Surface (TF12) (LRR T, U)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** _____ **No** ✓

Remarks:

WETLAND DETERMINATION DATA FORM – Atlantic and Gulf Coastal Plain Region

Project/Site: Altria Parcel City/County: Chesterfield County Sampling Date: 05/16/2024

Applicant/Owner: Dominion Energy State: VA Sampling Point: FDS-62U1-6

Investigator(s): K. Ratcliffe, A. Whitlock Section, Township, Range: N/A

Landform (hillslope, terrace, etc.): Depression Local relief (concave, convex, none): Concave Slope (%): 1-2

Subregion (LRR or MLRA): LRR P; MLRA 133A Lat: 37.342231 Long: -77.315877 Datum: NAD83

Soil Map Unit Name: Coxville loam NWI classification: Upland

Are climatic / hydrologic conditions on the site typical for this time of year? Yes _____ No ✓ (If no, explain in Remarks.)

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? N Are "Normal Circumstances" present? Yes ✓ No _____

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? N (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ✓	No	**Is the Sampled Area within a Wetland?**	**Yes** _____ **No** ✓
Hydric Soil Present?	Yes	No ✓		
Wetland Hydrology Present?	Yes ✓	No		

Remarks:

USACE Antecedent Precipitation Tool indicates the site was within "Wetter than Normal Conditions" during the dry season with a condition normalcy index product of 16. The Palmer Drought Severity Index indicates the area is under "Mild Wetness" conditions.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ___ Surface Water (A1)
- ✓ High Water Table (A2)
- ✓ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ Marl Deposits (B15) **(LRR U)**
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Drainage Patterns (B10)
- ___ Moss Trim Lines (B16)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)
- ___ Sphagnum moss (D8) (LRR T, U)

Field Observations:

Surface Water Present?	Yes _____	No ✓	Depth (inches): N/A	
Water Table Present?	Yes ✓	No ✓	Depth (inches): 0	
Saturation Present? (includes capillary fringe)	Yes ✓	No ✓	Depth (inches): 0	**Wetland Hydrology Present? Yes** ✓ **No** _____

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION (Five Strata) – Use scientific names of plants.

Sampling Point: FDS-62U1-6

Tree Stratum (Plot sizes: 30 ft.)	Absolute % Cover	Dominant Species?	Indicator Status
1. Liquidambar styraciflua	40	YES	FAC
2. Pinus taeda	30	YES	FAC
3. Acer rubrum	15	NO	FAC
4.			
5.			
6.			
	85	= Total Cover	

50% of total cover: 42.5 20% of total cover: 17.0

Sapling Stratum (30 ft.)			
1. Liquidambar styraciflua	35	YES	FAC
2. Acer rubrum	10	YES	FAC
3.			
4.			
5.			
6.			
	45	= Total Cover	

50% of total cover: 22.5 20% of total cover: 9.0

Shrub Stratum (30 ft.)			
1. N/A			
2.			
3.			
4.			
5.			
6.			
	0	= Total Cover	

50% of total cover: 0.0 20% of total cover: 0.0

Herb Stratum (30 ft.)			
1. Lonicera japonica	15	YES	FACU
2. Liquidambar styraciflua	5	YES	FAC
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	20	= Total Cover	

50% of total cover: 10.0 20% of total cover: 4.0

Woody Vine Stratum (30 ft.)			
1. N/A			
2.			
3.			
4.			
5.			
	0	= Total Cover	

50% of total cover: 0.0 20% of total cover: 0.0

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 5 (A)

Total Number of Dominant Species Across All Strata: 6 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 83.3% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	0	x 2 =	0
FAC species	135	x 3 =	405
FACU species	15	x 4 =	60
UPL species	0	x 5 =	0
Column Totals:	150 (A)		465 (B)

Prevalence Index = B/A = 3.10

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

✓ 2 - Dominance Test is >50%

___ 3 - Prevalence Index is ≤3.0[1]

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present.

Definitions of Vegetation Strata:

Tree – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and 3 in. (7.6 cm) or larger in diameter at breast height (DBH).

Sapling – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH.

Shrub – Woody plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height.

Herb – All herbaceous (non-woody) plants, including herbaceous vines, regardless of size. Includes woody plants, except woody vines, less than approximately 3 ft (1 m) in height.

Woody vine – All woody vines, regardless of height.

Hydrophytic Vegetation Present? Yes ✓ No ___

Remarks: (If observed, list morphological adaptations below).

SOIL

Sampling Point: FDS-62U1-6

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth	Matrix		Redox Features				Texture	Remarks
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]		
0-2	10YR 4/3	100					FSL	
2-15	2.5Y 5/3	100					C	
15-24	2.5Y 6/4	100					C	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

___ Histosol (A1)
___ Histic Epipedon (A2)
___ Black Histic (A3)
___ Hydrogen Sulfide (A4)
___ Stratified Layers (A5)
___ Organic Bodies (A6) **(LRR P, T, U)**
___ 5 cm Mucky Mineral (A7) **(LRR P, T, U)**
___ Muck Presence (A8) **(LRR U)**
___ 1 cm Muck (A9) **(LRR P, T)**
___ Depleted Below Dark Surface (A11)
___ Thick Dark Surface (A12)
___ Coast Prairie Redox (A16) **(MLRA 150A)**
___ Sandy Mucky Mineral (S1) **(LRR O, S)**
___ Sandy Gleyed Matrix (S4)
___ Sandy Redox (S5)
___ Stripped Matrix (S6)
___ Dark Surface (S7) **(LRR P, S, T, U)**
___ Polyvalue Below Surface (S8) **(LRR S, T, U)**
___ Thin Dark Surface (S9) **(LRR S, T, U)**
___ Loamy Mucky Mineral (F1) **(LRR O)**
___ Loamy Gleyed Matrix (F2)
___ Depleted Matrix (F3)
___ Redox Dark Surface (F6)
___ Depleted Dark Surface (F7)
___ Redox Depressions (F8)
___ Marl (F10) **(LRR U)**
___ Depleted Ochric (F11) **(MLRA 151)**
___ Iron-Manganese Masses (F12) **(LRR O, P, T)**
___ Umbric Surface (F13) **(LRR P, T, U)**
___ Delta Ochric (F17) **(MLRA 151)**
___ Reduced Vertic (F18) **(MLRA 150A, 150B)**
___ Piedmont Floodplain Soils (F19) **(MLRA 149A)**
___ Anomalous Bright Loamy Soils (F20) **(MLRA 149A, 153C, 153D)**

Indicators for Problematic Hydric Soils[3]:

___ 1 cm Muck (A9) **(LRR O)**
___ 2 cm Muck (A10) **(LRR S)**
___ Reduced Vertic (F18) **(outside MLRA 150A,B)**
___ Piedmont Floodplain Soils (F19) **(LRR P, S, T)**
___ Anomalous Bright Loamy Soils (F20) **(MLRA 153B)**
___ Red Parent Material (TF2)
___ Very Shallow Dark Surface (TF12) (LRR T, U)
___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes _____ **No** ✓

Remarks:

WETLAND DETERMINATION DATA FORM – Atlantic and Gulf Coastal Plain Region

Project/Site: MTP - Siting and Routing City/County: Chesterfield County Sampling Date: 06/24/2024

Applicant/Owner: Dominion Energy State: VA Sampling Point: FDS-56A1-1

Investigator(s): K. Winklepleck , M. Norris Section, Township, Range: N/A

Landform (hillslope, terrace, etc.): Footslope Local relief (concave, convex, none): Concave Slope (%): 3

Subregion (LRR or MLRA): P; 133A Lat: 37.337309 Long: -77.332833 Datum: NAD83

Soil Map Unit Name: Fluvaquents NWI classification: Upland

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ✓ No _____ (If no, explain in Remarks.)

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? N Are "Normal Circumstances" present? Yes _____ No ✓

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? N (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ✓	No	**Is the Sampled Area within a Wetland?**	**Yes ✓ No**
Hydric Soil Present?	Yes ✓	No		
Wetland Hydrology Present?	Yes ✓	No		

Remarks:

USACE Antecedent Precipitation Tool indicates the site was within "Normal Conditions" during the dry season with a condition normalcy index product of 11. The Palmer Drought Severity Index indicates the area is under "Mild Wetness" conditions.

*Data point was taken within a maintained easement

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ___ Surface Water (A1)
- ✓ High Water Table (A2)
- ✓ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ Marl Deposits (B15) **(LRR U)**
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Drainage Patterns (B10)
- ___ Moss Trim Lines (B16)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ✓ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ✓ FAC-Neutral Test (D5)
- ___ Sphagnum moss (D8) (LRR T, U)

Field Observations:

Surface Water Present?	Yes _____	No ✓	Depth (inches): N/A	
Water Table Present?	Yes ✓	No _____	Depth (inches): 6	
Saturation Present? (includes capillary fringe)	Yes ✓	No _____	Depth (inches): 0	**Wetland Hydrology Present? Yes ✓ No _____**

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION (Five Strata) – Use scientific names of plants.

Sampling Point: FDS-56A1-1

Tree Stratum (Plot sizes: 30 ft.)	Absolute % Cover	Dominant Species?	Indicator Status
1. None			
2.			
3.			
4.			
5.			
6.			
	0 = Total Cover		
50% of total cover: 0.0	20% of total cover: 0.0		
Sapling Stratum (30 ft.)			
1. None			
2.			
3.			
4.			
5.			
6.			
	0 = Total Cover		
50% of total cover: 0.0	20% of total cover: 0.0		
Shrub Stratum (30 ft.)			
1. Liquidambar styraciflua	3	YES	FAC
2.			
3.			
4.			
5.			
6.			
	3 = Total Cover		
50% of total cover: 1.5	20% of total cover: 0.6		
Herb Stratum (30 ft.)			
1. Scirpus cyperinus	40	YES	OBL
2. Juncus effusus	40	YES	OBL
3. Solidago rugosa	25	NO	FAC
4. Typha angustifolia	15	NO	OBL
5. Persicaria sagittata	10	NO	OBL
6. Vitis rotundifolia	5	NO	FAC
7. Dichanthelium scoparium	5	NO	FACW
8. Woodwardia areolata	5	NO	OBL
9.			
10.			
11.			
	145 = Total Cover		
50% of total cover: 72.5	20% of total cover: 29.0		
Woody Vine Stratum (30 ft.)			
1. None			
2.			
3.			
4.			
5.			
	0 = Total Cover		
50% of total cover: 0.0	20% of total cover: 0.0		

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 3 (A)

Total Number of Dominant Species Across All Strata: 3 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100.0% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	110	x 1 =	110
FACW species	5	x 2 =	10
FAC species	33	x 3 =	99
FACU species	0	x 4 =	0
UPL species	0	x 5 =	0
Column Totals:	148 (A)		219 (B)

Prevalence Index = B/A = 1.48

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

✓ 2 - Dominance Test is >50%

✓ 3 - Prevalence Index is ≤3.0[1]

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present.

Definitions of Vegetation Strata:

Tree – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and 3 in. (7.6 cm) or larger in diameter at breast height (DBH).

Sapling – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH.

Shrub – Woody plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height.

Herb – All herbaceous (non-woody) plants, including herbaceous vines, regardless of size. Includes woody plants, except woody vines, less than approximately 3 ft (1 m) in height.

Woody vine – All woody vines, regardless of height.

Hydrophytic Vegetation Present? Yes ✓ No ___

Remarks: (If observed, list morphological adaptations below).

SOIL

Sampling Point: FDS-56A1-1

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-4	10YR 3/3	100						mucky mineral
4-10	5Y 6/1	95	5YR 4/6	5	C	PL	SCL	
10-24	2.5Y 7/1	97	10YR 6/8	3	C	PL	SCL	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ Organic Bodies (A6) **(LRR P, T, U)**
- ___ 5 cm Mucky Mineral (A7) **(LRR P, T, U)**
- ___ Muck Presence (A8) **(LRR U)**
- ___ 1 cm Muck (A9) **(LRR P, T)**
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Coast Prairie Redox (A16) **(MLRA 150A)**
- ___ Sandy Mucky Mineral (S1) **(LRR O, S)**
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7) **(LRR P, S, T, U)**
- ___ Polyvalue Below Surface (S8) **(LRR S, T, U)**
- ___ Thin Dark Surface (S9) **(LRR S, T, U)**
- ___ Loamy Mucky Mineral (F1) **(LRR O)**
- ___ Loamy Gleyed Matrix (F2)
- ✓ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Marl (F10) **(LRR U)**
- ___ Depleted Ochric (F11) **(MLRA 151)**
- ___ Iron-Manganese Masses (F12) **(LRR O, P, T)**
- ___ Umbric Surface (F13) **(LRR P, T, U)**
- ___ Delta Ochric (F17) **(MLRA 151)**
- ___ Reduced Vertic (F18) **(MLRA 150A, 150B)**
- ___ Piedmont Floodplain Soils (F19) **(MLRA 149A)**
- ___ Anomalous Bright Loamy Soils (F20) **(MLRA 149A, 153C, 153D)**

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) **(LRR O)**
- ___ 2 cm Muck (A10) **(LRR S)**
- ___ Reduced Vertic (F18) **(outside MLRA 150A,B)**
- ___ Piedmont Floodplain Soils (F19) **(LRR P, S, T)**
- ___ Anomalous Bright Loamy Soils (F20) **(MLRA 153B)**
- ___ Red Parent Material (TF2)
- ___ Very Shallow Dark Surface (TF12) (LRR T, U)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** ✓ **No** _____

Remarks:

PHOTOGRAPHS Sampling Point: FDS-56A1-1

FDS-56A1-1; Representative Vegetation (06/24/2024, K. Winklepleck)

FDS-56A1-1; Representative Soils (06/24/2024, K. Winklepleck)

WETLAND DETERMINATION DATA FORM – Atlantic and Gulf Coastal Plain Region

Project/Site: MTP - Siting and Routing City/County: Chesterfield County Sampling Date: 06/24/2024

Applicant/Owner: Dominion Energy State: VA Sampling Point: FDS-56A1-2

Investigator(s): K. Winklepleck , M. Norris Section, Township, Range: N/A

Landform (hillslope, terrace, etc.): Swale Local relief (concave, convex, none): Concave Slope (%): 2-3

Subregion (LRR or MLRA): P; 133A Lat: 37.337257 Long: -77.332960 Datum: NAD83

Soil Map Unit Name: Fluvaquents NWI classification: Upland

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ✓ No _____ (If no, explain in Remarks.)

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? N Are "Normal Circumstances" present? Yes _____ No ✓

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? N (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ✓	No	**Is the Sampled Area within a Wetland?**	**Yes** _____ **No** ✓
Hydric Soil Present?	Yes	No ✓		
Wetland Hydrology Present?	Yes	No ✓		

Remarks:

USACE Antecedent Precipitation Tool indicates the site was within "Normal Conditions" during the dry season with a condition normalcy index product of 11. The Palmer Drought Severity Index indicates the area is under "Mild Wetness" conditions.

*Data point was taken within a maintained easement

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ Marl Deposits (B15) **(LRR U)**
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Drainage Patterns (B10)
- ___ Moss Trim Lines (B16)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ✓ FAC-Neutral Test (D5)
- ___ Sphagnum moss (D8) (LRR T, U)

Field Observations:

Surface Water Present?	Yes _____	No ✓	Depth (inches): N/A	
Water Table Present?	Yes _____	No ✓	Depth (inches): >24	
Saturation Present? (includes capillary fringe)	Yes _____	No ✓	Depth (inches): >24	**Wetland Hydrology Present? Yes** _____ **No** ✓

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION (Five Strata) – Use scientific names of plants.

Sampling Point: FDS-56A1-2

Tree Stratum (Plot sizes: 30 ft.)	Absolute % Cover	Dominant Species?	Indicator Status
1. None			
2.			
3.			
4.			
5.			
6.			
	0 = Total Cover		

50% of total cover: 0.0 20% of total cover: 0.0

Sapling Stratum (30 ft.)			
1. None			
2.			
3.			
4.			
5.			
6.			
	0 = Total Cover		

50% of total cover: 0.0 20% of total cover: 0.0

Shrub Stratum (30 ft.)			
1. None			
2.			
3.			
4.			
5.			
6.			
	0 = Total Cover		

50% of total cover: 0.0 20% of total cover: 0.0

Herb Stratum (30 ft.)			
1. Dichanthelium scoparium	35	YES	FACW
2. Vitis rotundifolia	30	YES	FAC
3. Eupatorium capillifolium	20	NO	FACU
4. Solidago rugosa	15	NO	FAC
5. Panicum capillare	10	NO	FAC
6. Anthoxanthum hirtum	10	NO	FACW
7. Rubus pensilvanicus	5	NO	FAC
8.			
9.			
10.			
11.			
	125 = Total Cover		

50% of total cover: 62.5 20% of total cover: 25.0

Woody Vine Stratum (30 ft.)			
1. None			
2.			
3.			
4.			
5.			
	0 = Total Cover		

50% of total cover: 0.0 20% of total cover: 0.0

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A)

Total Number of Dominant Species Across All Strata: 2 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100.0% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	45	x 2 =	90
FAC species	60	x 3 =	180
FACU species	20	x 4 =	80
UPL species	0	x 5 =	0
Column Totals:	125 (A)		350 (B)

Prevalence Index = B/A = 2.80

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

✓ 2 - Dominance Test is >50%

___ 3 - Prevalence Index is ≤3.0[1]

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present.

Definitions of Vegetation Strata:

Tree – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and 3 in. (7.6 cm) or larger in diameter at breast height (DBH).

Sapling – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH.

Shrub – Woody plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height.

Herb – All herbaceous (non-woody) plants, including herbaceous vines, regardless of size. Includes woody plants, except woody vines, less than approximately 3 ft (1 m) in height.

Woody vine – All woody vines, regardless of height.

Hydrophytic Vegetation Present? Yes ✓ No ___

Remarks: (If observed, list morphological adaptations below).

SOIL

Sampling Point: FDS-56A1-2

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-8	10YR4/2	100					SL	
8-24	2.5Y 6/3	100					SL	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

___ Histosol (A1)
___ Histic Epipedon (A2)
___ Black Histic (A3)
___ Hydrogen Sulfide (A4)
___ Stratified Layers (A5)
___ Organic Bodies (A6) **(LRR P, T, U)**
___ 5 cm Mucky Mineral (A7) **(LRR P, T, U)**
___ Muck Presence (A8) **(LRR U)**
___ 1 cm Muck (A9) **(LRR P, T)**
___ Depleted Below Dark Surface (A11)
___ Thick Dark Surface (A12)
___ Coast Prairie Redox (A16) **(MLRA 150A)**
___ Sandy Mucky Mineral (S1) **(LRR O, S)**
___ Sandy Gleyed Matrix (S4)
___ Sandy Redox (S5)
___ Stripped Matrix (S6)
___ Dark Surface (S7) **(LRR P, S, T, U)**
___ Polyvalue Below Surface (S8) **(LRR S, T, U)**
___ Thin Dark Surface (S9) **(LRR S, T, U)**
___ Loamy Mucky Mineral (F1) **(LRR O)**
___ Loamy Gleyed Matrix (F2)
___ Depleted Matrix (F3)
___ Redox Dark Surface (F6)
___ Depleted Dark Surface (F7)
___ Redox Depressions (F8)
___ Marl (F10) **(LRR U)**
___ Depleted Ochric (F11) **(MLRA 151)**
___ Iron-Manganese Masses (F12) **(LRR O, P, T)**
___ Umbric Surface (F13) **(LRR P, T, U)**
___ Delta Ochric (F17) **(MLRA 151)**
___ Reduced Vertic (F18) **(MLRA 150A, 150B)**
___ Piedmont Floodplain Soils (F19) **(MLRA 149A)**
___ Anomalous Bright Loamy Soils (F20) **(MLRA 149A, 153C, 153D)**

Indicators for Problematic Hydric Soils[3]:

___ 1 cm Muck (A9) **(LRR O)**
___ 2 cm Muck (A10) **(LRR S)**
___ Reduced Vertic (F18) **(outside MLRA 150A,B)**
___ Piedmont Floodplain Soils (F19) **(LRR P, S, T)**
___ Anomalous Bright Loamy Soils (F20) **(MLRA 153B)**
___ Red Parent Material (TF2)
___ Very Shallow Dark Surface (TF12) (LRR T, U)
___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes _____ **No** ✓

Remarks:

PHOTOGRAPHS Sampling Point: FDS-56A1-2

FDS-56A1-2; Representative Vegetation (06/24/2024, K. Winklepleck)

FDS-56A1-2; Representative Soils (06/24/2024, K. Winklepleck)

WETLAND DETERMINATION DATA FORM – Atlantic and Gulf Coastal Plain Region

Project/Site: MTP - Siting and Routing City/County: Chesterfield County Sampling Date: 06/24/2024

Applicant/Owner: Dominion Energy State: VA Sampling Point: FDS-56M1-1

Investigator(s): K. Winklepleck , M. Norris Section, Township, Range: N/A

Landform (hillslope, terrace, etc.): Swale Local relief (concave, convex, none): Concave Slope (%): 2-3

Subregion (LRR or MLRA): P; 133A Lat: 37.332654 Long: -77.338042 Datum: NAD83

Soil Map Unit Name: Coxville loam NWI classification: Upland

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ✓ No ____ (If no, explain in Remarks.)

Are Vegetation ____, Soil ____, or Hydrology ____ significantly disturbed? N Are "Normal Circumstances" present? Yes ____ No ✓

Are Vegetation ____, Soil ____, or Hydrology ____ naturally problematic? N (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ✓	No	**Is the Sampled Area within a Wetland?**	**Yes ✓ No**
Hydric Soil Present?	Yes ✓	No		
Wetland Hydrology Present?	Yes ✓	No		

Remarks:

USACE Antecedent Precipitation Tool indicates the site was within "Normal Conditions" during the dry season with a condition normalcy index product of 11. The Palmer Drought Severity Index indicates the area is under "Mild Wetness" conditions.

*Data point was taken within a maintained easement

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ Marl Deposits (B15) **(LRR U)**
- ___ Hydrogen Sulfide Odor (C1)
- ✓ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ✓ Surface Soil Cracks (B6)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Drainage Patterns (B10)
- ___ Moss Trim Lines (B16)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ✓ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ✓ FAC-Neutral Test (D5)
- ___ Sphagnum moss (D8) (LRR T, U)

Field Observations:

Surface Water Present? Yes ____ No ✓ Depth (inches): N/A

Water Table Present? Yes ____ No ✓ Depth (inches): >24

Saturation Present? (includes capillary fringe) Yes ____ No ✓ Depth (inches): >24

Wetland Hydrology Present? Yes ✓ No ____

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION (Five Strata) – Use scientific names of plants.

Sampling Point: FDS-56M1-1

Tree Stratum (Plot sizes: 30 ft.)	Absolute % Cover	Dominant Species?	Indicator Status
1. None			
2.			
3.			
4.			
5.			
6.			
	0 = Total Cover		
50% of total cover: 0.0	20% of total cover: 0.0		
Sapling Stratum (30 ft.)			
1. None			
2.			
3.			
4.			
5.			
6.			
	0 = Total Cover		
50% of total cover: 0.0	20% of total cover: 0.0		
Shrub Stratum (30 ft.)			
1. Baccharis halimifolia	15	YES	FAC
2.			
3.			
4.			
5.			
6.			
	15 = Total Cover		
50% of total cover: 7.5	20% of total cover: 3.0		
Herb Stratum (30 ft.)			
1. Typha angustifolia	25	YES	OBL
2. Juncus effusus	25	YES	OBL
3. Rubus pensilvanicus	15	NO	FAC
4. Anthoxanthum hirtum	15	NO	FACW
5. Persicaria hydropiper	10	NO	OBL
6. Ludwigia alternifolia	5	NO	OBL
7.			
8.			
9.			
10.			
11.			
	95 = Total Cover		
50% of total cover: 47.5	20% of total cover: 19.0		
Woody Vine Stratum (30 ft.)			
1. None			
2.			
3.			
4.			
5.			
	0 = Total Cover		
50% of total cover: 0.0	20% of total cover: 0.0		

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 3 (A)

Total Number of Dominant Species Across All Strata: 3 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100.0% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	65	x 1 =	65
FACW species	15	x 2 =	30
FAC species	30	x 3 =	90
FACU species	0	x 4 =	0
UPL species	0	x 5 =	0
Column Totals:	110 (A)		185 (B)

Prevalence Index = B/A = 1.68

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

✓ 2 - Dominance Test is >50%

✓ 3 - Prevalence Index is ≤3.0[1]

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present.

Definitions of Vegetation Strata:

Tree – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and 3 in. (7.6 cm) or larger in diameter at breast height (DBH).

Sapling – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH.

Shrub – Woody plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height.

Herb – All herbaceous (non-woody) plants, including herbaceous vines, regardless of size. Includes woody plants, except woody vines, less than approximately 3 ft (1 m) in height.

Woody vine – All woody vines, regardless of height.

Hydrophytic Vegetation Present? Yes ✓ No ___

Remarks: (If observed, list morphological adaptations below).

SOIL

Sampling Point: FDS-56M1-1

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-5	10YR 5/2	85	7.5YR 6/8	15	C	M,PL	SiL	
5-18	10YR 5/1	70	10YR 6/8	30	C	M	SiCL	
18-24	10YR 5/1	80	5YR 4/6	20	C	PL	SiCL	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ Organic Bodies (A6) **(LRR P, T, U)**
- ___ 5 cm Mucky Mineral (A7) **(LRR P, T, U)**
- ___ Muck Presence (A8) **(LRR U)**
- ___ 1 cm Muck (A9) **(LRR P, T)**
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Coast Prairie Redox (A16) **(MLRA 150A)**
- ___ Sandy Mucky Mineral (S1) **(LRR O, S)**
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7) **(LRR P, S, T, U)**
- ___ Polyvalue Below Surface (S8) **(LRR S, T, U)**
- ___ Thin Dark Surface (S9) **(LRR S, T, U)**
- ___ Loamy Mucky Mineral (F1) **(LRR O)**
- ___ Loamy Gleyed Matrix (F2)
- ✓ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Marl (F10) **(LRR U)**
- ___ Depleted Ochric (F11) **(MLRA 151)**
- ___ Iron-Manganese Masses (F12) **(LRR O, P, T)**
- ___ Umbric Surface (F13) **(LRR P, T, U)**
- ___ Delta Ochric (F17) **(MLRA 151)**
- ___ Reduced Vertic (F18) **(MLRA 150A, 150B)**
- ___ Piedmont Floodplain Soils (F19) **(MLRA 149A)**
- ___ Anomalous Bright Loamy Soils (F20) **(MLRA 149A, 153C, 153D)**

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) **(LRR O)**
- ___ 2 cm Muck (A10) **(LRR S)**
- ___ Reduced Vertic (F18) **(outside MLRA 150A,B)**
- ___ Piedmont Floodplain Soils (F19) **(LRR P, S, T)**
- ___ Anomalous Bright Loamy Soils (F20) **(MLRA 153B)**
- ___ Red Parent Material (TF2)
- ___ Very Shallow Dark Surface (TF12) (LRR T, U)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** ✓ **No** _____

Remarks:

PHOTOGRAPHS Sampling Point: FDS-56M1-1

FDS-56M1-1; Representative Vegetation (06/24/2024, K. Winklepleck)

FDS-56M1-1; Representative Soils (06/24/2024, K. Winklepleck)

WETLAND DETERMINATION DATA FORM – Atlantic and Gulf Coastal Plain Region

Project/Site: MTP - Siting and Routing City/County: Chesterfield County Sampling Date: 06/24/2024

Applicant/Owner: Dominion Energy State: VA Sampling Point: FDS-56M1-2

Investigator(s): K. Winklepleck , M. Norris Section, Township, Range: N/A

Landform (hillslope, terrace, etc.): Shoulder Local relief (concave, convex, none): Convex Slope (%): 3

Subregion (LRR or MLRA): P; 133A Lat: 37.332594 Long: -77.338115 Datum: NAD83

Soil Map Unit Name: Coxville loam NWI classification: Upland

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ✓ No ____ (If no, explain in Remarks.)

Are Vegetation ____, Soil ____, or Hydrology ____ significantly disturbed? N Are "Normal Circumstances" present? Yes ____ No ✓

Are Vegetation ____, Soil ____, or Hydrology ____ naturally problematic? N (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ✓	No	**Is the Sampled Area within a Wetland?**	**Yes** ____ **No** ✓
Hydric Soil Present?	Yes	No ✓		
Wetland Hydrology Present?	Yes	No ✓		

Remarks:

USACE Antecedent Precipitation Tool indicates the site was within "Normal Conditions" during the dry season with a condition normalcy index product of 11. The Palmer Drought Severity Index indicates the area is under "Mild Wetness" conditions.

*Data point was taken within a maintained easement

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ Marl Deposits (B15) **(LRR U)**
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Drainage Patterns (B10)
- ___ Moss Trim Lines (B16)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ✓ FAC-Neutral Test (D5)
- ___ Sphagnum moss (D8) (LRR T, U)

Field Observations:

Surface Water Present?	Yes ____	No ✓	Depth (inches): N/A
Water Table Present?	Yes ____	No ✓	Depth (inches): >24
Saturation Present? (includes capillary fringe)	Yes ____	No ✓	Depth (inches): >24

Wetland Hydrology Present? Yes ____ **No** ✓

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION (Five Strata) – Use scientific names of plants.

Sampling Point: FDS-56M1-2

Tree Stratum (Plot sizes: 30 ft.)	Absolute % Cover	Dominant Species?	Indicator Status
1. None			
2.			
3.			
4.			
5.			
6.			
	0 = Total Cover		
50% of total cover: 0.0	20% of total cover: 0.0		
Sapling Stratum (30 ft.)			
1. None			
2.			
3.			
4.			
5.			
6.			
	0 = Total Cover		
50% of total cover: 0.0	20% of total cover: 0.0		
Shrub Stratum (30 ft.)			
1. Baccharis halimifolia	10	YES	FAC
2. Rhododendron periclymenoides	5	YES	FAC
3.			
4.			
5.			
6.			
	15 = Total Cover		
50% of total cover: 7.5	20% of total cover: 3.0		
Herb Stratum (30 ft.)			
1. Lespedeza cuneata	45	YES	FACU
2. Rubus pensilvanicus	20	YES	FAC
3. Solidago rugosa	15	NO	FAC
4. Achillea millefolium	5	NO	FACU
5. Anthoxanthum hirtum	5	NO	FACW
6.			
7.			
8.			
9.			
10.			
11.			
	90 = Total Cover		
50% of total cover: 45.0	20% of total cover: 18.0		
Woody Vine Stratum (30 ft.)			
1. None			
2.			
3.			
4.			
5.			
	0 = Total Cover		
50% of total cover: 0.0	20% of total cover: 0.0		

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 3 (A)

Total Number of Dominant Species Across All Strata: 4 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 75.0% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	5	x 2 =	10
FAC species	50	x 3 =	150
FACU species	50	x 4 =	200
UPL species	0	x 5 =	0
Column Totals:	105 (A)		360 (B)

Prevalence Index = B/A = 3.43

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

✓ 2 - Dominance Test is >50%

___ 3 - Prevalence Index is ≤3.0[1]

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present.

Definitions of Vegetation Strata:

Tree – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and 3 in. (7.6 cm) or larger in diameter at breast height (DBH).

Sapling – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH.

Shrub – Woody plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height.

Herb – All herbaceous (non-woody) plants, including herbaceous vines, regardless of size. Includes woody plants, except woody vines, less than approximately 3 ft (1 m) in height.

Woody vine – All woody vines, regardless of height.

Hydrophytic Vegetation Present? Yes ✓ No ___

Remarks: (If observed, list morphological adaptations below).

SOIL

Sampling Point: FDS-56M1-2

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-3	10YR 5/4						SiL	
3+								Auger refusal

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ Organic Bodies (A6) **(LRR P, T, U)**
- ___ 5 cm Mucky Mineral (A7) **(LRR P, T, U)**
- ___ Muck Presence (A8) **(LRR U)**
- ___ 1 cm Muck (A9) **(LRR P, T)**
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Coast Prairie Redox (A16) **(MLRA 150A)**
- ___ Sandy Mucky Mineral (S1) **(LRR O, S)**
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7) **(LRR P, S, T, U)**
- ___ Polyvalue Below Surface (S8) **(LRR S, T, U)**
- ___ Thin Dark Surface (S9) **(LRR S, T, U)**
- ___ Loamy Mucky Mineral (F1) **(LRR O)**
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Marl (F10) **(LRR U)**
- ___ Depleted Ochric (F11) **(MLRA 151)**
- ___ Iron-Manganese Masses (F12) **(LRR O, P, T)**
- ___ Umbric Surface (F13) **(LRR P, T, U)**
- ___ Delta Ochric (F17) **(MLRA 151)**
- ___ Reduced Vertic (F18) **(MLRA 150A, 150B)**
- ___ Piedmont Floodplain Soils (F19) **(MLRA 149A)**
- ___ Anomalous Bright Loamy Soils (F20) **(MLRA 149A, 153C, 153D)**

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) **(LRR O)**
- ___ 2 cm Muck (A10) **(LRR S)**
- ___ Reduced Vertic (F18) **(outside MLRA 150A,B)**
- ___ Piedmont Floodplain Soils (F19) **(LRR P, S, T)**
- ___ Anomalous Bright Loamy Soils (F20) **(MLRA 153B)**
- ___ Red Parent Material (TF2)
- ___ Very Shallow Dark Surface (TF12) (LRR T, U)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: Auger refusal due to compaction

Depth (inches): 3

Hydric Soil Present? **Yes** _____ **No** ✓

Remarks:

PHOTOGRAPHS Sampling Point: FDS-56M1-2

FDS-56M1-2; Representative Vegetation (06/24/2024, K. Winklepleck)

FDS-56M1-2; Representative Soils (06/24/2024, K. Winklepleck)

WETLAND DETERMINATION DATA FORM – Atlantic and Gulf Coastal Plain Region

Project/Site: MTP - Siting and Routing City/County: Chesterfield County Sampling Date: 06/24/2024

Applicant/Owner: Dominion Energy State: VA Sampling Point: FDS-56U1-1

Investigator(s): K. Winklepleck , M. Norris Section, Township, Range: N/A

Landform (hillslope, terrace, etc.): Sideslope Local relief (concave, convex, none): Convex Slope (%): 2

Subregion (LRR or MLRA): P; 133A Lat: 37.332165 Long: -77.338696 Datum: NAD83

Soil Map Unit Name: Dunbar fine sandy loam NWI classification: Upland

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ✓ No ____ (If no, explain in Remarks.)

Are Vegetation ____, Soil ____, or Hydrology ____ significantly disturbed? N Are "Normal Circumstances" present? Yes ____ No ✓

Are Vegetation ____, Soil ____, or Hydrology ____ naturally problematic? N (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ✓	No	**Is the Sampled Area within a Wetland?**	**Yes** ____ **No** ✓
Hydric Soil Present?	Yes	No ✓		
Wetland Hydrology Present?	Yes	No ✓		

Remarks:

USACE Antecedent Precipitation Tool indicates the site was within "Normal Conditions" during the dry season with a condition normalcy index product of 11. The Palmer Drought Severity Index indicates the area is under "Mild Wetness" conditions.

*Data point was taken within a maintained easement

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ Marl Deposits (B15) **(LRR U)**
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Drainage Patterns (B10)
- ___ Moss Trim Lines (B16)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ✓ FAC-Neutral Test (D5)
- ___ Sphagnum moss (D8) (LRR T, U)

Field Observations:

Surface Water Present?	Yes ____	No ✓	Depth (inches): N/A	
Water Table Present?	Yes ____	No ✓	Depth (inches): >24	
Saturation Present? (includes capillary fringe)	Yes ____	No ✓	Depth (inches): >24	**Wetland Hydrology Present? Yes** ____ **No** ✓

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION (Five Strata) – Use scientific names of plants.

Sampling Point: FDS-56U1-1

Tree Stratum (Plot sizes: 30 ft.)	Absolute % Cover	Dominant Species?	Indicator Status
1. None			
2.			
3.			
4.			
5.			
6.			
	0 = Total Cover		
50% of total cover: 0.0	20% of total cover: 0.0		
Sapling Stratum (30 ft.)			
1. None			
2.			
3.			
4.			
5.			
6.			
	0 = Total Cover		
50% of total cover: 0.0	20% of total cover: 0.0		
Shrub Stratum (30 ft.)			
1. None			
2.			
3.			
4.			
5.			
6.			
	0 = Total Cover		
50% of total cover: 0.0	20% of total cover: 0.0		
Herb Stratum (30 ft.)			
1. Rubus pensilvanicus	45	YES	FAC
2. Juncus effusus	30	YES	OBL
3. Lespedeza cuneata	20	NO	FACU
4. Solidago rugosa	15	NO	FAC
5. Rubus flagellaris	5	NO	UPL
6.			
7.			
8.			
9.			
10.			
11.			
	115 = Total Cover		
50% of total cover: 57.5	20% of total cover: 23.0		
Woody Vine Stratum (30 ft.)			
1. None			
2.			
3.			
4.			
5.			
	0 = Total Cover		
50% of total cover: 0.0	20% of total cover: 0.0		

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A)

Total Number of Dominant Species Across All Strata: 2 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100.0% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	30	x 1 =	30
FACW species	0	x 2 =	0
FAC species	60	x 3 =	180
FACU species	20	x 4 =	80
UPL species	5	x 5 =	25
Column Totals:	115 (A)		315 (B)

Prevalence Index = B/A = 2.74

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

___ 2 - Dominance Test is >50%

___ 3 - Prevalence Index is ≤3.0[1]

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present.

Definitions of Vegetation Strata:

Tree – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and 3 in. (7.6 cm) or larger in diameter at breast height (DBH).

Sapling – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH.

Shrub – Woody plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height.

Herb – All herbaceous (non-woody) plants, including herbaceous vines, regardless of size. Includes woody plants, except woody vines, less than approximately 3 ft (1 m) in height.

Woody vine – All woody vines, regardless of height.

Hydrophytic Vegetation Present? Yes ✓ No ___

Remarks: (If observed, list morphological adaptations below).

SOIL

Sampling Point: FDS-56U1-1

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-2	10YR 5/4	100					SiCL	
2-6	10YR 5/6	100					SiL	
6+								Auger refusal

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ Organic Bodies (A6) **(LRR P, T, U)**
- ___ 5 cm Mucky Mineral (A7) **(LRR P, T, U)**
- ___ Muck Presence (A8) **(LRR U)**
- ___ 1 cm Muck (A9) **(LRR P, T)**
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Coast Prairie Redox (A16) **(MLRA 150A)**
- ___ Sandy Mucky Mineral (S1) **(LRR O, S)**
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7) **(LRR P, S, T, U)**
- ___ Polyvalue Below Surface (S8) **(LRR S, T, U)**
- ___ Thin Dark Surface (S9) **(LRR S, T, U)**
- ___ Loamy Mucky Mineral (F1) **(LRR O)**
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Marl (F10) **(LRR U)**
- ___ Depleted Ochric (F11) **(MLRA 151)**
- ___ Iron-Manganese Masses (F12) **(LRR O, P, T)**
- ___ Umbric Surface (F13) **(LRR P, T, U)**
- ___ Delta Ochric (F17) **(MLRA 151)**
- ___ Reduced Vertic (F18) **(MLRA 150A, 150B)**
- ___ Piedmont Floodplain Soils (F19) **(MLRA 149A)**
- ___ Anomalous Bright Loamy Soils (F20) **(MLRA 149A, 153C, 153D)**

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) **(LRR O)**
- ___ 2 cm Muck (A10) **(LRR S)**
- ___ Reduced Vertic (F18) **(outside MLRA 150A,B)**
- ___ Piedmont Floodplain Soils (F19) **(LRR P, S, T)**
- ___ Anomalous Bright Loamy Soils (F20) **(MLRA 153B)**
- ___ Red Parent Material (TF2)
- ___ Very Shallow Dark Surface (TF12) (LRR T, U)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: Auger refusal due to compaction

Depth (inches): 6

Hydric Soil Present? Yes _____ **No** ✓

Remarks:

PHOTOGRAPHS

Sampling Point: FDS-56U1-1

FDS-56U1-1; Representative Vegetation (06/24/2024, K. Winklepleck)

FDS-56U1-1; Representative Soils (06/24/2024, K. Winklepleck)

WETLAND DETERMINATION DATA FORM – Atlantic and Gulf Coastal Plain Region

Project/Site: MTP - Siting and Routing City/County: Chesterfield County Sampling Date: 06/24/2024

Applicant/Owner: Dominion Energy State: VA Sampling Point: FDS-58C1-1

Investigator(s): A. Leonard, A. Whitlock Section, Township, Range: N/A

Landform (hillslope, terrace, etc.): Drainage/Floodplain Local relief (concave, convex, none): Concave Slope (%): 2

Subregion (LRR or MLRA): P; 133A Lat: 37.337992 Long: -77.330014 Datum: NAD83

Soil Map Unit Name: Fluvaquents NWI classification: None

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ✓ No ____ (If no, explain in Remarks.)

Are Vegetation ____, Soil ____, or Hydrology ____ significantly disturbed? N Are "Normal Circumstances" present? Yes ____ No ✓

Are Vegetation ____, Soil ____, or Hydrology ____ naturally problematic? N (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ✓	No	**Is the Sampled Area within a Wetland?**	**Yes ✓ No**
Hydric Soil Present?	Yes ✓	No		
Wetland Hydrology Present?	Yes ✓	No		

Remarks:

USACE Antecedent Precipitation Tool indicates the site was within "Normal Conditions" during the dry season with a condition normalcy index product of 11. The Palmer Drought Severity Index indicates the area is under "Mild Wetness" conditions.

*Data point was taken in a maintained easement

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ___ Surface Water (A1)
- ✓ High Water Table (A2)
- ✓ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ✓ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ Marl Deposits (B15) **(LRR U)**
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Sparsely Vegetated Concave Surface (B8)
- ✓ Drainage Patterns (B10)
- ___ Moss Trim Lines (B16)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ✓ FAC-Neutral Test (D5)
- ___ Sphagnum moss (D8) (LRR T, U)

Field Observations:

Surface Water Present?	Yes ____	No ✓	Depth (inches): N/A	
Water Table Present?	Yes ✓	No ____	Depth (inches): 16	
Saturation Present? (includes capillary fringe)	Yes ✓	No ____	Depth (inches): 10	**Wetland Hydrology Present? Yes ✓ No ____**

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION (Five Strata) – Use scientific names of plants.

Sampling Point: FDS-58C1-1

Tree Stratum (Plot sizes: 30 ft.)	Absolute % Cover	Dominant Species?	Indicator Status
1. N/A			
2.			
3.			
4.			
5.			
6.			
	0 = Total Cover		

50% of total cover: 0.0 20% of total cover: 0.0

Sapling Stratum (30 ft.)			
1. N/A			
2.			
3.			
4.			
5.			
6.			
	0 = Total Cover		

50% of total cover: 0.0 20% of total cover: 0.0

Shrub Stratum (30 ft.)			
1. N/A			
2.			
3.			
4.			
5.			
6.			
	0 = Total Cover		

50% of total cover: 0.0 20% of total cover: 0.0

Herb Stratum (30 ft.)			
1. Persicaria pensylvanica	40	YES	FACW
2. Carex lurida	25	YES	OBL
3. Juncus effusus	25	YES	OBL
4. Microstegium vimineum	15	NO	FAC
5. Lonicera japonica	10	NO	FACU
6.			
7.			
8.			
9.			
10.			
11.			
	115 = Total Cover		

50% of total cover: 57.5 20% of total cover: 23.0

Woody Vine Stratum (30 ft.)			
1. N/A			
2.			
3.			
4.			
5.			
	0 = Total Cover		

50% of total cover: 0.0 20% of total cover: 0.0

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 3 (A)

Total Number of Dominant Species Across All Strata: 3 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100.0% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	50	x 1 =	50
FACW species	40	x 2 =	80
FAC species	15	x 3 =	45
FACU species	10	x 4 =	40
UPL species	0	x 5 =	0
Column Totals:	115 (A)		215 (B)

Prevalence Index = B/A = 1.87

Hydrophytic Vegetation Indicators:

✓ 1 - Rapid Test for Hydrophytic Vegetation

✓ 2 - Dominance Test is >50%

✓ 3 - Prevalence Index is ≤3.0[1]

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present.

Definitions of Vegetation Strata:

Tree – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and 3 in. (7.6 cm) or larger in diameter at breast height (DBH).

Sapling – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH.

Shrub – Woody plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height.

Herb – All herbaceous (non-woody) plants, including herbaceous vines, regardless of size. Includes woody plants, except woody vines, less than approximately 3 ft (1 m) in height.

Woody vine – All woody vines, regardless of height.

Hydrophytic Vegetation Present? Yes ✓ No ___

Remarks: (If observed, list morphological adaptations below).

SOIL

Sampling Point: FDS-58C1-1

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-10	2.5Y 4/1	85	10YR 4/6	15	C	PL	SiCL	
10-16	5GY 5/1	70	5YR 4/6	30	C	PL	FSCL	
16-24	5GY 5/1	95	5YR 4/6	5	C	PL	SCL	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ Organic Bodies (A6) **(LRR P, T, U)**
- ___ 5 cm Mucky Mineral (A7) **(LRR P, T, U)**
- ___ Muck Presence (A8) **(LRR U)**
- ___ 1 cm Muck (A9) **(LRR P, T)**
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Coast Prairie Redox (A16) **(MLRA 150A)**
- ___ Sandy Mucky Mineral (S1) **(LRR O, S)**
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7) **(LRR P, S, T, U)**
- ___ Polyvalue Below Surface (S8) **(LRR S, T, U)**
- ___ Thin Dark Surface (S9) **(LRR S, T, U)**
- ___ Loamy Mucky Mineral (F1) **(LRR O)**
- ___ Loamy Gleyed Matrix (F2)
- ✓ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Marl (F10) **(LRR U)**
- ___ Depleted Ochric (F11) **(MLRA 151)**
- ___ Iron-Manganese Masses (F12) **(LRR O, P, T)**
- ___ Umbric Surface (F13) **(LRR P, T, U)**
- ___ Delta Ochric (F17) **(MLRA 151)**
- ___ Reduced Vertic (F18) **(MLRA 150A, 150B)**
- ___ Piedmont Floodplain Soils (F19) **(MLRA 149A)**
- ___ Anomalous Bright Loamy Soils (F20) **(MLRA 149A, 153C, 153D)**

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) **(LRR O)**
- ___ 2 cm Muck (A10) **(LRR S)**
- ___ Reduced Vertic (F18) **(outside MLRA 150A,B)**
- ___ Piedmont Floodplain Soils (F19) **(LRR P, S, T)**
- ___ Anomalous Bright Loamy Soils (F20) **(MLRA 153B)**
- ___ Red Parent Material (TF2)
- ___ Very Shallow Dark Surface (TF12) (LRR T, U)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** ✓ **No** _____

Remarks:

PHOTOGRAPHS

Sampling Point: FDS-58C1-1

FDS-58C1-1; Representative Vegetation (06/24/2024, A. Leonard)

FDS-58C1-1; Representative Soils (06/24/2024, A. Leonard)

WETLAND DETERMINATION DATA FORM – Atlantic and Gulf Coastal Plain Region

Project/Site: MTP - Siting and Routing City/County: Chesterfield County Sampling Date: 06/24/2024

Applicant/Owner: Dominion Energy State: VA Sampling Point: FDS-58C1-2

Investigator(s): A. Leonard, A. Whitlock Section, Township, Range: N/A

Landform (hillslope, terrace, etc.): Flat Local relief (concave, convex, none): None Slope (%): 0

Subregion (LRR or MLRA): P; 133A Lat: 37.338218 Long: -77.329985 Datum: NAD83

Soil Map Unit Name: Fluvaquents NWI classification: Upland

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ✓ No _____ (If no, explain in Remarks.)

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? N Are "Normal Circumstances" present? Yes _____ No ✓

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? N (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ✓	No	**Is the Sampled Area within a Wetland?**	**Yes** _____ **No** ✓
Hydric Soil Present?	Yes	No ✓		
Wetland Hydrology Present?	Yes	No ✓		

Remarks:

USACE Antecedent Precipitation Tool indicates the site was within "Normal Conditions" during the dry season with a condition normalcy index product of 11. The Palmer Drought Severity Index indicates the area is under "Mild Wetness" conditions.

*Data point was taken in a maintained easement

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ Marl Deposits (B15) **(LRR U)**
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Drainage Patterns (B10)
- ___ Moss Trim Lines (B16)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)
- ___ Sphagnum moss (D8) (LRR T, U)

Field Observations:

Surface Water Present?	Yes _____	No ✓	Depth (inches): N/A	
Water Table Present?	Yes _____	No ✓	Depth (inches): >24	
Saturation Present? (includes capillary fringe)	Yes _____	No ✓	Depth (inches): >24	**Wetland Hydrology Present? Yes** _____ **No** ✓

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION (Five Strata) – Use scientific names of plants.

Sampling Point: FDS-58C1-2

Tree Stratum (Plot sizes: 30 ft.)	Absolute % Cover	Dominant Species?	Indicator Status
1. Acer rubrum	20	YES	FAC
2.			
3.			
4.			
5.			
6.			
	20 = Total Cover		
50% of total cover: 10.0	20% of total cover: 4.0		
Sapling Stratum (30 ft.)			
1. Acer rubrum	15	YES	FAC
2.			
3.			
4.			
5.			
6.			
	15 = Total Cover		
50% of total cover: 7.5	20% of total cover: 3.0		
Shrub Stratum (30 ft.)			
1. N/A			
2.			
3.			
4.			
5.			
6.			
	0 = Total Cover		
50% of total cover: 0.0	20% of total cover: 0.0		
Herb Stratum (30 ft.)			
1. Carex spp.*	30	YES	FAC
2. Dichanthelium acuminatum	10	YES	FAC
3. Dichanthelium dichotomum	10	YES	UPL
4. Taraxacum officinale	7	NO	FACU
5. Stellaria media	5	NO	FACU
6. Trifolium repens	5	NO	FACU
7.			
8.			
9.			
10.			
11.			
	67 = Total Cover		
50% of total cover: 33.5	20% of total cover: 13.4		
Woody Vine Stratum (30 ft.)			
1. N/A			
2.			
3.			
4.			
5.			
	0 = Total Cover		
50% of total cover: 0.0	20% of total cover: 0.0		

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 4 (A)

Total Number of Dominant Species Across All Strata: 5 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 80.0% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	0	x 2 =	0
FAC species	75	x 3 =	225
FACU species	17	x 4 =	68
UPL species	10	x 5 =	50
Column Totals:	102 (A)		343 (B)

Prevalence Index = B/A = 3.36

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

✓ 2 - Dominance Test is >50%

___ 3 - Prevalence Index is ≤3.0[1]

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present.

Definitions of Vegetation Strata:

Tree – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and 3 in. (7.6 cm) or larger in diameter at breast height (DBH).

Sapling – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH.

Shrub – Woody plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height.

Herb – All herbaceous (non-woody) plants, including herbaceous vines, regardless of size. Includes woody plants, except woody vines, less than approximately 3 ft (1 m) in height.

Woody vine – All woody vines, regardless of height.

Hydrophytic Vegetation Present? Yes ✓ No ___

Remarks: (If observed, list morphological adaptations below).

*Species is unable to be identified but is assumed to be FAC.

SOIL

Sampling Point: FDS-58C1-2

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-5	2.5Y 4/6	100					SL	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ Organic Bodies (A6) **(LRR P, T, U)**
- ___ 5 cm Mucky Mineral (A7) **(LRR P, T, U)**
- ___ Muck Presence (A8) **(LRR U)**
- ___ 1 cm Muck (A9) **(LRR P, T)**
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Coast Prairie Redox (A16) **(MLRA 150A)**
- ___ Sandy Mucky Mineral (S1) **(LRR O, S)**
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7) **(LRR P, S, T, U)**
- ___ Polyvalue Below Surface (S8) **(LRR S, T, U)**
- ___ Thin Dark Surface (S9) **(LRR S, T, U)**
- ___ Loamy Mucky Mineral (F1) **(LRR O)**
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Marl (F10) **(LRR U)**
- ___ Depleted Ochric (F11) **(MLRA 151)**
- ___ Iron-Manganese Masses (F12) **(LRR O, P, T)**
- ___ Umbric Surface (F13) **(LRR P, T, U)**
- ___ Delta Ochric (F17) **(MLRA 151)**
- ___ Reduced Vertic (F18) **(MLRA 150A, 150B)**
- ___ Piedmont Floodplain Soils (F19) **(MLRA 149A)**
- ___ Anomalous Bright Loamy Soils (F20) **(MLRA 149A, 153C, 153D)**

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) **(LRR O)**
- ___ 2 cm Muck (A10) **(LRR S)**
- ___ Reduced Vertic (F18) **(outside MLRA 150A,B)**
- ___ Piedmont Floodplain Soils (F19) **(LRR P, S, T)**
- ___ Anomalous Bright Loamy Soils (F20) **(MLRA 153B)**
- ___ Red Parent Material (TF2)
- ___ Very Shallow Dark Surface (TF12) (LRR T, U)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes _____ **No** ✓

Remarks:

Auger refusal at 5 inches due to gravel.

PHOTOGRAPHS Sampling Point: FDS-58C1-2

FDS-58C1-2; Representative Vegetation (06/24/2024, A. Leonard)

FDS-58C1-2; Representative Soils (06/24/2024, A. Leonard)

WETLAND DETERMINATION DATA FORM – Atlantic and Gulf Coastal Plain Region

Project/Site: MTP - Siting and Routing City/County: Chesterfield County Sampling Date: 06/24/2024

Applicant/Owner: Dominion Energy State: VA Sampling Point: FDS-58D1-1

Investigator(s): A. Leonard, A. Whitlock Section, Township, Range: N/A

Landform (hillslope, terrace, etc.): Footslope Local relief (concave, convex, none): Concave Slope (%): 0-1

Subregion (LRR or MLRA): P; 133A Lat: 37.339154 Long: -77.32249 Datum: NAD83

Soil Map Unit Name: Lenoir silt loam NWI classification: None

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ✓ No _____ (If no, explain in Remarks.)

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? N Are "Normal Circumstances" present? Yes _____ No ✓

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? N (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ✓	No	**Is the Sampled Area within a Wetland?**	**Yes ✓ No**
Hydric Soil Present?	Yes ✓	No		
Wetland Hydrology Present?	Yes ✓	No		

Remarks:

USACE Antecedent Precipitation Tool indicates the site was within "Normal Conditions" during the dry season with a condition normalcy index product of 11. The Palmer Drought Severity Index indicates the area is under "Mild Wetness" conditions.

*Data point was taken in a maintained easement

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ Marl Deposits (B15) **(LRR U)**
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ✓ Surface Soil Cracks (B6)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Drainage Patterns (B10)
- ___ Moss Trim Lines (B16)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Geomorphic Position (D2)
- ✓ Shallow Aquitard (D3)
- ✓ FAC-Neutral Test (D5)
- ___ Sphagnum moss (D8) (LRR T, U)

Field Observations:

Surface Water Present? Yes _____ No ✓ Depth (inches): N/A

Water Table Present? Yes _____ No ✓ Depth (inches): >24

Saturation Present? (includes capillary fringe) Yes ✓ No _____ Depth (inches): 3

Wetland Hydrology Present? Yes ✓ No _____

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION (Five Strata) – Use scientific names of plants.

Sampling Point: FDS-58D1-1

Tree Stratum (Plot sizes: 30 ft.)	Absolute % Cover	Dominant Species?	Indicator Status
1. N/A			
2.			
3.			
4.			
5.			
6.			
	0 = Total Cover		

50% of total cover: 0.0 20% of total cover: 0.0

Sapling Stratum (30 ft.)			
1. N/A			
2.			
3.			
4.			
5.			
6.			
	0 = Total Cover		

50% of total cover: 0.0 20% of total cover: 0.0

Shrub Stratum (30 ft.)			
1. N/A			
2.			
3.			
4.			
5.			
6.			
	0 = Total Cover		

50% of total cover: 0.0 20% of total cover: 0.0

Herb Stratum (30 ft.)			
1. Scirpus atrovirens	45	YES	OBL
2. Juncus effusus	40	YES	OBL
3. Liquidambar styracfilua	5	NO	FAC
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	90 = Total Cover		

50% of total cover: 45.0 20% of total cover: 18.0

Woody Vine Stratum (30 ft.)			
1. N/A			
2.			
3.			
4.			
5.			
	0 = Total Cover		

50% of total cover: 0.0 20% of total cover: 0.0

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A)

Total Number of Dominant Species Across All Strata: 2 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100.0% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	85	x 1 =	85
FACW species	0	x 2 =	0
FAC species	5	x 3 =	15
FACU species	0	x 4 =	0
UPL species	0	x 5 =	0
Column Totals:	90 (A)		100 (B)

Prevalence Index = B/A = 1.11

Hydrophytic Vegetation Indicators:

✓ 1 - Rapid Test for Hydrophytic Vegetation

✓ 2 - Dominance Test is >50%

✓ 3 - Prevalence Index is ≤3.0[1]

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present.

Definitions of Vegetation Strata:

Tree – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and 3 in. (7.6 cm) or larger in diameter at breast height (DBH).

Sapling – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH.

Shrub – Woody plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height.

Herb – All herbaceous (non-woody) plants, including herbaceous vines, regardless of size. Includes woody plants, except woody vines, less than approximately 3 ft (1 m) in height.

Woody vine – All woody vines, regardless of height.

Hydrophytic Vegetation Present? Yes ✓ No ___

Remarks: (If observed, list morphological adaptations below).

SOIL

Sampling Point: FDS-58D1-1

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-7	2.5Y 6/2	80	7.5YR 4/6	20	C	M	CL	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ Organic Bodies (A6) **(LRR P, T, U)**
- ___ 5 cm Mucky Mineral (A7) **(LRR P, T, U)**
- ___ Muck Presence (A8) **(LRR U)**
- ___ 1 cm Muck (A9) **(LRR P, T)**
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Coast Prairie Redox (A16) **(MLRA 150A)**
- ___ Sandy Mucky Mineral (S1) **(LRR O, S)**
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7) **(LRR P, S, T, U)**
- ___ Polyvalue Below Surface (S8) **(LRR S, T, U)**
- ___ Thin Dark Surface (S9) **(LRR S, T, U)**
- ___ Loamy Mucky Mineral (F1) **(LRR O)**
- ___ Loamy Gleyed Matrix (F2)
- ✓ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Marl (F10) **(LRR U)**
- ___ Depleted Ochric (F11) **(MLRA 151)**
- ___ Iron-Manganese Masses (F12) **(LRR O, P, T)**
- ___ Umbric Surface (F13) **(LRR P, T, U)**
- ___ Delta Ochric (F17) **(MLRA 151)**
- ___ Reduced Vertic (F18) **(MLRA 150A, 150B)**
- ___ Piedmont Floodplain Soils (F19) **(MLRA 149A)**
- ___ Anomalous Bright Loamy Soils (F20) **(MLRA 149A, 153C, 153D)**

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) **(LRR O)**
- ___ 2 cm Muck (A10) **(LRR S)**
- ___ Reduced Vertic (F18) **(outside MLRA 150A,B)**
- ___ Piedmont Floodplain Soils (F19) **(LRR P, S, T)**
- ___ Anomalous Bright Loamy Soils (F20) **(MLRA 153B)**
- ___ Red Parent Material (TF2)
- ___ Very Shallow Dark Surface (TF12) (LRR T, U)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** ✓ **No** _____

Remarks:

Auger refusal at 7 inches due to dense clay.

PHOTOGRAPHS Sampling Point: FDS-58D1-1

FDS-58D1-1; Representative Vegetation (06/24/2024, A. Leonard)

FDS-58D1-1; Representative Soils (06/24/2024, A. Leonard)

WETLAND DETERMINATION DATA FORM – Atlantic and Gulf Coastal Plain Region

Project/Site: MTP - Siting and Routing City/County: Chesterfield County Sampling Date: 06/24/2024

Applicant/Owner: Dominion Energy State: VA Sampling Point: FDS-58D1-2

Investigator(s): A. Leonard, A. Whitlock Section, Township, Range: N/A

Landform (hillslope, terrace, etc.): Flat Local relief (concave, convex, none): None Slope (%): 0

Subregion (LRR or MLRA): P; 133A Lat: 37.339094 Long: -77.322177 Datum: NAD83

Soil Map Unit Name: Coxville loam NWI classification: Upland

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ✓ No ____ (If no, explain in Remarks.)

Are Vegetation ____, Soil ____, or Hydrology ____ significantly disturbed? N Are "Normal Circumstances" present? Yes ____ No ✓

Are Vegetation ____, Soil ____, or Hydrology ____ naturally problematic? N (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ☐	No ✓	**Is the Sampled Area within a Wetland?**	**Yes** ____ **No** ✓
Hydric Soil Present?	Yes ☐	No ✓		
Wetland Hydrology Present?	Yes ☐	No ✓		

Remarks:

USACE Antecedent Precipitation Tool indicates the site was within "Normal Conditions" during the dry season with a condition normalcy index product of 11. The Palmer Drought Severity Index indicates the area is under "Mild Wetness" conditions.

*Data point was taken in a maintained easement

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ Marl Deposits (B15) **(LRR U)**
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Drainage Patterns (B10)
- ___ Moss Trim Lines (B16)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)
- ___ Sphagnum moss (D8) (LRR T, U)

Field Observations:

Surface Water Present?	Yes ____	No ✓	Depth (inches): N/A	
Water Table Present?	Yes ____	No ✓	Depth (inches): >24	
Saturation Present? (includes capillary fringe)	Yes ____	No ✓	Depth (inches): >24	**Wetland Hydrology Present? Yes** ____ **No** ✓

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION (Five Strata) – Use scientific names of plants.

Sampling Point: FDS-58D1-2

Tree Stratum (Plot sizes: 30 ft.)	Absolute % Cover	Dominant Species?	Indicator Status
1. N/A			
2.			
3.			
4.			
5.			
6.			
	0 = Total Cover		

50% of total cover: 0.0 20% of total cover: 0.0

Sapling Stratum (30 ft.)			
1. N/A			
2.			
3.			
4.			
5.			
6.			
	0 = Total Cover		

50% of total cover: 0.0 20% of total cover: 0.0

Shrub Stratum (30 ft.)			
1. N/A			
2.			
3.			
4.			
5.			
6.			
	0 = Total Cover		

50% of total cover: 0.0 20% of total cover: 0.0

Herb Stratum (30 ft.)			
1. Andropogon virginicus	20	YES	FAC
2. Dichanthelium clandestinum	15	YES	FACW
3. Eupatorium capillifolium	10	YES	FACU
4. Lonicera japonica	10	YES	FACU
5. Potentilla simplex	10	YES	FACU
6. Smilax rotundifolia	5	NO	FAC
7. Pinus taeda	3	NO	FAC
8.			
9.			
10.			
11.			
	73 = Total Cover		

50% of total cover: 36.5 20% of total cover: 14.6

Woody Vine Stratum (30 ft.)			
1. N/A			
2.			
3.			
4.			
5.			
	0 = Total Cover		

50% of total cover: 0.0 20% of total cover: 0.0

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A)

Total Number of Dominant Species Across All Strata: 5 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 40.0% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	15	x 2 =	30
FAC species	28	x 3 =	84
FACU species	30	x 4 =	120
UPL species	0	x 5 =	0
Column Totals:	73 (A)		234 (B)

Prevalence Index = B/A = 3.21

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

___ 2 - Dominance Test is >50%

___ 3 - Prevalence Index is ≤3.0[1]

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present.

Definitions of Vegetation Strata:

Tree – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and 3 in. (7.6 cm) or larger in diameter at breast height (DBH).

Sapling – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH.

Shrub – Woody plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height.

Herb – All herbaceous (non-woody) plants, including herbaceous vines, regardless of size. Includes woody plants, except woody vines, less than approximately 3 ft (1 m) in height.

Woody vine – All woody vines, regardless of height.

Hydrophytic Vegetation Present? Yes _____ No ✓

Remarks: (If observed, list morphological adaptations below).

SOIL

Sampling Point: FDS-58D1-2

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-24	2.5Y 6/4	97	2.5Y 7/3	3	D	M	SiL	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ Organic Bodies (A6) **(LRR P, T, U)**
- ___ 5 cm Mucky Mineral (A7) **(LRR P, T, U)**
- ___ Muck Presence (A8) **(LRR U)**
- ___ 1 cm Muck (A9) **(LRR P, T)**
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Coast Prairie Redox (A16) **(MLRA 150A)**
- ___ Sandy Mucky Mineral (S1) **(LRR O, S)**
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7) **(LRR P, S, T, U)**
- ___ Polyvalue Below Surface (S8) **(LRR S, T, U)**
- ___ Thin Dark Surface (S9) **(LRR S, T, U)**
- ___ Loamy Mucky Mineral (F1) **(LRR O)**
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Marl (F10) **(LRR U)**
- ___ Depleted Ochric (F11) **(MLRA 151)**
- ___ Iron-Manganese Masses (F12) **(LRR O, P, T)**
- ___ Umbric Surface (F13) **(LRR P, T, U)**
- ___ Delta Ochric (F17) **(MLRA 151)**
- ___ Reduced Vertic (F18) **(MLRA 150A, 150B)**
- ___ Piedmont Floodplain Soils (F19) **(MLRA 149A)**
- ___ Anomalous Bright Loamy Soils (F20) **(MLRA 149A, 153C, 153D)**

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) **(LRR O)**
- ___ 2 cm Muck (A10) **(LRR S)**
- ___ Reduced Vertic (F18) **(outside MLRA 150A,B)**
- ___ Piedmont Floodplain Soils (F19) **(LRR P, S, T)**
- ___ Anomalous Bright Loamy Soils (F20) **(MLRA 153B)**
- ___ Red Parent Material (TF2)
- ___ Very Shallow Dark Surface (TF12) (LRR T, U)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** _____ **No** ✓

Remarks:

PHOTOGRAPHS Sampling Point: FDS-58D1-2

FDS-58D1-2; Representative Vegetation (06/24/2024, A. Leonard)

FDS-58D1-2; Representative Soils (06/24/2024, A. Leonard)

WETLAND DETERMINATION DATA FORM – Atlantic and Gulf Coastal Plain Region

Project/Site: MTP - Siting and Routing City/County: Chesterfield County Sampling Date: 06/24/2024

Applicant/Owner: Dominion Energy State: VA Sampling Point: FDS-58N1-1

Investigator(s): A. Leonard, A. Whitlock Section, Township, Range: N/A

Landform (hillslope, terrace, etc.): Flat Local relief (concave, convex, none): None Slope (%): 0

Subregion (LRR or MLRA): P; 133A Lat: 37.330119 Long: -77.342292 Datum: NAD83

Soil Map Unit Name: Dunbar fine sandy loam NWI classification: PEM1Fh

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ✓ No ____ (If no, explain in Remarks.)

Are Vegetation ____, Soil ____, or Hydrology ____ significantly disturbed? N Are "Normal Circumstances" present? Yes ____ No ✓

Are Vegetation ____, Soil ____, or Hydrology ____ naturally problematic? N (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ✓	No	**Is the Sampled Area within a Wetland?**	**Yes** ____ **No** ____
Hydric Soil Present?	Yes ✓	No		
Wetland Hydrology Present?	Yes ✓	No		

Remarks:

USACE Antecedent Precipitation Tool indicates the site was within "Normal Conditions" during the dry season with a condition normalcy index product of 11. The Palmer Drought Severity Index indicates the area is under "Mild Wetness" conditions.

*Data point was taken in a maintained easement

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ✓ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ Marl Deposits (B15) **(LRR U)**
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Sparsely Vegetated Concave Surface (B8)
- ✓ Drainage Patterns (B10)
- ___ Moss Trim Lines (B16)
- ___ Dry-Season Water Table (C2)
- ✓ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ✓ FAC-Neutral Test (D5)
- ___ Sphagnum moss (D8) (LRR T, U)

Field Observations:

Surface Water Present? Yes ____ No ✓ Depth (inches): N/A

Water Table Present? Yes ____ No ✓ Depth (inches): >24

Saturation Present? (includes capillary fringe) Yes ____ No ✓ Depth (inches): >24

Wetland Hydrology Present? **Yes** ✓ **No** ____

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION (Five Strata) – Use scientific names of plants.

Sampling Point: FDS-58N1-1

Tree Stratum (Plot sizes: 30 ft.)	Absolute % Cover	Dominant Species?	Indicator Status
1. N/A			
2.			
3.			
4.			
5.			
6.			
	0 = Total Cover		

50% of total cover: 0.0 20% of total cover: 0.0

Sapling Stratum (30 ft.)			
1. N/A			
2.			
3.			
4.			
5.			
6.			
	0 = Total Cover		

50% of total cover: 0.0 20% of total cover: 0.0

Shrub Stratum (30 ft.)			
1. N/A			
2.			
3.			
4.			
5.			
6.			
	0 = Total Cover		

50% of total cover: 0.0 20% of total cover: 0.0

Herb Stratum (30 ft.)			
1. Dichanthelium scoparium	30	YES	FACW
2. Andropogon virginicus	20	YES	FAC
3. Carex lurida	5	NO	OBL
4. Acer rubrum	3	NO	FAC
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	58 = Total Cover		

50% of total cover: 29.0 20% of total cover: 11.6

Woody Vine Stratum (30 ft.)			
1. N/A			
2.			
3.			
4.			
5.			
	0 = Total Cover		

50% of total cover: 0.0 20% of total cover: 0.0

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A)

Total Number of Dominant Species Across All Strata: 2 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100.0% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	5	x 1 =	5
FACW species	30	x 2 =	60
FAC species	23	x 3 =	69
FACU species	0	x 4 =	0
UPL species	0	x 5 =	0
Column Totals:	58 (A)		134 (B)

Prevalence Index = B/A = 2.31

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

✓ 2 - Dominance Test is >50%

✓ 3 - Prevalence Index is ≤3.0[1]

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present.

Definitions of Vegetation Strata:

Tree – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and 3 in. (7.6 cm) or larger in diameter at breast height (DBH).

Sapling – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH.

Shrub – Woody plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height.

Herb – All herbaceous (non-woody) plants, including herbaceous vines, regardless of size. Includes woody plants, except woody vines, less than approximately 3 ft (1 m) in height.

Woody vine – All woody vines, regardless of height.

Hydrophytic Vegetation Present? Yes ✓ No ___

Remarks: (If observed, list morphological adaptations below).

SOIL

Sampling Point: FDS-58N1-1

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-3	10YR 3/2	98	10YR 4/4	2	C	M	VFSCL	
3-5	10YR 6/2	91	10YR 6/6	5	C	M	FSCL	
			10YR 7/2	2	D	M		
			10YR 4/6	2	C	PL		
5-18	2.5Y 6/2	100					FSCL	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ Organic Bodies (A6) **(LRR P, T, U)**
- ___ 5 cm Mucky Mineral (A7) **(LRR P, T, U)**
- ___ Muck Presence (A8) **(LRR U)**
- ___ 1 cm Muck (A9) **(LRR P, T)**
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Coast Prairie Redox (A16) **(MLRA 150A)**
- ___ Sandy Mucky Mineral (S1) **(LRR O, S)**
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7) **(LRR P, S, T, U)**
- ___ Polyvalue Below Surface (S8) **(LRR S, T, U)**
- ___ Thin Dark Surface (S9) **(LRR S, T, U)**
- ___ Loamy Mucky Mineral (F1) **(LRR O)**
- ___ Loamy Gleyed Matrix (F2)
- ✓ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Marl (F10) **(LRR U)**
- ___ Depleted Ochric (F11) **(MLRA 151)**
- ___ Iron-Manganese Masses (F12) **(LRR O, P, T)**
- ___ Umbric Surface (F13) **(LRR P, T, U)**
- ___ Delta Ochric (F17) **(MLRA 151)**
- ___ Reduced Vertic (F18) **(MLRA 150A, 150B)**
- ___ Piedmont Floodplain Soils (F19) **(MLRA 149A)**
- ___ Anomalous Bright Loamy Soils (F20) **(MLRA 149A, 153C, 153D)**

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) **(LRR O)**
- ___ 2 cm Muck (A10) **(LRR S)**
- ___ Reduced Vertic (F18) **(outside MLRA 150A,B)**
- ___ Piedmont Floodplain Soils (F19) **(LRR P, S, T)**
- ___ Anomalous Bright Loamy Soils (F20) **(MLRA 153B)**
- ___ Red Parent Material (TF2)
- ___ Very Shallow Dark Surface (TF12) (LRR T, U)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** ✓ **No** _____

Remarks:

Auger refusal at 18 inches due to dense clay.

PHOTOGRAPHS Sampling Point: FDS-58N1-1

FDS-58N1-1; Representative Vegetation (06/24/2024, A. Leonard)

FDS-58N1-1; Representative Soils (06/24/2024, A. Leonard)

WETLAND DETERMINATION DATA FORM – Atlantic and Gulf Coastal Plain Region

Project/Site: MTP - Siting and Routing City/County: Chesterfield County Sampling Date: 06/24/2024

Applicant/Owner: Dominion Energy State: VA Sampling Point: FDS-58N1-2

Investigator(s): A. Leonard, A. Whitlock Section, Township, Range: N/A

Landform (hillslope, terrace, etc.): Flat Local relief (concave, convex, none): None Slope (%): 0

Subregion (LRR or MLRA): P; 133A Lat: 37.329954 Long: -77.342314 Datum: NAD83

Soil Map Unit Name: Dunbar fine sandy loam NWI classification: PEM1Fh

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ✓ No ____ (If no, explain in Remarks.)

Are Vegetation ____, Soil ____, or Hydrology ____ significantly disturbed? N Are "Normal Circumstances" present? Yes ____ No ✓

Are Vegetation ____, Soil ____, or Hydrology ____ naturally problematic? N (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ✓	No	**Is the Sampled Area within a Wetland?**	**Yes** ____ **No** ✓
Hydric Soil Present?	Yes	No ✓		
Wetland Hydrology Present?	Yes	No ✓		

Remarks:

USACE Antecedent Precipitation Tool indicates the site was within "Normal Conditions" during the dry season with a condition normalcy index product of 11. The Palmer Drought Severity Index indicates the area is under "Mild Wetness" conditions.

*Data point was taken in a maintained easement

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ Marl Deposits (B15) **(LRR U)**
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Drainage Patterns (B10)
- ___ Moss Trim Lines (B16)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)
- ___ Sphagnum moss (D8) (LRR T, U)

Field Observations:

Surface Water Present? Yes ____ No ✓ Depth (inches): N/A

Water Table Present? Yes ____ No ✓ Depth (inches): >24

Saturation Present? (includes capillary fringe) Yes ____ No ✓ Depth (inches): >24

Wetland Hydrology Present? Yes ____ **No** ✓

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION (Five Strata) – Use scientific names of plants.

Sampling Point: FDS-58N1-2

Tree Stratum (Plot sizes: 30 ft.)	Absolute % Cover	Dominant Species?	Indicator Status
1. N/A			
2.			
3.			
4.			
5.			
6.			
	0 = Total Cover		

50% of total cover: 0.0 20% of total cover: 0.0

Sapling Stratum (30 ft.)			
1. N/A			
2.			
3.			
4.			
5.			
6.			
	0 = Total Cover		

50% of total cover: 0.0 20% of total cover: 0.0

Shrub Stratum (30 ft.)			
1. N/A			
2.			
3.			
4.			
5.			
6.			
	0 = Total Cover		

50% of total cover: 0.0 20% of total cover: 0.0

Herb Stratum (30 ft.)			
1. Dichanthelium scoparium	30	YES	FACW
2. Andropogon virginicus	15	YES	FAC
3. Rhexia virginica	15	YES	FACW
4. Juncus effusus	5	NO	OBL
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	65 = Total Cover		

50% of total cover: 32.5 20% of total cover: 13.0

Woody Vine Stratum (30 ft.)			
1. N/A			
2.			
3.			
4.			
5.			
	0 = Total Cover		

50% of total cover: 0.0 20% of total cover: 0.0

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 3 (A)

Total Number of Dominant Species Across All Strata: 3 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100.0% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	5	x 1 =	5
FACW species	45	x 2 =	90
FAC species	15	x 3 =	45
FACU species	0	x 4 =	0
UPL species	0	x 5 =	0
Column Totals:	65 (A)		140 (B)

Prevalence Index = B/A = 2.15

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

✓ 2 - Dominance Test is >50%

___ 3 - Prevalence Index is ≤3.0[1]

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present.

Definitions of Vegetation Strata:

Tree – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and 3 in. (7.6 cm) or larger in diameter at breast height (DBH).

Sapling – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH.

Shrub – Woody plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height.

Herb – All herbaceous (non-woody) plants, including herbaceous vines, regardless of size. Includes woody plants, except woody vines, less than approximately 3 ft (1 m) in height.

Woody vine – All woody vines, regardless of height.

Hydrophytic Vegetation Present? Yes ✓ No ___

Remarks: (If observed, list morphological adaptations below).

SOIL

Sampling Point: FDS-58N1-2

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-7	10YR 3/2	100					FSL	
7-24	2.5Y 6/3	95	10YR 5/8	5	C	PL	FSL	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ Organic Bodies (A6) **(LRR P, T, U)**
- ___ 5 cm Mucky Mineral (A7) **(LRR P, T, U)**
- ___ Muck Presence (A8) **(LRR U)**
- ___ 1 cm Muck (A9) **(LRR P, T)**
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Coast Prairie Redox (A16) **(MLRA 150A)**
- ___ Sandy Mucky Mineral (S1) **(LRR O, S)**
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7) **(LRR P, S, T, U)**
- ___ Polyvalue Below Surface (S8) **(LRR S, T, U)**
- ___ Thin Dark Surface (S9) **(LRR S, T, U)**
- ___ Loamy Mucky Mineral (F1) **(LRR O)**
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Marl (F10) **(LRR U)**
- ___ Depleted Ochric (F11) **(MLRA 151)**
- ___ Iron-Manganese Masses (F12) **(LRR O, P, T)**
- ___ Umbric Surface (F13) **(LRR P, T, U)**
- ___ Delta Ochric (F17) **(MLRA 151)**
- ___ Reduced Vertic (F18) **(MLRA 150A, 150B)**
- ___ Piedmont Floodplain Soils (F19) **(MLRA 149A)**
- ___ Anomalous Bright Loamy Soils (F20) **(MLRA 149A, 153C, 153D)**

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) **(LRR O)**
- ___ 2 cm Muck (A10) **(LRR S)**
- ___ Reduced Vertic (F18) **(outside MLRA 150A,B)**
- ___ Piedmont Floodplain Soils (F19) **(LRR P, S, T)**
- ___ Anomalous Bright Loamy Soils (F20) **(MLRA 153B)**
- ___ Red Parent Material (TF2)
- ___ Very Shallow Dark Surface (TF12) (LRR T, U)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** _____ **No** ✓

Remarks:

PHOTOGRAPHS Sampling Point: FDS-58N1-2

FDS-58N1-2; Representative Vegetation (06/24/2024, A. Leonard)

FDS-58N1-2; Representative Soils (06/24/2024, A. Leonard)

WETLAND DETERMINATION DATA FORM – Atlantic and Gulf Coastal Plain Region

Project/Site: MTP - Siting and Routing City/County: Chesterfield County Sampling Date: 06/24/2024

Applicant/Owner: Dominion Energy State: VA Sampling Point: FDS-58U1-1

Investigator(s): A. Leonard, A. Whitlock Section, Township, Range: N/A

Landform (hillslope, terrace, etc.): Sideslope Local relief (concave, convex, none): Convex Slope (%): 2

Subregion (LRR or MLRA): P; 133A Lat: 37.338956 Long: -77.321305 Datum: NAD83

Soil Map Unit Name: Coxville loam NWI classification: Upland

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ✓ No ____ (If no, explain in Remarks.)

Are Vegetation ____, Soil ____, or Hydrology ____ significantly disturbed? N Are "Normal Circumstances" present? Yes ____ No ✓

Are Vegetation ____, Soil ____, or Hydrology ____ naturally problematic? N (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ☐	No ✓	**Is the Sampled Area within a Wetland?**	**Yes** ____ **No** ✓
Hydric Soil Present?	Yes ☐	No ✓		
Wetland Hydrology Present?	Yes ☐	No ✓		

Remarks:

USACE Antecedent Precipitation Tool indicates the site was within "Normal Conditions" during the dry season with a condition normalcy index product of 11. The Palmer Drought Severity Index indicates the area is under "Mild Wetness" conditions.

*Data point was taken in a maintained easement

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ Marl Deposits (B15) **(LRR U)**
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Drainage Patterns (B10)
- ___ Moss Trim Lines (B16)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)
- ___ Sphagnum moss (D8) (LRR T, U)

Field Observations:

Surface Water Present?	Yes ____	No ✓	Depth (inches): N/A	
Water Table Present?	Yes ____	No ✓	Depth (inches): >24	
Saturation Present? (includes capillary fringe)	Yes ____	No ✓	Depth (inches): >24	**Wetland Hydrology Present? Yes** ____ **No** ✓

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION (Five Strata) – Use scientific names of plants.

Sampling Point: FDS-58U1-1

Tree Stratum (Plot sizes: 30 ft.)	Absolute % Cover	Dominant Species?	Indicator Status
1. N/A			
2.			
3.			
4.			
5.			
6.			
	0 = Total Cover		

50% of total cover: 0.0 20% of total cover: 0.0

Sapling Stratum (30 ft.)			
1. N/A			
2.			
3.			
4.			
5.			
6.			
	0 = Total Cover		

50% of total cover: 0.0 20% of total cover: 0.0

Shrub Stratum (30 ft.)			
1. N/A			
2.			
3.			
4.			
5.			
6.			
	0 = Total Cover		

50% of total cover: 0.0 20% of total cover: 0.0

Herb Stratum (30 ft.)			
1. Dichanthelium scoparium	30	YES	FACW
2. Pteridium aquilinum	30	YES	FACU
3. Anthoxanthum odoratum	15	NO	FACU
4. Rubus pensilvanicus	10	NO	FAC
5. Smilax rotundifolia	10	NO	FAC
6.			
7.			
8.			
9.			
10.			
11.			
	95 = Total Cover		

50% of total cover: 47.5 20% of total cover: 19.0

Woody Vine Stratum (30 ft.)			
1. N/A			
2.			
3.			
4.			
5.			
	0 = Total Cover		

50% of total cover: 0.0 20% of total cover: 0.0

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 2 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 50.0% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	30	x 2 =	60
FAC species	20	x 3 =	60
FACU species	45	x 4 =	180
UPL species	0	x 5 =	0
Column Totals:	95 (A)		300 (B)

Prevalence Index = B/A = 3.16

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

___ 2 - Dominance Test is >50%

___ 3 - Prevalence Index is ≤3.0[1]

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present.

Definitions of Vegetation Strata:

Tree – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and 3 in. (7.6 cm) or larger in diameter at breast height (DBH).

Sapling – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH.

Shrub – Woody plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height.

Herb – All herbaceous (non-woody) plants, including herbaceous vines, regardless of size. Includes woody plants, except woody vines, less than approximately 3 ft (1 m) in height.

Woody vine – All woody vines, regardless of height.

Hydrophytic Vegetation Present? Yes ____ No ✓

Remarks: (If observed, list morphological adaptations below).

SOIL

Sampling Point: FDS-58U1-1

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-24	2.5Y 6/4	95	10YR 7/8	5	C	M	SiL	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ Organic Bodies (A6) **(LRR P, T, U)**
- ___ 5 cm Mucky Mineral (A7) **(LRR P, T, U)**
- ___ Muck Presence (A8) **(LRR U)**
- ___ 1 cm Muck (A9) **(LRR P, T)**
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Coast Prairie Redox (A16) **(MLRA 150A)**
- ___ Sandy Mucky Mineral (S1) **(LRR O, S)**
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7) **(LRR P, S, T, U)**
- ___ Polyvalue Below Surface (S8) **(LRR S, T, U)**
- ___ Thin Dark Surface (S9) **(LRR S, T, U)**
- ___ Loamy Mucky Mineral (F1) **(LRR O)**
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Marl (F10) **(LRR U)**
- ___ Depleted Ochric (F11) **(MLRA 151)**
- ___ Iron-Manganese Masses (F12) **(LRR O, P, T)**
- ___ Umbric Surface (F13) **(LRR P, T, U)**
- ___ Delta Ochric (F17) **(MLRA 151)**
- ___ Reduced Vertic (F18) **(MLRA 150A, 150B)**
- ___ Piedmont Floodplain Soils (F19) **(MLRA 149A)**
- ___ Anomalous Bright Loamy Soils (F20) **(MLRA 149A, 153C, 153D)**

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) **(LRR O)**
- ___ 2 cm Muck (A10) **(LRR S)**
- ___ Reduced Vertic (F18) **(outside MLRA 150A,B)**
- ___ Piedmont Floodplain Soils (F19) **(LRR P, S, T)**
- ___ Anomalous Bright Loamy Soils (F20) **(MLRA 153B)**
- ___ Red Parent Material (TF2)
- ___ Very Shallow Dark Surface (TF12) (LRR T, U)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** _____ **No** ✓

Remarks:

PHOTOGRAPHS Sampling Point: FDS-58U1-1

FDS-58U1-1; Representative Vegetation (06/24/2024, A. Leonard)

FDS-58U1-1; Representative Soils (06/24/2024, A. Leonard)

WETLAND DETERMINATION DATA FORM – Atlantic and Gulf Coastal Plain Region

Project/Site: Orchard Parcel City/County: Chesterfield County Sampling Date: 05/16/2024

Applicant/Owner: Dominion Energy State: VA Sampling Point: FDS-44H1-1

Investigator(s): A. Burket Section, Township, Range: N/A

Landform (hillslope, terrace, etc.): Swale Local relief (concave, convex, none): Concave Slope (%): 0-1

Subregion (LRR or MLRA): LRR P; MLRA 133A Lat: 37.327095 Long: -77.348592 Datum: NAD83

Soil Map Unit Name: Orangeburg-Faceville sandy loams, 2 to 6 percent slopes NWI classification: Upland

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ____ No ✓ (If no, explain in Remarks.)

Are Vegetation ____, Soil ____, or Hydrology ____ significantly disturbed? N Are "Normal Circumstances" present? Yes ✓ No ____

Are Vegetation ____, Soil ____, or Hydrology ____ naturally problematic? N (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ✓	No	**Is the Sampled Area within a Wetland?**	**Yes ✓ No**
Hydric Soil Present?	Yes ✓	No		
Wetland Hydrology Present?	Yes ✓	No		

Remarks:

USACE Antecedent Precipitation Tool indicates the site was within "Normal Conditions" during the dry season with a condition normalcy index product of 12. The Palmer Drought Severity Index indicates the area is under "Mild Wetness" conditions.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ✓ Surface Water (A1)
- ✓ High Water Table (A2)
- ✓ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ✓ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ Marl Deposits (B15) **(LRR U)**
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ✓ Sparsely Vegetated Concave Surface (B8)
- ___ Drainage Patterns (B10)
- ___ Moss Trim Lines (B16)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ✓ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ✓ FAC-Neutral Test (D5)
- ___ Sphagnum moss (D8) (LRR T, U)

Field Observations:

Surface Water Present?	Yes ✓	No ____	Depth (inches): 0-6	
Water Table Present?	Yes ✓	No ____	Depth (inches): 0	
Saturation Present? (includes capillary fringe)	Yes ✓	No ____	Depth (inches): 0	**Wetland Hydrology Present? Yes ✓ No ____**

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION (Five Strata) – Use scientific names of plants.

Sampling Point: FDS-44H1-1

Tree Stratum (Plot sizes: 30 feet)	Absolute % Cover	Dominant Species?	Indicator Status
1. Pinus taeda	50	YES	FAC
2. Nyssa sylvatica	25	YES	FAC
3. Acer rubrum	15	NO	FAC
4. Liquidambar styraciflua	8	NO	FAC
5.			
6.			
	98	= Total Cover	

50% of total cover: 49.0 20% of total cover: 19.6

Sapling Stratum (30 feet)			
1. Acer rubrum	15	YES	FAC
2.			
3.			
4.			
5.			
6.			
	15	= Total Cover	

50% of total cover: 7.5 20% of total cover: 3.0

Shrub Stratum (30 feet)			
1. Vaccinium fuscatum	20	YES	FACW
2. Ilex opaca	5	YES	FAC
3.			
4.			
5.			
6.			
	25	= Total Cover	

50% of total cover: 12.5 20% of total cover: 5.0

Herb Stratum (30 feet)			
1. Chasmanthium laxum	2	YES	FACW
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	2	= Total Cover	

50% of total cover: 1.0 20% of total cover: 0.4

Woody Vine Stratum (30 feet)			
1. Smilax rotundifolia	8	YES	FAC
2.			
3.			
4.			
5.			
	8	= Total Cover	

50% of total cover: 4.0 20% of total cover: 1.6

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 5 (A)

Total Number of Dominant Species Across All Strata: 7 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 71.4% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	22	x 2 =	44
FAC species	126	x 3 =	378
FACU species	0	x 4 =	0
UPL species	0	x 5 =	0
Column Totals:	148 (A)		422 (B)

Prevalence Index = B/A = 2.85

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

✓ 2 - Dominance Test is >50%

✓ 3 - Prevalence Index is ≤3.0[1]

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present.

Definitions of Vegetation Strata:

Tree – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and 3 in. (7.6 cm) or larger in diameter at breast height (DBH).

Sapling – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH.

Shrub – Woody plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height.

Herb – All herbaceous (non-woody) plants, including herbaceous vines, regardless of size. Includes woody plants, except woody vines, less than approximately 3 ft (1 m) in height.

Woody vine – All woody vines, regardless of height.

Hydrophytic Vegetation Present? Yes ✓ No ___

Remarks: (If observed, list morphological adaptations below).

SOIL

Sampling Point: FDS-44H1-1

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-1	10YR 2/1	100					OL	
1-6	10YR 3/1	100					L	
6-14	2.5Y 6/1	92	7.5YR 6/8	8	C	M	CL	
14-24	2.5Y 6/1	92	7.5YR 6/8	8	C	M	C	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ Organic Bodies (A6) **(LRR P, T, U)**
- ___ 5 cm Mucky Mineral (A7) **(LRR P, T, U)**
- ___ Muck Presence (A8) **(LRR U)**
- ___ 1 cm Muck (A9) **(LRR P, T)**
- ✓ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Coast Prairie Redox (A16) **(MLRA 150A)**
- ___ Sandy Mucky Mineral (S1) **(LRR O, S)**
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7) **(LRR P, S, T, U)**
- ___ Polyvalue Below Surface (S8) **(LRR S, T, U)**
- ___ Thin Dark Surface (S9) **(LRR S, T, U)**
- ___ Loamy Mucky Mineral (F1) **(LRR O)**
- ___ Loamy Gleyed Matrix (F2)
- ✓ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Marl (F10) **(LRR U)**
- ___ Depleted Ochric (F11) **(MLRA 151)**
- ___ Iron-Manganese Masses (F12) **(LRR O, P, T)**
- ___ Umbric Surface (F13) **(LRR P, T, U)**
- ___ Delta Ochric (F17) **(MLRA 151)**
- ___ Reduced Vertic (F18) **(MLRA 150A, 150B)**
- ___ Piedmont Floodplain Soils (F19) **(MLRA 149A)**
- ___ Anomalous Bright Loamy Soils (F20) **(MLRA 149A, 153C, 153D)**

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) **(LRR O)**
- ___ 2 cm Muck (A10) **(LRR S)**
- ___ Reduced Vertic (F18) **(outside MLRA 150A,B)**
- ___ Piedmont Floodplain Soils (F19) **(LRR P, S, T)**
- ___ Anomalous Bright Loamy Soils (F20) **(MLRA 153B)**
- ___ Red Parent Material (TF2)
- ___ Very Shallow Dark Surface (TF12) (LRR T, U)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** ✓ **No** _____

Remarks:

WETLAND DETERMINATION DATA FORM – Atlantic and Gulf Coastal Plain Region

Project/Site: Orchard Parcel City/County: Chesterfield County Sampling Date: 05/16/2024

Applicant/Owner: Dominion Energy State: VA Sampling Point: FDS-44H1-2

Investigator(s): A. Burket Section, Township, Range: N/A

Landform (hillslope, terrace, etc.): Top of swale Local relief (concave, convex, none): Concave Slope (%): 1

Subregion (LRR or MLRA): LRR P; MLRA 133A Lat: 37.326947 Long: -77.348423 Datum: NAD83

Soil Map Unit Name: Orangeburg-Faceville sandy loams, 2 to 6 percent slopes NWI classification: Upland

Are climatic / hydrologic conditions on the site typical for this time of year? Yes _____ No ✓ (If no, explain in Remarks.)

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? N Are "Normal Circumstances" present? Yes ✓ No _____

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? N (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ✓	No	**Is the Sampled Area within a Wetland?**	**Yes** _____ **No** ✓
Hydric Soil Present?	Yes	No ✓		
Wetland Hydrology Present?	Yes	No ✓		

Remarks:

USACE Antecedent Precipitation Tool indicates the site was within "Normal Conditions" during the dry season with a condition normalcy index product of 12. The Palmer Drought Severity Index indicates the area is under "Mild Wetness" conditions.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ Marl Deposits (B15) **(LRR U)**
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Drainage Patterns (B10)
- ___ Moss Trim Lines (B16)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)
- ___ Sphagnum moss (D8) (LRR T, U)

Field Observations:

Surface Water Present? Yes _____ No ✓ Depth (inches): N/A

Water Table Present? Yes _____ No ✓ Depth (inches): >24

Saturation Present? (includes capillary fringe) Yes ✓ No _____ Depth (inches): 18

Wetland Hydrology Present? Yes _____ **No** ✓

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION (Five Strata) – Use scientific names of plants.

Sampling Point: FDS-44H1-2

Tree Stratum (Plot sizes: 30 feet)	Absolute % Cover	Dominant Species?	Indicator Status
1. Quercus alba	50	YES	FACU
2. Quercus falcata	10	NO	FACU
3. Liquidambar styraciflua	8	NO	FAC
4. Quercus nigra	8	NO	FAC
5. Pinus taeda	5	NO	FAC
6.			
	81 = Total Cover		
50% of total cover: 40.5	20% of total cover: 16.2		
Sapling Stratum (30 feet)			
1. Nyssa sylvatica	25	YES	FAC
2. Liquidambar styraciflua	15	YES	FAC
3.			
4.			
5.			
6.			
	40 = Total Cover		
50% of total cover: 20.0	20% of total cover: 8.0		
Shrub Stratum (30 feet)			
1. Nyssa sylvatica	20	YES	FAC
2. Liquidambar styraciflua	3	NO	FAC
3. Vaccinium fuscatum	3	NO	FACW
4.			
5.			
6.			
	26 = Total Cover		
50% of total cover: 13.0	20% of total cover: 5.2		
Herb Stratum (30 feet)			
1. Gaylussacia frondosa	10	YES	FAC
2. Pinus taeda	5	YES	FAC
3. Chasmanthium laxum	1	NO	FACW
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	16 = Total Cover		
50% of total cover: 8.0	20% of total cover: 3.2		
Woody Vine Stratum (30 feet)			
1. N/A			
2.			
3.			
4.			
5.			
	0 = Total Cover		
50% of total cover: 0.0	20% of total cover: 0.0		

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 5 (A)

Total Number of Dominant Species Across All Strata: 6 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 83.3% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	4	x 2 =	8
FAC species	99	x 3 =	297
FACU species	60	x 4 =	240
UPL species	0	x 5 =	0
Column Totals:	163 (A)		545 (B)

Prevalence Index = B/A = 3.34

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

✓ 2 - Dominance Test is >50%

___ 3 - Prevalence Index is ≤3.0[1]

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present.

Definitions of Vegetation Strata:

Tree – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and 3 in. (7.6 cm) or larger in diameter at breast height (DBH).

Sapling – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH.

Shrub – Woody plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height.

Herb – All herbaceous (non-woody) plants, including herbaceous vines, regardless of size. Includes woody plants, except woody vines, less than approximately 3 ft (1 m) in height.

Woody vine – All woody vines, regardless of height.

Hydrophytic Vegetation Present? Yes ✓ No ___

Remarks: (If observed, list morphological adaptations below).

SOIL

Sampling Point: FDS-44H1-2

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-6	2.5Y 4/3	100					SL	
6-12	2.5Y 4/3	65	10YR 5/8	5	C	M	SL	
	2.5Y 5/3	30						Additional matrix
12-24	2.5Y 5/4	70					SCL	
	2.5Y 5/3	30						Additional matrix

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ Organic Bodies (A6) **(LRR P, T, U)**
- ___ 5 cm Mucky Mineral (A7) **(LRR P, T, U)**
- ___ Muck Presence (A8) **(LRR U)**
- ___ 1 cm Muck (A9) **(LRR P, T)**
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Coast Prairie Redox (A16) **(MLRA 150A)**
- ___ Sandy Mucky Mineral (S1) **(LRR O, S)**
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7) **(LRR P, S, T, U)**
- ___ Polyvalue Below Surface (S8) **(LRR S, T, U)**
- ___ Thin Dark Surface (S9) **(LRR S, T, U)**
- ___ Loamy Mucky Mineral (F1) **(LRR O)**
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Marl (F10) **(LRR U)**
- ___ Depleted Ochric (F11) **(MLRA 151)**
- ___ Iron-Manganese Masses (F12) **(LRR O, P, T)**
- ___ Umbric Surface (F13) **(LRR P, T, U)**
- ___ Delta Ochric (F17) **(MLRA 151)**
- ___ Reduced Vertic (F18) **(MLRA 150A, 150B)**
- ___ Piedmont Floodplain Soils (F19) **(MLRA 149A)**
- ___ Anomalous Bright Loamy Soils (F20) **(MLRA 149A, 153C, 153D)**

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) **(LRR O)**
- ___ 2 cm Muck (A10) **(LRR S)**
- ___ Reduced Vertic (F18) **(outside MLRA 150A,B)**
- ___ Piedmont Floodplain Soils (F19) **(LRR P, S, T)**
- ___ Anomalous Bright Loamy Soils (F20) **(MLRA 153B)**
- ___ Red Parent Material (TF2)
- ___ Very Shallow Dark Surface (TF12) (LRR T, U)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes _____ **No** ✓

Remarks:

WETLAND DETERMINATION DATA FORM – Atlantic and Gulf Coastal Plain Region

Project/Site: Orchard Parcel City/County: Chesterfield County Sampling Date: 05/16/2024

Applicant/Owner: Dominion Energy State: VA Sampling Point: FDS-44U1-1

Investigator(s): A. Burket Section, Township, Range: N/A

Landform (hillslope, terrace, etc.): Swale Local relief (concave, convex, none): Concave Slope (%): 2

Subregion (LRR or MLRA): LRR P; MLRA 133A Lat: 37.328733 Long: -77.348990 Datum: NAD83

Soil Map Unit Name: Fluvaquents NWI classification: Upland

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ____ No ✓ (If no, explain in Remarks.)

Are Vegetation ____, Soil ____, or Hydrology ____ significantly disturbed? N Are "Normal Circumstances" present? Yes ✓ No ____

Are Vegetation ____, Soil ____, or Hydrology ____ naturally problematic? N (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ✓	No	**Is the Sampled Area within a Wetland?**	**Yes** ____ **No** ✓
Hydric Soil Present?	Yes	No ✓		
Wetland Hydrology Present?	Yes ✓	No		

Remarks:

USACE Antecedent Precipitation Tool indicates the site was within "Normal Conditions" during the dry season with a condition normalcy index product of 12. The Palmer Drought Severity Index indicates the area is under "Mild Wetness" conditions.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ___ Surface Water (A1)
- ✓ High Water Table (A2)
- ✓ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ Marl Deposits (B15) **(LRR U)**
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Drainage Patterns (B10)
- ___ Moss Trim Lines (B16)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ✓ FAC-Neutral Test (D5)
- ___ Sphagnum moss (D8) (LRR T, U)

Field Observations:

Surface Water Present? Yes ____ No ✓ Depth (inches): N/A

Water Table Present? Yes ✓ No ____ Depth (inches): 12

Saturation Present? (includes capillary fringe) Yes ✓ No ____ Depth (inches): 0

Wetland Hydrology Present? Yes ✓ **No** ____

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION (Five Strata) – Use scientific names of plants.

Sampling Point: FDS-44U1-1

Tree Stratum (Plot sizes: 30 feet)	Absolute % Cover	Dominant Species?	Indicator Status
1. Quercus alba	60	YES	FACU
2. Quercus stellata	25	YES	UPL
3. Nyssa sylvatica	10	NO	FAC
4. Pinus taeda	5	NO	FAC
5.			
6.			
	100	= Total Cover	

50% of total cover: 50.0 20% of total cover: 20.0

Sapling Stratum (30 feet)			
1. Acer rubrum	10	YES	FAC
2. Liquidambar styraciflua	5	YES	FAC
3.			
4.			
5.			
6.			
	15	= Total Cover	

50% of total cover: 7.5 20% of total cover: 3.0

Shrub Stratum (30 feet)			
1. Liquidambar styraciflua	10	YES	FAC
2. Vaccinium fuscatum	10	YES	FACW
3. Acer rubrum	8	YES	FAC
4. Pinus taeda	3	NO	FAC
5.			
6.			
	31	= Total Cover	

50% of total cover: 15.5 20% of total cover: 6.2

Herb Stratum (30 feet)			
1. Gaylussacia frondosa	20	YES	FAC
2. Carex debilis	15	YES	FACW
3. Chasmanthium laxum	15	YES	FACW
4. Pinus taeda	8	NO	FAC
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	58	= Total Cover	

50% of total cover: 29.0 20% of total cover: 11.6

Woody Vine Stratum (30 feet)			
1. N/A			
2.			
3.			
4.			
5.			
	0	= Total Cover	

50% of total cover: 0.0 20% of total cover: 0.0

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 8 (A)

Total Number of Dominant Species Across All Strata: 10 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 80.0% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	40	x 2 =	80
FAC species	79	x 3 =	237
FACU species	60	x 4 =	240
UPL species	25	x 5 =	125
Column Totals:	204 (A)		682 (B)

Prevalence Index = B/A = 3.34

Hydrophytic Vegetation Indicators:

__ 1 - Rapid Test for Hydrophytic Vegetation

✓ 2 - Dominance Test is >50%

__ 3 - Prevalence Index is ≤3.0[1]

__ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present.

Definitions of Vegetation Strata:

Tree – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and 3 in. (7.6 cm) or larger in diameter at breast height (DBH).

Sapling – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH.

Shrub – Woody plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height.

Herb – All herbaceous (non-woody) plants, including herbaceous vines, regardless of size. Includes woody plants, except woody vines, less than approximately 3 ft (1 m) in height.

Woody vine – All woody vines, regardless of height.

Hydrophytic Vegetation Present? Yes ✓ No __

Remarks: (If observed, list morphological adaptations below).

SOIL

Sampling Point: FDS-44U1-1

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-1	10YR 2/2	100					SL	
1-12	2.5Y 5/3	100					SCL	
12-24	2.5Y 6/4	75	10YR 5/8	15	C	M	SC	
			2.5Y 6/3	10	D	M		

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains.

[2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

___ Histosol (A1)
___ Histic Epipedon (A2)
___ Black Histic (A3)
___ Hydrogen Sulfide (A4)
___ Stratified Layers (A5)
___ Organic Bodies (A6) **(LRR P, T, U)**
___ 5 cm Mucky Mineral (A7) **(LRR P, T, U)**
___ Muck Presence (A8) **(LRR U)**
___ 1 cm Muck (A9) **(LRR P, T)**
___ Depleted Below Dark Surface (A11)
___ Thick Dark Surface (A12)
___ Coast Prairie Redox (A16) **(MLRA 150A)**
___ Sandy Mucky Mineral (S1) **(LRR O, S)**
___ Sandy Gleyed Matrix (S4)
___ Sandy Redox (S5)
___ Stripped Matrix (S6)
___ Dark Surface (S7) **(LRR P, S, T, U)**
___ Polyvalue Below Surface (S8) **(LRR S, T, U)**
___ Thin Dark Surface (S9) **(LRR S, T, U)**
___ Loamy Mucky Mineral (F1) **(LRR O)**
___ Loamy Gleyed Matrix (F2)
___ Depleted Matrix (F3)
___ Redox Dark Surface (F6)
___ Depleted Dark Surface (F7)
___ Redox Depressions (F8)
___ Marl (F10) **(LRR U)**
___ Depleted Ochric (F11) **(MLRA 151)**
___ Iron-Manganese Masses (F12) **(LRR O, P, T)**
___ Umbric Surface (F13) **(LRR P, T, U)**
___ Delta Ochric (F17) **(MLRA 151)**
___ Reduced Vertic (F18) **(MLRA 150A, 150B)**
___ Piedmont Floodplain Soils (F19) **(MLRA 149A)**
___ Anomalous Bright Loamy Soils (F20) **(MLRA 149A, 153C, 153D)**

Indicators for Problematic Hydric Soils[3]:

___ 1 cm Muck (A9) **(LRR O)**
___ 2 cm Muck (A10) **(LRR S)**
___ Reduced Vertic (F18) **(outside MLRA 150A,B)**
___ Piedmont Floodplain Soils (F19) **(LRR P, S, T)**
___ Anomalous Bright Loamy Soils (F20) **(MLRA 153B)**
___ Red Parent Material (TF2)
___ Very Shallow Dark Surface (TF12) (LRR T, U)
___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** _____ **No** ✓

Remarks:

WETLAND DETERMINATION DATA FORM – Atlantic and Gulf Coastal Plain Region

Project/Site: Orchard Parcel City/County: Chesterfield County Sampling Date: 05/16/2024

Applicant/Owner: Dominion Energy State: VA Sampling Point: FDS-44U1-2

Investigator(s): A. Burket Section, Township, Range: N/A

Landform (hillslope, terrace, etc.): Sideslope Local relief (concave, convex, none): Concave Slope (%): 1

Subregion (LRR or MLRA): LRR P; MLRA 133A Lat: 37.327463 Long: -77.346976 Datum: NAD83

Soil Map Unit Name: Dunbar fine sandy loam, 0 to 4 percent slopes NWI classification: Upland

Are climatic / hydrologic conditions on the site typical for this time of year? Yes _____ No ✓ (If no, explain in Remarks.)

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? N Are "Normal Circumstances" present? Yes ✓ No _____

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? N (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ✓	No	**Is the Sampled Area within a Wetland?**	**Yes** _____ **No** ✓
Hydric Soil Present?	Yes	No ✓		
Wetland Hydrology Present?	Yes ✓	No		

Remarks:

USACE Antecedent Precipitation Tool indicates the site was within "Normal Conditions" during the dry season with a condition normalcy index product of 12. The Palmer Drought Severity Index indicates the area is under "Mild Wetness" conditions.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ✓ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ Marl Deposits (B15) **(LRR U)**
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Drainage Patterns (B10)
- ___ Moss Trim Lines (B16)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)
- ___ Sphagnum moss (D8) (LRR T, U)

Field Observations:

Surface Water Present?	Yes _____	No ✓	Depth (inches): N/A	
Water Table Present?	Yes ✓	No _____	Depth (inches): 18	
Saturation Present? (includes capillary fringe)	Yes ✓	No _____	Depth (inches): 3	**Wetland Hydrology Present? Yes** ✓ **No** _____

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION (Five Strata) – Use scientific names of plants.

Sampling Point: FDS-44U1-2

Tree Stratum (Plot sizes: 30 feet)	Absolute % Cover	Dominant Species?	Indicator Status
1. Liquidambar styraciflua	20	YES	FAC
2. Quercus falcata	20	YES	FACU
3. Quercus nigra	20	YES	FAC
4. Pinus taeda	15	NO	FAC
5. Quercus phellos	10	NO	FACW
6. Quercus stellata	8	NO	UPL
	93	= Total Cover	

50% of total cover: 46.5 20% of total cover: 18.6

Sapling Stratum (30 feet)			
1. Nyssa sylvatica	20	YES	FAC
2. Fagus grandifolia	10	YES	FACU
3. Quercus stellata	5	NO	UPL
4.			
5.			
6.			
	35	= Total Cover	

50% of total cover: 17.5 20% of total cover: 7.0

Shrub Stratum (30 feet)			
1. Nyssa sylvatica	20	YES	FAC
2. Liquidambar styraciflua	15	YES	FAC
3. Vaccinium fuscatum	10	YES	FACW
4.			
5.			
6.			
	45	= Total Cover	

50% of total cover: 22.5 20% of total cover: 9.0

Herb Stratum (30 feet)			
1. Gaylussacia frondosa	65	YES	FAC
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	65	= Total Cover	

50% of total cover: 32.5 20% of total cover: 13.0

Woody Vine Stratum (30 feet)			
1. N/A			
2.			
3.			
4.			
5.			
	0	= Total Cover	

50% of total cover: 0.0 20% of total cover: 0.0

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 7 (A)

Total Number of Dominant Species Across All Strata: 9 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 77.8% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	20	x 2 =	40
FAC species	175	x 3 =	525
FACU species	30	x 4 =	120
UPL species	13	x 5 =	65
Column Totals:	238 (A)		750 (B)

Prevalence Index = B/A = 3.15

Hydrophytic Vegetation Indicators:

__ 1 - Rapid Test for Hydrophytic Vegetation

✓ 2 - Dominance Test is >50%

__ 3 - Prevalence Index is ≤3.0[1]

__ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present.

Definitions of Vegetation Strata:

Tree – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and 3 in. (7.6 cm) or larger in diameter at breast height (DBH).

Sapling – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH.

Shrub – Woody plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height.

Herb – All herbaceous (non-woody) plants, including herbaceous vines, regardless of size. Includes woody plants, except woody vines, less than approximately 3 ft (1 m) in height.

Woody vine – All woody vines, regardless of height.

Hydrophytic Vegetation Present? Yes ✓ No __

Remarks: (If observed, list morphological adaptations below).

SOIL

Sampling Point: FDS-44U1-2

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-3	10YR 3/2	100					SL	
3-12	2.5Y 4/3	100					SL	
12-16	2.5Y 6/4	100					SL	
16-24	2.5Y 6/6	100					SL	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ Organic Bodies (A6) **(LRR P, T, U)**
- ___ 5 cm Mucky Mineral (A7) **(LRR P, T, U)**
- ___ Muck Presence (A8) **(LRR U)**
- ___ 1 cm Muck (A9) **(LRR P, T)**
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Coast Prairie Redox (A16) **(MLRA 150A)**
- ___ Sandy Mucky Mineral (S1) **(LRR O, S)**
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7) **(LRR P, S, T, U)**
- ___ Polyvalue Below Surface (S8) **(LRR S, T, U)**
- ___ Thin Dark Surface (S9) **(LRR S, T, U)**
- ___ Loamy Mucky Mineral (F1) **(LRR O)**
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Marl (F10) **(LRR U)**
- ___ Depleted Ochric (F11) **(MLRA 151)**
- ___ Iron-Manganese Masses (F12) **(LRR O, P, T)**
- ___ Umbric Surface (F13) **(LRR P, T, U)**
- ___ Delta Ochric (F17) **(MLRA 151)**
- ___ Reduced Vertic (F18) **(MLRA 150A, 150B)**
- ___ Piedmont Floodplain Soils (F19) **(MLRA 149A)**
- ___ Anomalous Bright Loamy Soils (F20) **(MLRA 149A, 153C, 153D)**

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) **(LRR O)**
- ___ 2 cm Muck (A10) **(LRR S)**
- ___ Reduced Vertic (F18) **(outside MLRA 150A,B)**
- ___ Piedmont Floodplain Soils (F19) **(LRR P, S, T)**
- ___ Anomalous Bright Loamy Soils (F20) **(MLRA 153B)**
- ___ Red Parent Material (TF2)
- ___ Very Shallow Dark Surface (TF12) (LRR T, U)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes _____ **No** ✓

Remarks:

APPENDIX D VISUAL SIMULATIONS

MEADOWVILLE

230 kV Electric Transmission Project

Photo Location Map

1 Viewpoint Location ▲ Proposed Switching Station ▲ Proposed Substation ▲ Existing Substation

Project Area 1
Rebuild Section Sycamore Springs to Enon.
Construct Sycamore Springs Switching Station.

Project Area 2
New Corridor
Enon to Meadowville.

Project Area 3
New Corridor
Bermuda Hundred to White Mountain

*Sycamore Springs Switching Station is formerly known as Orchard Switching Station.

Dominion Energy®

MEADOWVILLE
230 kV Electric Transmission Project

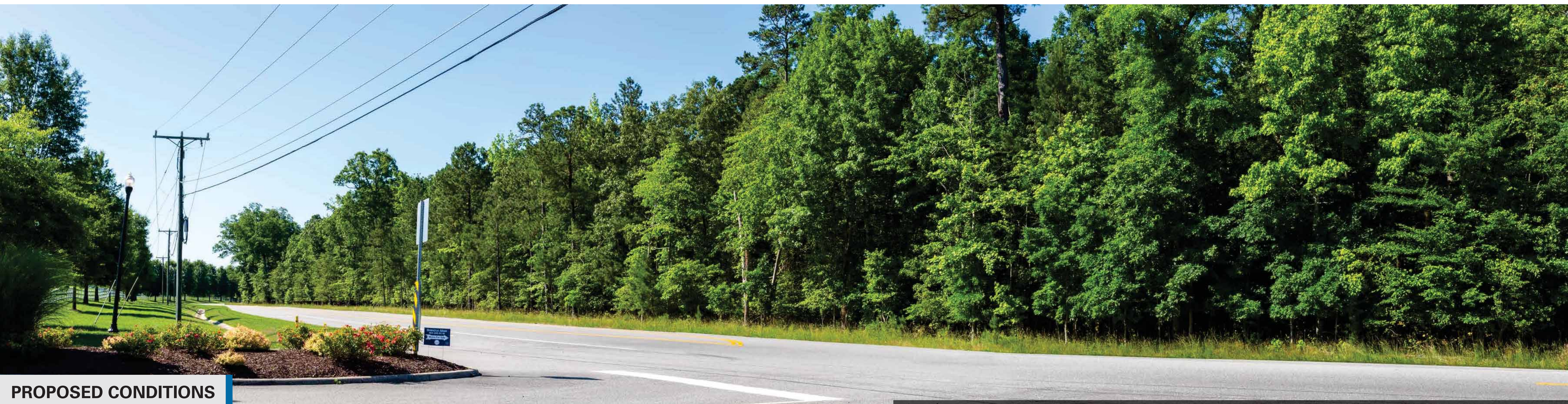
Viewpoint 1

Date: 05/29/2024 **Time:** 8:47 am **Viewing Direction:** South

1 Viewpoint Location — Project Area 2
Project Area 3 ▲ Proposed Switching Station ▲ Proposed Substation

Dominion Energy®

EXISTING CONDITIONS



PROPOSED CONDITIONS

Photo simulations are for discussion purposes only. Final design is subject to change pending public, engineering, and regulatory review.

MEADOWVILLE
230 kV Electric Transmission Project

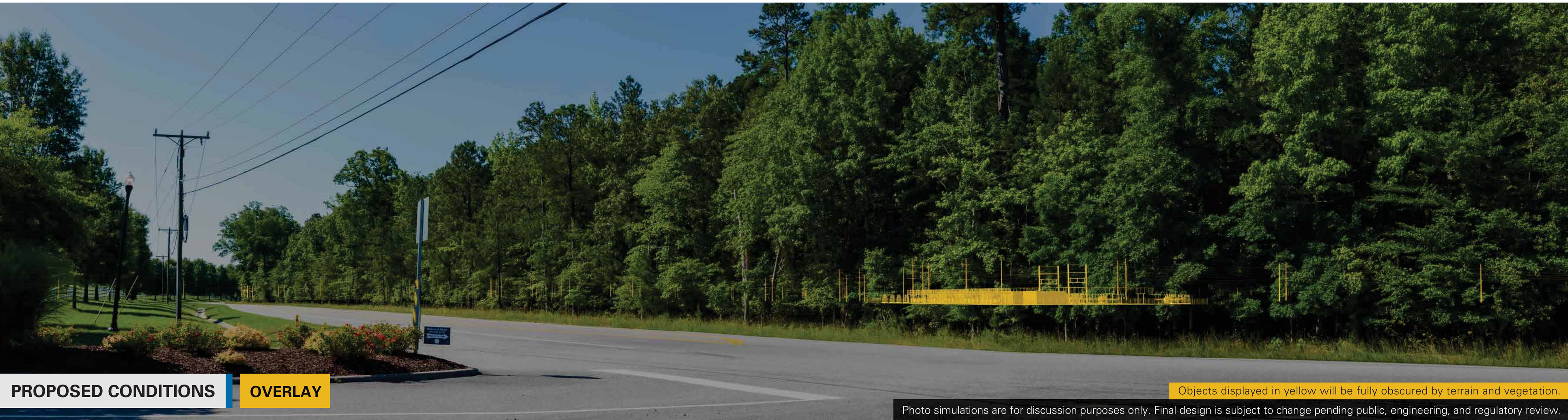
Viewpoint 1

Date: 05/29/2024 **Time:** 8:47 am **Viewing Direction:** South

1 Viewpoint Location — Project Area 2
Project Area 3 ▲ Proposed Switching Station ▲ Proposed Substation

Dominion Energy®

EXISTING CONDITIONS



PROPOSED CONDITIONS | OVERLAY

Objects displayed in yellow will be fully obscured by terrain and vegetation.

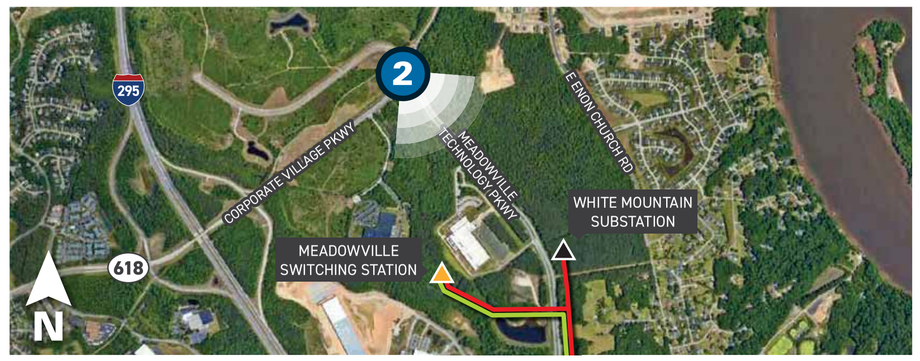
Photo simulations are for discussion purposes only. Final design is subject to change pending public, engineering, and regulatory review.

MEADOWVILLE
230 kV Electric Transmission Project

Viewpoint 2

Date: 05/29/2024 **Time:** 8:28 am **Viewing Direction:** Southeast

2 Viewpoint Location — Project Area 2
Project Area 3 ▲ Proposed Switching Station ▲ Proposed Substation



Dominion Energy®

EXISTING CONDITIONS

PROPOSED CONDITIONS

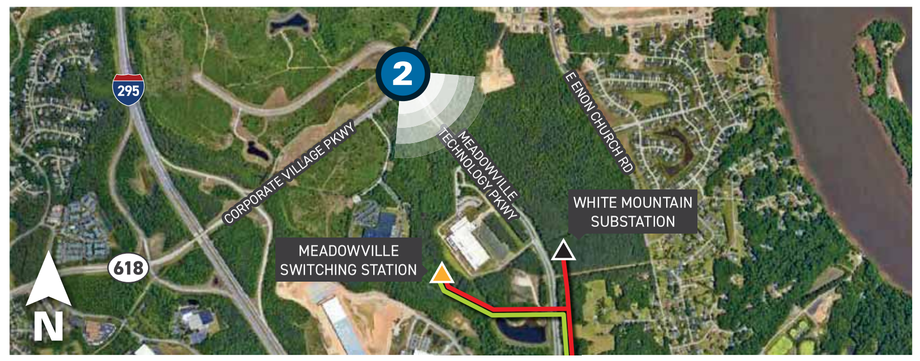
Photo simulations are for discussion purposes only. Final design is subject to change pending public, engineering, and regulatory review.

MEADOWVILLE
230 kV Electric Transmission Project

Viewpoint 2

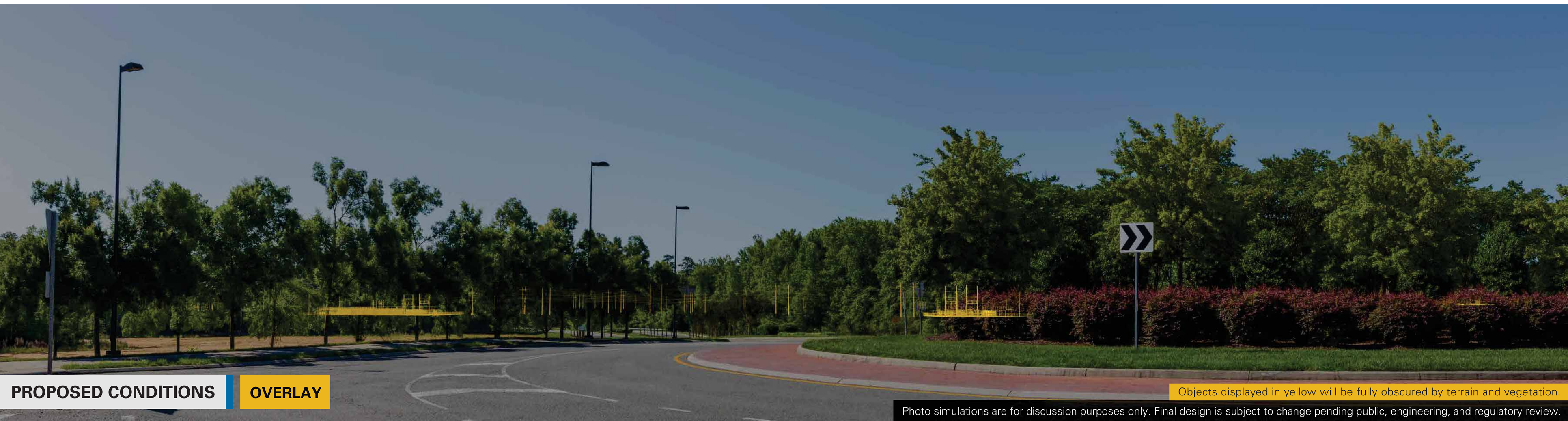
Date: 05/29/2024 **Time:** 8:28 am **Viewing Direction:** Southeast

2 Viewpoint Location — Project Area 2
Project Area 3 ▲ Proposed Switching Station ▲ Proposed Substation



Dominion Energy®

EXISTING CONDITIONS



PROPOSED CONDITIONS OVERLAY

Objects displayed in yellow will be fully obscured by terrain and vegetation.

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MEADOWVILLE
230 kV Electric Transmission Project

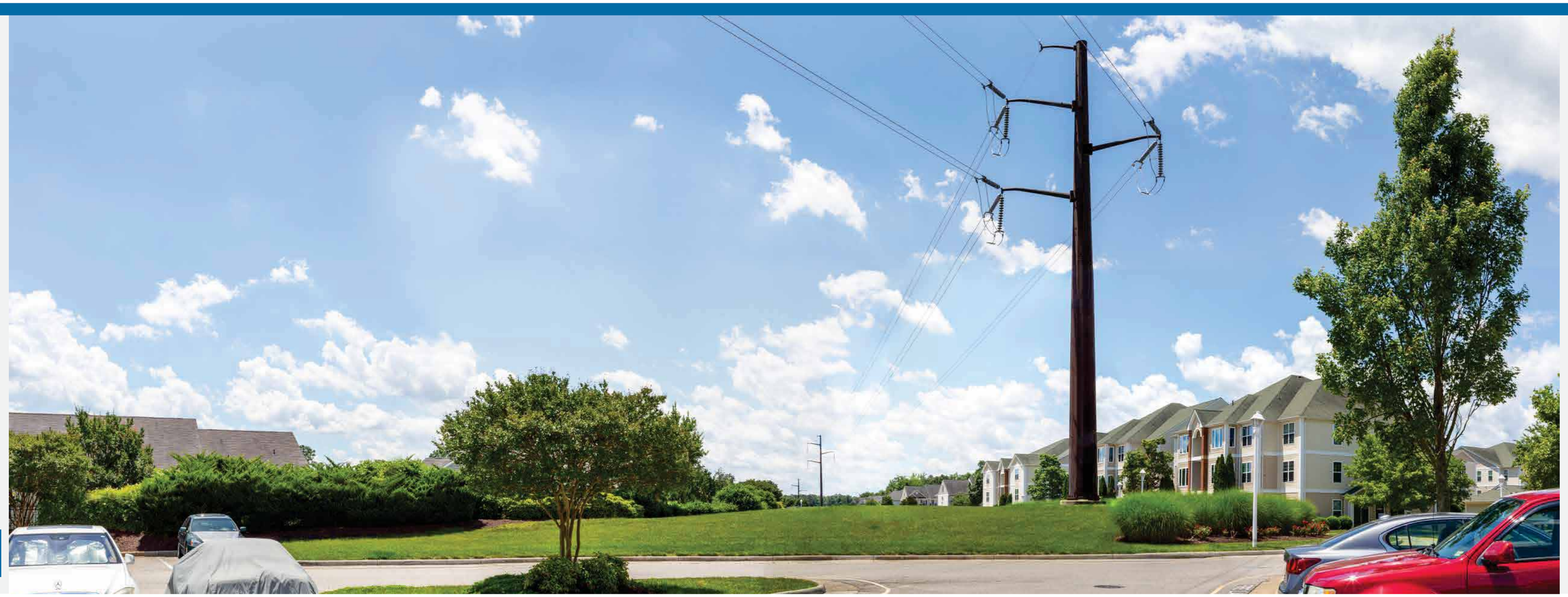
Viewpoint 3

Date: 05/29/2024 **Time:** 11:29 am **Viewing Direction:** Southwest

3 Viewpoint Location — Project Area 1

Dominion Energy®

EXISTING CONDITIONS



PROPOSED CONDITIONS

Photo simulations are for discussion purposes only. Final design is subject to change pending public, engineering, and regulatory review.

MEADOWVILLE
230 kV Electric Transmission Project

Viewpoint 4

Date: 05/29/2024 **Time:** 11:39 am **Viewing Direction:** Northwest

4 Viewpoint Location — Project Area 1

Dominion Energy®

EXISTING CONDITIONS

PROPOSED CONDITIONS

Photo simulations are for discussion purposes only. Final design is subject to change pending public, engineering, and regulatory review.

MEADOWVILLE
230 kV Electric Transmission Project

Viewpoint 5

Date: 05/29/2024 **Time:** 9:28 am **Viewing Direction:** West

5 Viewpoint Location — Project Area 1 ▲ Proposed Switching Station

Dominion Energy®

EXISTING CONDITIONS

PROPOSED CONDITIONS

Photo simulations are for discussion purposes only. Final design is subject to change pending public, engineering, and regulatory review

MEADOWVILLE
230 kV Electric Transmission Project

Viewpoint 5

Date: 05/29/2024 **Time:** 9:28 am **Viewing Direction:** West

5 Viewpoint Location — Project Area 1 ▲ Proposed Switching Station

Dominion Energy®

EXISTING CONDITIONS

PROPOSED CONDITIONS | OVERLAY

Objects displayed in yellow will be fully or partially obscured by terrain and vegetation.

Photo simulations are for discussion purposes only. Final design is subject to change pending public, engineering, and regulatory review.

MEADOWVILLE
230 kV Electric Transmission Project

Viewpoint 6

Date: 05/29/2024 **Time:** 10:43 am **Viewing Direction:** Southwest

6 Viewpoint Location — Project Area 1

Dominion Energy®

EXISTING CONDITIONS

PROPOSED CONDITIONS

Photo simulations are for discussion purposes only. Final design is subject to change pending public, engineering, and regulatory review.

MEADOWVILLE
230 kV Electric Transmission Project

Viewpoint 6

Date: 05/29/2024 **Time:** 10:43 am **Viewing Direction:** Southwest

6 Viewpoint Location — Project Area 1

Dominion Energy®

EXISTING CONDITIONS

PROPOSED CONDITIONS | OVERLAY

Objects displayed in yellow will be fully obscured by terrain and vegetation.

Photo simulations are for discussion purposes only. Final design is subject to change pending public, engineering, and regulatory review.

MEADOWVILLE
230 kV Electric Transmission Project

Viewpoint 7A

Date: 05/29/2024 **Time:** 9:53 am **Viewing Direction:** Northwest

7 Viewpoint Location — Project Area 1 ▲ Proposed Switching Station

Dominion Energy®

EXISTING CONDITIONS

PROPOSED CONDITIONS

Photo simulations are for discussion purposes only. Final design is subject to change pending public, engineering, and regulatory review.

MEADOWVILLE
230 kV Electric Transmission Project

Viewpoint 7B

Date: 05/29/2024 **Time:** 9:53 am **Viewing Direction:** North

7 Viewpoint Location — Project Area 1 ▲ Proposed Switching Station

Dominion Energy®

EXISTING CONDITIONS

PROPOSED CONDITIONS | OVERLAY

Objects displayed in yellow will be fully obscured by terrain and vegetation.

Photo simulations are for discussion purposes only. Final design is subject to change pending public, engineering, and regulatory review.

MEADOWVILLE
230 kV Electric Transmission Project

Viewpoint 8

Date: 05/29/2024 **Time:** 10:17 am **Viewing Direction:** Southeast

8 Viewpoint Location — Project Area 1 ▲ Proposed Switching Station

Dominion Energy®

EXISTING CONDITIONS

PROPOSED CONDITIONS

Photo simulations are for discussion purposes only. Final design is subject to change pending public, engineering, and regulatory review.

MEADOWVILLE
230 kV Electric Transmission Project

Viewpoint 8

Date: 05/29/2024 **Time:** 10:17 am **Viewing Direction:** Southeast

8 Viewpoint Location — Project Area 1 ▲ Proposed Switching Station

Dominion Energy®

EXISTING CONDITIONS

PROPOSED CONDITIONS **OVERLAY**

Objects displayed in yellow will be fully obscured by terrain and vegetation.

Photo simulations are for discussion purposes only. Final design is subject to change pending public, engineering, and regulatory review.

MEADOWVILLE
230 kV Electric Transmission Project

Viewpoint 9

Date: 05/29/2024 **Time:** 9:45 am **Viewing Direction:** North

9 Viewpoint Location — Project Area 1

Dominion Energy®

EXISTING CONDITIONS

PROPOSED CONDITIONS

Photo simulations are for discussion purposes only. Final design is subject to change pending public, engineering, and regulatory review.

MEADOWVILLE
230 kV Electric Transmission Project

Viewpoint 9

Date: 05/29/2024 **Time:** 9:45 am **Viewing Direction:** North

9 Viewpoint Location — Project Area 1

Dominion Energy®

EXISTING CONDITIONS

PROPOSED CONDITIONS **OVERLAY**

Objects displayed in yellow will be fully obscured by terrain and vegetation.

Photo simulations are for discussion purposes only. Final design is subject to change pending public, engineering, and regulatory review.

APPENDIX E STAGE I PRE-APPLICATION ANALYSIS

REPORT >

Pre-Application Analysis of Cultural Resources for the Meadowville 230kV Electric Transmission Project

LOCATION > Chesterfield County, Virginia

DATE> SEPTEMBER 2024

PREPARED FOR >

Dominion Energy

PREPARED BY >

Dutton + Associates, LLC

Dutton + Associates

CULTURAL RESOURCE SURVEY, PLANNING, AND MANAGEMENT

Pre-Application Analysis of Cultural Resources for the Meadowville 230kV Electric Transmission Project

Chesterfield County, Virginia

***PREPARED FOR*:**
DOMINION ENERGY
5000 DOMINION BOULEVARD, 3RD FLOOR SW
GLEN ALLEN, VA 23060

***PREPARED BY*:**
DUTTON + ASSOCIATES, LLC
1115 Crowder Drive
Midlothian, Virginia 23236
804.644.8290

PRINCIPAL INVESTIGATOR:
Robert J. Taylor, Jr. M.A.

September 2024

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ABSTRACT

In September 2024, Dutton + Associates, LLC (D+A) completed a Pre-Application Analysis (analysis) of cultural resources for the Meadowville 230 kV Electric Transmission Project in Chesterfield County, Virginia. The analysis was performed for Virginia Electric and Power Company (Dominion Energy Virginia, Dominion, or the Company) in support of a State Corporation Commission (SCC) application for the Project. The analysis was conducted in accordance with Virginia Department of Historic Resources' (VDHR) guidance titled Guidelines for Assessing Impacts of Proposed Electric Transmission Lines and Associated Facilities on Historic Resources in the Commonwealth of Virginia (January 2008) and Commonwealth of Virginia State Corporation Commission Division of Public Utility Regulation Guidelines for Transmission Line Applications Filed Under Title 56 of the Code of Virginia (August 2017).

The proposed Meadowville 230 kV Electric Transmission Project will allow Dominion Energy to meet the growing energy needs, continue providing reliable electric service, and maintain compliance with federal reliability standards. The project includes three components that generally include the rebuild of approximately two miles of existing transmission line between the new Sycamore Springs Switching Station and the existing Enon Substation, and construction of two new 230kV transmission lines generally extending from the Enon Substation to the new Meadowville Switching Station and from the Meadowville Switching Station to the new Bermuda Hundred Switching Station over a length of roughly 5 miles.

The background research conducted as part of this analysis was consistent with VDHR guidance and designed to identify all previously recorded National Historic Landmarks (NHL) located within 1.5-miles of the proposed Project or closer, all National Register of Historic Places (NRHP)-listed properties, battlefields, and historic landscapes located within 1-mile of the proposed Project or closer, all historic properties considered eligible for listing in the NRHP located within 0.5-miles of the proposed Project or closer, and all archaeological sites located directly within the proposed Project area. Historic properties include architectural and archaeological resources, historic and cultural landscapes, battlefields, and historic districts. For each historic property within the defined tiers, a review of existing documentation and a field reconnaissance was undertaken to assess each property's significant character-defining features, as well as the character of its current setting. Following identification of historic properties, D+A assessed the potential for impacts to any identified properties as a result of the proposed Project. Specific attention was given to determining whether or not construction related to the Project could introduce new visual elements into the property's viewshed or directly impact the property through construction, which would either directly or indirectly alter those qualities or characteristics that qualify the historic property for listing in the NRHP.

Review of the VDHR VCRIS inventory records revealed a total of ninety-nine (99) previously recorded architectural resources are located within 1.5 mile of at least one of the project components. Of these, there are no (0) NHLs located within 1.5 mile of the project or closer, one (1) NRHP-listed property located within 1.0 mile or closer of the project, six (6) battlefields within 1.0 mile or closer of the project, one (1) historic landscape within 1.0 mile or closer of the project, and one (1) property that has been determined eligible or potentially eligible for listing in the

NRHP by the VDHR within 0.5 mile or closer of the project. Two (2) of the battlefields are directly crossed by at least one of the project components.

Assessment of impacts found that the project extends through a heavily suburbanized area of Chesterfield County with a dense development pattern of residential, commercial, and light industrial properties with an extensive network of existing utility infrastructure. The project involves the rebuild of a length of existing transmission line with structures that will result in a change of structure height ranging from a decrease of 10 feet to an increase of 40 feet, as well as the construction of two new transmission line corridors with structures of similar height to the rebuild. Inspection of existing conditions from the vicinity of considered historic properties found that there is not widespread visibility of the existing transmission line corridors due to the dense development patterns and existing vegetation. Where the existing transmission lines and structures are visible, visibility is generally limited to up and down cleared ROW corridors and above treelines. The potential for visibility of the new and replacement structures associated with the project is similarly anticipated to be minimal and limited to those vantages in which existing transmission line infrastructure is already visible in conjunction with other nonhistoric and modern development. Because the project is not anticipated to be widely visible or introduce any substantial or cumulatively different views than already characterize the setting for the considered historic properties, ***it is D+A's opinion that there will be no more than a minimal impact to any historic property within the study tiers for the Meadowville 230kV Transmission Line Project.***

Potential impacts summary for architectural resources.

VDHR #	*Resource Name, Address*	*NRHP-Status*	*Distance from Project*	*Recommended Impact*
020-0123	*Point of Rocks, 1011 Point of Rocks Road*	*NRHP-Listed/DHR Easement*	*~0.46 Mile from Component 3*	*No Impact*
020-0506	*Earthworks, Enon Park*	*NRHP-Eligible*	*~0.27 Mile from Component 3*	*No Impact*
020-5318	*Swift Creek Battlefield*	*NRHP-Eligible Battlefield*	*~0.06 Mile from Component 3*	*Minimal Impact*
020-5319	*Ware Bottom Church Battlefield*	*NRHP-Eligible Battlefield*	*Directly Crossed*	*Minimal Impact*
020-5371	*Dale's Pale Archaeological Historic District*	*NRHP-Listed Landscape*	*Directly Crossed*	*No Impact*
043-0307	*New Market Heights/Chaffins Farm Battlefield*	*NRHP-Eligible Battlefield*	*~1.0 Mile from Component 2*	*No Impact*
043-5074	*First Deep Bottom Battlefield*	*NRHP-Eligible Battlefield*	*~0.34 Mile from Component 2*	*No Impact*
043-5080	*Second Deep Bottom Battlefield*	*NRHP-Eligible Battlefield*	*~0.34 Mile from Component 2*	*No Impact*
123-5025	*Petersburg Battlefield II*	*NRHP-Eligible Battlefield*	*Directly Crossed*	*Minimal Impact*

With regards to archaeology, discrete portions of the project area have been subject to previous phase I survey, however, most of the ROW associated with the project has not been subject to formal survey. As a result of previous survey efforts, six (6) archaeological sites have been recorded within or crossed by the project components. Three of the sites have been determined not eligible for listing in the NRHP by the VDHR, and the other three have not been formally evaluated. While no survey or formal investigation of these archaeological sites was conducted as part of this effort, review of aerial photography reveals that one of the unevaluated sites has likely been subject to disturbance since it was initially recorded but the other two unevaluated sites remain in similar condition to when identified. ***Because some portions of the project ROW have not been subject to formal survey, and sites that have not been formally evaluated are known to exist and could be impacted by clearing and construction associated with the project, it is D+A's opinion that unsurveyed portions of the project ROW be subject to Phase I survey, and all identified sites be evaluated for NRHP-eligibility and assessed for potential impacts as project details become finalized.***

Summary of potential impacts for archaeological resources.

VDHR #	*Description*	*NRHP Status*	*Proximity to Project*	*Impacts/ Recommendation*
44CF0173	*19th/20th century transportation-related*	*DHR Staff: Not Eligible*	*Component 3*	*No further consideration*
44CF0204	*17th Century other*	*Not Evaluated*	*Component 1*	*TBD/ Re-identify, evaluate, and assess*
44CF0596	*19th Century camp*	*Not Evaluated*	*Component 2*	*TBD/ Re-identify, evaluate, and assess*
44CF0848	*Pre-Contact lithic scatter*	*DHR Staff: Not Eligible*	*Component 1*	*No further consideration*
44CF0849	*Pre-Contact lithic scatter*	*DHR Staff: Not Eligible*	*Component 1*	*No further consideration*
44CF0856	*19th landscape feature*	*Not Evaluated*	*Component 1*	*TBD/ Re-identify, evaluate, and assess*

TABLE OF CONTENTS

LIST OF FIGURES

LIST OF TABLES

1. INTRODUCTION

In September 2024, Dutton + Associates, LLC (D+A) completed a Pre-Application Analysis (analysis) of cultural resources for the Meadowville 230 kV Electric Transmission Project in Chesterfield County, Virginia (Figure 1-1). The project proposes rebuilding existing and extending new 230 kV electric transmission lines to connect to several new substations to support developing infrastructure in the Bermuda Hundred vicinity of Chesterfield County. The analysis was performed for Virginia Electric and Power Company (Dominion Energy Virginia, Dominion, or the Company) in support of a State Corporation Commission (SCC) application for the Project. The analysis was conducted in accordance with Virginia Department of Historic Resources' (VDHR) guidance titled *Guidelines for Assessing Impacts of Proposed Electric Transmission Lines and Associated Facilities on Historic Resources in the Commonwealth of Virginia* (January 2008) and Commonwealth of Virginia State Corporation Commission Division of Public Utility Regulation *Guidelines for Transmission Line Applications Filed Under Title 56 of the Code of Virginia* (August 2017).

This analysis was performed at a level that meets the purpose and intent of VDHR and the SCC's guidance based upon project data and engineering available at the time of the study. It provides information on the presence of previously recorded National Historic Landmark (NHL) properties located within a 1.5-mile buffer area established around the project, properties listed on the National Register of Historic Places (NRHP), battlefields, and historic landscapes located within a 1-mile buffer around the project, properties previously determined eligible for listing in the NRHP located within a 0.5-mile buffer area around the project, and previously identified archaeological resources directly within the project area. This analysis will not satisfy Section 106 identification and evaluation requirements in the event federal permits or licenses are needed; however, it can be used as a planning document to assist in making decisions under Section 106 as to whether further cultural resource identification efforts may be warranted.

This report contains a research design which describes the scope and methodology of the analysis, discussion of previously identified historic properties, and an assessment of potential impacts. D+A Senior Architectural Historian Robert J. Taylor, Jr. M.A. served as Principal Investigator and oversaw the general course of the project and supervised all aspects of the work. Copies of all notes, maps, correspondence, and historical research materials are on file at the D+A main office in Midlothian, Virginia.

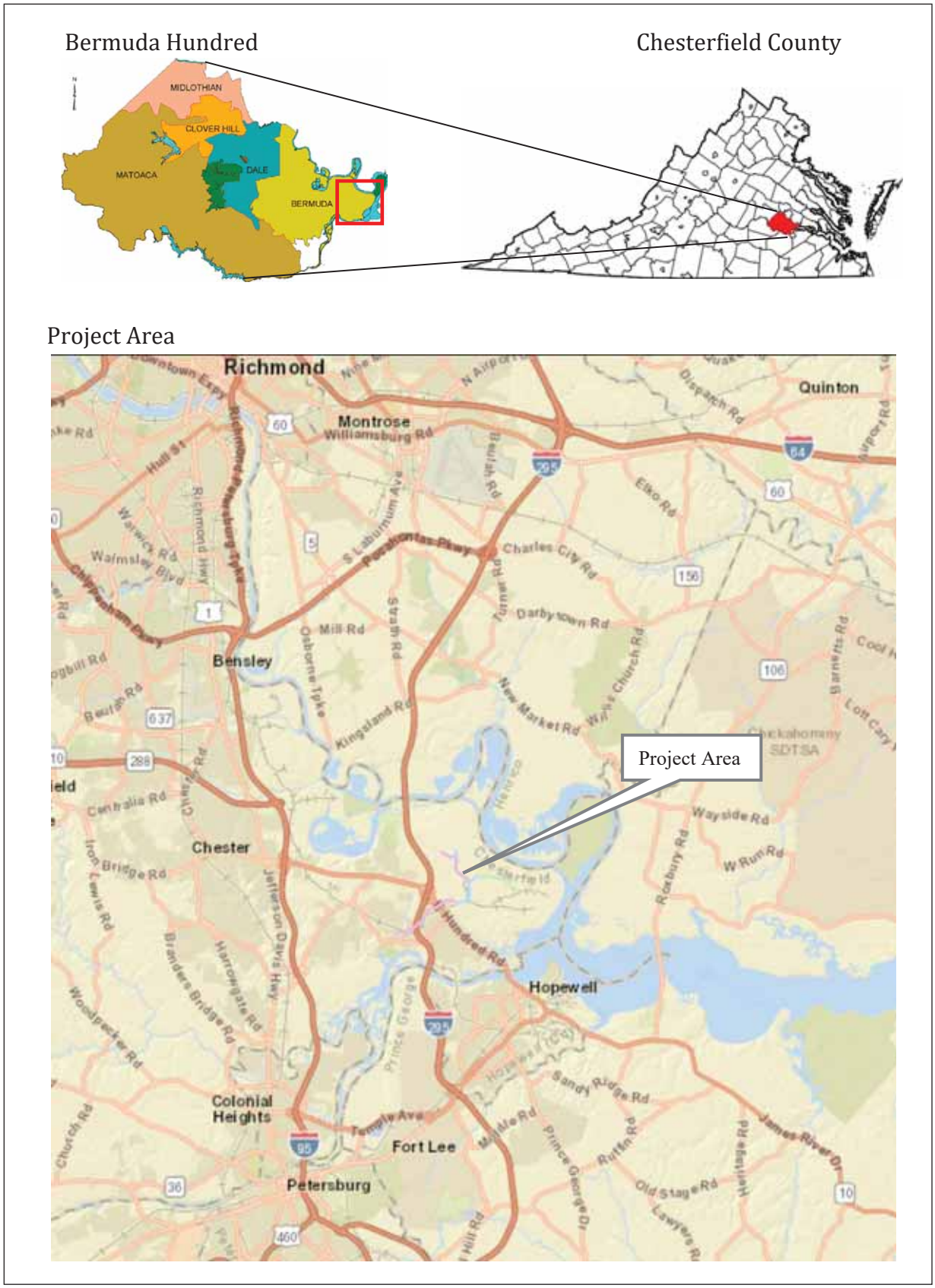

Figure 1-1: General location of the project area.

2. PROJECT DESCRIPTION

In order to provide service requested by two data center customers (collectively, the "Customers"), to maintain reliable service for the overall load growth in the area, and to comply with mandatory North American Electric Reliability Corporation ("NERC") Reliability Standards, Virginia Electric and Power Company ("Dominion Energy Virginia" or the "Company") proposes in Chesterfield County, Virginia, to:

1. Bermuda Hundred and Sloan Drive

Construct the Bermuda Hundred Switching Station ("Bermuda Hundred Station")[1] on Customer A's property in Chesterfield County, Virginia, west of Discovery Road and the Company's existing Line #2050, cut into the adjacent Line #2050 (Bermuda Hundred – Chickahominy) to the east of the proposed Bermuda Hundred Station, and loop Line #2050 in and out of the Bermuda Hundred Station on two new weathering steel structures, traveling approximately 0.2 mile along new 100-foot-wide right-of-way ("ROW"). Once Line #2050 is looped in and out of the Bermuda Hundred Station, Line #2050 will then be renumbered as Line #2368 from existing structure 2050/13 to Allied Substation. The Company will then construct two structures outside the fence of the Bermuda Hundred Station on property owned by Customer A, which Customer A will use to interconnect to its data center campus. The Company will also construct the proposed Sloan Drive Switching Station ("Sloan Drive Station"), located to the west of the Bermuda Hundred Station on Customer A's property, and construct two new double-circuit 230 kV lines (Line #2366 and Line #2367) that will extend approximately 1.0 mile west from the proposed Bermuda Hundred Station along new 100-foot ROW on double-circuit weathering steel poles to the proposed Sloan Drive Station.

2. Meadowville and White Mountain

Construct the proposed Meadowville Switching Station ("Meadowville Station") east of Interstate 95 ("I-95") and west of Meadowville Technology Parkway on Customer B's property, construct the proposed White Mountain Substation northeast of the Meadowville Station and Meadowville Technology Parkway on Chesterfield County Economic Development Authority ("EDA")-owned property, which will be purchased by the Company, and construct new 230 kV lines (Line #2363 and Line #2364) on double-circuit weathering steel structures traveling northwest from the Sloan Drive Station along new 100-foot-wide ROW, with single-circuit Line #2363 traveling approximately 1.6 miles terminating in the proposed Meadowville Station and single-circuit Line #2364 traveling approximately 1.4 miles terminating at the proposed White Mountain Substation. In addition, the Company will also connect Meadowville Station and White Mountain Substation with a new single-circuit 230 kV line (Line #2365) on double-circuit weathering steel structures traveling approximately 0.6 mile between the stations within the same proposed 100-foot-wide ROW as Line #2363 and Line #2364. The Company also proposes to cut the existing 230 kV Line #2049 (Sycamore Springs – Allied) to connect to the Sloan Drive Station. The extension from the existing Line #2049 corridor to Meadowville Station will be renumbered Line #2361. The existing Line #2049 from Enon Substation to Allied Substation will be renumbered

[1] Substations and Switching Stations are being permitted separately and not considered part of "the project" for the purposes of this analysis.

Line #2370. Line #2361 will be constructed on double-circuit weathering steel structures, in new 100-foot-wide ROW from Enon Substation[3] for approximately 2.2 miles on a direct route north towards the Sloan Drive Station where it will converge with Lines #2363 and #2364 terminating in the proposed Meadowville Station.

3. Sycamore Springs

Construct the Sycamore Springs Switching Station ("Sycamore Springs Station") to the east of Bermuda Orchard Lane and west of Interstate 295 ("I-295") on Chesterfield County-owned property, which will be purchased by the Company, and cut existing Lines #211, #228, and #2049 in and out of the proposed Sycamore Springs Station. Once line #2049 is looped into Sycamore Springs Station, the line from Sycamore Springs Station to Enon Substation will then be renumbered as Line #2406 from Sycamore Springs Station to Enon Substation, and Line #2370 from Enon Substation to Allied Substation. The Company will partially rebuild existing Line #2049 from the proposed Sycamore Springs Station to existing structure #2049/55 for approximately 1.8 miles on an existing 130-foot-wide ROW on new double-circuit weathering steel structures. In addition, the Company proposes to construct new 230 kV Line #2360. Line #2360 will travel along the same existing 130-foot-wide ROW and on the same double-circuit weathering steel structures as Line #2406 (formerly Line #2049) from the proposed Sycamore Springs Station to existing structure #2049/55 for approximately 1.8 miles. The Company also proposes to expand the proposed 100-foot ROW to 160 feet in width from Enon Substation to Meadowville Station to construct a new approximately 2.2-miles 230 kV line, Line #2362, on double-circuit weathering steel monopoles adjacent to the corridor described in Component 2, extending the convergence of Line #2361 and Line #2362 with Line #2363 and Line #2364, with Line #2361 and Line #2362 ultimately terminating at Meadowville Station.

Components (1) through (3) described above are collectively referred to as the "Project." The Project is needed to interconnect and provide service requested by two data center customers in the Chesterfield Load Area, and to maintain compliance with mandatory NERC Reliability Standards.

Component 1: Bermuda Hundred and Sloan Drive ("Component 1)

The Company identified an approximately 0.2-mile proposed route to loop Line #2050 in and out of Bermuda Hundred Station and an approximately 1.0-mile proposed route to construct Line #2366 and Line #2367 from Bermuda Hundred Station to Sloan Drive Station ("Component 1 Proposed Route"). This route is located entirely on the customer's parcel. No electrical or routing alternatives were considered because the proposed Bermuda Hundred Station will be located entirely on Customer A's property and adjacent to Line #2050. Similarly, the Sloan Drive Station will also be located on Customer A's property. As a result, the Component 1 Proposed Route minimizes the need for additional ROW, minimizes environmental impacts, and mitigates the need to cross other landowners' private property.

Component 2: Meadowville and White Mountain ("Component 2")

For Component 2, the Company identified the following for the proposed Route for Component 2 ("Component 2 Proposed Route"): (i) an approximately 1.6-mile route for Line # 2363 traveling

northwest from the proposed Sloan Drive Station to the proposed Meadowville Station; (ii) an approximately 1.4-mile route for Line # 2364 traveling northest from the proposed Sloan Drive Station to the White Mountain Substation; (iii) an approximately 0.6-mile route for Line #2365 to connect Meadowville Station and White Mountain Substation; and (iv) an approximately 2.2-mile route for Line #2361 from Enon Substation to the proposed Meadowville Station. No electrical or route alternatives were considered for Component 2, as the proposed Meadowville Station is the closest source to the White Mountain Substation. Moreover, the Component 2 Proposed Route will travel through property that is primarily owned by Customer B and Chesterfield County EDA, with limited sections of the proposed route traveling across private property. As a result, the Component 2 Proposed Route minimizes the need for additional ROW, mitigates environmental impacts, and limits the need to acquire property interests from adjacent landowners.

Component 3: Sycamore Springs ("Component 3")

For Component 3, the Company identified the following for the proposed Route for Component 3 ("Component 3 Proposed Route"): (i) an approximately 0.2-mile route to cut existing Lines #211 and #228 in and out of the proposed Sycamore Springs Station; (ii) an approximately 0.1-mile route to cut existing Line #2049 in and out of the proposed Sycamore Springs Station; (iii) an approximately 1.8-mile route for the Line #2406 (formerly Line #2049) rebuild and new Line #2360, both traveling from the proposed Sycamore Springs Station to existing structure #2049/55; and (iv) an approximately 2.2-mile route for Line # 2362 traveling from Enon Substation to the proposed Meadowville Station. To the extent Component 3 includes the rebuild of existing facilities, the Company did not consider alternative routes. The remaining scope for proposed Component 3 utilizes existing ROW as much as possible and Chesterfield County-owned property to minimize impacts to surrounding property owners and resources.

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3. RESEARCH DESIGN

The intent of this effort was to identify all known historic properties within the vicinity of the proposed project study area in order to assess them for potential impacts brought about by the project. Historic properties include architectural and archaeological (terrestrial and underwater) resources, historic and cultural landscapes, battlefields, and historic districts. For each previously recorded historic property, an examination of property documentation, current aerial photography, and a field reconnaissance was undertaken to assess each property's integrity of feeling, setting, and association, and to provide photo documentation of the property including views toward the proposed project. The D+A personnel who directed and conducted this survey meet the professional qualification standards of the Department of the Interior (48 FR 44738-9).

ARCHIVAL RESEARCH

In September 2024, D+A conducted archival research with the goal of identifying all previously recorded historic properties and any additional historic property locations referred to in historic documents and other archives, as well as consultation with local informants and other professionals with intimate knowledge of the project area as appropriate. Background research was conducted at the VDHR and on the internet and included the following sources:

- VDHR Virginia Cultural Resource Information System (VCRIS) site files; and
- National Park Service (NPS), American Battlefield Protection Program (ABPP), maps and related documentation.
- Spotsylvania County Historic Preservation Commission
- Caroline Historical Society

Data collection was performed according to VDHR guidance in *Guidelines for Assessing Impacts of Proposed Electric Transmission Lines and Associated Facilities on Historic Resources in the Commonwealth of Virginia* (January 2008) and was organized in a multi-tier approach. As such, the effort was designed to identify all previously recorded NHL's located within 1.5-miles of the proposed project study area, all historic properties listed in the NRHP, battlefields, and historic landscapes located within 1-mile of the project study area, all historic properties previously determined eligible for listing in the NRHP located within 0.5-mile of the project study area, as well as all archaeological sites located directly within the project area.

FIELD RECONNAISSANCE

Field reconnaissance included visual inspection of historic properties within the study tiers, although no inspection of archaeological sites or subsurface testing was performed at this time. Visual inspection included digital photo documentation of each property's existing conditions including its setting and views toward the proposed project. Photographs were taken of primary resource elevations, general setting, and existing viewsheds. All photographs were taken from public right-of-way or where property access was granted.

ASSESSMENT OF POTENTIAL IMPACTS

Following identification and field inspection of historic properties, D+A assessed each architectural resource for potential impacts brought about by the proposed project. Assessment of impacts was conducted through a combination of field inspection, digital photography, review of topography and aerial photography, and photo simulation.

Archaeological assessment was limited to desktop review of project improvements in relation to previously delineated site boundaries, however, existing conditions of sites remain unknown at this level of investigation.

When assessing impacts, D+A considered those qualities and characteristics that qualify the property for listing and whether the project has the potential to alter or diminish the integrity of the property and its associated significance. Specific attention was given to determining whether or not the proposed project would introduce new visual elements into a property's viewshed, which would either directly or indirectly alter those qualities or characteristics that qualify the historic property for listing in the NRHP. Identified impacts were characterized as severe, moderate, minimal, or none in accordance with the following guidance:

According to VDHR guidance for transmission line projects, project impacts are characterized as such:

- **None** – Project is not visible from the property.
- **Minimal** – Occur within viewsheds that have existing transmission lines, locations where there will only be a minor change in tower height, and/or views that have been partially obstructed by intervening topography and vegetation.
- **Moderate** – Include viewsheds with expansive views of the transmission line, more dramatic changes in the line and tower height, and/or an overall increase in the visibility of the route from the historic properties.
- **Severe** – Occur within viewsheds that do not have existing transmission lines and where the views are primarily unobstructed, locations where there will be a dramatic increase in tower visibility due to the close proximity of the route to historic properties, and viewsheds where the visual introduction of the transmission line is a significant change in the setting of the historic properties.

REPORT PREPARATION

The results of the archival research, field inspection, and analysis were synthesized and summarized in a summary report accompanied by maps, illustrations, and photographs as appropriate. All research material and documentation generated by this project is on file at D+A's office in Midlothian, Virginia.

4. ARCHIVES SEARCH

This section includes a summary of efforts to identify previously known and recorded cultural resources within the tiered study buffers around the project area. It includes lists, maps, and descriptive data on all previously conducted cultural resource surveys, and previously recorded architectural resources and archaeological sites according to the VDHR archives and VCRIS database. Because the three components for the Meadowville 230kV Electric Transmission Project are all connected and within close proximity of one another, a single project study area that encompasses all project components was used for this analysis, however, the distance to the separate project components are noted when relevant.

PREVIOUSLY SURVEYED AREAS

VDHR and VCRIS records indicate that there have been thirty-one (31) prior Phase I cultural resource surveys within 1-mile of the project study area, five (5) of which overlap with or include portions of the ROW associated with at least one of the project components. These surveys are at a minimum archaeological in nature, although some include architectural resources as well. As a result of these prior surveys, discrete portions of all three project components have been subject to survey although most of the project ROW remains unsurveyed. The five previously conducted cultural resource surveys that included portions of the project ROW are listed in Table 4-1 and illustrated in **Error! Reference source not found.**.

Table 4-1: Previously conducted cultural resource surveys that include portions of the project ROW. Source: VDHR.

VDHR Survey #	Title	Author	Date	Project Review #	Project Component
CF-074	Bermuda Hundred Sanitary Sewer Extension, Phase I Intensive Cultural Resources Survey	BROWNING	1991	<Null>	Component 1
CF-267	Addendum to Phase I Archaeological Survey of the Proposed Meadowville Parkway Wetland Bridge Crossing, Chesterfield County, Virginia	CIRCA	2013	2005-1338	Component 2
CF-277	Phase I Cultural Resources Survey of Capital One Meadowville Data Center Project, Chesterfield County, Virginia	CIRCA	2012	2012-4209	Component 2
CF-380	A Phase I Cultural Resources Survey of Approximately 8.2 Miles Associated with the Proposed Chesterfield to Hopewell 230 kV Rebuild Project in Chesterfield County, Virginia	STANTEC	2018	2018-0117	Component 3
HE-072	Phase I Archaeological Survey I-95, Henrico, Chesterfield, and Prince George Counties, Virginia	SSI	1982	<Null>	Component 3

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Figure 4-1: Previously conducted surveys in relation to the project corridors. Source: VCRIS

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ARCHITECTURAL RESOURCES

Review of the VDHR VCRIS inventory records revealed a total of ninety-nine (99) previously recorded architectural resources are located within 1.5 mile of at least one of the project components. Of these, there are no (0) NHLs located within 1.5 mile of the project or closer, one (1) NRHP-listed property located within 1.0 mile or closer of the project, six (6) battlefields within 1.0 mile or closer of the project, one (1) historic landscape within 1.0 mile or closer of the project, and one (1) property that has been determined eligible or potentially eligible for listing in the NRHP by the VDHR within 0.5 mile or closer of the project. Two (2) of the battlefields are directly crossed by at least one of the project components.

Table 4-2 lists all NHLs, NRHP-listed, and NRHP-eligible resources within their respective buffered tiers. A map of all previously recorded architectural resources within 1.5-mile of the project study area is depicted in **Error! Reference source not found.** and a map of any NHL, NRHP-listed, and NRHP-eligible resources within their respective study tiers are included in **Error! Reference source not found.**.

Table 4-2: Considered Architectural Resources within their respective tiered buffer zones for the project.

Buffer (miles)	Considered Resources	VDHR #	Description
1.5	National Historic Landmarks	None	None
1.0	National Historic Landmarks	None	None
	National Register- Listed	None	None
	Battlefields	043-0307	Battle of Chaffin's Farm/New Market Heights Battlefield
	Historic Landscapes	None	None
0.5	National Historic Landmarks	None	None
	National Register- Listed	020-0123	Point of Rocks, 1011 Point of Rocks Road
	Battlefields	020-5318	Swift Creek Battlefield
		043-5074	First Deep Bottom Battlefield
		043-5080	Second Deep Bottom Battlefield
	Historic Landscapes	020-5371	Dale's Pale Archaeological Historic District
	National Register- Eligible	020-0506	Earthworks, Enon Park
0.0 (ROW)	National Historic Landmarks	None	None
	National Register- Listed	None	None
	Battlefields	020-5319	Ware Bottom Church Battlefield
		123-5025	Petersburg Battlefield II
	Historic Landscapes	None	None
	National Register- Eligible	None	None

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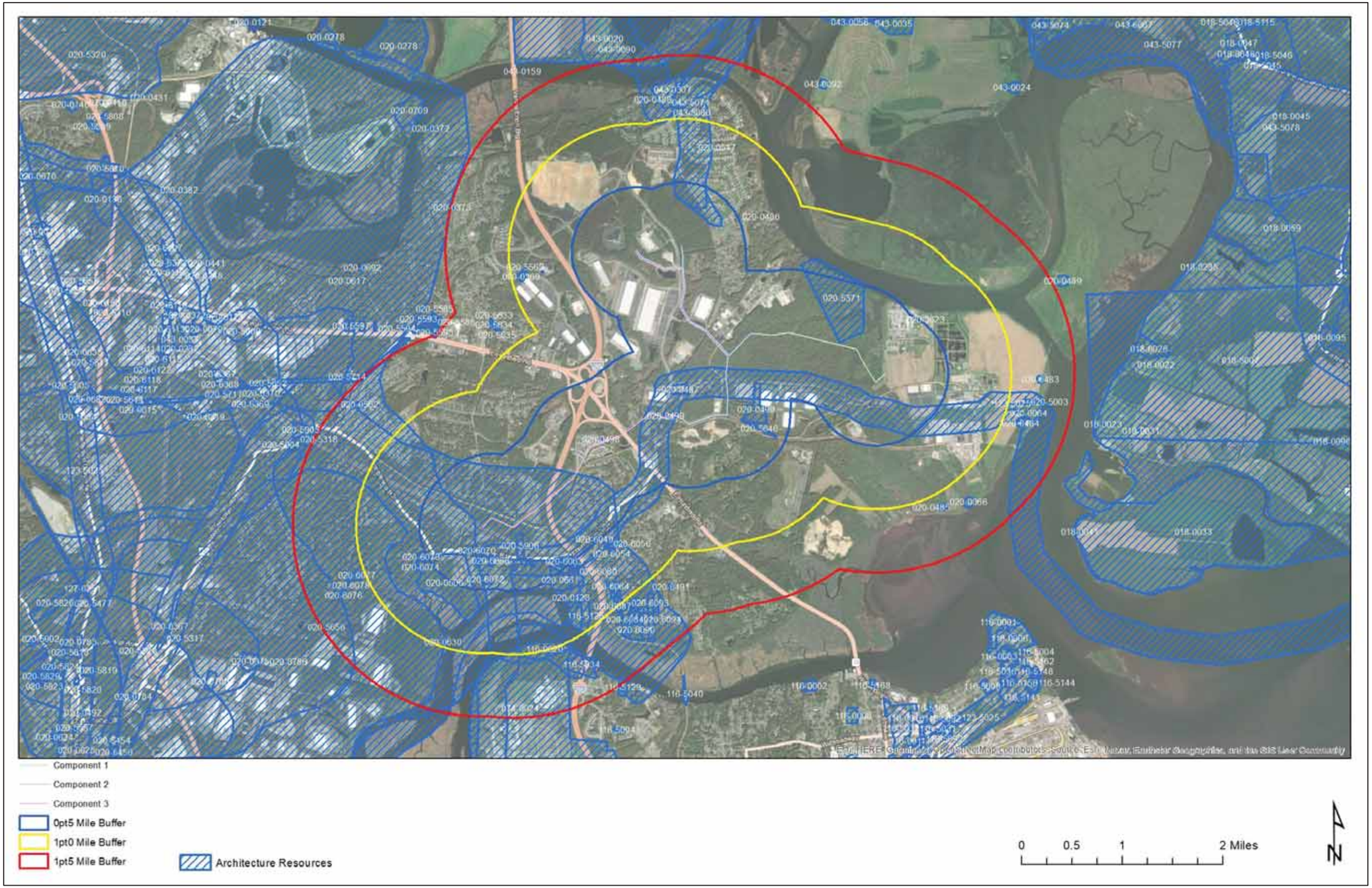

Figure 4-2: All previously identified architectural resources within 1.5-miles of the project components. Source: VCRIS

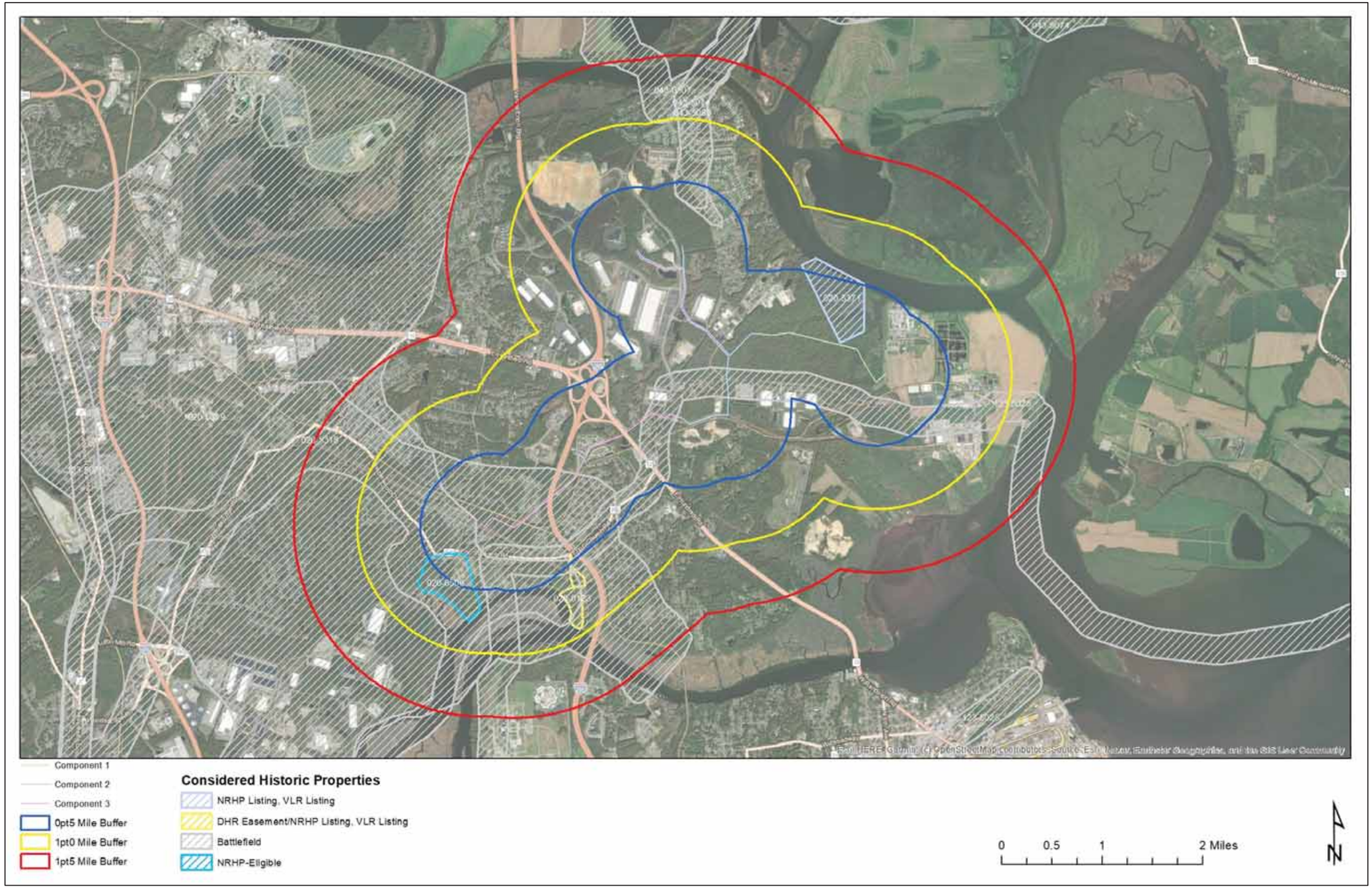

Figure 4-3: Considered architectural resources within their respective tiers around the project components. Source: VCRIS

ARCHAEOLOGICAL SITES

Review of the VDHR VCRIS records reveals there are eighty-eight (88) previously recorded archaeological sites within one mile of at least one of the project components. These include prehistoric lithic scatters and camps, as well as historic domestic sites, farmsteads, canals and associated features, a railroad bed, cemeteries, and trash scatters. Of these, fourteen (14) have been determined eligible or potentially eligible for listing in the NRHP, nineteen (19) have been determined not eligible for listing, and the remaining sites have not been formally evaluated. Six (6) of the sites are located within or crossed by the project ROW, three (3) of which have been determined not eligible for listing in the NRHP by the VDHR and three (3) which have not been formally evaluated.

Table 4-3 lists all previously recorded archaeological resources within one-mile of the project and

44CF0026	No Data	Early Woodland (1200 B.C.E - 299 C.E), Middle Woodland (300 - 999 C.E), Late Woodland (1000 - 1606)	Not Evaluated
44CF0052	Farmstead, Hospital	Early Woodland (1200 B.C.E - 299 C.E), Middle Woodland (300 - 999 C.E), Late Woodland (1000 - 1606), Antebellum Period (1830 - 1860), Civil War (1861 - 1865), Reconstruction and Growth (1866 - 1916)	Not Evaluated
44CF0052	**Farmstead, Hospital, Lithic workshop**	**Early Woodland (1200 B.C.E - 299 C.E), Middle Woodland (300 - 999 C.E), Late Woodland (1000 - 1606), Antebellum Period (1830 - 1860), Civil War (1861 - 1865), Reconstruction and Growth (1866 - 1916)**	**DHR Staff: Potentially Eligible**
44CF0077	No Data	Woodland (1200 B.C. - 1606 A.D.)	Not Evaluated
44CF0088	Trash pit	Historic/Unknown	Not Evaluated
44CF0096	No Data	Historic/Unknown	Not Evaluated
44CF0101	Camp, temporary, Village/Town	Pre-Contact, Late Woodland (1000 - 1606)	Not Evaluated
44CF0104	Camp, Quarry	18th Century (1700 - 1799)	Not Evaluated
44CF0105	Quarry	Prehistoric/Unknown (15000 B.C. - 1606 A.D.)	Not Evaluated
44CF0106	**Camp, Military camp, Quarry**	**Pre-Contact, Early Woodland (1200 B.C.E - 299 C.E), Middle Woodland (300 - 999 C.E), Late Woodland (1000 - 1606), Civil War (1861 - 1865)**	**Federal Det. Of Eligibility**
44CF0107	Camp, Quarry	Archaic (8500 - 1201 B.C.)	Not Evaluated
44CF0109	Camp	Early Archaic (8500 - 6501 B.C.)	Not Evaluated
44CF0133	**Camp, temporary**	**Pre-Contact**	**DHR Staff: Eligible**
44CF0135	Canal	Historic/Unknown	Not Evaluated
44CF0136	**Bridge**	**Early National Period (1790 - 1829), Antebellum Period (1830 - 1860)**	**DHR Staff: Potentially Eligible**
44CF0139	No Data	19th Century: 2nd half (1850 - 1899)	DHR Staff: Not Eligible
44CF0167	No Data	20th Century: 1st half (1900 - 1949)	Not Evaluated
44CF0168	No Data	19th Century: 2nd half (1850 - 1899), 20th Century: 1st half (1900 - 1949)	Not Evaluated
44CF0169	No Data	20th Century (1900 - 1999)	Not Evaluated

44CF0170	No Data	20th Century (1900 - 1999)	Not Evaluated
44CF0171	No Data	Prehistoric/Unknown (15000 B.C. - 1606 A.D.), 19th Century: 2nd half (1850 - 1899), 20th Century (1900 - 1999)	Not Evaluated
44CF0172	No Data	Pre-Contact, Antebellum Period (1830 - 1860), Civil War (1861 - 1865), Reconstruction and Growth (1866 - 1916)	DHR Staff: Not Eligible
44CF0173	Other	Reconstruction and Growth (1866 - 1916), World War I to World War II (1917 - 1945), The New Dominion (1946 - 1991), Post Cold War (1992 - Present)	DHR Staff: Not Eligible
44CF0174	No Data	Prehistoric/Unknown (15000 B.C. - 1606 A.D.), 19th Century: 2nd half (1850 - 1899), 20th Century: 1st half (1900 - 1949)	Not Evaluated
44CF0202	Lithic scatter	Archaic (8500 - 1201 B.C.)	Not Evaluated
44CF0203	No Data	19th Century: 1st half (1800 - 1849)	Not Evaluated
44CF0204	Other	17th Century (1600 - 1699)	Not Evaluated
44CF0208	No Data	Prehistoric/Unknown (15000 B.C. - 1606 A.D.)	Not Evaluated
44CF0209	Trash pit	18th Century: 1st half (1700 - 1749)	Not Evaluated
44CF0210	Dwelling, single	18th Century (1700 - 1799)	Not Evaluated
44CF0295	Camp	Woodland (1200 B.C. - 1606 A.D.)	Not Evaluated
44CF0296	Camp	Prehistoric/Unknown (15000 B.C. - 1606 A.D.)	Not Evaluated
44CF0297	Camp	Woodland (1200 B.C. - 1606 A.D.)	Not Evaluated
44CF0298	Lithic scatter	<Null>	Not Evaluated
44CF0299	Dwelling, single	19th Century: 4th quarter (1875 - 1899)	Not Evaluated
44CF0300	Dwelling, single	19th Century: 4th quarter (1875 - 1899)	Not Evaluated
44CF0301	Dwelling, multiple	20th Century (1900 - 1999)	Not Evaluated
44CF0379	Lithic scatter	19th Century (1800 - 1899)	Not Evaluated
44CF0380	Lithic scatter	19th Century (1800 - 1899)	Not Evaluated
44CF0392	No Data	Woodland (1200 B.C. - 1606 A.D.)	Not Evaluated
44CF0510	Trash pit	20th Century (1900 - 1999)	Not Evaluated
44CF0511	Camp	<Null>	Not Evaluated
44CF0512	Dwelling, single, Outbuilding	19th Century: 2nd half (1850 - 1899), 20th Century (1900 - 1999)	Not Evaluated
44CF0513	Dwelling, single	18th Century (1700 - 1799)	Not Evaluated
44CF0553	Railroad bed	Reconstruction and Growth (1866 - 1916)	DHR Staff: Not Eligible
44CF0570	**Camp, temporary, Dwelling, single, Village/Town**	**Middle Archaic Period (6500 - 3001 B.C.E), Late Archaic Period (3000 - 1201 B.C.E), Middle Woodland (300 - 999 C.E), Late Woodland (1000 - 1606), Colony to Nation (1751 - 1789), Early National Period (1790 - 1829), Antebellum Period (1830 - 1860), Civil War (1861 - 1865)**	**DHR Staff: Potentially Eligible**
44CF0572	Camp, temporary	Pre-Contact	DHR Staff: Not Eligible
44CF0573	Camp, temporary	Middle Woodland (300 - 999 C.E)	DHR Staff: Not Eligible

44CF0574	**Camp, temporary**	**Late Archaic Period (3000 - 1201 B.C.E), Middle Woodland (300 - 999 C.E)**	**DHR Staff: Potentially Eligible**
44CF0575	**Camp, temporary, Dwelling, single**	**Early Woodland (1200 B.C.E - 299 C.E), Middle Woodland (300 - 999 C.E), Early National Period (1790 - 1829), Antebellum Period (1830 - 1860), Civil War (1861 - 1865)**	**DHR Staff: Potentially Eligible**
44CF0576	Artifact scatter, Camp, temporary	Indeterminate, Early Woodland (1200 B.C.E - 299 C.E), Middle Woodland (300 - 999 C.E)	Not Evaluated
44CF0578	**Earthworks, Fort**	**Civil War (1861 - 1865)**	**DHR Staff: Potentially Eligible**
44CF0592	Camp, temporary, Farmstead	Early Archaic Period (8500 - 6501 B.C.E), Middle Archaic Period (6500 - 3001 B.C.E), Late Archaic Period (3000 - 1201 B.C.E), Contact Period (1607 - 1750), Colony to Nation (1751 - 1789), Early National Period (1790 - 1829)	Not Evaluated
44CF0593	Lithic procurement site, Well	Early Archaic Period (8500 - 6501 B.C.E), Middle Archaic Period (6500 - 3001 B.C.E), Late Archaic Period (3000 - 1201 B.C.E), Contact Period (1607 - 1750), Colony to Nation (1751 - 1789), Early National Period (1790 - 1829), Antebellum Period (1830 - 1860)	Not Evaluated
44CF0594	**Farmstead**	**Early National Period (1790 - 1829), Antebellum Period (1830 - 1860)**	**DHR Staff: Eligible**
44CF0595	Other	Early National Period (1790 - 1829), Antebellum Period (1830 - 1860)	Not Evaluated
44CF0596	Camp	19th Century: 2nd half (1850 - 1899)	Not Evaluated
44CF0612	Battlefield, Camp	19th Century (1800 - 1899)	Not Evaluated
44CF0617	Farmstead	20th Century: 1st quarter (1900 - 1924)	DHR Staff: Not Eligible
44CF0685	Camp, temporary	Prehistoric/Unknown (15000 B.C. - 1606 A.D.)	Not Evaluated
44CF0767	Road	19th Century: 2nd quarter (1825 - 1849), 19th Century: 3rd quarter (1850 - 1874)	Not Evaluated
44CF0768	Wharf	19th Century: 2nd quarter (1825 - 1849), 19th Century: 3rd quarter (1850 - 1874)	Not Evaluated
44CF0791	Camp, temporary	Late Archaic Period (3000 - 1201 B.C.)	DHR Staff: Not Eligible
44CF0798	Camp	Pre-Contact	DHR Staff: Not Eligible
44CF0800	Well	Antebellum Period (1830 - 1860)	DHR Staff: Not Eligible
44CF0828	Artifact scatter	Early National Period (1790 - 1829), Antebellum Period (1830 - 1860), Civil War (1861 - 1865), Reconstruction and Growth (1866 - 1916)	Not Evaluated
44CF0829	Lithic workshop	Pre-Contact, Contact Period (1607 - 1750)	Not Evaluated
44CF0839	Dwelling, single	Contact Period (1607 - 1750), Colony to Nation (1751 - 1789), Early National Period (1790 - 1829), Antebellum Period (1830 - 1860), Civil War (1861 - 1865), Reconstruction and Growth (1866 - 1916)	DHR Staff: Not Eligible
44CF0845	Lithic scatter	Pre-Contact	DHR Staff: Not Eligible

44CF0846	Dwelling, single	Reconstruction and Growth (1866 - 1916)	DHR Staff: Not Eligible
44CF0847	Dwelling, single	World War I to World War II (1917 - 1945)	DHR Staff: Not Eligible
44CF0848	Lithic scatter	Pre-Contact	DHR Staff: Not Eligible
44CF0849	Lithic scatter	Pre-Contact	DHR Staff: Not Eligible
44CF0850	**Battlefield, Dwelling, single**	**Early National Period (1790 - 1829), Antebellum Period (1830 - 1860), Civil War (1861 - 1865), Reconstruction and Growth (1866 - 1916)**	**DHR Staff: Potentially Eligible**
44CF0851	Camp, temporary	Pre-Contact	DHR Staff: Not Eligible
44CF0856	Wall/Fence	Early National Period (1790 - 1829), Antebellum Period (1830 - 1860)	Not Evaluated
44CF0857	Ditch, boundary	World War I to World War II (1917 - 1945), The New Dominion (1946 - 1991), Post Cold War (1992 - Present)	Not Evaluated
44CF0861	**Earthworks**	**Civil War (1861 - 1865)**	**DHR Staff: Potentially Eligible**
44CF0862	**Railroad bed**	**Antebellum Period (1830 - 1860), Civil War (1861 - 1865)**	**DHR Staff: Potentially Eligible**
44CF0864	Artifact scatter	Civil War (1861 - 1865), Reconstruction and Growth (1866 - 1916), World War I to World War II (1917 - 1945), The New Dominion (1946 - 1991)	DHR Staff: Not Eligible
44CF0898	**Lithic scatter**	**Pre-Contact**	**DHR Staff: Potentially Eligible**
44CF0918	Dwelling, single	Reconstruction and Growth (1866 - 1916), World War I to World War II (1917 - 1945), The New Dominion (1946 - 1991)	DHR Staff: Not Eligible
44CF0919	**Artifact scatter, Dwelling, single**	**Pre-Contact, Contact Period (1607 - 1750), Colony to Nation (1751 - 1789), Early National Period (1790 - 1829), Antebellum Period (1830 - 1860)**	**DHR Evaluation Committee: Eligible**
44PG0385	Other	18th Century (1700 - 1799), 19th Century (1800 - 1899), 20th Century (1900 - 1999)	Not Evaluated
44PG0386	Other	Historic/Unknown	Not Evaluated
44PG0387	Other	Archaic (8500 - 1201 B.C.), Woodland (1200 B.C. - 1606 A.D.)	Not Evaluated
44PG0389	Camp	Archaic (8500 - 1201 B.C.), Woodland (1200 B.C. - 1606 A.D.)	Not Evaluated
44PG0391	Camp	<Null>	Not Evaluated

Table 4-4 provides additional information on the sites that are located within the project ROW. Figure 4-4 illustrates the locations of all previously recorded sites within one mile of the project area and Figure 4-5 details the location of the archaeological sites located within or crossed by the project ROW.

Table 4-3: Previously recorded archaeological resources within one mile of the project area. Bold listings denote sites listed in- or eligible for the NRHP. Orange highlight denotes site is located within or crossed by the project ROW.

VDHR #	Type	Temporal Association	NRHP Status
44CF0026	No Data	Early Woodland (1200 B.C.E - 299 C.E), Middle Woodland (300 - 999 C.E), Late Woodland (1000 - 1606)	Not Evaluated

VDHR #	Type	Temporal Association	NRHP Status
44CF0052	Farmstead, Hospital	Early Woodland (1200 B.C.E - 299 C.E), Middle Woodland (300 - 999 C.E), Late Woodland (1000 - 1606), Antebellum Period (1830 - 1860), Civil War (1861 - 1865), Reconstruction and Growth (1866 - 1916)	Not Evaluated
44CF0052	**Farmstead, Hospital, Lithic workshop**	**Early Woodland (1200 B.C.E - 299 C.E), Middle Woodland (300 - 999 C.E), Late Woodland (1000 - 1606), Antebellum Period (1830 - 1860), Civil War (1861 - 1865), Reconstruction and Growth (1866 - 1916)**	**DHR Staff: Potentially Eligible**
44CF0077	No Data	Woodland (1200 B.C. - 1606 A.D.)	Not Evaluated
44CF0088	Trash pit	Historic/Unknown	Not Evaluated
44CF0096	No Data	Historic/Unknown	Not Evaluated
44CF0101	Camp, temporary, Village/Town	Pre-Contact, Late Woodland (1000 - 1606)	Not Evaluated
44CF0104	Camp, Quarry	18th Century (1700 - 1799)	Not Evaluated
44CF0105	Quarry	Prehistoric/Unknown (15000 B.C. - 1606 A.D.)	Not Evaluated
44CF0106	**Camp, Military camp, Quarry**	**Pre-Contact, Early Woodland (1200 B.C.E - 299 C.E), Middle Woodland (300 - 999 C.E), Late Woodland (1000 - 1606), Civil War (1861 - 1865)**	**Federal Det. Of Eligibility**
44CF0107	Camp, Quarry	Archaic (8500 - 1201 B.C.)	Not Evaluated
44CF0109	Camp	Early Archaic (8500 - 6501 B.C.)	Not Evaluated
44CF0133	**Camp, temporary**	**Pre-Contact**	**DHR Staff: Eligible**
44CF0135	Canal	Historic/Unknown	Not Evaluated
44CF0136	**Bridge**	**Early National Period (1790 - 1829), Antebellum Period (1830 - 1860)**	**DHR Staff: Potentially Eligible**
44CF0139	No Data	19th Century: 2nd half (1850 - 1899)	DHR Staff: Not Eligible
44CF0167	No Data	20th Century: 1st half (1900 - 1949)	Not Evaluated
44CF0168	No Data	19th Century: 2nd half (1850 - 1899), 20th Century: 1st half (1900 - 1949)	Not Evaluated
44CF0169	No Data	20th Century (1900 - 1999)	Not Evaluated
44CF0170	No Data	20th Century (1900 - 1999)	Not Evaluated
44CF0171	No Data	Prehistoric/Unknown (15000 B.C. - 1606 A.D.), 19th Century: 2nd half (1850 - 1899), 20th Century (1900 - 1999)	Not Evaluated
44CF0172	No Data	Pre-Contact, Antebellum Period (1830 - 1860), Civil War (1861 - 1865), Reconstruction and Growth (1866 - 1916)	DHR Staff: Not Eligible
44CF0173	Other	Reconstruction and Growth (1866 - 1916), World War I to World War II (1917 - 1945), The New Dominion (1946 - 1991), Post Cold War (1992 - Present)	DHR Staff: Not Eligible
44CF0174	No Data	Prehistoric/Unknown (15000 B.C. - 1606 A.D.), 19th Century: 2nd half (1850 - 1899), 20th Century: 1st half (1900 - 1949)	Not Evaluated
44CF0202	Lithic scatter	Archaic (8500 - 1201 B.C.)	Not Evaluated
44CF0203	No Data	19th Century: 1st half (1800 - 1849)	Not Evaluated
44CF0204	Other	17th Century (1600 - 1699)	Not Evaluated

VDHR #	Type	Temporal Association	NRHP Status
44CF0208	No Data	Prehistoric/Unknown (15000 B.C. - 1606 A.D.)	Not Evaluated
44CF0209	Trash pit	18th Century: 1st half (1700 - 1749)	Not Evaluated
44CF0210	Dwelling, single	18th Century (1700 - 1799)	Not Evaluated
44CF0295	Camp	Woodland (1200 B.C. - 1606 A.D.)	Not Evaluated
44CF0296	Camp	Prehistoric/Unknown (15000 B.C. - 1606 A.D.)	Not Evaluated
44CF0297	Camp	Woodland (1200 B.C. - 1606 A.D.)	Not Evaluated
44CF0298	Lithic scatter	<Null>	Not Evaluated
44CF0299	Dwelling, single	19th Century: 4th quarter (1875 - 1899)	Not Evaluated
44CF0300	Dwelling, single	19th Century: 4th quarter (1875 - 1899)	Not Evaluated
44CF0301	Dwelling, multiple	20th Century (1900 - 1999)	Not Evaluated
44CF0379	Lithic scatter	19th Century (1800 - 1899)	Not Evaluated
44CF0380	Lithic scatter	19th Century (1800 - 1899)	Not Evaluated
44CF0392	No Data	Woodland (1200 B.C. - 1606 A.D.)	Not Evaluated
44CF0510	Trash pit	20th Century (1900 - 1999)	Not Evaluated
44CF0511	Camp	<Null>	Not Evaluated
44CF0512	Dwelling, single, Outbuilding	19th Century: 2nd half (1850 - 1899), 20th Century (1900 - 1999)	Not Evaluated
44CF0513	Dwelling, single	18th Century (1700 - 1799)	Not Evaluated
44CF0553	Railroad bed	Reconstruction and Growth (1866 - 1916)	DHR Staff: Not Eligible
44CF0570	**Camp, temporary, Dwelling, single, Village/Town**	**Middle Archaic Period (6500 - 3001 B.C.E), Late Archaic Period (3000 - 1201 B.C.E), Middle Woodland (300 - 999 C.E), Late Woodland (1000 - 1606), Colony to Nation (1751 - 1789), Early National Period (1790 - 1829), Antebellum Period (1830 - 1860), Civil War (1861 - 1865)**	**DHR Staff: Potentially Eligible**
44CF0572	Camp, temporary	Pre-Contact	DHR Staff: Not Eligible
44CF0573	Camp, temporary	Middle Woodland (300 - 999 C.E)	DHR Staff: Not Eligible
44CF0574	**Camp, temporary**	**Late Archaic Period (3000 - 1201 B.C.E), Middle Woodland (300 - 999 C.E)**	**DHR Staff: Potentially Eligible**
44CF0575	**Camp, temporary, Dwelling, single**	**Early Woodland (1200 B.C.E - 299 C.E), Middle Woodland (300 - 999 C.E), Early National Period (1790 - 1829), Antebellum Period (1830 - 1860), Civil War (1861 - 1865)**	**DHR Staff: Potentially Eligible**
44CF0576	Artifact scatter, Camp, temporary	Indeterminate, Early Woodland (1200 B.C.E - 299 C.E), Middle Woodland (300 - 999 C.E)	Not Evaluated
44CF0578	**Earthworks, Fort**	**Civil War (1861 - 1865)**	**DHR Staff: Potentially Eligible**
44CF0592	Camp, temporary, Farmstead	Early Archaic Period (8500 - 6501 B.C.E), Middle Archaic Period (6500 - 3001 B.C.E), Late Archaic Period (3000 - 1201 B.C.E), Contact Period (1607 - 1750),	Not Evaluated

VDHR #	Type	Temporal Association	NRHP Status
		Colony to Nation (1751 - 1789), Early National Period (1790 - 1829)	
44CF0593	Lithic procurement site, Well	Early Archaic Period (8500 - 6501 B.C.E), Middle Archaic Period (6500 - 3001 B.C.E), Late Archaic Period (3000 - 1201 B.C.E), Contact Period (1607 - 1750), Colony to Nation (1751 - 1789), Early National Period (1790 - 1829), Antebellum Period (1830 - 1860)	Not Evaluated
44CF0594	**Farmstead**	**Early National Period (1790 - 1829), Antebellum Period (1830 - 1860)**	**DHR Staff: Eligible**
44CF0595	Other	Early National Period (1790 - 1829), Antebellum Period (1830 - 1860)	Not Evaluated
44CF0596	Camp	19th Century: 2nd half (1850 - 1899)	Not Evaluated
44CF0612	Battlefield, Camp	19th Century (1800 - 1899)	Not Evaluated
44CF0617	Farmstead	20th Century: 1st quarter (1900 - 1924)	DHR Staff: Not Eligible
44CF0685	Camp, temporary	Prehistoric/Unknown (15000 B.C. - 1606 A.D.)	Not Evaluated
44CF0767	Road	19th Century: 2nd quarter (1825 - 1849), 19th Century: 3rd quarter (1850 - 1874)	Not Evaluated
44CF0768	Wharf	19th Century: 2nd quarter (1825 - 1849), 19th Century: 3rd quarter (1850 - 1874)	Not Evaluated
44CF0791	Camp, temporary	Late Archaic Period (3000 - 1201 B.C.)	DHR Staff: Not Eligible
44CF0798	Camp	Pre-Contact	DHR Staff: Not Eligible
44CF0800	Well	Antebellum Period (1830 - 1860)	DHR Staff: Not Eligible
44CF0828	Artifact scatter	Early National Period (1790 - 1829), Antebellum Period (1830 - 1860), Civil War (1861 - 1865), Reconstruction and Growth (1866 - 1916)	Not Evaluated
44CF0829	Lithic workshop	Pre-Contact, Contact Period (1607 - 1750)	Not Evaluated
44CF0839	Dwelling, single	Contact Period (1607 - 1750), Colony to Nation (1751 - 1789), Early National Period (1790 - 1829), Antebellum Period (1830 - 1860), Civil War (1861 - 1865), Reconstruction and Growth (1866 - 1916)	DHR Staff: Not Eligible
44CF0845	Lithic scatter	Pre-Contact	DHR Staff: Not Eligible
44CF0846	Dwelling, single	Reconstruction and Growth (1866 - 1916)	DHR Staff: Not Eligible
44CF0847	Dwelling, single	World War I to World War II (1917 - 1945)	DHR Staff: Not Eligible
44CF0848	Lithic scatter	Pre-Contact	DHR Staff: Not Eligible
44CF0849	Lithic scatter	Pre-Contact	DHR Staff: Not Eligible
44CF0850	**Battlefield, Dwelling, single**	**Early National Period (1790 - 1829), Antebellum Period (1830 - 1860), Civil War (1861 - 1865), Reconstruction and Growth (1866 - 1916)**	**DHR Staff: Potentially Eligible**
44CF0851	Camp, temporary	Pre-Contact	DHR Staff: Not Eligible

VDHR #	Type	Temporal Association	NRHP Status
44CF0856	Wall/Fence	Early National Period (1790 - 1829), Antebellum Period (1830 - 1860)	Not Evaluated
44CF0857	Ditch, boundary	World War I to World War II (1917 - 1945), The New Dominion (1946 - 1991), Post Cold War (1992 - Present)	Not Evaluated
44CF0861	**Earthworks**	**Civil War (1861 - 1865)**	**DHR Staff: Potentially Eligible**
44CF0862	**Railroad bed**	**Antebellum Period (1830 - 1860), Civil War (1861 - 1865)**	**DHR Staff: Potentially Eligible**
44CF0864	Artifact scatter	Civil War (1861 - 1865), Reconstruction and Growth (1866 - 1916), World War I to World War II (1917 - 1945), The New Dominion (1946 - 1991)	DHR Staff: Not Eligible
44CF0898	**Lithic scatter**	**Pre-Contact**	**DHR Staff: Potentially Eligible**
44CF0918	Dwelling, single	Reconstruction and Growth (1866 - 1916), World War I to World War II (1917 - 1945), The New Dominion (1946 - 1991)	DHR Staff: Not Eligible
44CF0919	**Artifact scatter, Dwelling, single**	**Pre-Contact, Contact Period (1607 - 1750), Colony to Nation (1751 - 1789), Early National Period (1790 - 1829), Antebellum Period (1830 - 1860)**	**DHR Evaluation Committee: Eligible**
44PG0385	Other	18th Century (1700 - 1799), 19th Century (1800 - 1899), 20th Century (1900 - 1999)	Not Evaluated
44PG0386	Other	Historic/Unknown	Not Evaluated
44PG0387	Other	Archaic (8500 - 1201 B.C.), Woodland (1200 B.C. - 1606 A.D.)	Not Evaluated
44PG0389	Camp	Archaic (8500 - 1201 B.C.), Woodland (1200 B.C. - 1606 A.D.)	Not Evaluated
44PG0391	Camp	<Null>	Not Evaluated

Table 4-4: Previously recorded archaeological resources crossed by the ROW associated with the project component.

VDHR #	Description	NRHP Status	Project Component
44CF0173	19th/20th century transportation-related	DHR Staff: Not Eligible	Component 3
44CF0204	17th Century other	Not Evaluated	Component 1
44CF0596	19th Century camp	Not Evaluated	Component 2
44CF0848	Pre-Contact lithic scatter	DHR Staff: Not Eligible	Component 1
44CF0849	Pre-Contact lithic scatter	DHR Staff: Not Eligible	Component 1
44CF0856	19th landscape feature	Not Evaluated	Component 1

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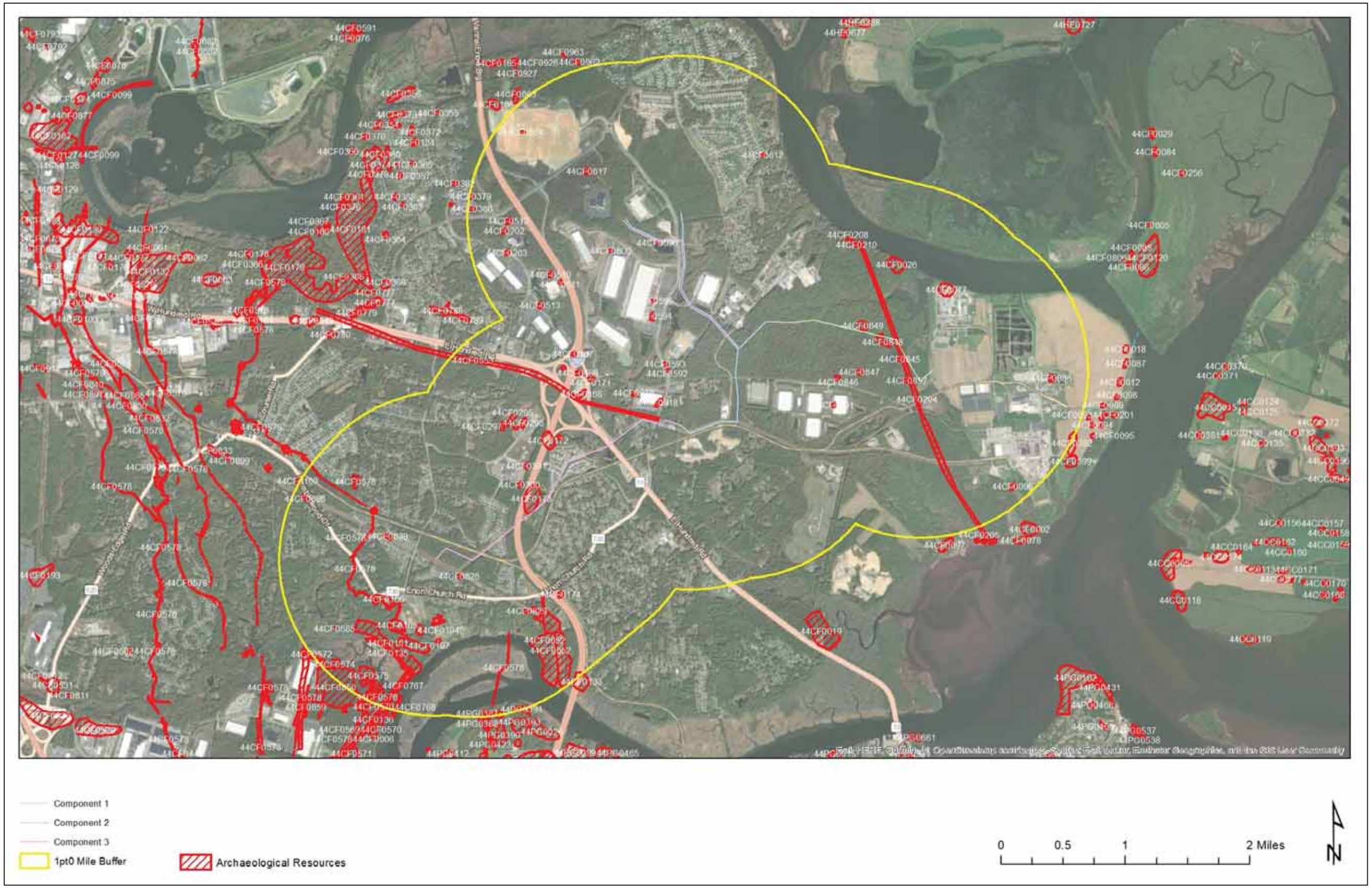

Figure 4-4: Previously recorded archaeological resources located within 1- mile of the project components. Source: VCRIS

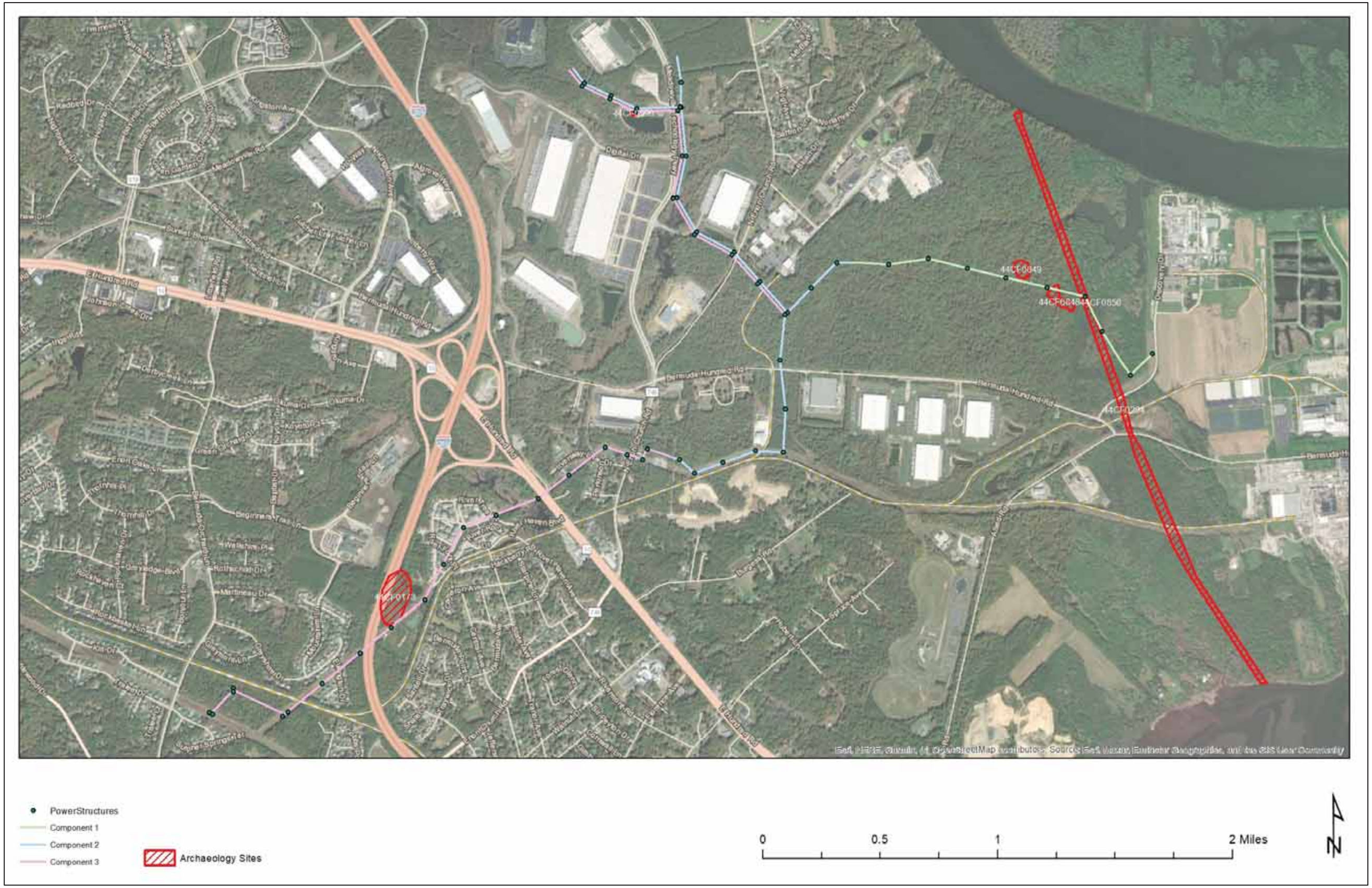

Figure 4-5: Detail of previously recorded archaeological resources in relation to the Project components. Source: VCRIS

NPS AMERICAN BATTLEFIELD PROTECTION PROGRAM (ABPP)

A review of the NPS ABPP records and maps prepared by the Civil War Sites Advisory Commission (CWSAC) revealed that the project study area is located within one mile of portions of six (6) defined battlefields. These include the Swift Creek (VA050), Ware Bottom Church (VA054), Petersburg II (VA063), Deep Bottom I (VA069), Deep Bottom II (VA071) and Chaffin's Farm (VA075) Battlefields.

As defined by the ABPP in 2009, battlefields may be divided into three tiers that correlate to both the historic association and the current level of integrity and preservation. The battlefield ***study area*** represents the historic extent of the battle as it unfolded upon the landscape; the battlefield ***core area*** represents the areas of fighting on the battlefield and typically includes the areas of greatest importance to understanding the events of the battle; and the ***potential National Register boundaries*** encompass the area that remains reasonably intact and warrant preservation.

Table 4-5 lists the battlefields within one mile and identifies portions of each battlefield directly crossed by the project and within one mile. Figure 4-6 illustrates the location of each battlefield in relation to the project area.

Table 4-5: ABPP Battlefields within one mile and proximity to battlefield tiers

ABPP #	Battlefield Name	Study Area	Core Area
VA050	SWIFT CREEK	**Within one mile**	>1 mile away
VA054	WARE BOTTOM CHURCH	**Crossed by Project**	>1 mile away
VA063	PETERSBURG II	**Crossed by Project**	>1 mile away
VA069	DEEP BOTTOM I	**Within one mile**	>1 mile away
VA071	DEEP BOTTOM II	**Within one mile**	>1 mile away
VA075	CHAFFIN'S FARM	**Within one mile**	>1 mile away

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Figure 4-6: Civil War Battlefields in relation to the project area and one-mile buffer. Source: ABPP

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5. RESULTS OF FIELD RECONNAISSANCE

In accordance with the VDHR guidelines for assessing impacts of proposed electric transmission lines on historic resources, considered architectural properties identified within the VDHR-defined study tiers around the project were field verified for existing conditions and photo documented (Table 5-1 and Figure 5-1).

Table 5-1: Considered architectural resources and distance to project.

VDHR #	Resource Name/ Address	NRHP-Status	Proximity to the project
020-0123	Point of Rocks, 1011 Point of Rocks Road	NRHP-Listed/DHR Easement	~0.46 Mile from Component 3
020-0506	Earthworks, Enon Park	NRHP-Eligible	~0.27 Mile from Component 3
020-5318	Swift Creek Battlefield	NRHP-Eligible Battlefield	~0.06 Mile from Component 3
020-5319	Ware Bottom Church Battlefield	NRHP-Eligible Battlefield	Directly Crossed
020-5371	Dale's Pale Archaeological Historic District	NRHP-Listed Landscape	Directly Crossed
043-0307	New Market Heights/Chaffins Farm Battlefield	NRHP-Eligible Battlefield	~1.0 Mile from Component 2
043-5074	First Deep Bottom Battlefield	NRHP-Eligible Battlefield	~0.34 Mile from Component 2
043-5080	Second Deep Bottom Battlefield	NRHP-Eligible Battlefield	~0.34 Mile from Component 2
123-5025	Petersburg Battlefield II	NRHP-Eligible Battlefield	Directly Crossed

Inspection and analysis of the setting around the resource and views towards the project components were also conducted to assess potential project impacts. For the purposes of this analysis, an impact is one that alters, either directly or indirectly, those qualities or characteristics that qualify a particular property for listing in the NRHP and does so in a manner that diminishes the integrity of a property's materials, workmanship, design, location, setting, feeling, and/or association. With respect to transmission lines, direct impacts typically are associated with ground disturbance resulting from ROW clearing and structure construction. Indirect impacts typically are associated with the introduction of new visual elements or changes to the physical features of a property's setting or viewshed. According to VDHR guidance, impacts for transmission line projects are characterized by the definitions below.

- **None** – Project is not visible from the property.
- **Minimal** – Occur within viewsheds that have existing transmission lines, locations where there will only be a minor change in tower height, and/or views that have been partially obstructed by intervening topography and vegetation.
- **Moderate** – Include viewsheds with expansive views of the transmission line, more dramatic changes in the line and tower height, and/or an overall increase in the visibility of the route from the historic properties.
- **Severe** – Occur within viewsheds that do not have existing transmission lines and where the views are primarily unobstructed, locations where there will be a dramatic increase in tower visibility due to the close proximity of the route to historic properties, and viewsheds where the visual introduction of the transmission line is a significant change in the setting of the historic properties.

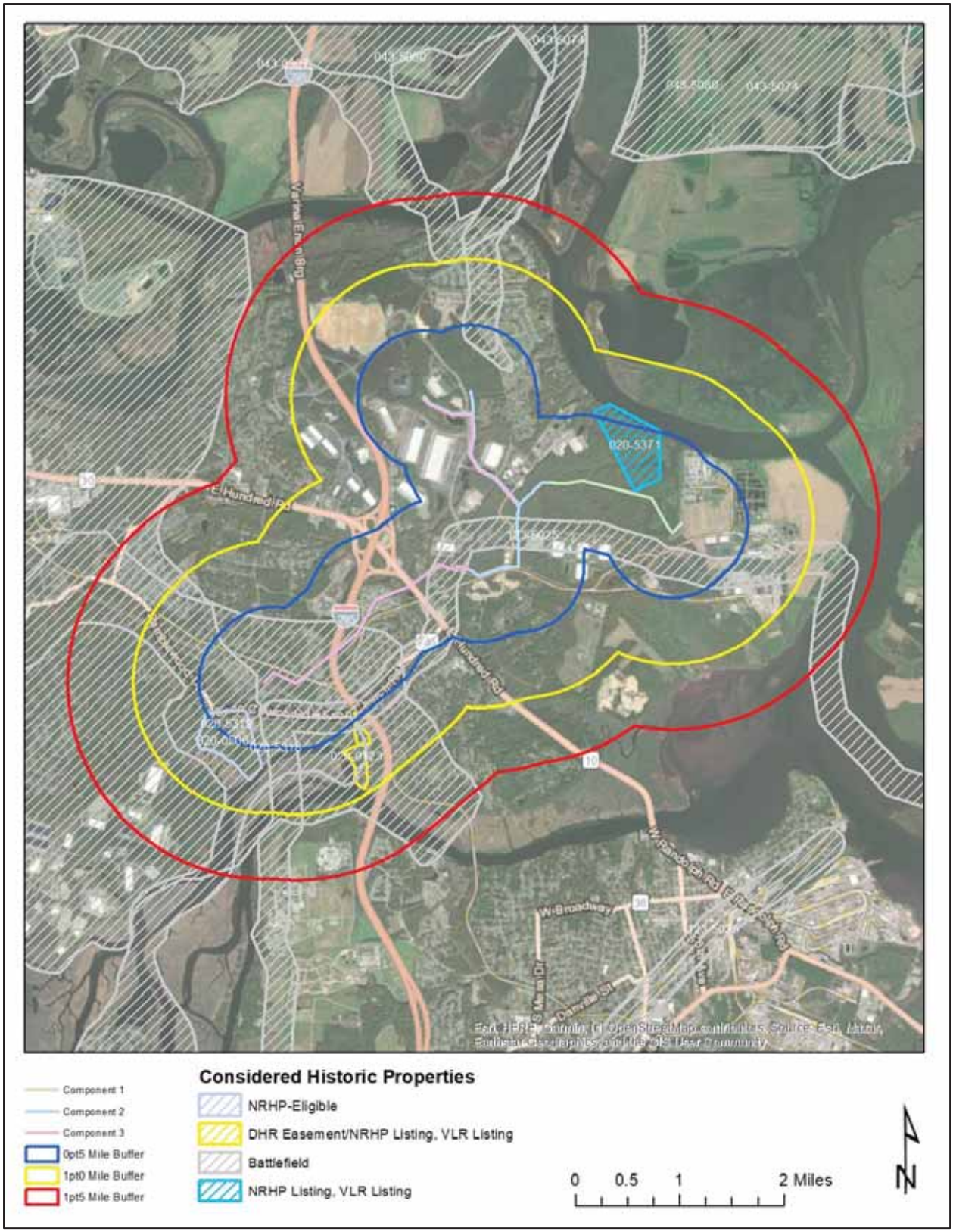

Figure 5-1: Considered architectural resources within their respective tiers around the project components. Source: VCRIS

VDHR# 020-0123: POINT OF ROCKS, 1011 POINT OF ROCKS ROAD

Point of Rocks takes its name from a nearby 60-foot-high sandstone cliff projecting into the Port Walthall Channel of the Appomattox River. The house was built circa 1840 and is a well-preserved, unique, one-story dwelling on a stone foundation. The Point of Rocks property served as an excellent observation point during the Civil War for the Union Army's General Benjamin F. Butler and also was the site of a hospital constructed for Union troops. Due to its architectural distinction and historical associations with events of the Civil War, Point of Rocks has been listed in the NRHP and is also held under a preservation easement by the VDHR.

As an ***NRHP-listed*** resource located within the tiered study area around the project, an assessment of potential impacts was conducted. The Point of Rocks property is located approximately 0.46 mile from the alignment of project component 3 at the nearest point. Therefore, because no portion of the project ROW or other associated components are located within the limits of the Point of Rocks property, the project will not directly impact the resource and this assessment focused on indirect, visual impacts.

To assess potential indirect project impacts, a site visit was made to the property to inspect the setting and viewshed of the resource with emphasis on views towards the project and associated improvements. Because the resource is located on private property, photographs were taken from the nearest public ROW along Enon Church Road to the front and Point of Rocks Road to the side, to document current conditions, lines of sight, and the extent of visibility of any existing transmission line infrastructure. Photo simulation was also conducted from a representative vantage point in the vicinity to model the visibility of proposed replacement structures in relation to existing structures.

A site visit to the property coupled with review of recent aerial photography revealed that Point of Rocks is situated within a suburban setting characterized by development and infrastructure of various time periods. The property on which the home is situated within a residential neighborhood comprised of single-family homes from the mid- to late-twentieth century. The Point of Rocks home sits back from the road at the end of a long, private driveway is not visible from public ROW. The Interstate-295 corridor skirts around the east side of the property and a high-voltage transmission line corridor cuts directly through the property with several transmission structures set immediately to the rear of the home.

Inspection from the end of Point of Rocks driveway off Enon Church Road revealed that development and vegetation on the intervening landscape screens views in the direction of the project. The nearest component of the project, Component 3, consists of the rebuild of an existing transmission line. The existing structures along the portion of transmission line to be rebuilt currently range from 75 feet to 120 feet in height and the replacement structures will range from 100 feet to 130 feet in height. None of the existing structures are visible and despite the increase in height, it is anticipated that the replacement structures will remain behind and beneath the level of the intervening vegetation. Inspection from Point of Rocks Road along the east side of the property similarly revealed no visibility of the transmission line to be rebuilt as part of this project, however, the transmission line that cuts directly through the Point of Rocks Property, including several structures in immediate proximity to the home, is visible.

Photo simulation of the project from the front of the property along Enon Church Road confirmed that all associated replacement structures would remain screened by the intervening landscape.

As such, the project is not expected to introduce any change in setting or viewshed of or from publicly-accessible vantage points in the vicinity of the Point of Rocks property. Therefore, it is D+A's opinion that based upon available data, the Meadowville 230kV Electric Transmission Project will result in ***no impact*** to Point of Rocks per VDHR's impact characterization scale.

Figure 5-2 illustrates the location of the Point of Rocks property in relation to the project and study buffers, with the location and direction of representative photographs and photo simulation. Representative photographs of and from the property are provided in Figure 5-3 through Figure 5-6 and a photo simulation is provided in **Error! Reference source not found.**7 and **Error! Reference source not found.**8.

Figure 5-2: Point of Rocks in relation to the project with location and direction of representative photographs shown in yellow and photo simulation shown in green.

Figure 5-3: View 1- View of Point of Rocks driveway from Enon Church Road, facing south.

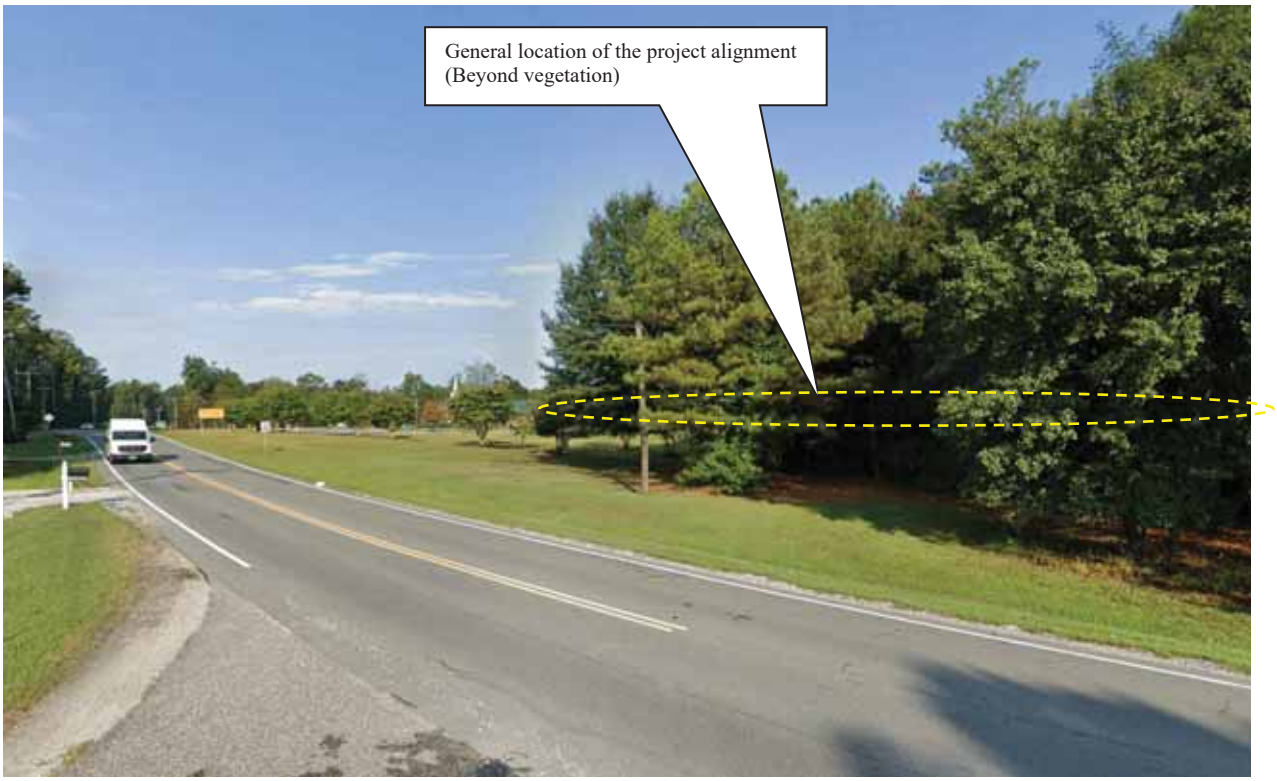

Figure 5-4: View 2- View from Point of Rocks driveway towards the project, facing northwest. (No visibility of existing transmission line and no anticipated visibility of the project)

Figure 5-5: View 3- View from Point of Rocks Road towards the project, facing northwest. (No visibility of existing transmission line and no anticipated visibility of the project)

Figure 5-6: View 4- View from Point of Rocks Road towards Point of Rocks house, facing west. (Visibility of existing transmission line infrastructure on property that is not included in this project)

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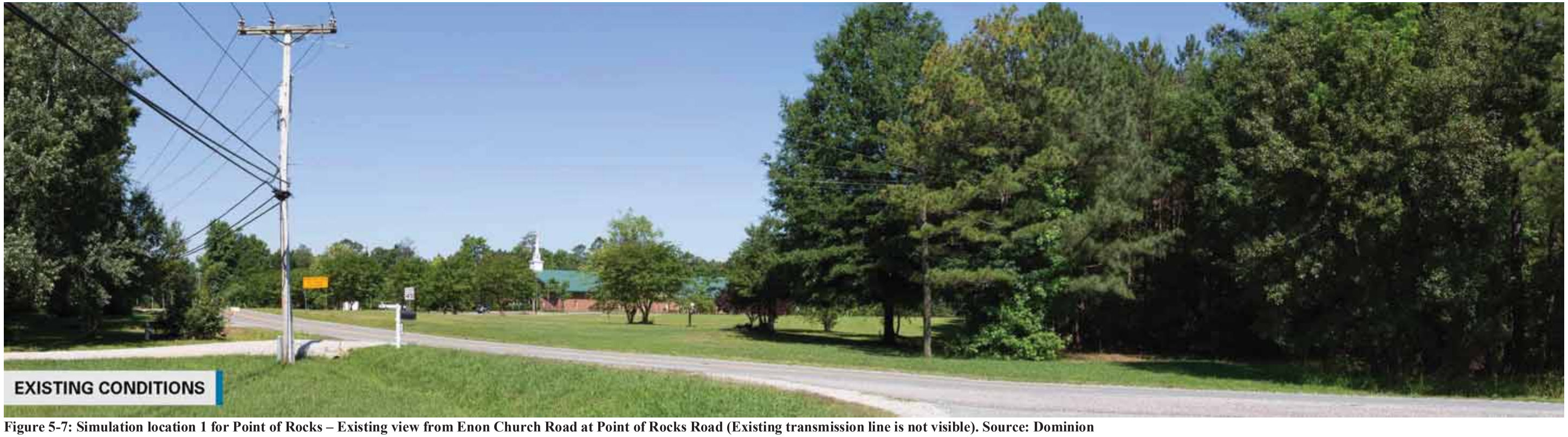

Figure 5-7: Simulation location 1 for Point of Rocks – Existing view from Enon Church Road at Point of Rocks Road (Existing transmission line is not visible). Source: Dominion

Figure 5-8: Simulation location 1 for Point of Rocks – Proposed view from Enon Church Road at Point of Rocks Road (No expected visibility of any structures – structure locations depicted in yellow). Source: Dominion

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VDHR# 020-0506: EARTHWORKS, ENON PARK

The Enon Park Earthworks are located within what is now called the R. Garland Dodd Park, operated by Chesterfield County since 1980. Historically, the property had included the former Cobbs estate, Civil War earthworks, and early twentieth century yellow ochre mining functions. In February 1979 this resource was the subject of a federal determination of NRHP eligibility for its Civil War significance and the surviving earthworks. The only buildings over fifty years of age are two outbuildings located near the playground. These date from the early twentieth century and are not individually significant. At this time, the property continues to be considered ***eligible*** for listing in the NRHP by the VDHR.

As an ***NRHP-eligible*** resource located within the tiered study area around the project, an assessment of potential impacts was conducted. The property is located approximately 0.27 mile from the alignment of project component 3 at the nearest point. Therefore, because no portion of the project ROW or other associated components are located within the limits of the property, the project will not directly impact the resource and this assessment focused on indirect, visual impacts.

To assess potential indirect project impacts, a site visit was made to the property to inspect the setting and viewshed of the resource with emphasis on views towards the project and associated improvements. As a municipal park that is open to the public, photographs were taken from throughout the resource boundary to document current conditions, lines of sight, and the extent of visibility of any existing transmission line infrastructure. Photo simulation was also conducted from a representative vantage point to model the visibility of proposed replacement structures in relation to existing structures.

A site visit to the property coupled with review of recent aerial photography revealed that the resource is situated within a suburban setting characterized by development and infrastructure of various time periods. A variety of residential development borders the park to the north and to the east, while the south and west are bordered by a low marshy area and tributary of the Appomattox River. The earthworks features are primarily situated within the western portion of the park that remains wooded with a network of walking trails. The extant nineteenth century buildings are

located more centrally within a portion of the park near a playground. The northern and eastern areas of the park contain a variety of other recreational infrastructure including athletic fields, courts, and parking lots.

Inspection from the entry to R Garland Dodd Park off of Enon Church Road revealed that development and vegetation on the intervening landscape screens views in the direction of the project. The nearest component of the project, Component 3, consists of the rebuild of an existing transmission line. The existing structures along the portion of transmission line to be rebuilt currently range from 75 feet to 120 feet in height and the replacement structures will range from 100 feet to 130 feet in height. None of the existing structures are visible and despite the increase in height, it is anticipated that the replacement structures will remain behind and beneath the level of the intervening vegetation. Inspection up Bermuda Orchard Road revealed limited visibility of several structures on an existing transmission line not included in this project, however, no visibility of the transmission line to be rebuilt as part of this project. Inspection from various vantages throughout the interior of the park, including in proximity to the earthworks and extant nineteenth century buildings similarly revealed no visibility of the existing transmission line, and no visibility of proposed replacement structures is anticipated.

Photo simulation of the project from the primary parking lot in the park confirmed that all associated replacement structures would remain screened by the intervening landscape.

As such, the project is not expected to introduce any change in setting or viewshed of or from the park or any of the associated historic features including earthworks or buildings. Therefore, it is D+A's opinion that based upon available data, the Meadowville 230kV Electric Transmission Project will result in ***no impact*** to the Enon Park Earthworks per VDHR's impact characterization scale.

Error! Reference source not found.9 illustrates the location of the Enon Park Earthworks property in relation to the project and study buffers, with the location and direction of representative photographs and photo simulation. Representative photographs of and from the property are provided in Figure 5-10 through Figure 5-13 and a photo simulation is provided in Figure 5-14 and Figure 5-15.

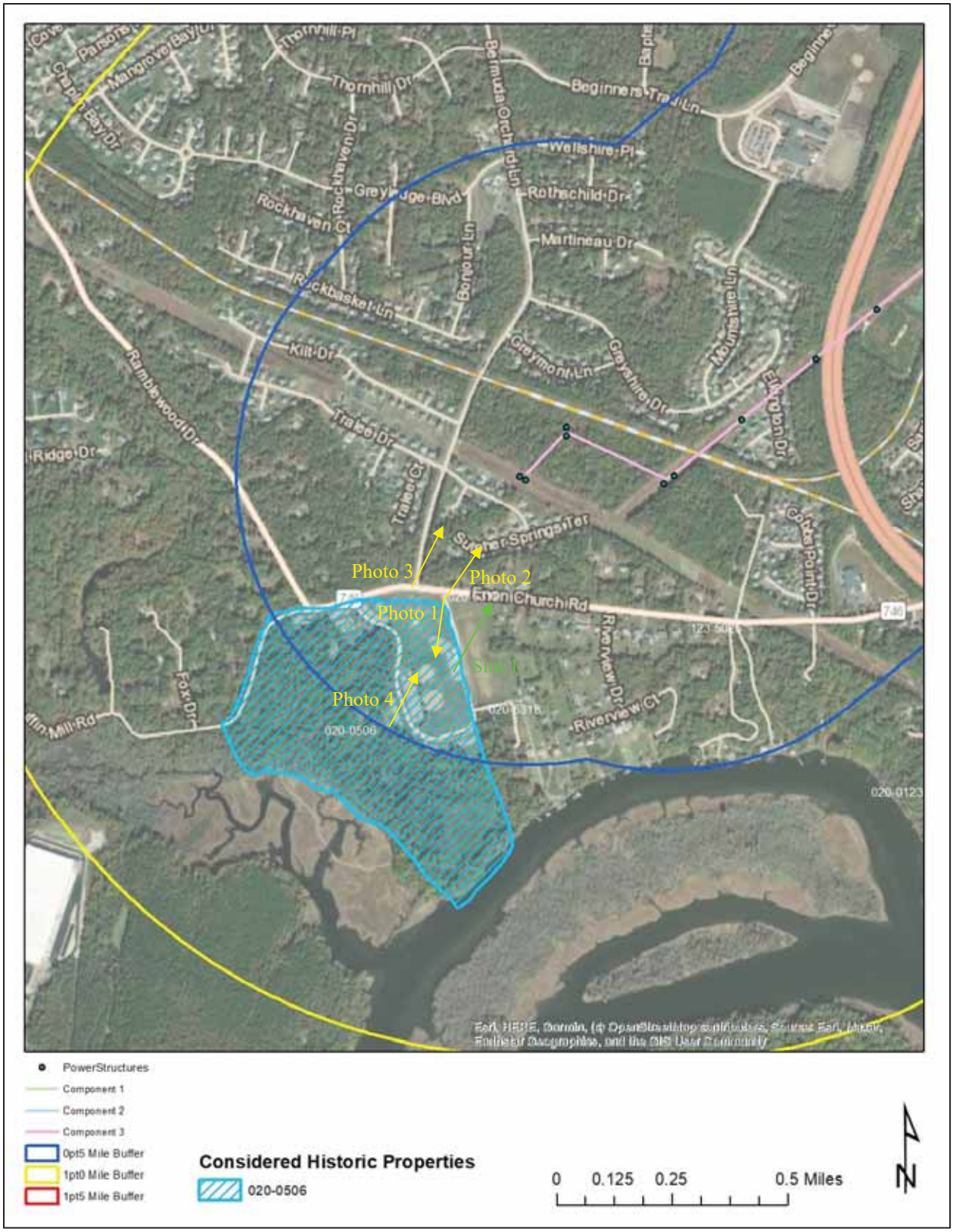

Figure 5-9: Enon Park Earthworks in relation to the project with location and direction of representative photographs shown in yellow and photo simulation shown in green.

Figure 5-10: View 1- View of entry to R. Garland Dodd Park from Enon Church Road, facing south.

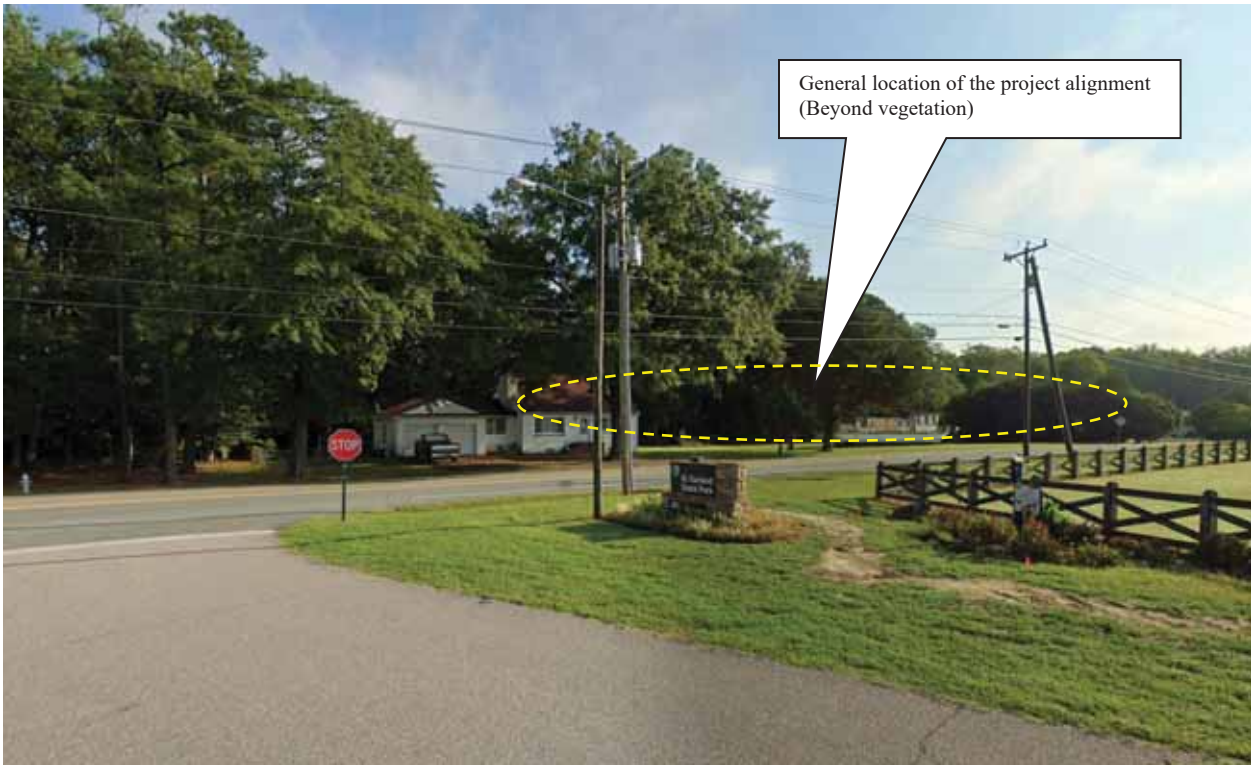

Figure 5-11: View 2- View from park entry along Enon Church Road towards the project, facing northeast. (No visibility of existing transmission line and no anticipated visibility of the project)

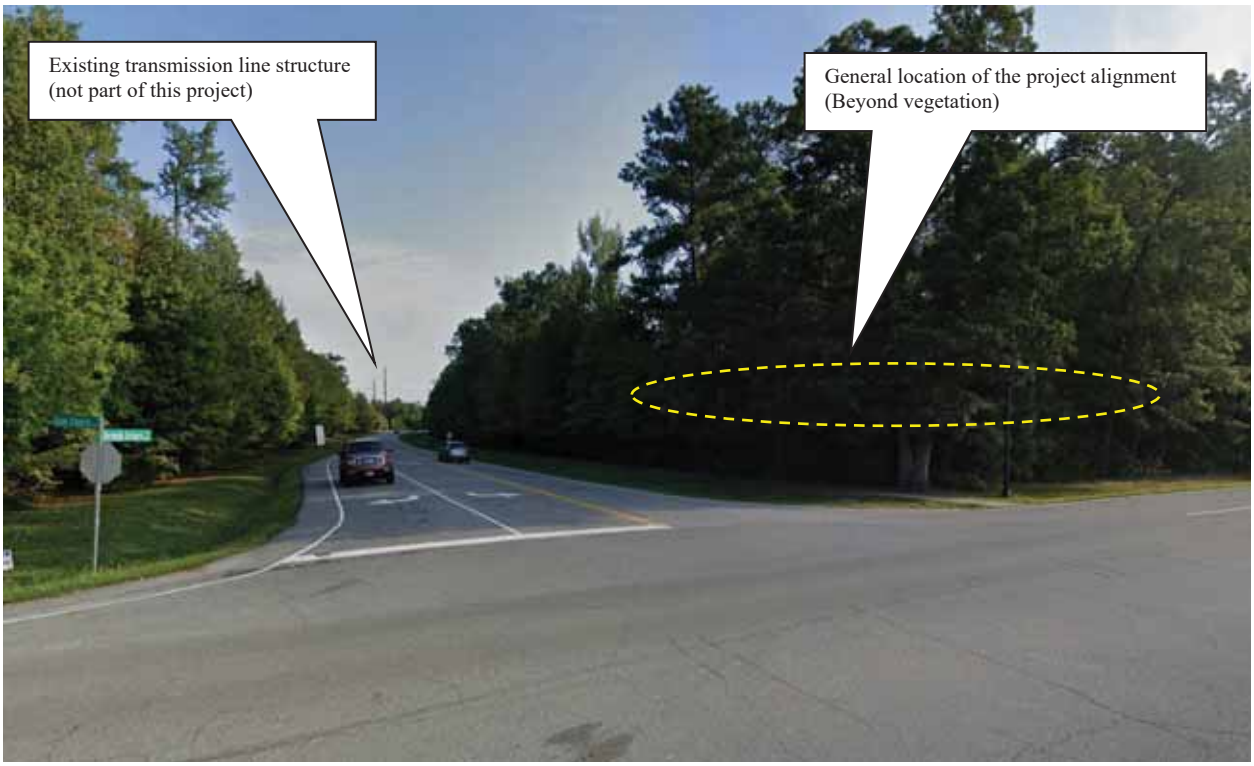

Figure 5-12: View 3- View up Bermuda Orchard Lane towards the project, facing northeast. (No visibility of existing transmission line and no anticipated visibility of the project)

Figure 5-13: View 4- View from playground area towards the project, facing northeast. (No visibility of existing transmission line and no anticipated visibility of the project)

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Figure 5-14: Simulation location 1 for Enon Park Earthworks – Existing view from parking lot (Existing transmission line is not visible). Source: Dominion

Figure 5-15: Simulation location 1 for Enon Park Earthworks – Proposed view from parking lot (No expected visibility of any structures – structure locations depicted in yellow). Source: Dominion

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VDHR# 020-5318: SWIFT CREEK BATTLEFIELD

The Battle of Swift Creek took place in 1864 as part of the Overland Campaign of the Civil War. In early May, Union General Benjamin Butler advanced toward Petersburg intending to destroy the railroad and bridges over Swift Creek. The effort was to no avail, however, as the Union forces withdrew to Bermuda Hundred after a day of skirmishing. A majority of the battlefield is situated in the eastern part of Chesterfield, although it extends into the northern portion of Colonial Heights. The battlefield contains monuments, interpretive markers, and period structures and its current uses are agricultural, residential, and industrial in nature. Portions of the battlefield, including the core of the battlefield along Route 1, have been subject to heavy modern development that has compromised its historic character. Although the historic landscape and character in portions of the battlefield have been compromised by modern development, large areas of the battlefield maintain a high level of integrity. The site is significant for its associations with notable events of the Civil War and as such, it is considered ***potentially eligible*** for listing in the NRHP by the VDHR.

As an ***NRHP-eligible*** battlefield located within the tiered study area around the project, an assessment of potential impacts was conducted. The Swift Creek battlefield occupies large landscape in eastern Chesterfield County focused on the Richmond-Petersburg Road crossing over Swift Creek. Although much of the battlefield, including the core area, is situated well to the south and west of the project, a portion of the northeastern edge of the battlefield boundaries are situated within one mile of Component 3 of the project that involves the rebuild of an existing transmission line. The nearest structure to be replaced as part of the project is roughly 0.06 mile away and five additional structures are located within one-half mile of the battlefield limits. Therefore, because no portion of the project ROW or other associated components are located within the limits of the

battlefield, the project will not directly impact the resource, and this assessment focused on indirect, visual impacts.

To assess potential indirect project impacts, a site visit was made to the portion of the battlefield located in proximity to the project to inspect the setting and viewshed with emphasis on views towards the project and associated improvements. As much of the battlefield landscape is comprised of private property, field inspection was conducted from public ROW and photographs were taken to document current conditions, lines of sight, and the extent of visibility of any existing transmission line infrastructure. Photo simulation was also conducted from representative vantage points to model the visibility of proposed replacement structures in relation to existing structures.

A site visit to the battlefield found that much of the landscape within the vicinity of the project is heavily fractured and has been subject to modern development that has compromised the historic setting. Much of the landscape is characterized by suburban single-family homes and neighborhoods with some light-industry and commercial areas and is crossed by modern infrastructure in form of roads, railroads, and other utilities.

Inspection from representative vantage points throughout the battlefield found that the existing transmission line and structures to be replaced as part of this project are generally screened from view from most locations due to the dense development patterns and existing vegetation in the area. The only locations where existing transmission structures to be replaced are visible are from the immediate vicinity when looking up and down the cleared ROW associated with #211 off of which the project alignment extends. From these areas, only the one structure within that cleared ROW is visible, while the rest of the project alignment and associated structures are screened by treelines bordering the corridor. The existing structures along the portion of transmission line to be rebuilt currently range from 75 feet to 120 feet in height and the replacement structures will range from 100 feet to 130 feet in height. Despite the increase in height, it is anticipated that the replacement structures will remain behind and beneath the level of the intervening vegetation.

Photo simulation of the project from multiple vantage points confirmed that visibility of the project would be limited to the tap point on the Line #211 corridor and consist of just one structure location, while all other associated replacement structures would remain screened by the intervening landscape.

Because the project improvements are not anticipated to be widely visible, and where they could be seen would not be taller or more visible than existing transmission line infrastructure, the project would not introduce any change in setting or viewshed from the battlefield which is already compromised by modern development. Therefore, it is D+A's opinion that the Meadowville 230kV Electric Transmission Project will pose ***minimal impact*** to the Swift Creek Battlefield per VDHR's impact characterization scale.

Figure 5-16 illustrates the location of the Swift Creek Battlefield in relation to the project and study buffers, with the location and direction of representative photographs and photo simulation. Representative photographs of and from the battlefield are provided in Figure 5-17 through Figure 5-20 and photo simulations are provided in Figure 5-21 through Figure 5-26.

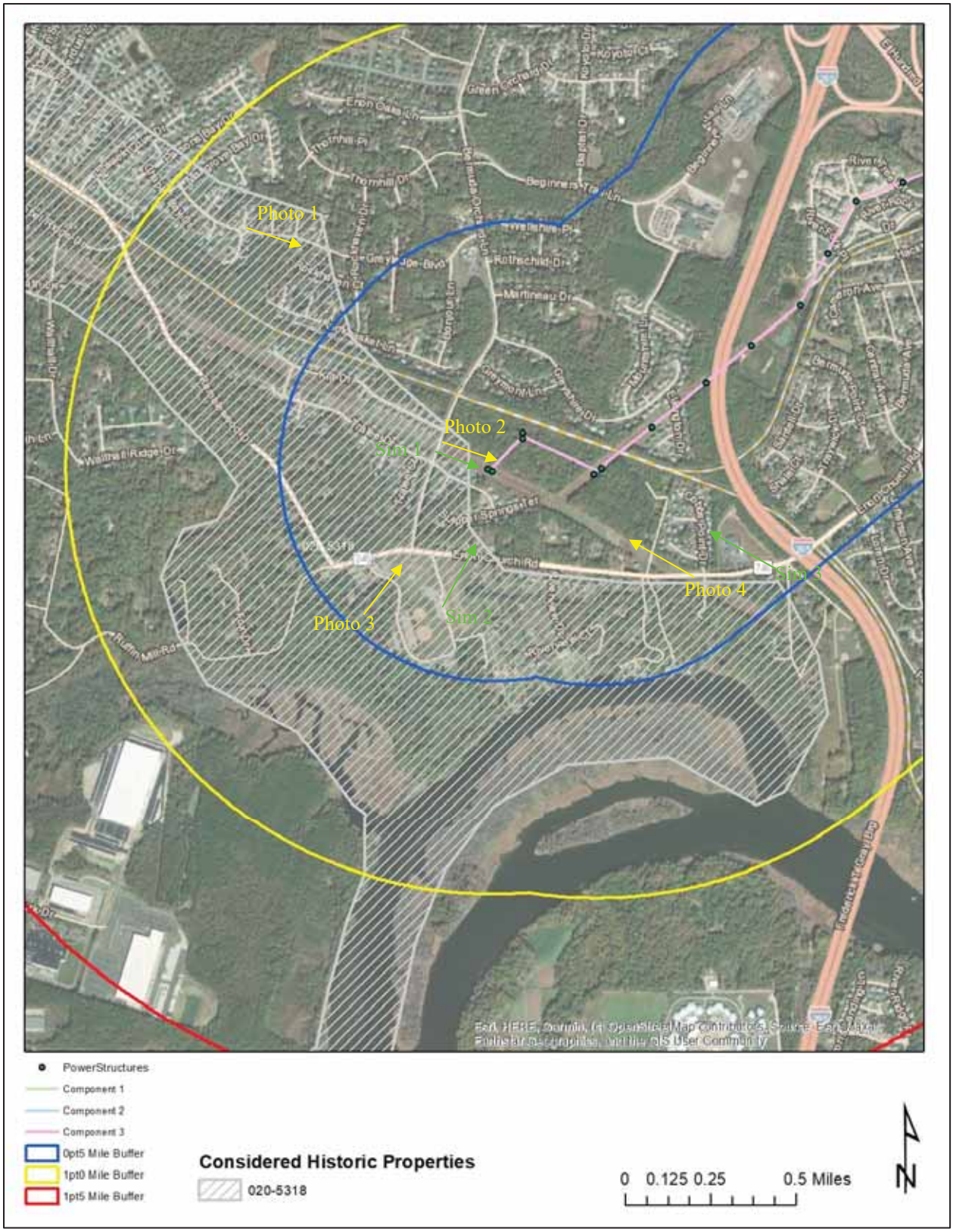

Figure 5-16: Location of Swift Creek Battlefield in relation to the project with location and direction of representative photographs shown in yellow and photo simulation shown in green.

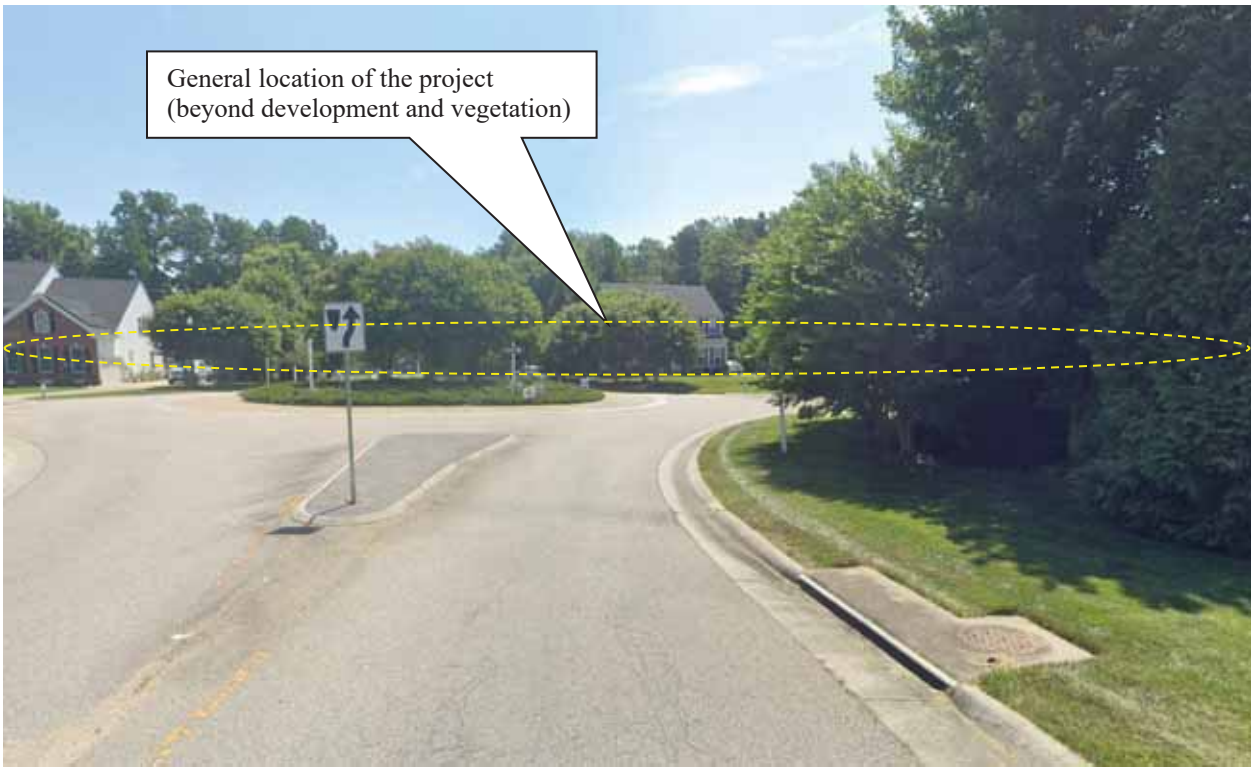

Figure 5-17: Photo location 1- View from Greyledge Boulevard towards the project, facing east. (No visibility of existing transmission line and no anticipated visibility of the project).

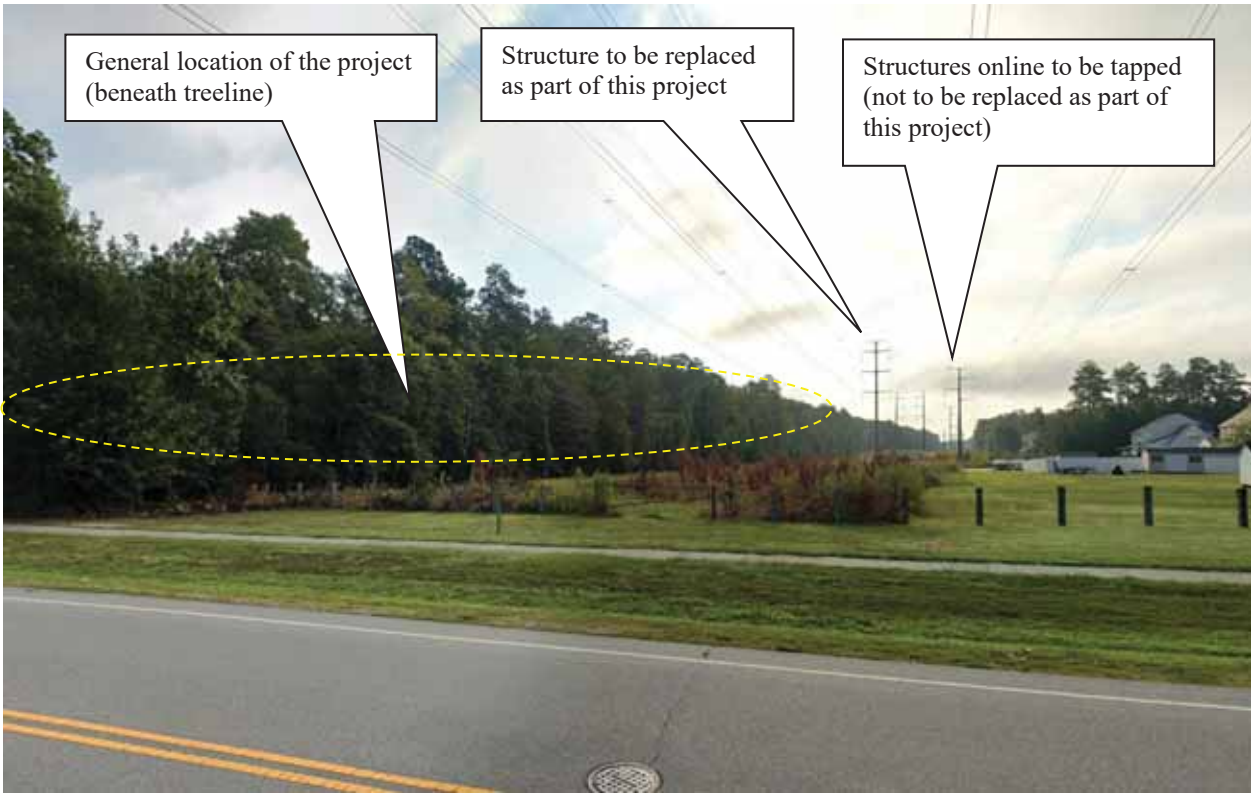

Figure 5-18: Photo location 2- View from Bermuda Orchard Lane towards the project, facing east. (Line #211 to be tapped as part of this project is visible but structures to be replaced are not visible)

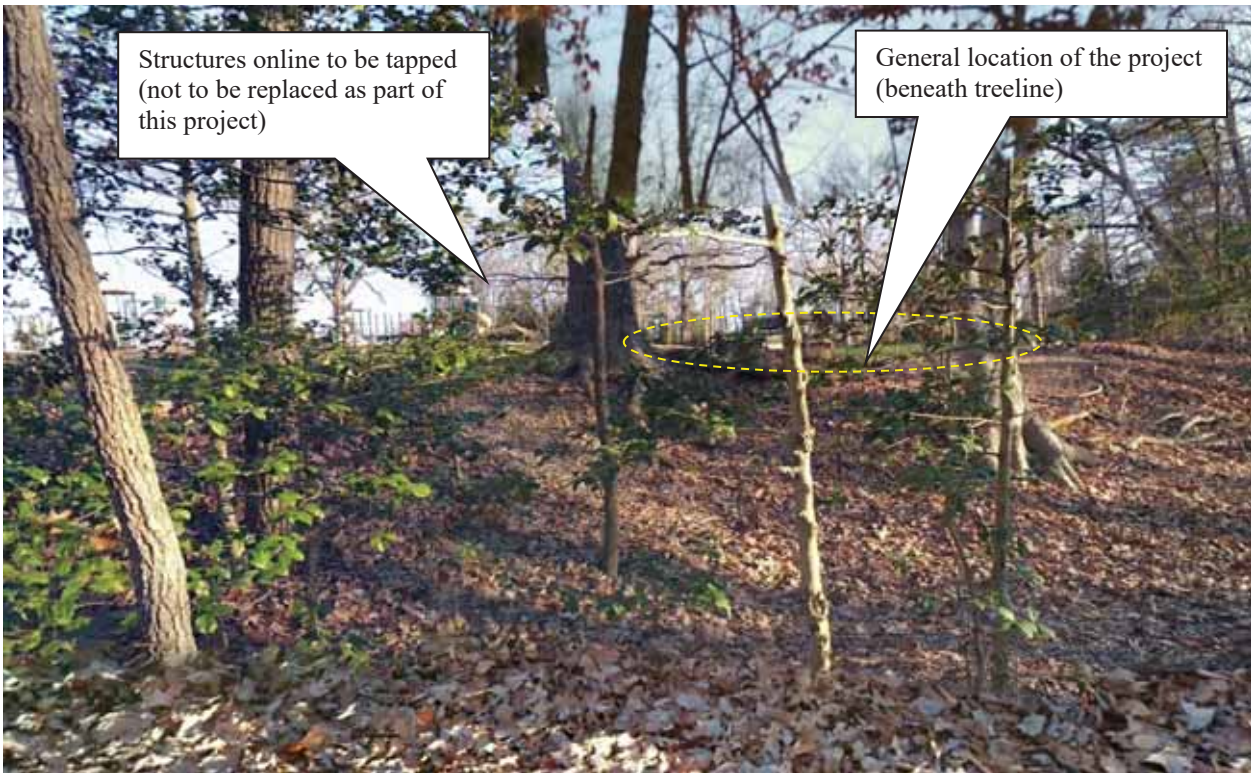

Figure 5-19: Photo location 3- View from Old Bermuda Hundred Road (No project structures visible), facing northwest.

Figure 5-20: Photo location 4- View from Enon Church Road towards the project, facing west. (Line #211 to be tapped as part of this project is visible but structures to be replaced are not visible)

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Figure 5-21: Simulation location 1 for Swift Creek Battlefield – Existing view from Bermuda Orchard Lane (One existing transmission structure to be replaced is visible). Source: Dominion

Figure 5-22: Simulation location 1 for Swift Creek Battlefield – Proposed view from Bermuda Orchard Lane (One group of proposed structures is visible; additional structure locations that are not visible are depicted in yellow). Source: Dominion

Figure 5-23: Simulation location 2 for Swift Creek Battlefield – Existing view from R Garland Dodd parking lot (Existing transmission line is not visible). Source: Dominion

Figure 5-24: Simulation location 2 for Swift Creek Battlefield – Existing view from R Garland Dodd parking lot (No expected visibility of any structures – structure locations depicted in yellow). Source: Dominion

Figure 5-25: Simulation location 3 for Swift Creek Battlefield – Existing view from Enon Church Road near Point of Rocks (Existing transmission line is not visible). Source: Dominion

Figure 5-26: Simulation location 3 for Swift Creek Battlefield – Existing view from Enon Church Road near Point of Rocks (No expected visibility of any structures – structure locations depicted in yellow). Source: Dominion

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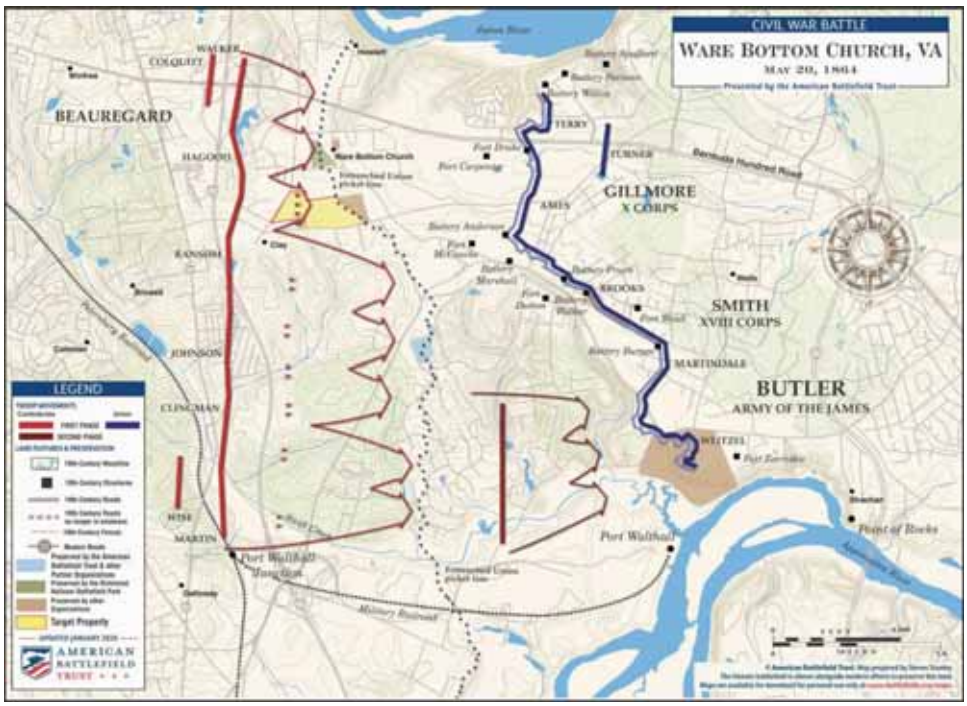
VDHR# 020-5319: WARE BOTTOM CHURCH BATTLEFIELD



The Battle of Ware Bottom Church was the final encounter between Confederate and Union troops in the Bermuda Hundred Campaign of the Civil War. In May 1863, Confederate troops led by General P.G.T. Beauregard attacked the Union Lines at Ware Bottom Church and established a defensive line known as the Howlett Line, which they occupied until April 1865. A majority of the battlefield is situated in the eastern part of Chesterfield County, although it extends into Henrico and Prince George counties as well as Colonial Heights. The battlefield contains interpretive markers, unearthed burials, archaeological sites, and remains of trenches/field fortifications. Its current uses are agricultural, residential, industrial, and commercial in nature. While some portions of the battlefield have been preserved as undeveloped open landscape or woods, large portions of the battlefield have been subject to heavy development that has compromised its historic character. The site is significant for its associations with notable events of the Civil War and as such, it is considered ***potentially eligible*** for listing in the NRHP by the VDHR.

As an ***NRHP-eligible*** battlefield located within the tiered study area around the project, an assessment of potential impacts was conducted. The Ware Bottom Church Battlefield occupies a large landscape in eastern Chesterfield County focused around the former location of Ware Bottom Church. Although much of the battlefield, including the core area, is situated well to the northwest of the project, a portion of the southeastern edge of the battlefield boundaries are directly crossed by a portion of Component 3 of the project that involves the rebuild of an existing transmission line. A total of seven (7) existing transmission structure locations spread across a roughly 1-mile length of ROW associated with this project are located directly within the delineated boundaries of the battlefield. Therefore, this assessment considered both direct and indirect, visual impacts.

To assess potential impacts, a site visit was made to the portion of the battlefield located in proximity to the project to inspect the setting and viewshed with emphasis on views towards the project and associated improvements. As much of the battlefield landscape is comprised of private property, field inspection was conducted from public ROW and photographs were taken to document current conditions, lines of sight, and the extent of visibility of any existing transmission line infrastructure. Photo simulation was also conducted from representative vantage points to model the visibility of proposed replacement structures in relation to existing structures.

A site visit to the battlefield found that much of the landscape within the vicinity of the project is heavily fractured and has been subject to modern development that has compromised the historic setting. Although several discrete battlefield features have been preserved as public parks, including earthworks within the R Garland Dodd Park, much of the landscape is characterized by suburban single-family homes and neighborhoods with some light-industry and commercial areas, and is crossed by modern infrastructure in form of roads, railroads, and other utilities.

With regards to direct impacts, the portion of the project located within the battlefield consists of the rebuild of an existing transmission line. As such, improvements will be located within existing, cleared ROW. Some, but not all of the project area has been subject to prior cultural resource survey, and one previously recorded archaeological site that post-dates the Civil War is located partially within the project ROW. A number of earthworks and other landscape features associated with Ware Bottom Church Battlefield are known to remain in the area, however, none are located within or in close proximity to the project. As such, the project will not directly impact any known sites or features associated with the battlefield.

With regards to indirect, visual impacts, inspection from representative vantage points throughout the battlefield found that the existing transmission line and structures to be replaced as part of this project are generally screened from view from most locations due to the dense development patterns and existing vegetation in the area, although several existing structures to be replaced are visible from locations in the immediate vicinity. Where visible, the existing structures are generally only seen up and down existing cleared ROWs or limited to partial views above treelines. The existing structures along the portion of transmission line to be rebuilt currently range from 75 feet to 120 feet in height and the replacement structures will range from 100 feet to 130 feet in height. With the increase in height, it is anticipated that there is the potential for limited additional visibility of replacement structures above treelines, however, views would remain limited to vantages in close proximity to the project where there is already visibility of transmission line and associated structures.

Photo simulation of the project from multiple vantage points confirmed that visibility of the project would be limited to discrete vantages and a limited number of structures. Where visible, the appearance and character of the transmission line would be generally similar to current views.

Because the project improvements are not anticipated to be widely visible, and where they could be seen, they would not be substantially taller or more visible than existing transmission line infrastructure, the project would not introduce any substantial change in setting or viewshed from the battlefield which is already compromised by modern development. Therefore, it is D+A's

opinion that the Meadowville 230kV Electric Transmission Project will pose no more than a ***minimal impact*** to the Ware Bottom Church Battlefield per VDHR's impact characterization scale.

Figure 5-27 illustrates the location of the Ware Bottom Church Battlefield in relation to the project and study buffers, with the location and direction of representative photographs and photo simulation. Representative photographs of and from the battlefield are provided in Figure 5-2828 through Figure 5-355 and photo simulations are provided in Figure 5-36 through Figure 5-4141.

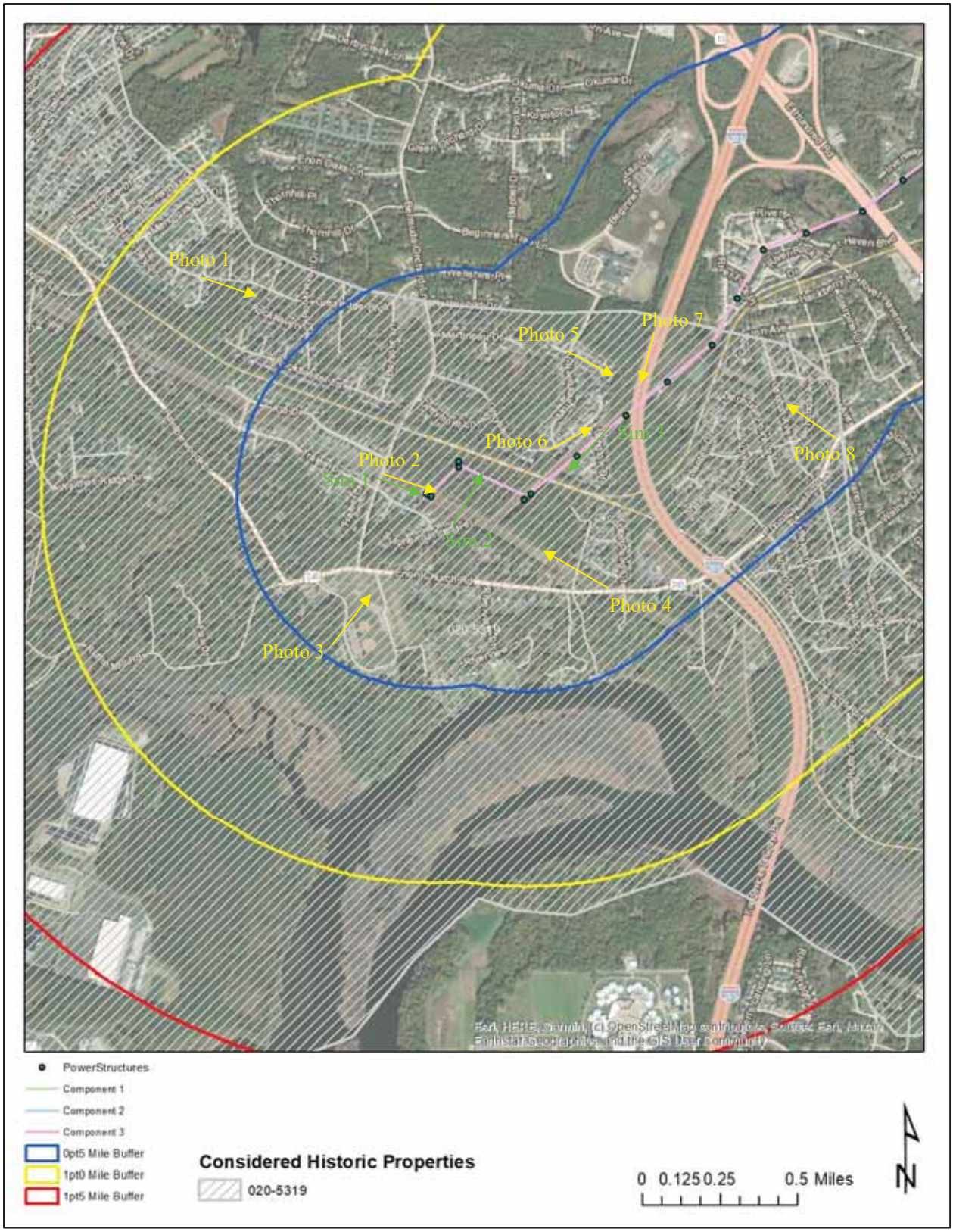


Figure 5-27: Location of Ware Bottom Church Battlefield in relation to the project with location and direction of representative photographs shown in yellow and photo simulation shown in green.

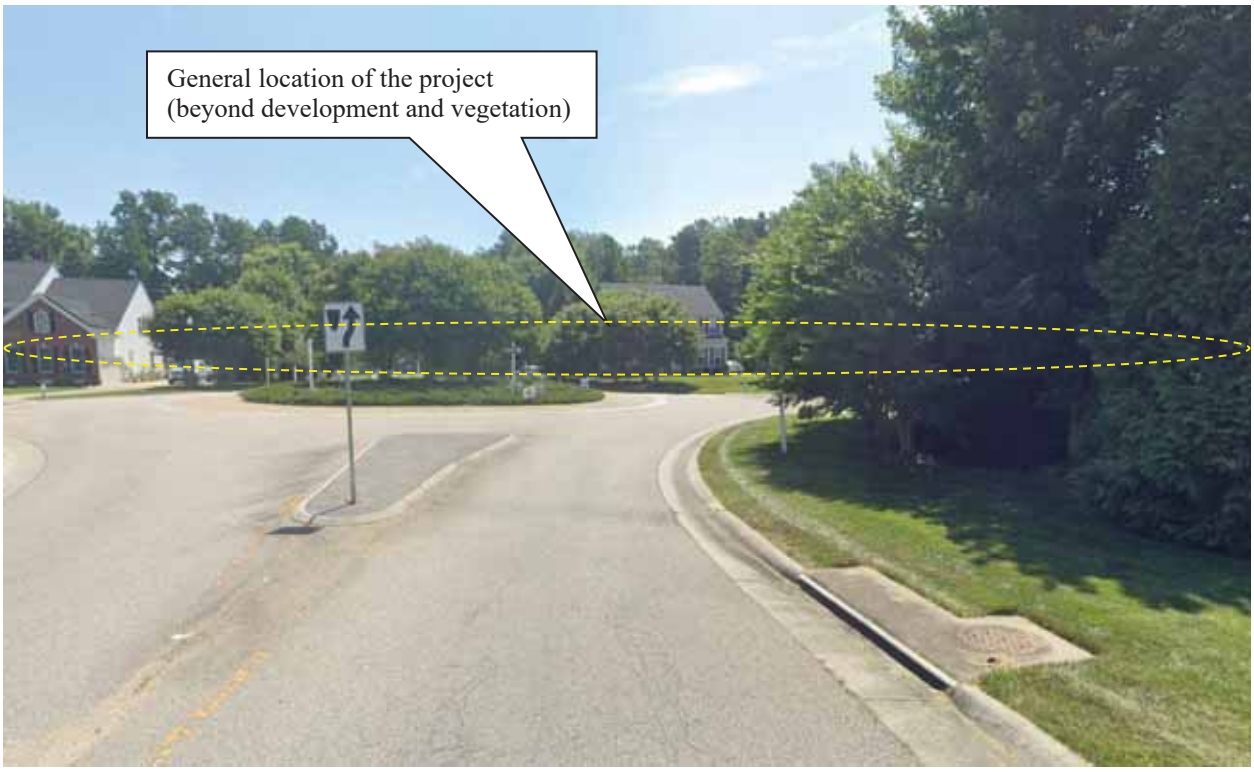


Figure 5-28: Photo location 1- View from Greyledge Boulevard towards the project, facing east. (No visibility of existing transmission line and no anticipated visibility of the project).

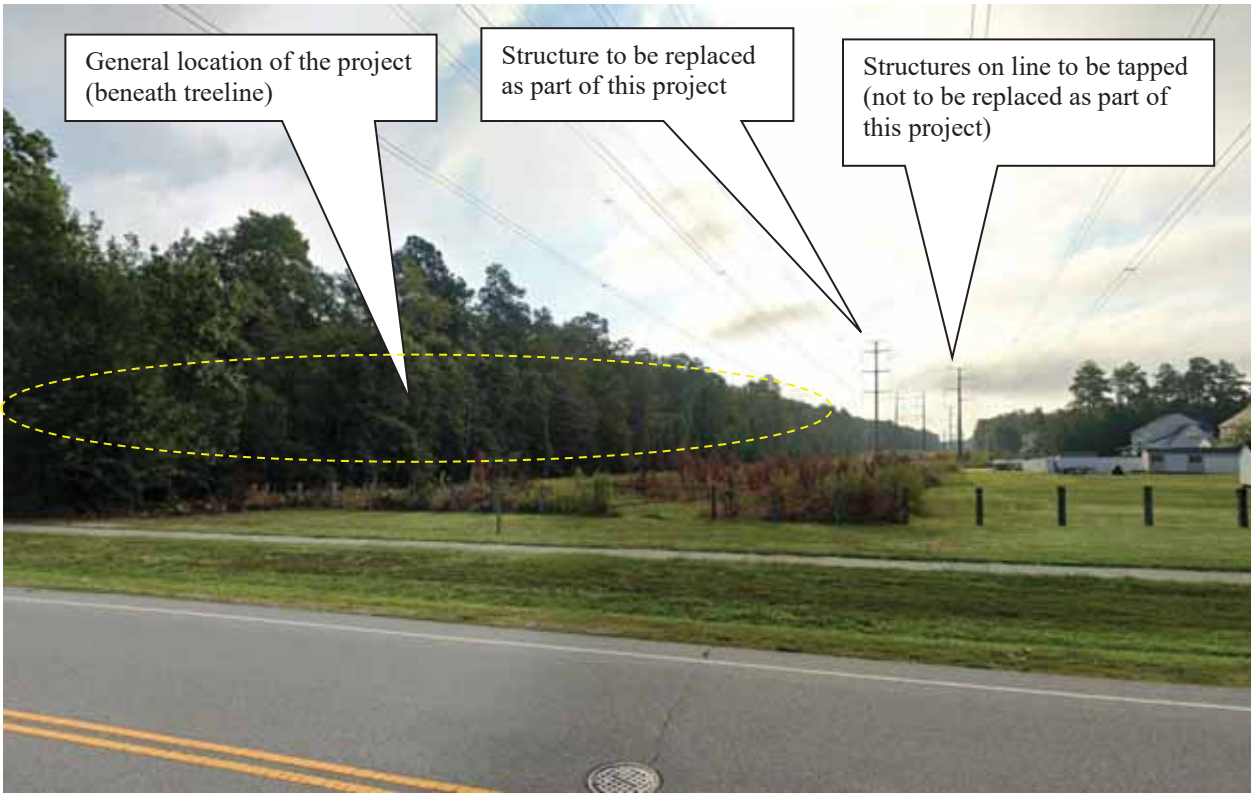


Figure 5-29: Photo location 2- View from Bermuda Orchard Lane towards the project, facing east. (Line #211 to be tapped as part of this project is visible but structures to be replaced are not visible)

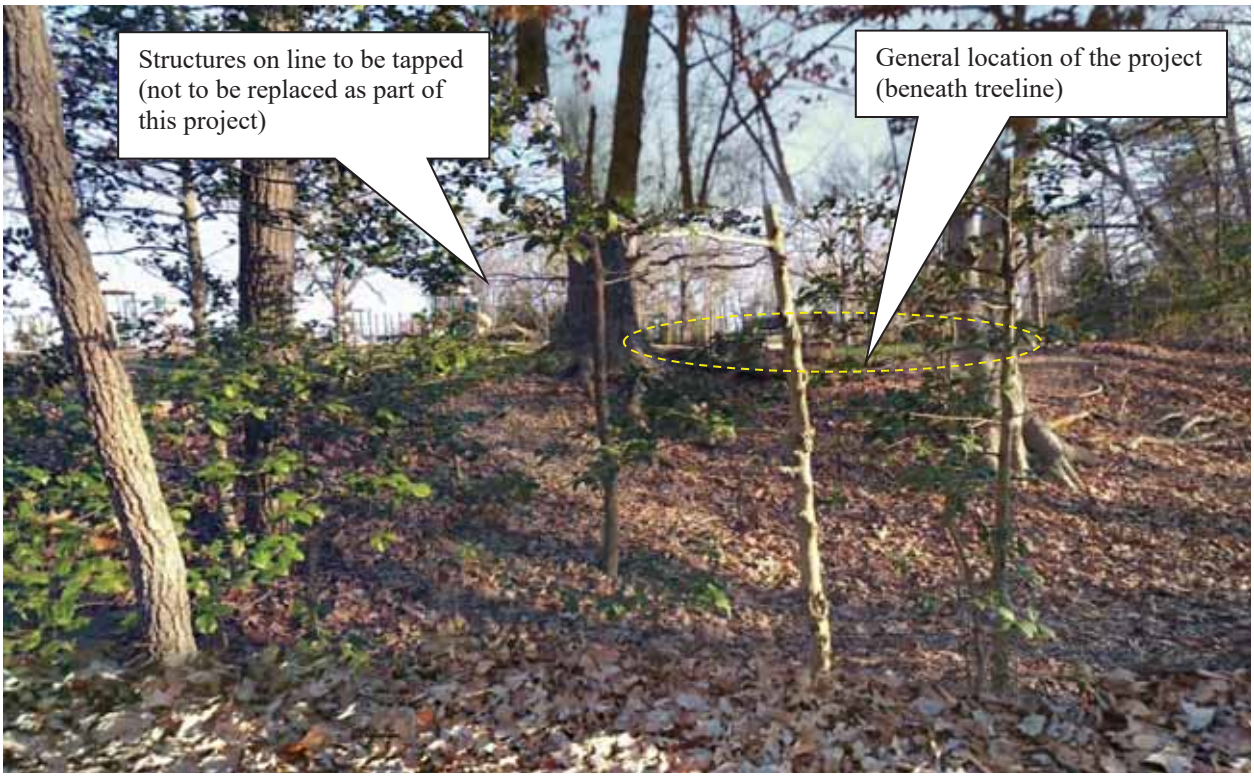


Figure 5-30: Photo location 3- View from Old Bermuda Hundred Road (No project structures visible), facing northwest.

Figure 5-31: Photo location 4- View from Enon Church Road towards the project, facing west. (Line #211 to be tapped as part of this project is visible but structures to be replaced are not visible)

Figure 5-32: Photo location 5- View from Mountshire Lane towards the project, facing east. (No visibility of existing transmission line but potential for limited visibility of the project above treeline)

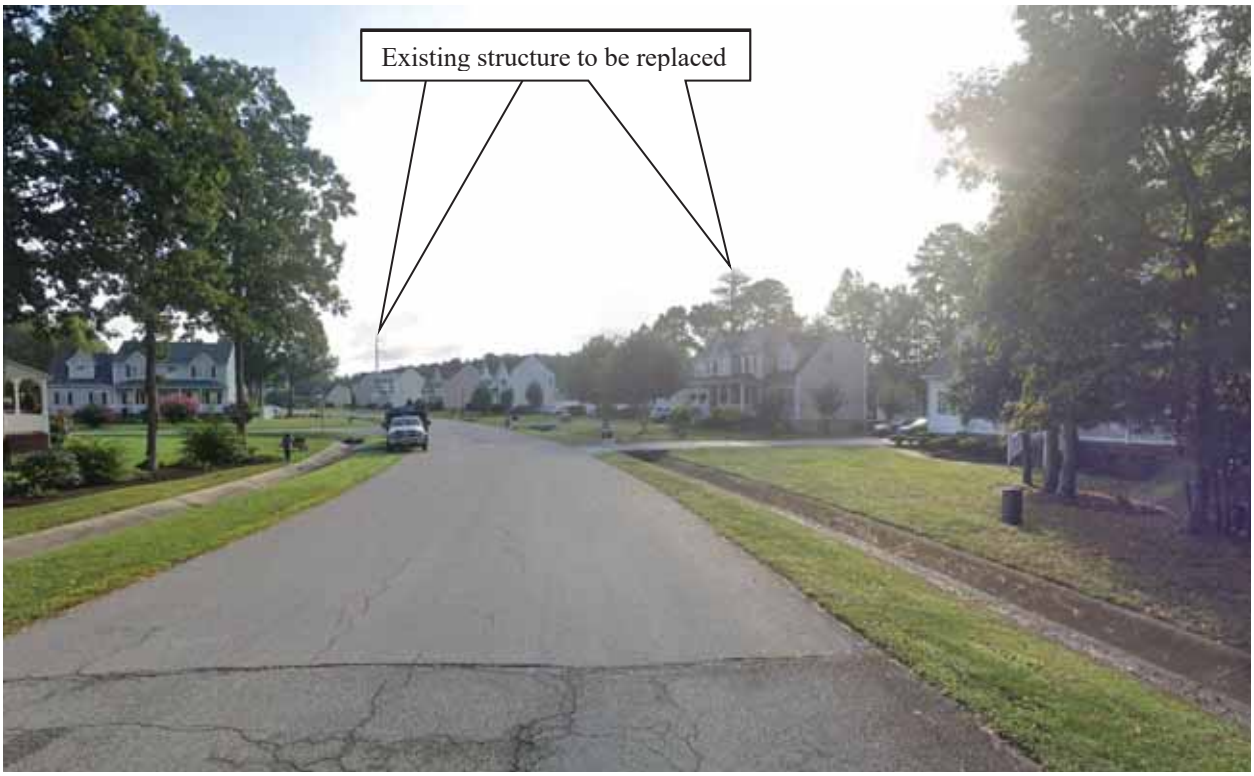


Figure 5-33: Photo location 6- View from Greyshire Drive towards the project, facing northeast. (Several existing transmission structures to be replaced are already visible)

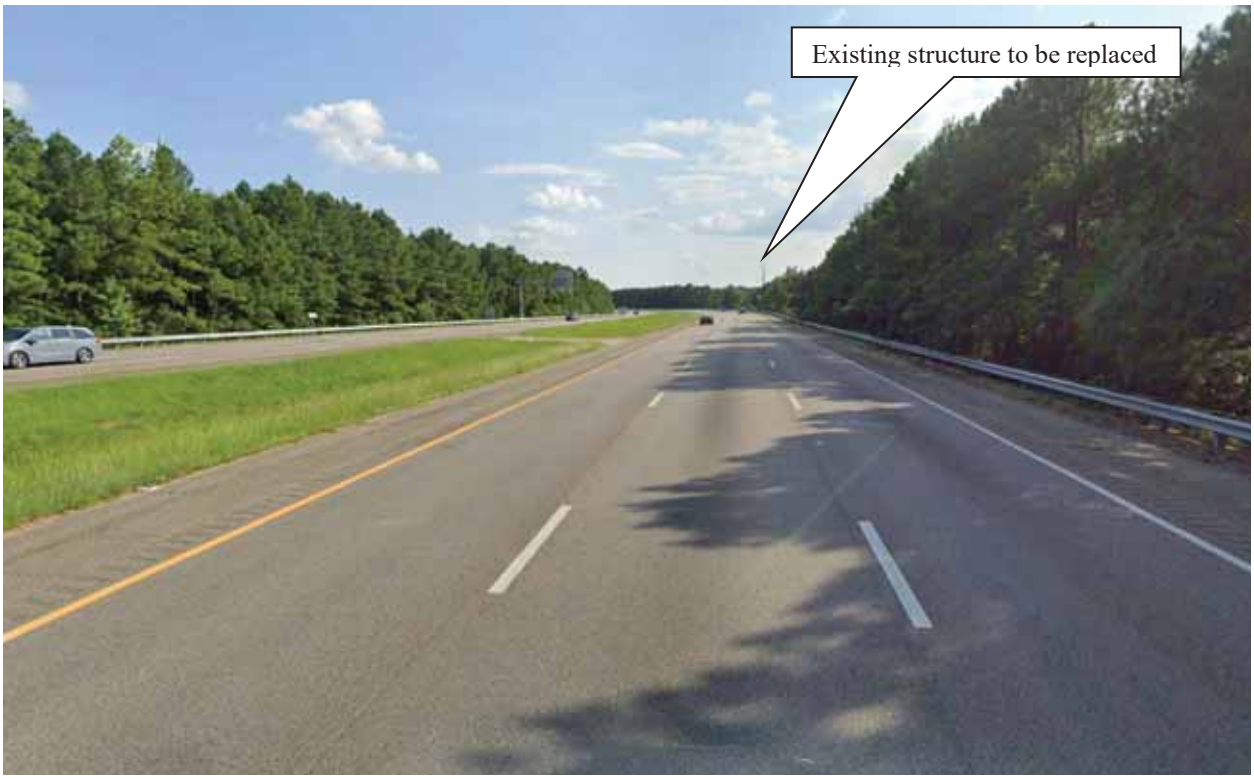


Figure 5-34: Photo location 7- View from I-295 towards the project, facing south. (One existing transmission structures to be replaced is visible and potential for one more to become visible above treeline)

Figure 5-35: Photo location 8- View from Enon Church Road towards the project, facing west. (No visibility of existing transmission line and no anticipated visibility of the project)

Figure 5-36: Simulation location 1 for Ware Bottom Church Battlefield – Existing view from Bermuda Orchard Lane (One existing transmission structure to be replaced is visible). Source: Dominion

Figure 5-37: Simulation location 1 for Ware Bottom Church Battlefield – Proposed view from Bermuda Orchard Lane (One group of proposed structures is visible; additional structure locations that are not visible are depicted in yellow). Source: Dominion

Figure 5-38: Simulation location 2 for Ware Bottom Church Battlefield – Existing view from Sulphur Springs Terrace (One existing transmission structure to be replaced is visible). Source: Dominion

Figure 5-39: Simulation location 2 for Ware Bottom Church Battlefield – Existing view from Sulphur Springs Terrace (One replacement structure cluster is visible; other structure locations not visible depicted in yellow). Source: Dominion

Figure 5-40: Simulation location 3 for Ware Bottom Church Battlefield – Existing view from Elkington Drive (Two existing transmission structures to be replaced are visible). Source: Dominion

Figure 5-41: Simulation location 3 for Ware Bottom Church Battlefield – Existing view from Elkington Drive (Two replacement structures are visible; other structure locations not visible depicted in yellow). Source: Dominion

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VDHR# 020-5371: DALES PALE ARCHAEOLOGICAL DISTRICT

The Dale's Pale Archaeological District is a collection of four Chesterfield County-owned archaeological sites, constituting a vitally important area in our nation's early history. The district's name alludes to one of those sites, the location of a defensive palisade built by Sir Thomas Dale in 1613 around the original settlement at Bermuda Hundred, which he founded. This berm-and-ditch feature is two miles in length, running between the high banks overlooking the James and Appomattox Rivers; it accords with Ralph Hamor's 1614 account of the palisade, also called a pale. The pale was periodically reused during the colonial period as a boundary ditch and is still used today as a property boundary in some areas. The other sites within the district include a Middle Woodland Period (500 BC– AD 200) settlement, and a late-17th- or early-18th-century house with its associated dump. Taken together, the Dale's Pale Archaeological District's sites present an extraordinarily rich collection of material with the potential to provide information about defense, community organization, and subsistence in some of the earliest periods of Virginia's history and as such, has been ***listed in the NRHP***.

As an ***NRHP-listed*** resource located within the tiered study area around the project, an assessment of potential impacts was conducted. The Dales Pale Archaeological District is located directly adjacent to the ROW associated with component 1 of the project at the nearest point. However, as the district boundaries are adjacent to the project, this assessment considered both direct and indirect impacts.

With regards to direct impacts, the alignment of project Component 1, which entails the construction of a new 230kV transmission line within new ROW skirts past the southern corner of the archaeological district boundaries. No associated archaeological sites are located within the portion of the district in nearest proximity to the project, and the nearest point of Dales Pale (Site 44CF0204) is located nearly 500 feet away. The map-projected alignment of Dales Pale does cross the project corridor further to the southeast, and outside of the district boundaries, however, this has not been ground-truthed or subject to survey for existing conditions. Also, beyond the district

boundaries, but in close proximity to the project are three other previously recorded archaeological sites, 44CF0849, 44CF0848, and 44CF0856, the first two of which have been determined not eligible for listing in the NRHP and the third that has not been formally evaluated. While there has been a variety of survey efforts conducted throughout the limits of the district and associated sites, the project ROW has not been subject to formal, comprehensive survey, and therefore the extent of potential impacts as unclear, but based upon existing survey data and the NRHP-listed boundaries, there will be no direct impact to the district.

With regards to indirect, visual impacts, setting and viewshed are not considered character-defining or key contributing aspects of the resource. As an archaeological district, significant for the research potential that the associated archaeological sites offer, the introduction of new features into the adjacent landscape would not diminish the research potential. Further, the district is not open to the public, so there would be no publicly accessible vantage point where views of the project could be expected from within the district.

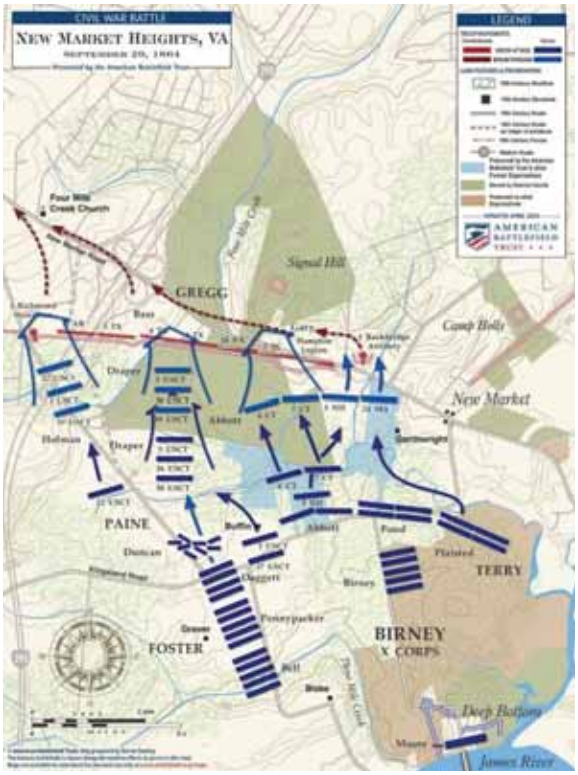
As such, the project is not anticipated to directly impact the archaeological district or diminish those qualities or characteristics that make the district eligible for listing in the NRHP. The project is also not anticipated to directly impact any sites or associated features considered contributing to the district, however, archaeological survey of the portion of the project ROW in proximity to the district is warranted to further assess potential impacts to other archaeological resources. It is therefore D+A's opinion that based upon available data, the Meadowville 230kV Electric Transmission Project will result in ***no impact*** to the Dales Pale Archaeological District, as listed in the NRHP, per VDHR's impact characterization scale.

Figure 5-42 illustrates the location of the Dales Pale Archaeological District in relation to the project and study buffers and Figure 5-43 illustrates the locations of associated archaeological sites in relation to the project. Because the district is not publicly accessible, no photography or photo simulation was conducted.

Figure 5-42: Dales Pale Archaeological District in relation to the project and study tier buffers.

Figure 5-43: Dales Pale Archaeological District and previously recorded archaeological sites in relation to the project component 1 alignment.

VDHR# 043-0307: NEW MARKET HEIGHTS/CHAFFINS FARM BATTLEFIELD



The Battle of New Market Heights and Chaffin's Farm took place from September 29-30, 1864, as part of the Richmond-Petersburg Campaign. Union forces succeeded in taking New Market Heights and Fort Harrison after a fight around Chaffin's Farm but were halted from further advance by Confederate counterattacks. The two armies were pushed into trench warfare that lasted the remainder of the war. The New Market Heights Battlefield extends across Henrico and Chesterfield counties and the City of Richmond in Virginia. It contains archaeological sites, trenches, historic roadbeds, monuments, interpretive markers, and a cemetery. New Market Heights Battlefield is significant on a national level under Criterion A for the role played by Black soldiers in the fight and the subsequent recognition of their gallantry with the award of 14 Medals of Honor. It is also significant under Criterion B for its association with Major General Butler along with a few other northern military leaders. As such, the battlefield is considered ***potentially eligible*** for listing in the NRHP by the VDHR.

As an ***NRHP-eligible*** battlefield located within the tiered study area around the project, an assessment of potential impacts was conducted. The New Markets Height Battlefield occupies a large landscape in eastern Henrico County focused on the intersection of New Market Road and Varina Road. Although much of the battlefield, including the core area, is situated well to the north and across the James River from the project, a small portion of the southern limits of the battlefield boundaries are situated within one mile of Component 2 of the project that involves the construction of new transmission line. The nearest portion of the new transmission line to be built as part of the project is roughly 1 mile away and this is limited to the northern terminus of the project. Therefore, because no portion of the project ROW or other associated components are located within the limits

of the battlefield, the project will not directly impact the resource and this assessment focused on indirect, visual impacts.

To assess potential indirect project impacts, a site visit was made to the portion of the battlefield located in proximity to the project to inspect the setting and viewshed with emphasis on views towards the project and associated improvements. As much of the battlefield landscape is comprised of private property, field inspection was conducted from public ROW and photographs were taken to document current conditions, lines of sight, and the extent of visibility of any existing transmission line infrastructure. Photo simulation was also conducted from representative vantage points to model the visibility of proposed replacement structures in relation to existing structures.

A site visit to the battlefield found that much of the landscape within the vicinity of the project is heavily fractured and has been subject to modern development that has compromised the historic setting. All of the portions of the battlefield within one mile of the project have been devolved into a residential neighborhood comprised of single-family homes set on a modern road network.

Inspection from representative vantage points throughout the battlefield found that views in the direction of the project are characterized by modern development and vegetation that screens distant views. The new structures to be built as part of component 2 of the project will range from 110 feet to 120 feet in height with an average height of 115 feet, and despite their height, it is anticipated that thy will remain screened by the intervening distance and landscape.

Photo simulation of the project from several vantage points closer to the project than the battlefield confirmed that all new transmission structures and associated features would remain screened behind intervening vegetation and no visibility of the project can be expected.

Because the project improvements will not be visible from any vantage points within or in the vicinity of the battlefield, the project will not introduce any change in setting or viewshed from the battlefield. Therefore, it is D+A's opinion that the Meadowville 230kV Electric Transmission Project will pose ***no impact*** to the New Market Heights/Chaffins Farm Battlefield per VDHR's impact characterization scale.

Figure 5-44 illustrates the location of the New Market Heights/Chaffins Farm Battlefield in relation to the project and study buffers, with the location and direction of representative photographs and photo simulation. Representative photographs of and from the battlefield are provided in Figure 5-45 and photo simulations are provided in Figure 5-46 through Figure 5-49.

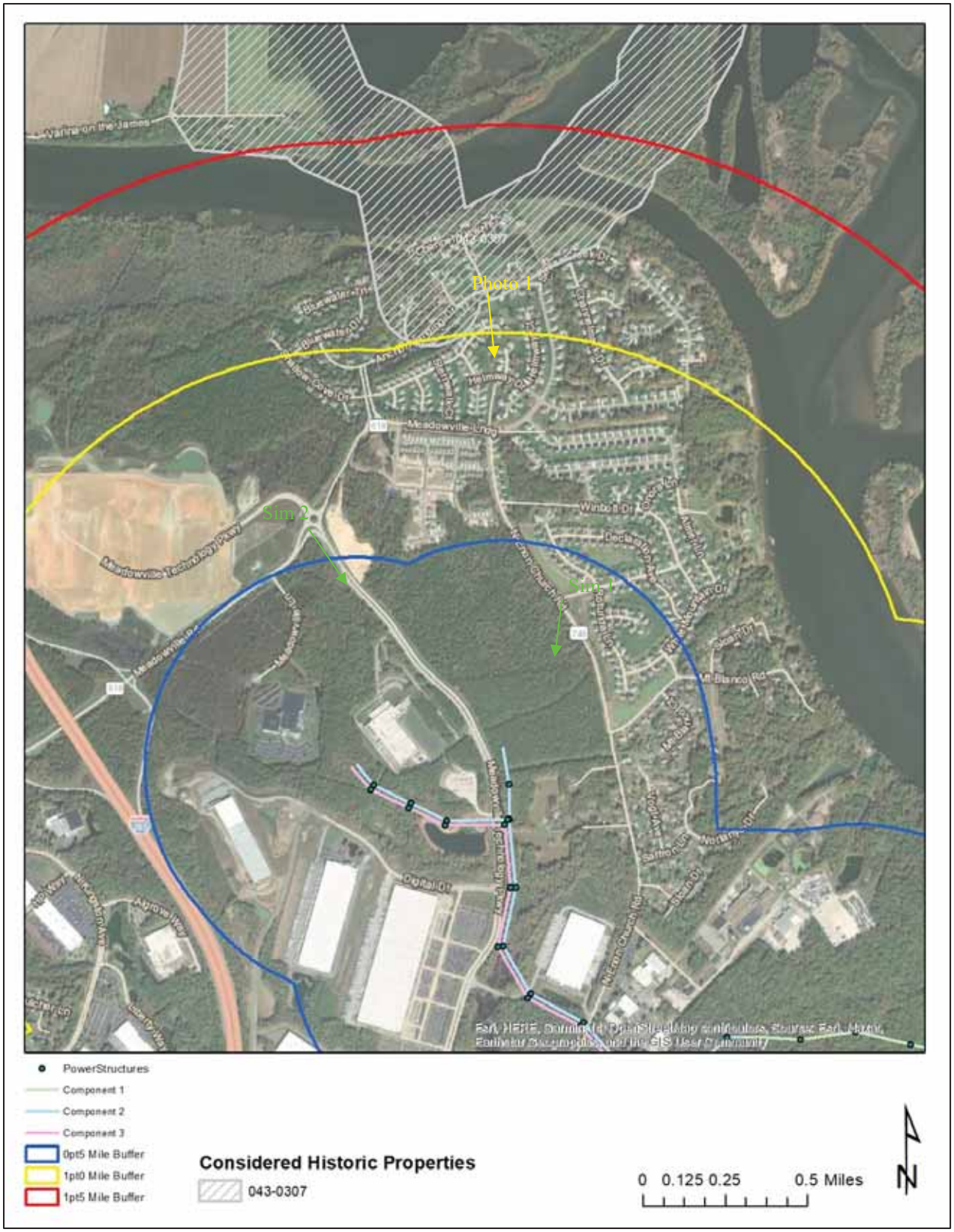


Figure 5-44: Location of New Market Heights/Chaffins Farm Battlefield in relation to the project with location and direction of representative photographs shown in yellow and photo simulation shown in green.

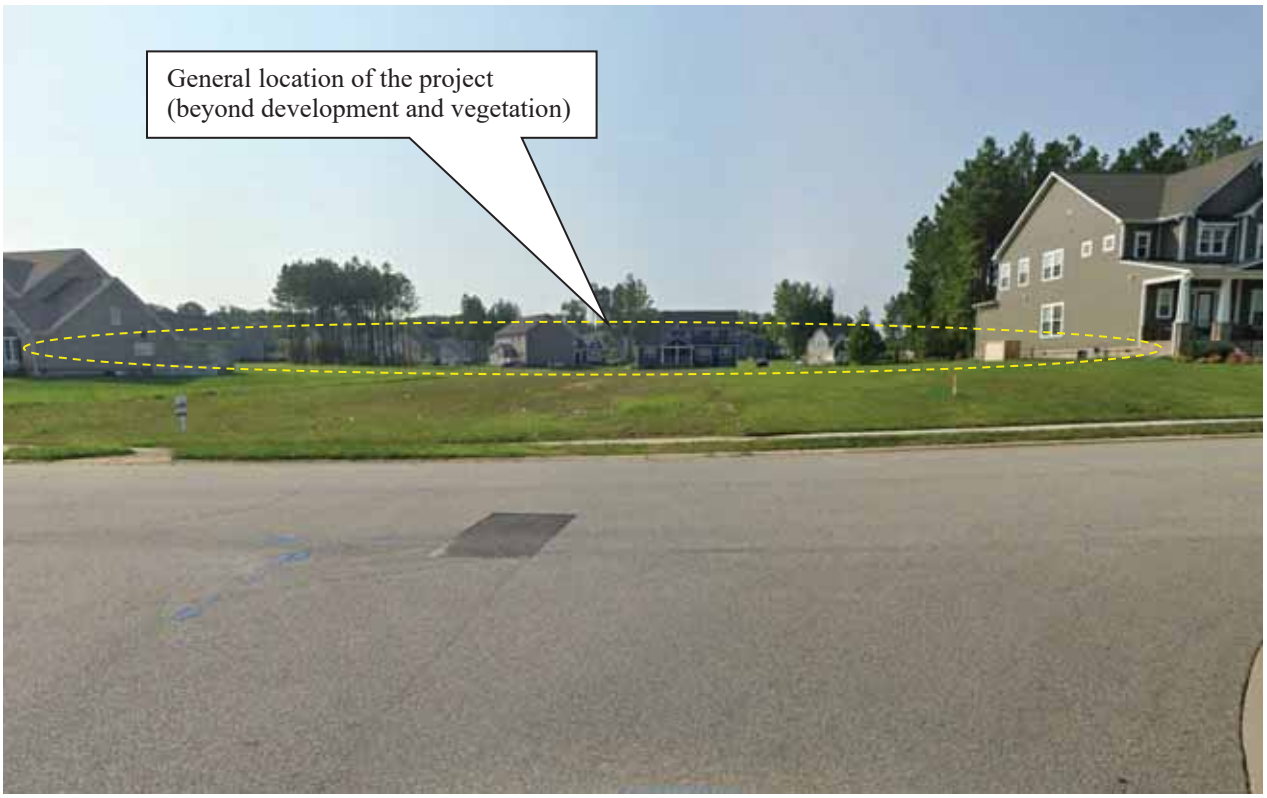


Figure 5-45: Photo location 1- View from Anchor Landing Drive towards the project, facing south. (No anticipated visibility of the project).

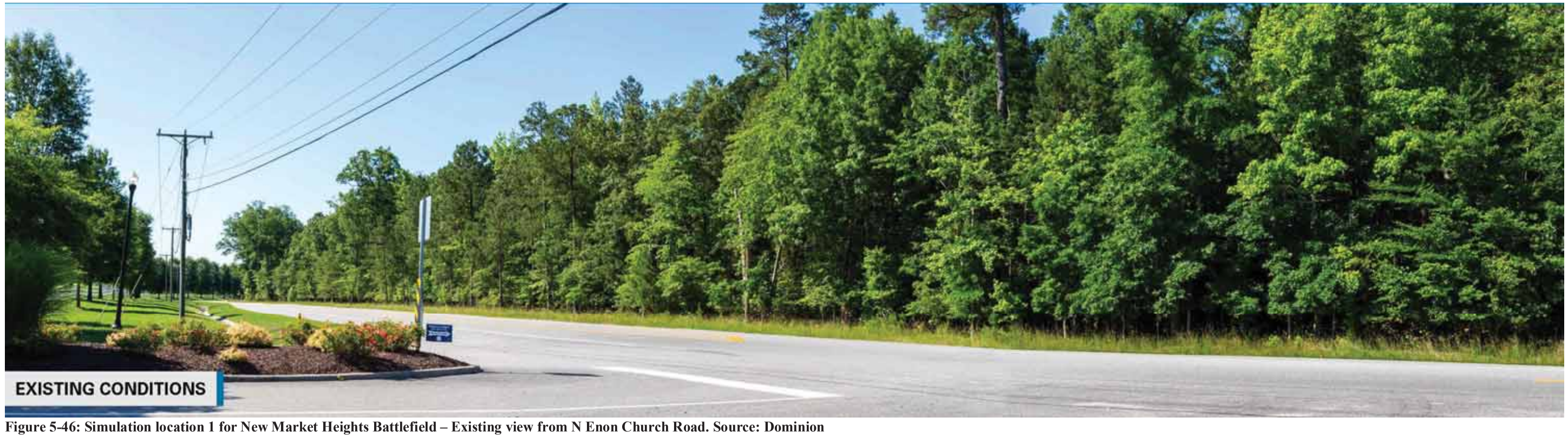


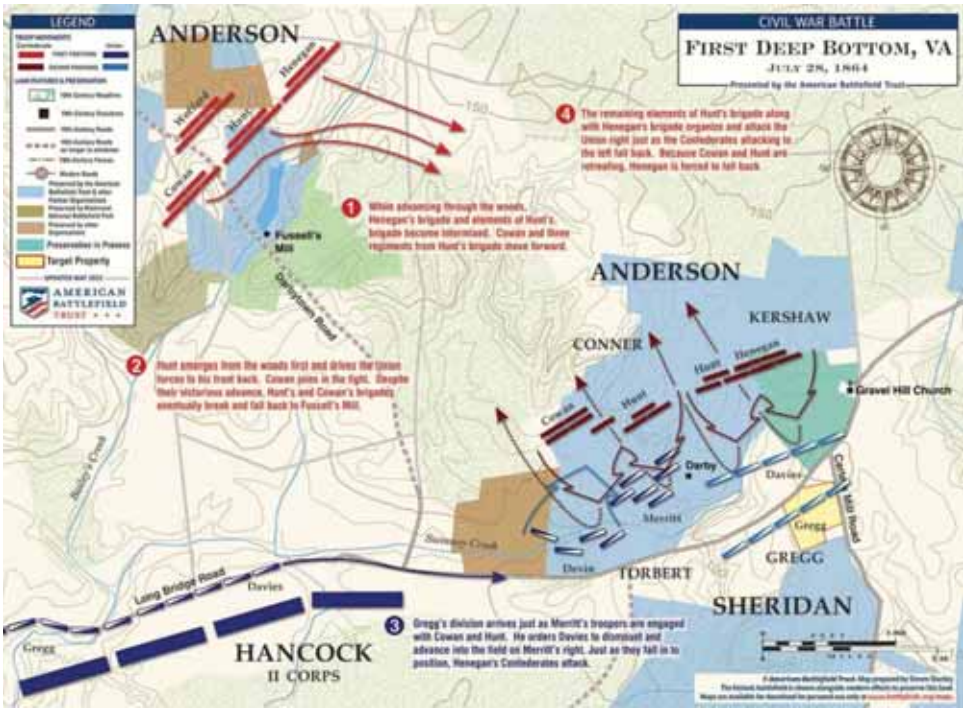
Figure 5-46: Simulation location 1 for New Market Heights Battlefield – Existing view from N Enon Church Road. Source: Dominion

Figure 5-47: Simulation location 1 for New Market Heights Battlefield – Existing view from N Enon Church Road (No expected visibility of any structures – structure locations depicted in yellow). Source: Dominion

Figure 5-48: Simulation location 2 for New Market Heights Battlefield – Existing view from Meadowville Road. Source: Dominion

Figure 5-49: Simulation location 2 for New Market Heights Battlefield – Existing view from Meadowville Road (No expected visibility of any structures – structure locations depicted in yellow). Source: Dominion

VDHR# 043-5074: FIRST DEEP BOTTOM BATTLEFIELD



The First Battle of Deep Bottom, also known as Darbytown, Strawberry Plains, New Market Road, or Gravel Hill, was fought July 27–29, 1864, at Deep Bottom in Henrico County, Virginia, as part of the Siege of Petersburg of the American Civil War. A Union force under Maj. Gens. Winfield S. Hancock and Philip H. Sheridan was sent on an expedition threatening Richmond, Virginia, and its railroads, intending to attract Confederate troops away from the Petersburg defensive line, in anticipation of the upcoming Battle of the Crater. The Union infantry and cavalry force was unable to break through the Confederate fortifications at Bailey's Creek and Fussell's Mill and was withdrawn, but it achieved its desired effect of momentarily reducing Confederate strength at Petersburg. The site is significant for its associations with notable events of the Civil War and as such, it is considered ***potentially eligible*** for listing in the NRHP by the VDHR.

As an ***NRHP-eligible*** battlefield located within the tiered study area around the project, an assessment of potential impacts was conducted. The First Deep Bottom Battlefield occupies a large landscape in eastern Henrico County focused on the intersection of New Market Road and Darbytown Road. Although much of the battlefield, including the core area, is situated well to the north and across the James River from the project, a small portion of the southern limits of the battlefield boundaries are situated within one mile of Component 2 of the project that involves the construction of new transmission line. The nearest portion of the new transmission line to be built as part of the project is roughly 0.32 mile away and this is limited to northern terminus of the project. Therefore, because no portion of the project ROW or other associated components are located within the limits of the battlefield, the project will not directly impact the resource and this assessment focused on indirect, visual impacts.

To assess potential indirect project impacts, a site visit was made to the portion of the battlefield located in proximity to the project to inspect the setting and viewshed with emphasis on views

towards the project and associated improvements. As much of the battlefield landscape is comprised of private property, field inspection was conducted from public ROW and photographs were taken to document current conditions, lines of sight, and the extent of visibility of any existing transmission line infrastructure. Photo simulation was also conducted from representative vantage points to model the visibility of proposed replacement structures in relation to existing structures.

A site visit to the battlefield found that much of the landscape within the vicinity of the project is heavily fractured and has been subject to modern development that has compromised the historic setting. All of the portions of the battlefield within one mile of the project have been devolved into a residential neighborhood comprised of single-family homes set on a modern road network.

Inspection from representative vantage points throughout the battlefield found that views in the direction of the project are characterized by modern development and vegetation that screens distant views. The new structures to be built as part of component 2 of the project will range from 110 feet to 120 feet in height with an average height of 115 feet, and despite their height, it is anticipated that thy will remain screened by the intervening distance and landscape.

Photo simulation of the project from several vantage points closer to the project than the battlefield confirmed that all new transmission structures and associated features would remain screened behind intervening vegetation and no visibility of the project can be expected.

Because the project improvements will not be visible from any vantage points within or in the vicinity of the battlefield, the project will not introduce any change in setting or viewshed from the battlefield. Therefore, it is D+A's opinion that the Meadowville 230kV Electric Transmission Project will pose ***no impact*** to the First Deep Bottom Battlefield per VDHR's impact characterization scale.

Figure 5-50 illustrates the location of the First Deep Bottom Battlefield in relation to the project and study buffers, with the location and direction of representative photographs and photo simulation. Representative photographs of and from the battlefield are provided in Figure 5-5151 and Figure 5-52 and photo simulations are provided in Figure 5-53 through Figure 5-54.

Figure 5-50: Location of First Deep Bottom Battlefield in relation to the project with location and direction of representative photographs shown in yellow and photo simulation shown in green.

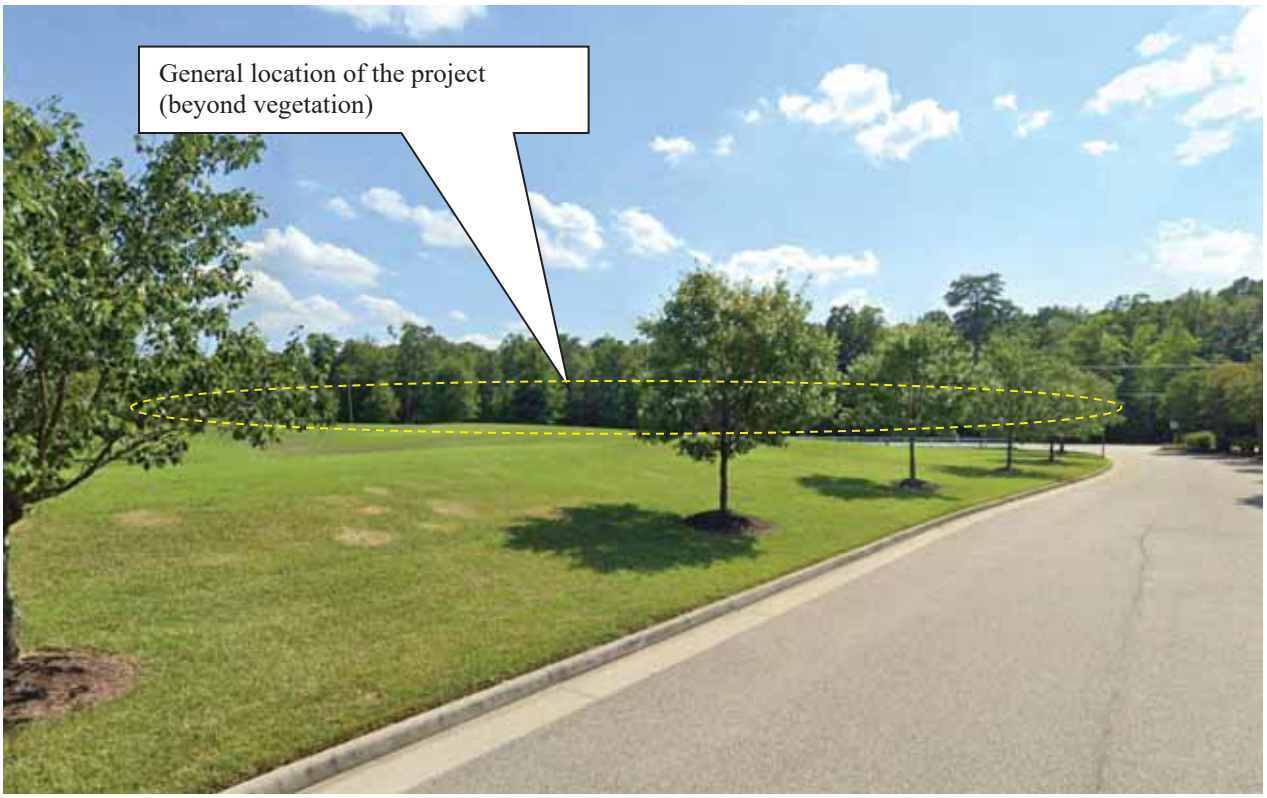


Figure 5-51: Photo location 1- View from North White Mountain Drive towards the project, facing southwest. (No anticipated visibility of the project).

Figure 5-52: Photo location 2- View from Meadowville Road towards the project, facing southwest. (No anticipated visibility of the project).

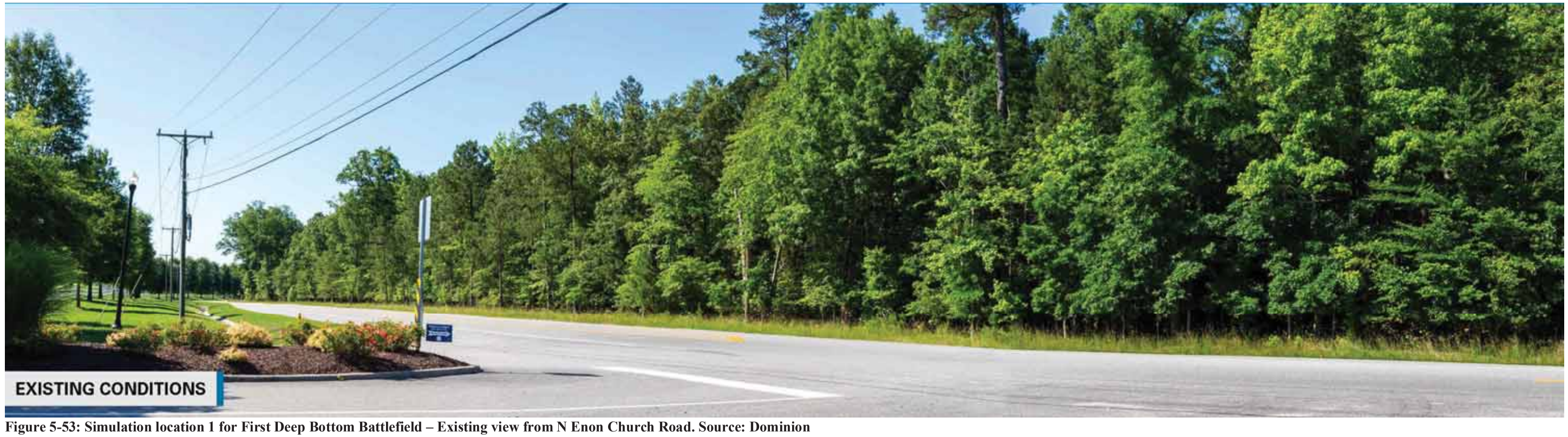


Figure 5-53: Simulation location 1 for First Deep Bottom Battlefield – Existing view from N Enon Church Road. Source: Dominion

Figure 5-54: Simulation location 1 for First Deep Bottom Battlefield (No expected visibility of any structures – structure locations depicted in yellow). Source: Dominion

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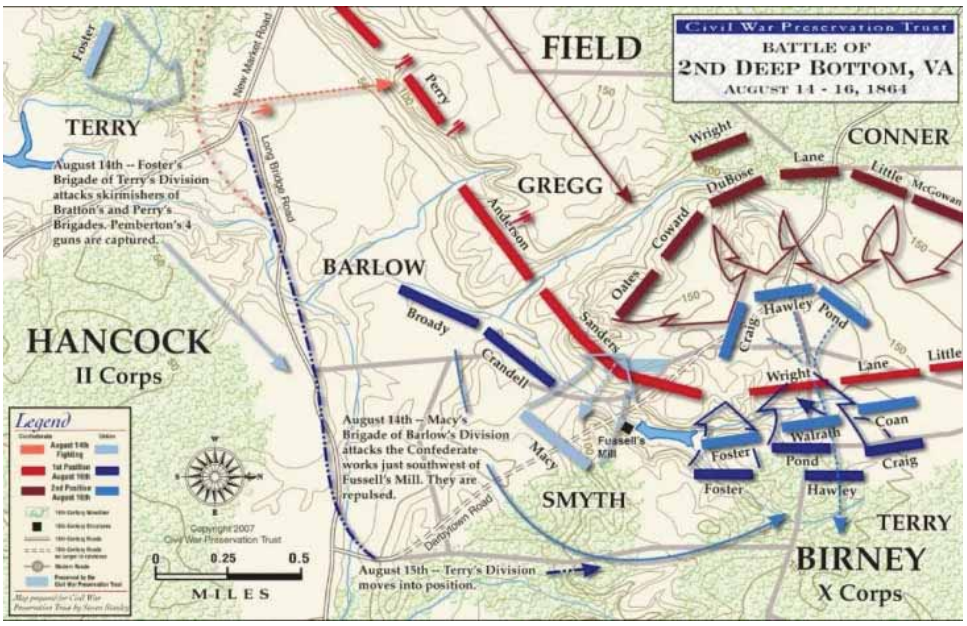
VDHR# 043-5080: SECOND DEEP BOTTOM BATTLEFIELD



The Second Battle of Deep Bottom, also known as Fussell's Mill (particularly in the South), New Market Road, Bailey's Creek, Charles City Road, or White's Tavern, was fought August 14–20, 1864, at Deep Bottom in Henrico County, Virginia, during the Richmond-Petersburg Campaign (Siege of Petersburg) of the American Civil War. After days of indecisive skirmishing, the Federals returned to the south side of the James on the night of August 20. The Confederates achieved their objective of driving back the Union threat, but at a cost of diluting their forces, the result the Union wanted. The site is significant for its associations with notable events of the Civil War and as such, it is considered ***potentially eligible*** for listing in the NRHP by the VDHR.

As an ***NRHP-eligible*** battlefield located within the tiered study area around the project, an assessment of potential impacts was conducted. The Second Deep Bottom Battlefield occupies a large landscape in eastern Henrico County focused along Darbytown Road east of New Market Road. Although much of the battlefield, including the core area, is situated well to the north and across the James River from the project, a small portion of the southern limits of the battlefield boundaries are situated within one mile of Component 2 of the project that involves the construction of new transmission line. The nearest portion of the new transmission line to be built as part of the project is roughly 0.3 mile away and this is limited to northern terminus of the project. Therefore, because no portion of the project ROW or other associated components are located within the limits of the battlefield, the project will not directly impact the resource and this assessment focused on indirect, visual impacts.

To assess potential indirect project impacts, a site visit was made to the portion of the battlefield located in proximity to the project to inspect the setting and viewshed with emphasis on views towards the project and associated improvements. As much of the battlefield landscape is comprised of private property, field inspection was conducted from public ROW and photographs were taken to document current conditions, lines of sight, and the extent of visibility of any existing

transmission line infrastructure. Photo simulation was also conducted from representative vantage points to model the visibility of proposed replacement structures in relation to existing structures.

A site visit to the battlefield found that much of the landscape within the vicinity of the project is heavily fractured and has been subject to modern development that has compromised the historic setting. All of the portions of the battlefield within one mile of the project have been devolved into a residential neighborhood comprised of single-family homes set on a modern road network.

Inspection from representative vantage points throughout the battlefield found that views in the direction of the project are characterized by modern development and vegetation that screens distant views. The new structures to be built as part of Component 2 of the project will range from 110 feet to 120 feet in height with an average height of 115 feet, and despite their height, it is anticipated that thy will remain screened by the intervening distance and landscape.

Photo simulation of the project from several vantage points closer to the project than the battlefield confirmed that all new transmission structures and associated features would remain screened behind intervening vegetation and no visibility of the project can be expected.

Because the project improvements will not be visible from any vantage points within or in the vicinity of the battlefield, the project will not introduce any change in setting or viewshed from the battlefield. Therefore, it is D+A's opinion that the Meadowville 230kV Electric Transmission Project will pose ***no impact*** to the Second Deep Bottom Battlefield per VDHR's impact characterization scale.

Figure 5-55 illustrates the location of the Second Deep Bottom Battlefield in relation to the project and study buffers, with the location and direction of representative photographs and photo simulation. Representative photographs of and from the battlefield are provided in Figure 5-56 and Figure 5-57 and photo simulations are provided in Figure 5-58 and Figure 5-59.

Figure 5-55: Location of Second Deep Bottom Battlefield in relation to the project with location and direction of representative photographs shown in yellow and photo simulation shown in green.

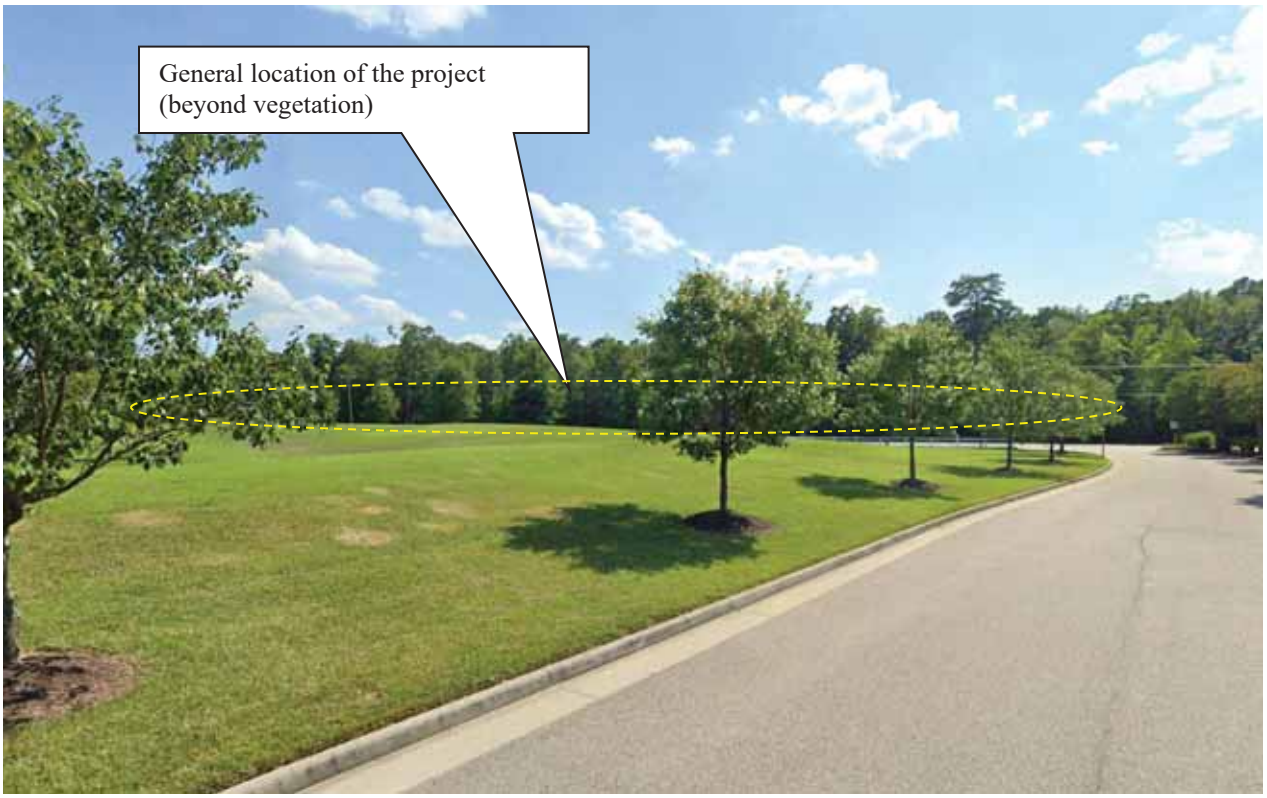


Figure 5-56: Photo location 1- View from North White Mountain Drive towards the project, facing southwest. (No anticipated visibility of the project).

Figure 5-57: Photo location 2- View from Meadowville Road towards the project, facing southwest. (No anticipated visibility of the project).

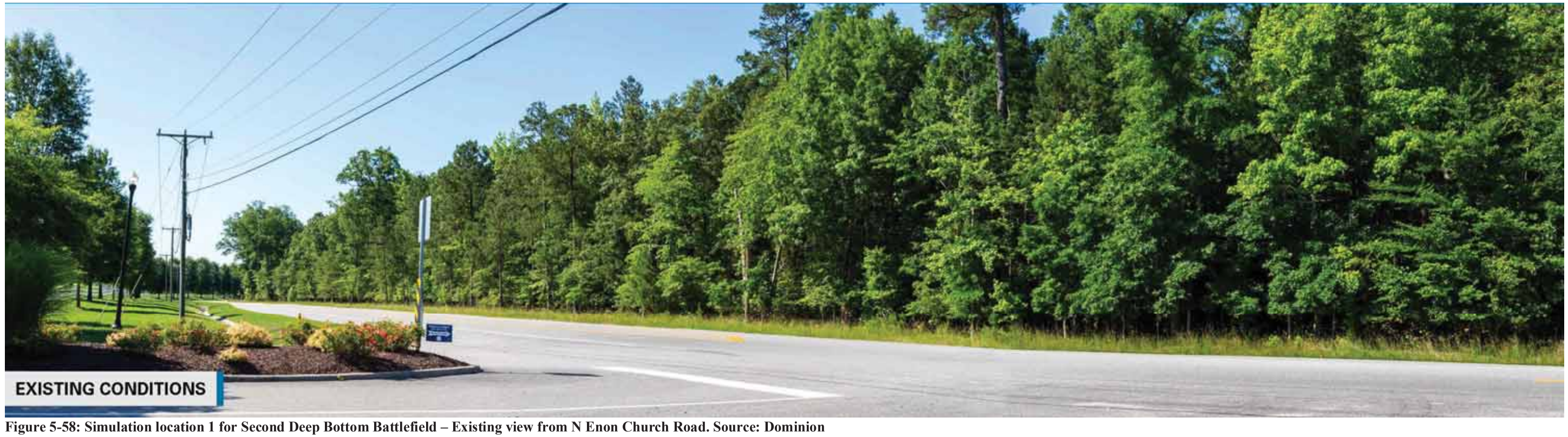


Figure 5-58: Simulation location 1 for Second Deep Bottom Battlefield – Existing view from N Enon Church Road. Source: Dominion

Figure 5-59: Simulation location 1 for Second Deep Bottom Battlefield (No expected visibility of any structures – structure locations depicted in yellow). Source: Dominion

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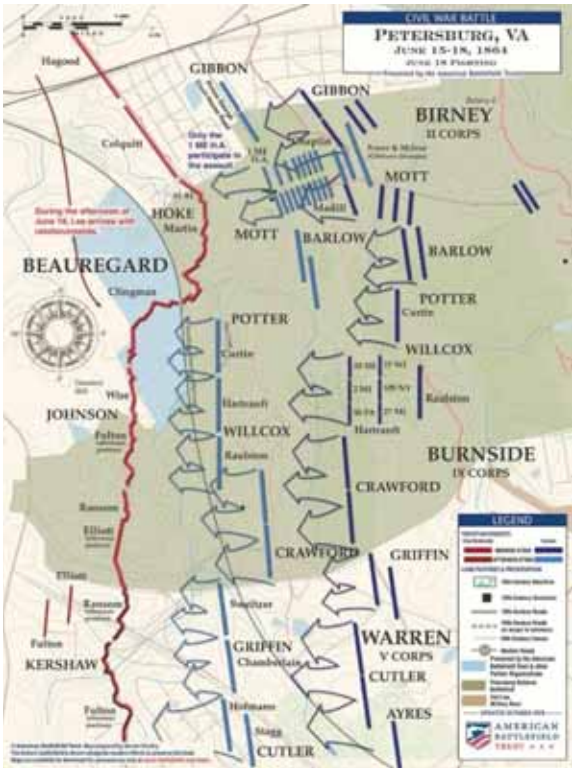
VDHR# 123-5025: PETERSBURG BATTLEFIELD II; ASSAULT ON PETERSBURG



The Second Battle of Petersburg took place between June 15 and 18, 1864 as part of the Richmond-Petersburg Campaign of the Civil War. After an unsuccessful attempt to capture Richmond, General Ulysses S. Grant turned his attention to Petersburg. Union forces crossed the Appomattox River at Windmill Point and attached the Petersburg defenses on June 15, 1864, although they withdrew on June 18 after sustaining heavy casualties. The core of the battlefield is located mainly to the east of Petersburg and what is now I-95, although avenues of approach extend through Chesterfield, Charles City, and Prince George Counties, as well as Colonial Heights and Hopewell. Portions of the battlefield, particularly in the northern and western parts of the battlefield and along I-295, have been subject to heavy modern development that has obscured its historic character. Some areas, however, remain relatively undeveloped and intact. Petersburg Battlefield II is significant for its association with major events of the Civil War, specifically the Richmond-Petersburg Campaign and the sequence of events that led to the end of the Civil War. It is also associated with significant figures of the Civil War includes Ulysses S. Grant and Robert E. Lee. As such, this resource is considered ***potentially eligible*** for listing in the NRHP under Criteria A and B.

As an ***NRHP-eligible*** battlefield located within the tiered study area around the project, an assessment of potential impacts was conducted. The Second Petersburg Battlefield occupies a large landscape in eastern Dinwiddie County focused around the City of Petersburg. Although much of the battlefield, including the core area, is situated well to the southwest of the project, a small portion of one length of the battlefield avenue of approach is directly crossed by a portion of Components 2 and 3 of the project that include both new transmission line and the rebuild of existing transmission line.

With regards to direct impacts, a length of the battlefield avenue of approach is crossed by the project in two discrete locations, one along Bermuda Hundred Road and the second along Enon Church Road. The Bermuda Hundred Road crossing involves construction of a new transmission line while the Enon Church portion involves the rebuild of existing transmission line. As both of these lengths of battle avenue of approach follow existing roads, and the project will be suspended above the roadway. There are no known earthworks or other landscape features associated with the battle in the vicinity of these crossings, and as such, the project will not directly impact any known sites or features associated with the battlefield.

With regards to indirect, visual impacts, a site visit to the battlefield found that much of the landscape within the vicinity of the project is heavily fractured and has been subject to modern development that has compromised the historic setting. The portion of battlefield within the vicinity of the project includes an avenue of approach that generally follows the present-day alignments of Bermuda Hundred Road and Enon Church Road. Both are lined by suburban development in the area.

Inspection from representative vantage points along these roads found that the existing transmission line and structures to be replaced as part of this project are generally screened from view from most locations due to the dense development patterns and existing vegetation in the area, although several existing structures to be replaced are visible from locations in the immediate vicinity. Where visible, the existing structures are generally only seen up and down existing cleared ROWs or limited to partial views above treelines. The existing structures along the portion of transmission line to be rebuilt currently range from 75 feet to 120 feet in height and the replacement structures will range from 100 feet to 130 feet in height. With the increase in height, it is anticipated that there is the potential for limited additional visibility of replacement structures above treelines, however, views would remain limited to vantages in close proximity to the project where there is already visibility of transmission line and associated structures. With regards to portions of the project involving construction of new transmission line, inspection found that the corridor would generally be screened from the battlefield by intervening development and vegetation, although would be visible at two discrete points where the project directly crosses the battlefield corridor. In these areas, visibility would likely be limited to portion of the transmission line as it suspended over the roadway and possibly one new transmission structure to each side of the road, however, the rest of the alignment would remain screened beneath vegetation.

Because the project improvements are not anticipated to be widely visible, and where they could be seen, they would not be substantially taller or more visible than existing transmission line infrastructure, the project would not introduce any substantial change in setting or viewshed from the battlefield which is already compromised by modern development. Therefore, it is D+A's opinion that the Meadowville 230kV Electric Transmission Project will pose no more than a ***minimal impact*** to the Second Petersburg Battlefield per VDHR's impact characterization scale.

Figure 5-60 illustrates the location of the Second Petersburg Battlefield in relation to the project and study buffers, with the location and direction of representative photographs. Representative photographs of and from the battlefield are provided in Figure 5-61 through Figure 5-67.

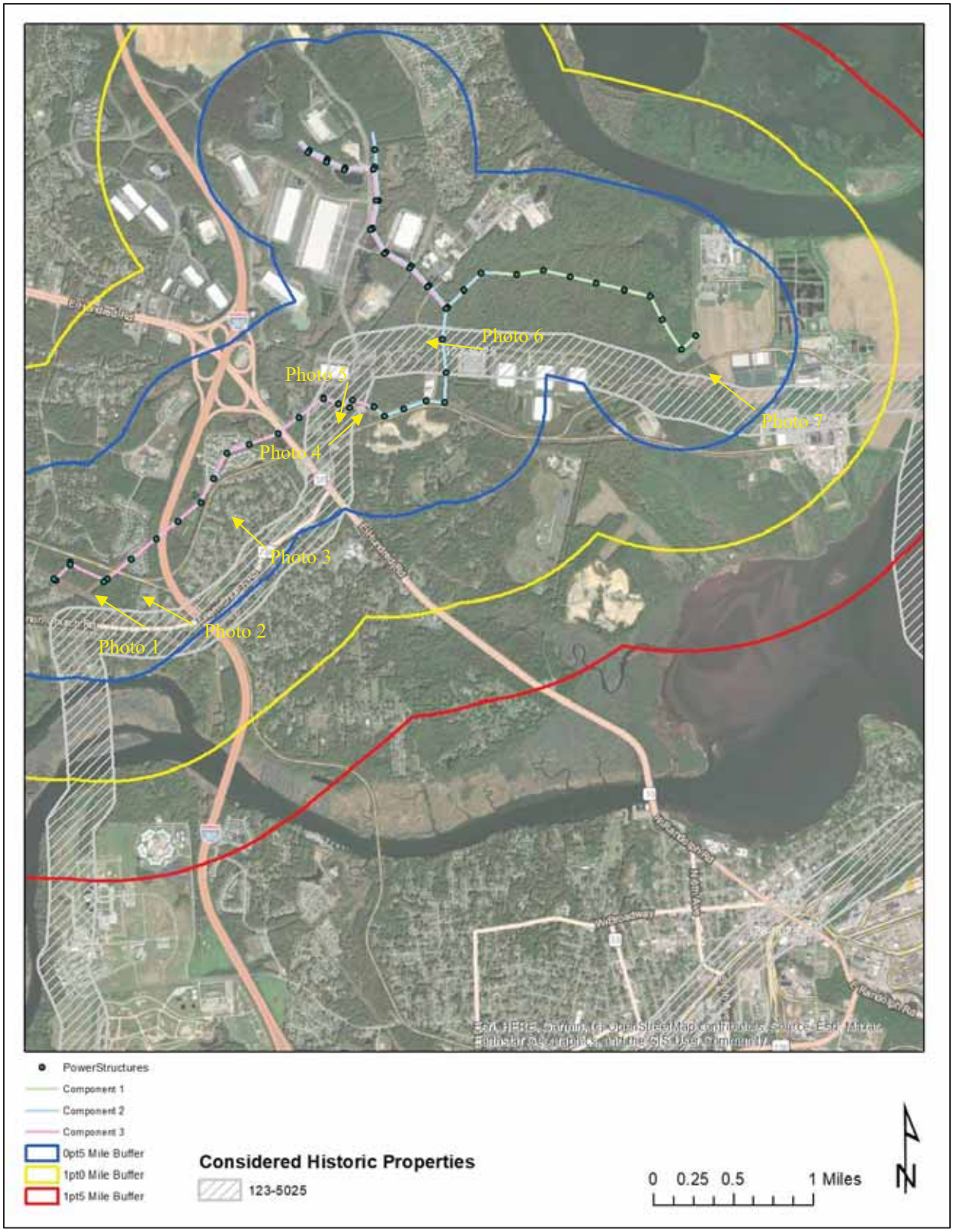


Figure 5-60: Location of Second Petersburg Battlefield in relation to the project with location and direction of representative photographs shown in yellow.

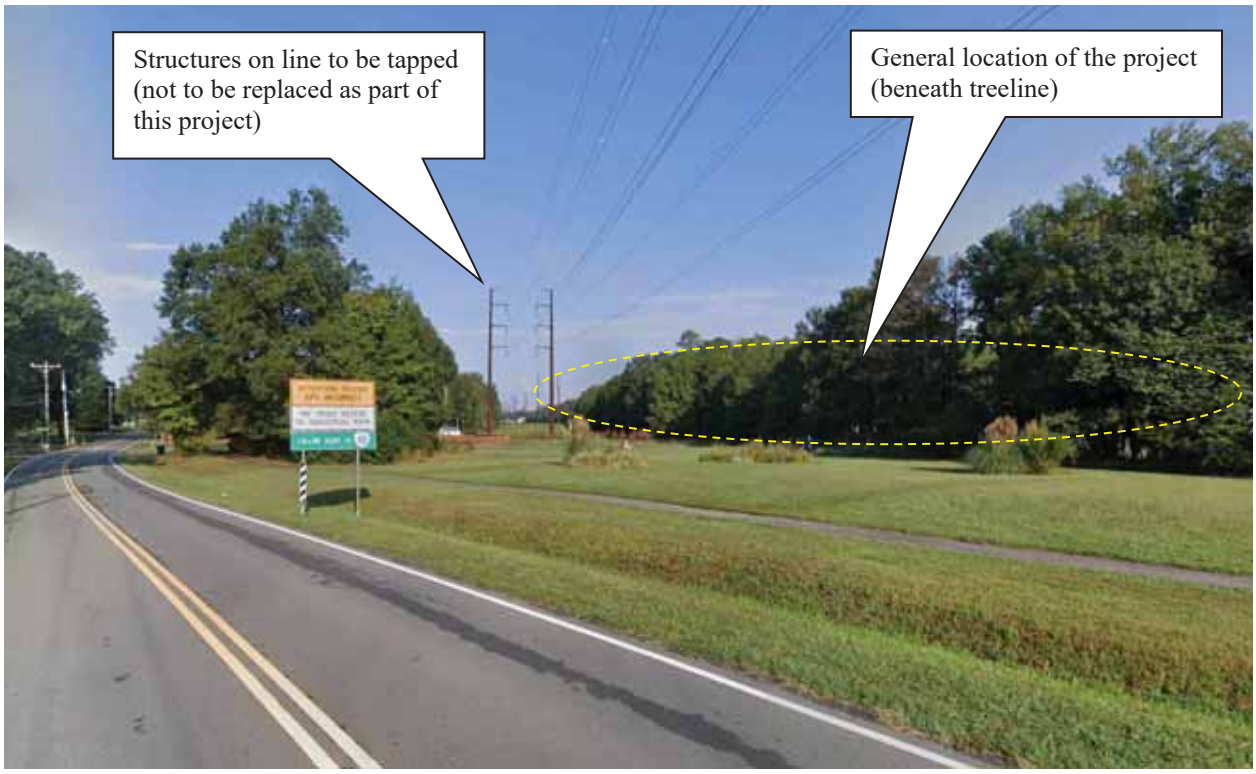


Figure 5-61: Photo location 1- View from Enon Church Road towards the project, facing west. (Line #211 to be tapped as part of this project is visible but structures to be replaced are not visible)

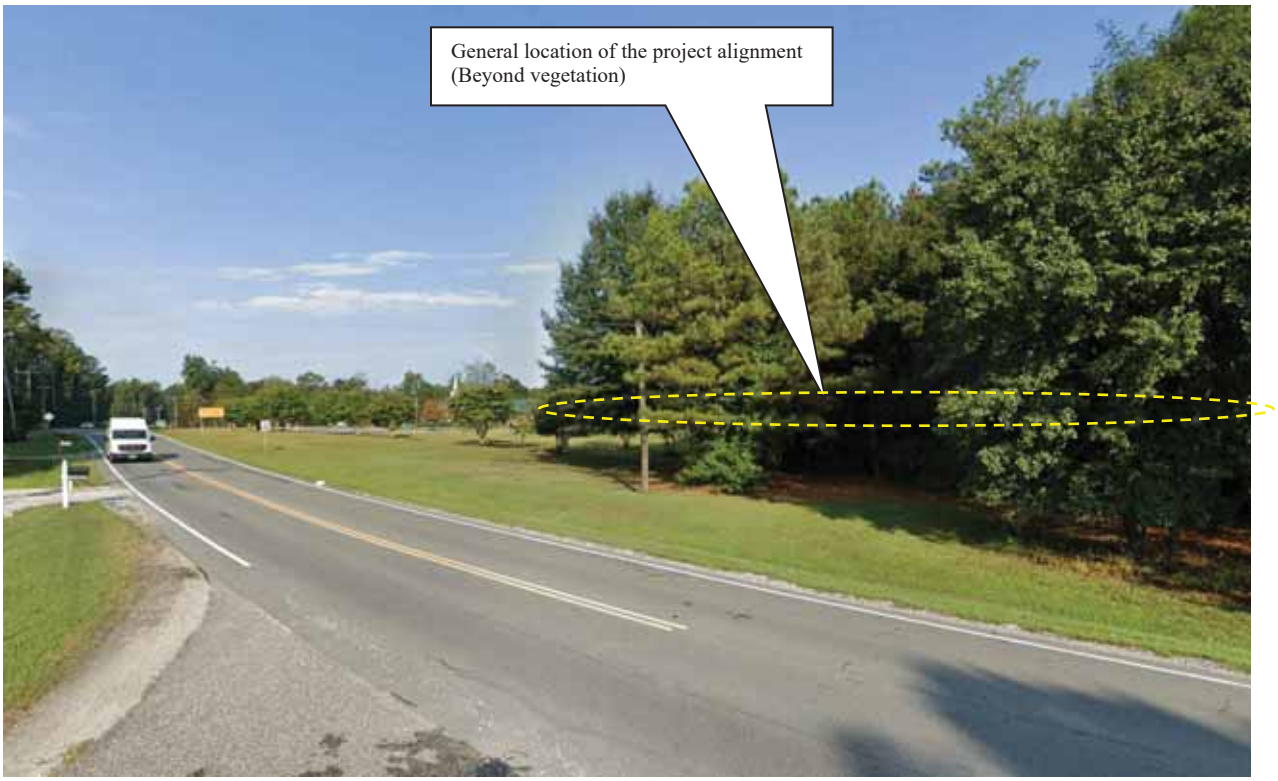


Figure 5-62: Photo location 2- View from Point of Rocks driveway towards the project, facing northwest. (No visibility of existing transmission line and no anticipated visibility of the project)

Figure 5-63: Photo location 3- View from Enon Church Road towards the project, facing west. (No visibility of existing transmission line and no anticipated visibility of the project)

Figure 5-64: Photo location 4- View from Enon Church Road towards the project, facing northeast. (No visibility of existing transmission line and no anticipated visibility of the project)

Figure 5-65: Photo location 5- View from Enon Church Road towards the project, facing south. (One existing structure to be rebuilt is visible)

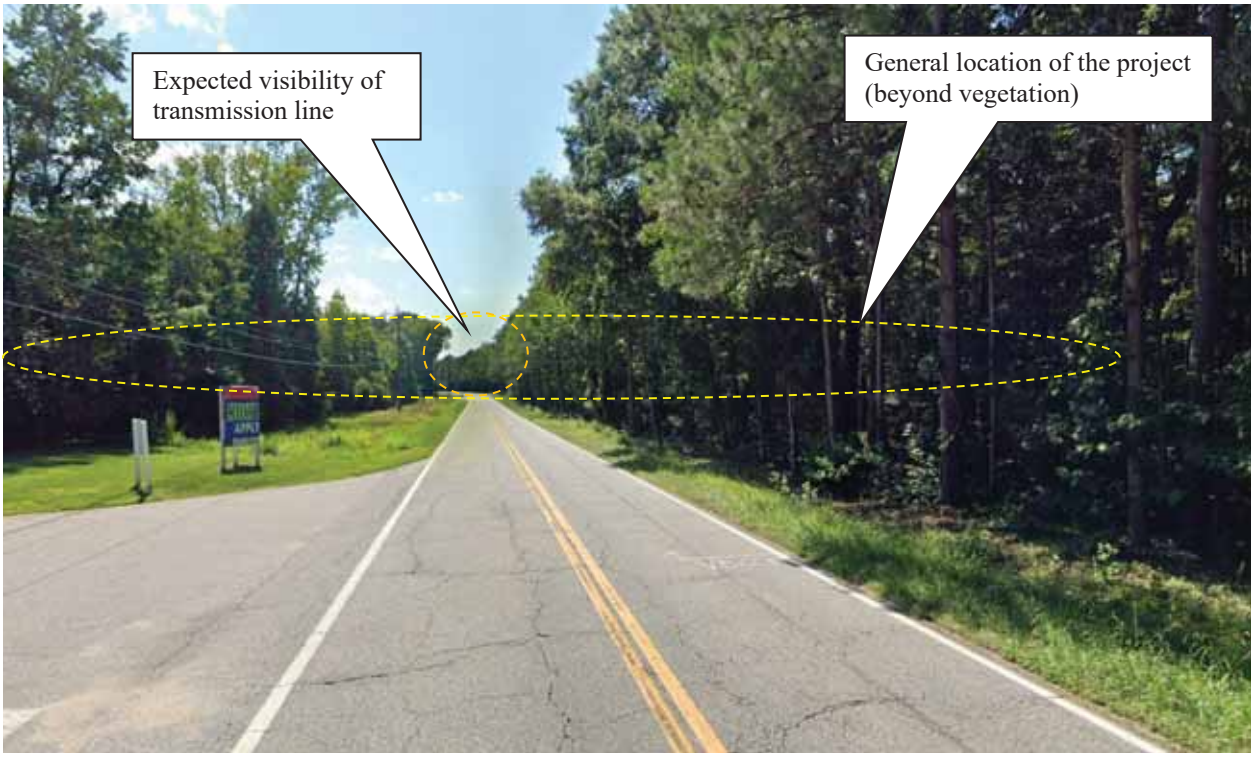


Figure 5-66: Photo location 6- View from Bermuda Hundred Road towards the project, facing west. (New transmission line will be visible across roadway although structures are expected to remain screened by vegetation)

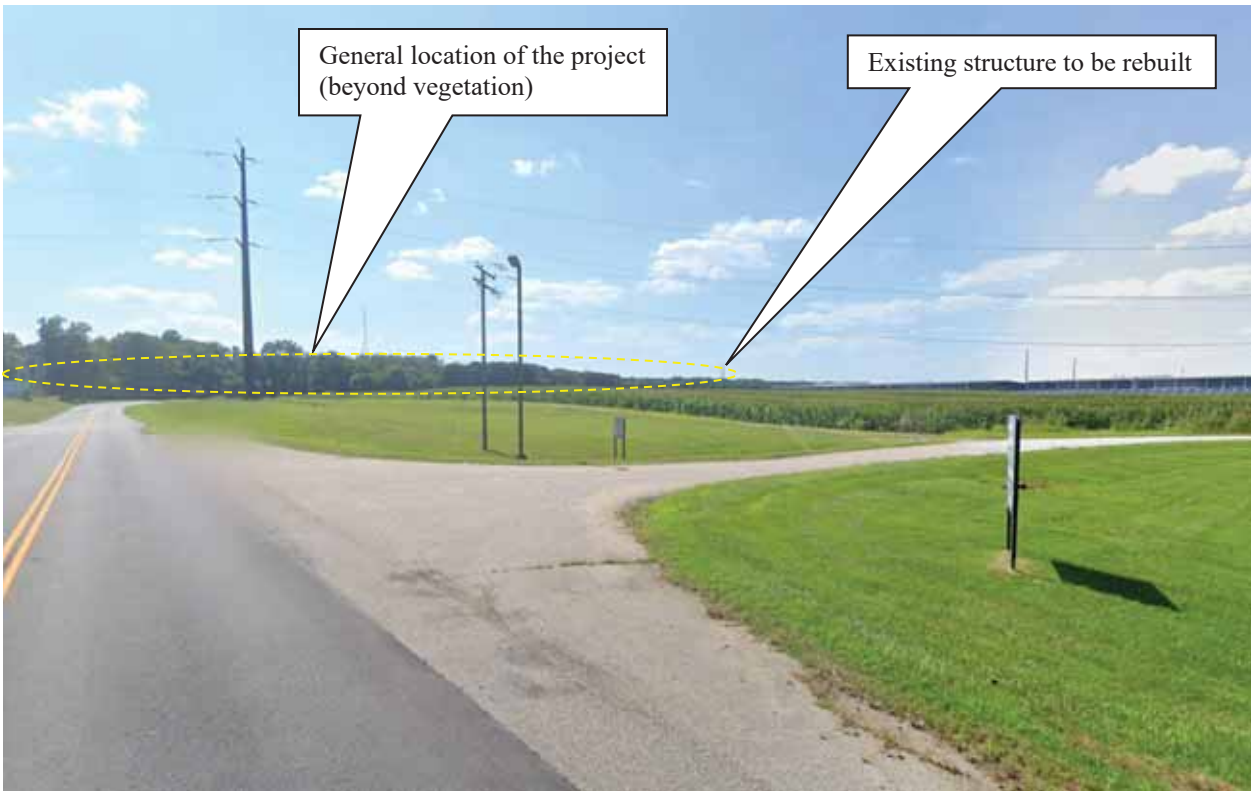


Figure 5-67: Photo location 7- View from Bermuda Hundred Road towards the project, facing northwest. (One existing structure to be rebuilt is visible; rest of project is anticipated to be screened by vegetation)

6. ARCHAEOLOGICAL ASSESSMENT

A review of the VDHR VCRIS records reveals there are six (6) previously recorded archaeological sites located within or crossed by the ROW associated with at least one of the project components. Formal archaeological fieldwork and investigations were not conducted as part of this effort, so the existing conditions of the sites are unknown. Project engineering is also still preliminary so the final project alignment, structure locations, and extent of grading and limits of disturbance are uncertain, however, a preliminary assessment of potential impacts was conducted based upon previous site data and preliminary project information available at time of this analysis.

Of the six previously recorded sites within the project ROW, three (3) have been determined not eligible for listing in the NRHP by the VDHR and three (3) have not been formally evaluated (Table 6-1).

Table 6-1: Previously recorded archaeological resources within the ROW associated with a project corridor.

VDHR #	Site Type	Temporal Association	NRHP Status	Proximity to Project
44CF0173	Other	Reconstruction and Growth (1866 - 1916), World War I to World War II (1917 - 1945), The New Dominion (1946 - 1991), Post Cold War (1992 - Present)	DHR Staff: Not Eligible	Component 3
44CF0204	Other	17th Century (1600 - 1699)	Not Evaluated	Component 1
44CF0596	Camp	19th Century: 2nd half (1850 - 1899)	Not Evaluated	Component 2
44CF0848	Lithic scatter	Pre-Contact	DHR Staff: Not Eligible	Component 1
44CF0849	Lithic scatter	Pre-Contact	DHR Staff: Not Eligible	Component 1
44CF0856	Wall/Fence	Early National Period (1790 - 1829), Antebellum Period (1830 - 1860)	Not Evaluated	Component 1

SITE 44CF0173

Site 44CF0173 is a twentieth-century site consisting of many circular water-filled depressions with bricks, glass, metal, and ceramics in association. The site was previously determined not eligible for listing in the NRHP by the VDHR.

Based upon recent aerial photography, the large site is located within a wooded area generally bound by an existing transmission line ROW, the I-295 corridor, and a residential subdivision.

Based upon the boundaries of the site as mapped in VCRIS, which were not reinvestigated or confirmed as part of this effort, the lower portion of site 44CF0173 overlaps with the proposed alignment associated with Component 3, near one existing structure to be replaced as part of the project (Figure 6-1). Based upon recent aerial photography, it appears that little has changed since the site was determined not eligible for listing in the NRHP. ***As such, it is D+A's opinion that the site is still not eligible for listing in the NRHP and will not be impacted by the project.***

Figure 6-1: Site 44CE0173 in relation to the project. Source: VCRIS.

SITE 44CF0204

Site 44CF0204 is a seventeenth century site, consisting of artifacts and landscape features associated with Dale's Pale. The site has not been formally evaluated for listing in the NRHP by the VDHR on an individual basis, however, portions of the site are included within the boundaries of the NRHP-listed Dales Pale Archaeological District.

While some discrete portions of the site have been subject to archaeological investigation, much of the site as mapped in VCRIS is based off map projection and has not been ground-truthed or subject to survey. The site extends as a linear corridor in a generally northwest to southeast alignment across the Bermuda Hundred peninsula.

Based upon the boundaries of the site as mapped in VCRIS, which were not reinvestigated or confirmed as part of this effort, a portion of site 44CF0204 is crossed by the proposed alignment of Component 1 of the project, which entails construction of new transmission line with one proposed structure location directly within the site boundary (Figure 6-2). Based upon recent aerial photography, this portion of the site remains in an undeveloped wooded area. ***Because the site has not been formally evaluated and the portion crossed by the project has not been subject to formal survey and could be impacted by clearing and construction associated with the project, it is D+A's opinion that the limits of the site within the project ROW be subject to further investigation as project details become finalized.***

Figure 6-2: Site 44CF0204 in relation to the project. Source: VCRIS.

SITE 44CF0596

Site 44CF0596 is a nineteenth century site, consisting of brick fragments, whiteware shards, a Confederacy infantry button, and possible pocketknife. The site has not been formally evaluated for listing in the NRHP by the VDHR.

Based upon recent aerial photography, the site is located along the edge of a pond, bordered by woodland.

Based upon the boundaries of the site as mapped in VCRIS, which were not reinvestigated or confirmed as part of this effort, the northern portion of site 44CF0596 is crossed by the proposed alignment of Components 2 and 3 of the project, which consists of the construction of new transmission line with one proposed structure location directly within the site boundary (Figure 6-3). Based upon recent aerial photography, the pond that the site is located adjacent to was recently made, and therefore its excavation likely resulted in disturbance to the site. ***However, because the site has not been formally evaluated and the site could be further impacted by clearing and construction associated with the project, it is D+A's opinion that the limits of the site within the project ROW be subject to further investigation as project details become finalized.***

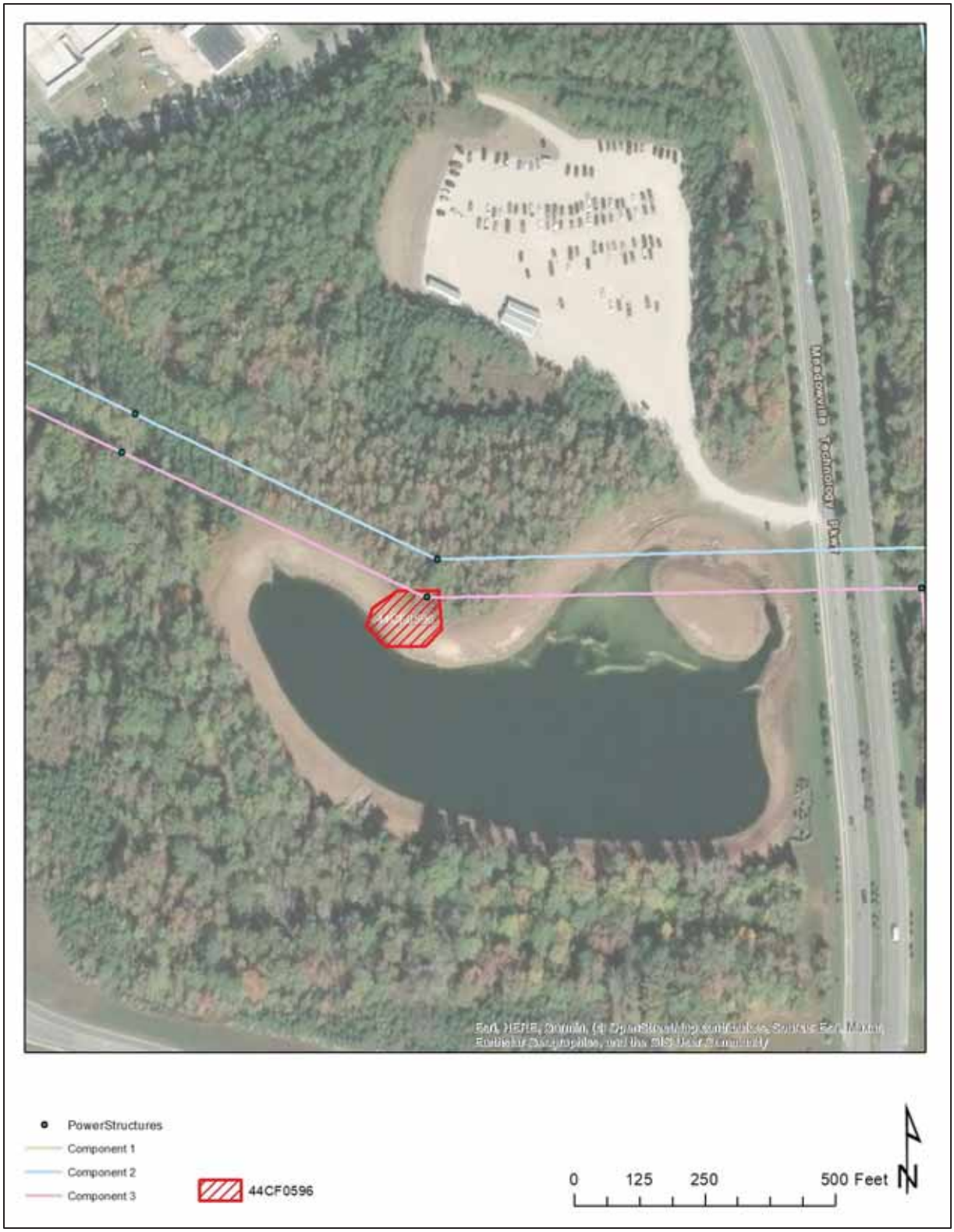


Figure 6-3: Site 44CF0596 in relation to the project. Source: VCRIS.

SITE 44CF0848

Site 44CF0848 is a prehistoric lithic scatter. The site was previously determined not eligible for listing in the NRHP by the VDHR.

Based upon recent aerial photography, the large site is located within an undeveloped wooded area.

Based upon the boundaries of the site as mapped in VCRIS, which were not reinvestigated or confirmed as part of this effort, the northern portion of site 44CF0848 overlaps with the proposed alignment associated with Component 3, which consists of the construction of new transmission line although the nearest proposed structure is located roughly 130 feet to the west (Figure 6-4). Based upon recent aerial photography, it appears that little has changed since the site was determined not eligible for listing in the NRHP. ***As such, it is D+A's opinion that the site is still not eligible for listing in the NRHP and will not be impacted by the project.***

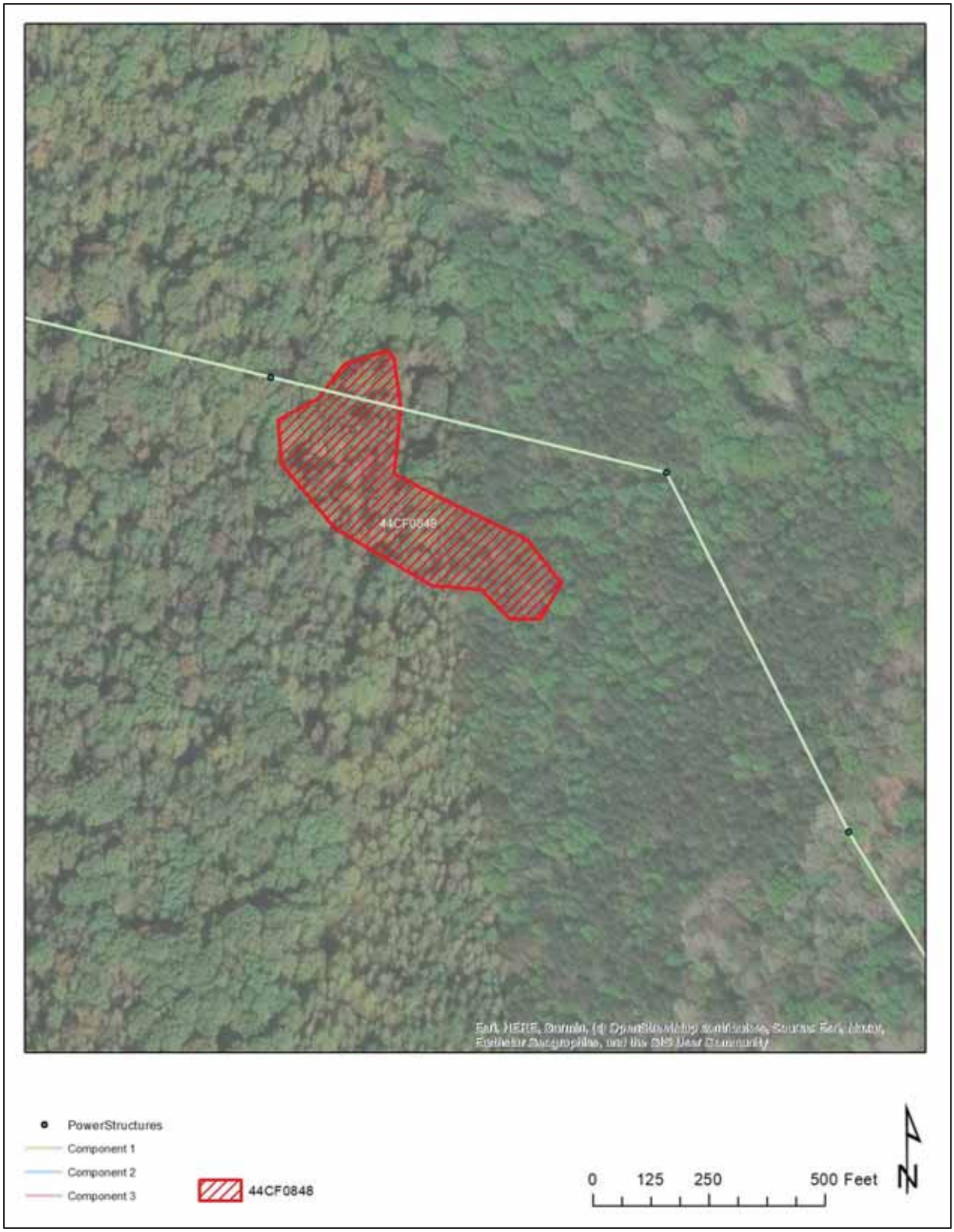


Figure 6-4: Site 44CF0848 in relation to the project. Source: VCRIS.

SITE 44CF0849

Site 44CF0849 is a prehistoric lithic scatter. The site was previously determined not eligible for listing in the NRHP by the VDHR.

Based upon recent aerial photography, the large site is located within an undeveloped wooded area.

Based upon the boundaries of the site as mapped in VCRIS, which were not reinvestigated or confirmed as part of this effort, site 44CF0849 is located just to the north of the proposed alignment associated with Component 3, which consists of the construction of new transmission line although the nearest proposed structure is located roughly 280 feet to the west (Figure 6-5). Based upon recent aerial photography, it appears that little has changed since the site was determined not eligible for listing in the NRHP. ***As such, it is D+A's opinion that the site is still not eligible for listing in the NRHP and will not be impacted by the project.***

Figure 6-5: Site 44CF0849 in relation to the project. Source: VCRIS.

SITE 44CF0856

Site 44CF0856 is an Antebellum Period site consisting of five postholes and two amorphous stains with no diagnostic material. The site has not been formally evaluated for listing in the NRHP by the VDHR.

Based upon recent aerial photography, the site is located within an undeveloped wooded area in proximity to the map project alignment of the seventeenth century Dales Pale.

Based upon the boundaries of the site as mapped in VCRIS, which were not reinvestigated or confirmed as part of this effort, the eastern edge of site 44CF0856 is crossed by the proposed alignment associated with Component 3, which consists of the construction of new transmission line although the nearest proposed structure is located roughly 90 feet to the north (Figure 6-6). Based upon recent aerial photography, this portion of the site remains in an undeveloped wooded area. ***Because the site has not been formally evaluated and the portion crossed by the project could be impacted by clearing and construction associated with the project, it is D+A's opinion that the limits of the site within the project ROW be subject to further investigation as project details become finalized.***

Figure 6-6: Site 44CF0856 in relation to the project. Source: VCRIS.

7. SUMMARY OF POTENTIAL IMPACTS

As part of this pre-application analysis of cultural resources for the Meadowville 230kV Electric Transmission Project, potential impacts to previously recorded historic properties that qualify for consideration under VDHR-defined buffered tiers were assessed in accordance with the VDHR guidance. For the purposes of this analysis, an impact is one that alters, either directly or indirectly, those qualities or characteristics that qualify a particular property for listing in the NRHP and does so in a manner that diminishes the integrity of a property's materials, workmanship, design, location, setting, feeling, and/or association. With respect to transmission lines and associated projects, direct impacts typically are associated with ground disturbance resulting from ROW clearing and structure construction. Indirect impacts typically are associated with the introduction of new visual elements or changes to the physical features of a property's setting or viewshed. According to VDHR guidance, project impacts are characterized as such:

- **None** – Project is not visible from the property.
- **Minimal** – Occur within viewsheds that have existing transmission lines, locations where there will only be a minor change in tower height, and/or views that have been partially obstructed by intervening topography and vegetation.
- **Moderate** – Include viewsheds with expansive views of the transmission line, more dramatic changes in the line and tower height, and/or an overall increase in the visibility of the route from the historic properties.
- **Severe** – Occur within viewsheds that do not have existing transmission lines and where the views are primarily unobstructed, locations where there will be a dramatic increase in tower visibility due to the close proximity of the route to historic properties, and viewsheds where the visual introduction of the transmission line is a significant change in the setting of the historic properties.

With regards to architectural resources, there are no (0) NHLs located within 1.5 mile of the project or closer, one (1) NRHP-listed property located within 1.0 mile or closer of the project, six (6) battlefields within 1.0 mile or closer of the project, one (1) historic landscape within 1.0 mile or closer of the project, and one (1) property that has been determined eligible or potentially eligible for listing in the NRHP by the VDHR within 0.5 mile or closer of the project. Two (2) of the battlefields are directly crossed by at least one of the project components.

Assessment of impacts found that the project extends through a heavily suburbanized area of Chesterfield County with a dense development pattern of residential, commercial, and light industrial properties with an extensive network of existing utility infrastructure. The project involves the rebuild of a length of existing transmission line with structures that will result in a change of structure height ranging from a decrease of 10 feet to an increase of 40 feet, as well as the construction of two new transmission line corridors with structures of similar height to the rebuild. Inspection of existing conditions from the vicinity of considered historic properties found that there is not widespread visibility of the existing transmission line corridors due to the dense development patterns and existing vegetation. Where the existing transmission lines and structures are visible, visibility is generally limited to up and down cleared ROW corridors and above treelines. The potential for visibility of the new and replacement structures associated with the project is similarly anticipated to be minimal and limited to those vantages in which

existing transmission line infrastructure is already visible in conjunction with other nonhistoric and modern development. Because of the project is not anticipated to be widely visible or introduce any substantial or cumulatively different views than already characterize the setting for the considered historic properties, ***it is D+A's opinion that there will be no more than a minimal impact to any historic property within the study tiers for the Meadowville 230kV Transmission Line Project (Table 7-1).***

Table 7-1: Potential impacts summary for architectural resources.

VDHR #	Resource Name, Address	NRHP-Status	Distance from Project	Recommended Impact
020-0123	Point of Rocks, 1011 Point of Rocks Road	NRHP-Listed/DHR Easement	~0.46 Mile from Component 3	No Impact
020-0506	Earthworks, Enon Park	NRHP-Eligible	~0.27 Mile from Component 3	No Impact
020-5318	Swift Creek Battlefield	NRHP-Eligible Battlefield	~0.06 Mile from Component 3	Minimal Impact
020-5319	Ware Bottom Church Battlefield	NRHP-Eligible Battlefield	Directly Crossed	Minimal Impact
020-5371	Dale's Pale Archaeological Historic District	NRHP-Listed Landscape	Directly Crossed	No Impact
043-0307	New Market Heights/Chaffins Farm Battlefield	NRHP-Eligible Battlefield	~1.0 Mile from Component 2	No Impact
043-5074	First Deep Bottom Battlefield	NRHP-Eligible Battlefield	~0.34 Mile from Component 2	No Impact
043-5080	Second Deep Bottom Battlefield	NRHP-Eligible Battlefield	~0.34 Mile from Component 2	No Impact
123-5025	Petersburg Battlefield II	NRHP-Eligible Battlefield	Directly Crossed	Minimal Impact

With regards to archaeology, discrete portions of the project area have been subject to previous phase I survey, however, most of the ROW associated with the project has not been subject to formal survey. As a result of previous survey efforts, six (6) archaeological sites have been recorded within or crossed by the project components. Three of the sites have been determined not eligible for listing in the NRHP by the VDHR, and the other three have not been formally evaluated. While no survey or formal investigation of these archaeological sites was conducted as part of this effort, review of aerial photography reveals that one of the unevaluated sites has likely been subject to disturbance since it was initially recorded but the other two unevaluated sites remain in similar condition to when identified. ***Because some portions of the project ROW have not been subject to formal survey, and sites that have not been formally evaluated are known to exist and could be impacted by clearing and construction associated with the project, it is D+A's opinion that unsurveyed portions of the project ROW be subject to Phase I survey, and all identified sites be evaluated for NRHP-eligibility and assessed for potential impacts as project details become finalized. (Table 7-2).***

Table 7-2: Summary of potential impacts for archaeological resources.

VDHR #	Description	NRHP Status	Proximity to Project	Impacts/ Recommendation
44CF0173	19th/20th century transportation-related	DHR Staff: Not Eligible	Component 3	No further consideration
44CF0204	17th Century other	Not Evaluated	Component 1	TBD/ Re-identify, evaluate, and assess
44CF0596	19th Century camp	Not Evaluated	Component 2	TBD/ Re-identify, evaluate, and assess
44CF0848	Pre-Contact lithic scatter	DHR Staff: Not Eligible	Component 1	No further consideration
44CF0849	Pre-Contact lithic scatter	DHR Staff: Not Eligible	Component 1	No further consideration
44CF0856	19th landscape feature	Not Evaluated	Component 1	TBD/ Re-identify, evaluate, and assess

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8. REFERENCES

National Park Service
2009 "Civil War Sites Advisory Commission Report Update and Resurvey," American Battlefield Protection Program

Virginia Department of Historic Resources
2008 *Guidelines for Assessing Impacts of Proposed Electric Transmission Lines and Associated Facilities on Historic Resources in the Commonwealth of Virginia*

Virginia Department of Historic Resources
2024 Virginia Cultural Resource Information System (VCRIS) database and GIS server.

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APPENDIX A: RESUMES

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ROBERT J. TAYLOR, JR
Principal Investigator
Senior Architectural Historian

Dutton + Associates
CULTURAL RESOURCE SURVEY, PLANNING, AND MANAGEMENT

Education

Master of Arts, 2009
Historic Preservation
Savannah College of Art and Design
Savannah, Georgia

Bachelor of Arts, 2005
Historic Preservation
University of Mary Washington
Fredericksburg, Virginia

Awards

Eagle Scout, 2001

Mr. Taylor holds a B.A. in Historic Preservation from University of Mary Washington and a M.A. in Historic Preservation from Savannah College of Art and Design. He has over 15 years of Cultural Resource Management Experience and has taken part in projects in Virginia and throughout the East Coast.

His experience in Cultural Resource Management includes working on both Architectural and Archaeological projects while participating in all phases of compliance from project initiation and development to completion. His work includes conducting field surveys, researching and documenting historic resources, writing survey reports, preparing *NRHP* evaluations and applications for individual resources and historic districts, compiling HABS/HAER documentation packages, and assisting with cultural resource consultation and compliance. He has a thorough understanding of the laws and regulations that govern cultural resources and has assisted with a number of Cultural Resource Management Plans, Programmatic Agreements, and Memorandum of Agreements.

As Principal Investigator and Senior Architectural Historian for Dutton + Associates, Mr. Taylor manages and conducts all aspects of historic and architectural resource projects and studies.

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Professional Experience

Dutton + Associates, LLC, Principal Investigator, Richmond, Virginia, March 2009- present. Manages cultural resource projects, oversees architectural history team, conducts field survey and investigations, assembles architectural resource documentation, authors cultural resource survey reports, prepares NRHP nominations, prepares HABS/HAER documentation, provides regulatory and compliance consultation.

Thomas Jefferson Monticello Foundation, Field Archaeologist, Charlottesville, Virginia, Winter 2008- 2009. Conducted archaeological testing, assisted with site research, performed lab work

Janus Research, Inc, Architectural Historian, Tampa, Florida, August 2005- May 2008. Conducted field surveys, Prepared NRHP and HABS/HAER documentation packages, authored Cultural Resource Assessment Survey Reports

Example Projects and Publications

Cultural Resource Management Plans
Regional Integrated Cultural Resource Management Plan for Naval Installations in Hampton Roads, Virginia
Programmatic Agreement amongst NASA, the VASHPO, and ACHP for the Management of Facilities, Infrastructure, and Sites at the NASA Langley Research Center, Hampton, Virginia

Cultural Resource Survey and Compliance Reports
Phase I Cultural Resource Survey of the Southern Virginia Solar Center, Pittsylvania County, Virginia
Phase I Cultural Resource of the Gordonsville-Remington 500 kV Transmission Line Rebuild Project, Orange, Fauquier, and Culpeper County, Virginia
NRHP Evaluations of Two One Room School Houses and a Farmstead in Perrysburg Township, Ohio
Intensive-Level Architectural Survey of the Vice Admiral James H Doyle Jr, Combat System Engineering Development Site (CSEDS), Moorestown, New Jersey
Review and Evaluation of the Adaptive Rehabilitation of Quarters D&E and G&H at the Norfolk Naval Shipyard, Portsmouth, Virginia
Cultural Resource Assessment Survey (CRAS) of the I-395 Advance Acquisition #2 in Miami-Dade County, Florida
CRAS of the I-4/Crosstown Connector Interchange Design in Hillsborough County, Florida

NRHP Nominations
Hermitage Road Historic District, Richmond, Virginia
Old Wythe Historic District, Hampton, Virginia
NASA LaRC Historic District, Hampton, Virginia
Sebrell Rural Historic District, Southampton County, Virginia
Palmetto Beach Historic District, Tampa, Florida
Rosemere Historic District, Orlando, Florida

Historic American Buildings Survey (HABS) Packages
NASA Low Turbulence Pressure Tunnel, LaRC, Hampton VA, HABS # VA-118-H
NASA Aircraft Landing Dynamics Facility, LaRC, Hampton, VA, HABS # unassigned
1st Street Bridge update package, Los Angeles, CA HAER # CA-175
Faith Temple Missionary Baptist Church, Tampa, FL, HABS # FL-542
Building 64, Melville Net and Fuel Depot, Naval Station Newport, RI, RIHRA # PORT-0004

Technical and Research Papers
"New Use for an Old Gas Station: Rehabilitation Plan and Feasibility Assessment for the Fry's Spring Service Station in Charlottesville, Virginia"
"Historic Structure Report for the Edward Valentine House (Redland Club Building) in Charlottesville, Virginia"
"Historic Linear Resources: Challenges and the Practical Applicability of NRHP Criteria"
"'A Country Doctor for Forty Years' A Historic Structure Report for the Dr J E Wilson House in Haywood County, North Carolina"

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