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

Before the State Corporation Commission of Virginia

230 kV Centreport Loop and Centreport Substation

Application No. 341

Case No. PUR-2024-00170

Filed: September 19, 2024

Volume 2 of 3

COMMONWEALTH OF VIRGINIA

BEFORE THE

STATE CORPORATION COMMISSION

APPLICATION OF

VIRGINIA ELECTRIC AND POWER COMPANY

FOR APPROVAL AND CERTIFICATION
OF ELECTRIC TRANSMISSION FACILITIES

230 kV Centreport Loop and Centreport Substation

Application No. 341

DEQ Supplement

Case No. PUR-2024-00170

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Based on consultations with the Virginia Department of Environmental Quality ("DEQ"), Virginia Electric and Power Company ("Dominion Energy Virginia" or the "Company") has developed this DEQ Supplement to facilitate review and analysis of the proposed 230 kV Centreport Loop and Centreport Substation (the "Project") by DEQ and other relevant agencies.

1. Project Description

In order to provide service requested by a data center customer (the "Customer"), 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, Dominion Energy Virginia proposes in Stafford County, Virginia, to:

(i) Construct a new double circuit overhead 230 kilovolt ("kV") transmission line on new right-of-way by cutting the Company's existing 230 kV Aquia Harbour-Cranes Corner Line #2104 at Structure #2104/5456, resulting in (i) 230 kV Centreport-Cranes Corner Line #2379 and (ii) 230 kV Centreport-Spartan Line #2104 ("Centreport Loop"). From the cut-in location on existing Line #2104, the Centreport Loop will extend approximately 2.5 miles to the proposed new 230-34.5 kV Centreport Substation located in Stafford County, Virginia. While the cut-in location is within existing right-of-way, the proposed Centreport Loop will be constructed on new 100-foot-wide right-of-way. The Centreport Loop will be supported primarily by double circuit weathering steel monopoles and will utilize three-phase twin-bundled 768.2 Aluminum Conductor Steel Supported/Trapezoidal Wire/High Strength ("ACSS/TW/HS") type conductor with a summer transfer capability of 1,573 MVA.

(ii) Construct a new 230-34.5 kV substation in Stafford County, Virginia, on property to be obtained by the Company ("Centreport Substation").

Together, the Centreport Loop and Centreport Substation are referred to as the "Centreport 230 kV Electric Transmission Project" or the "Project."

The Project is necessary to ensure that Dominion Energy Virginia can provide service requested by the Customer in Stafford County, Virginia, and maintain reliable electric service consistent with NERC Reliability Standards for the overall load growth in the Stafford County load area located in central Virginia (the "Stafford Load Area"). Specifically, to serve the Customer's projected load identified in the delivery point ("DP") request of approximately 262 MW for a new data center development in Stafford County, Virginia, as well as to support future load growth in Stafford Load Area, the Company is proposing the Project.

The Company's existing Aquia Harbour, Cranes Corner, Fredericksburg, Garrisonville, and Possum Point Substations are the primary sources of distribution power in the Stafford Load Area, with the Cranes Corner and Garrisonville Substations being the closest substations to the Customer's data center development. However, the Cranes Corner and Garrisonville Substations do not have adequate capacity to serve the Customer's total projected load. As a result, connecting the Customer's projected load to either the Cranes Corner Substation or the Garrisonville Substation would result in substation transformer overloads. Accordingly, to serve this planned data center block load and maintain reliable service for the overall load growth in the area, consistent with NERC Reliability Standards, the Company is proposing to construct the Centreport Loop and Centreport Substation. With the proposed Project, the existing system transformers are not overloaded, and

reliability criteria are met.

The Company identified an approximately 2.5-mile overhead proposed route for the Centreport Loop (the "Proposed Route" or "Route 2"), an approximately 3.5-mile overhead alternative route ("Alternative Route 1"), an approximately 2.3-mile overhead alternative route ("Alternative Route 3"), and an approximately 2.2-mile overhead alternative route ("Alternative Route 4"), all of which the Company is proposing for Commission consideration and notice. Discussion of the Proposed Route and Alternative Routes, as well as other overhead routes that the Company studied but ultimately rejected, is provided in Section II of the Appendix and discussed in more detail in the Environmental Routing Study (or "Routing Study") included with the Application.

In accordance with the Company's Facility Interconnection Requirements document and to reliably serve the Customer, the proposed Centreport Substation will be constructed with five 112 MVA 230-34.5 kV transformers, a 230 kV ring bus with a four circuit breaker configuration, and other associated equipment. The proposed Centreport Substation will be designed to accommodate future growth in the area with an ultimate build-out to a 230 kV ring bus with a six circuit breaker configuration. The total area of the Centreport Substation is approximately 5.0 acres.

For this Project, the Company retained the services of Environmental Resources Management ("ERM") to help collect information within the study area, identify potential routes, perform a routing analysis comparing the route alternatives, and document the routing efforts in an Environmental Routing Study.

A description of the Proposed and Alternative Routes is as follows.

Proposed Route (Route 2)

The Proposed Route (Route 2) is approximately 2.5 miles in length. Beginning at the cut-in location on Line #2104 at Structure #2104/5456, which is approximately 0.3 mile north of Cranes Corner Road in Stafford County, the route initially heads west/northwest for approximately 0.8 mile before crossing Richmond Highway. The route then turns north and west to cross Interstate 95 before angling northwest along Potomac Creek and following Centerport Parkway northwest for approximately 0.5 mile before terminating at the proposed Centreport Substation, located approximately 0.1 mile south of the intersection of Centreport Parkway and Oakenwold Lane.

The Proposed Route will be constructed on new right-of-way primarily supported by double circuit weathering steel monopoles with a minimum structure height of 100 feet, a maximum structure height of 140 feet, and an average structure height of 112 feet, based on preliminary conceptual design, not including foundation reveal, and subject to change based on final engineering design.

Alternative Route 1

Alternative Route 1 is approximately 3.5 miles in length. Beginning at the cut-in location on Line #2157 at Structure #2157/1716, which is located approximately 0.1 mile west of

Cambridge Street (U.S. Route 1) and Heritage Commons, the route initially heads north and west for approximately 0.9 mile before crossing Interstate 95 on the south side of Chichester Park. From there, the route heads north/northwest for approximately 0.9 mile, crossing Enon Road. The route then angles northeast, crosses Centreport Parkway, and turns northwest to follow Mountain View Road for approximately 0.2 mile. The route then turns northeast, crosses Mountain View Road, and terminates at the proposed Centreport Substation, located approximately 0.1 mile south of the intersection of Centreport Parkway and Oakenwold Lane.

Alternative Route 1 will be constructed on new right-of-way primarily supported by double circuit weathering steel monopoles with a minimum structure height of 100 feet, a maximum structure height of 185 feet, and an average structure height of 120 feet, based on preliminary conceptual design, not including foundation reveal, and subject to change based on final engineering design.

Alternative Route 3

Alternative Route 3 is approximately 2.3 miles in length. Beginning at the cut-in location on Line #2104 at Structure #2104/5458, which is located approximately 0.6 mile northeast of Cranes Corner Road, the route initially heads west for approximately 0.6 mile, turning south to cross Potomac Creek on the east side of Richmond Highway. The route then turns west again, crossing Richmond Highway and Interstate 95 before angling northwest along Potomac Creek. At Centreport Parkway, the route turns west and follows the road for approximately 0.5 mile before terminating at the proposed Centreport Substation, located approximately 0.1 mile south of the intersection of Centreport Parkway and Oakenwold Lane.

Alternative Route 3 will be constructed on new right-of-way primarily supported by double circuit weathering steel monopoles with a minimum structure height of 85 feet, a maximum structure height of 140 feet, and an average structure height of 111 feet, based on preliminary conceptual design, not including foundation reveal, and subject to change based on final engineering design.

Alternative Route 4

Alternative Route 4 is approximately 2.2 miles in length. Beginning at the cut-in location on Line #2104 at Structure #2104/5456, which is located approximately 0.3 mile north of Cranes Corner Road, the route heads northwest for about 1.2 mile, crossing Richmond Highway and Interstate 95 before angling northwest along Potomac Creek. At Centreport Parkway the route turns west and follows the road for approximately 0.5 mile before terminating at the proposed Centreport Substation, located approximately 0.1 mile south of the intersection of Centreport Parkway and Oakenwold Lane.

Alternative Route 4 will be constructed on new right-of-way primarily supported by double circuit weathering steel monopoles with a minimum structure height of 95 feet, a maximum structure height of 140 feet, and an average structure height of 111 feet, based on

preliminary conceptual design, not including foundation reveal, and subject to change based on final engineering design.

2. Environmental Analysis

The Company has conducted an environmental analysis on the proposed Project. Please see the following subsections of this DEQ Supplement for pertinent details about the proposed Project.

A. Air Quality

For the Project, the Company will control fugitive dust during construction in accordance with DEQ regulations. During construction, if the weather is dry for an extended period, there will be airborne particles from the use of vehicles and equipment within the right-of-way. However, minimal earth disturbance will take place and vehicle speed, which is often a factor in airborne particulate, will be kept to a minimum. Erosion and sedimentation control is addressed in Section 2.H of this Supplement. Equipment and vehicles that are powered by gasoline or diesel motors will be used during the construction of the line so there will be exhaust from those motors. Exhaust from those motors will result in minimal air pollution.

Tree clearing within the new rights-of-way will be required as part of this Project. The Company does not expect to burn cleared material, but, if necessary, the Company will coordinate with the responsible locality to obtain these permits and will comply with any conditions set forth by the locality or take actions as otherwise in accordance with the Company's property rights. The Company's tree clearing methods are described in Section 2.L.

B. Water Source

No water source is required for transmission lines. This discussion focuses on waterbodies that will be crossed by the proposed transmission lines.

On behalf of the Company, ERM identified and mapped waterbodies in the vicinity of the routes using publicly available geographic information system ("GIS") databases, U.S. Geological Survey ("USGS") National Hydrography Dataset Plus High Resolution ("NHD"), ESRI World Elevation Terrain 2-foot contours, the United States Fish and Wildlife Service ("USFWS") National Wetland Inventory ("NWI"), recent (2023) and historic digital aerial photography (National Agricultural Imagery Program, VGIN Most Recent Imagery, and Google Earth).

All route alternatives utilize an overhead configuration that would span waterbodies; no transmission structures are planned to be installed within waterbodies. The Proposed and Alternative Routes for the Centreport Loop cross perennial and intermittent waterbodies, including Potomac Creek (Proposed Route (Route 2), Alternative Route 3, and Alternative Route 4) and Claiborne Run (Alternative Route 1).

The distance between transmission line structures proposed by Dominion Energy Virginia will be adequate to span the waterbodies identified along the Centreport Loop Proposed and Alternative Routes. Tree clearing would be required within forested riparian areas at waterbody crossing locations. The removal of forested riparian areas adjacent to waterbodies will reduce erosion control and stormwater filtration at these locations. Impacts to surface waters and riparian habitat will be limited by minimizing rights-of-way at crossings to the extent possible, leaving roots and stumps in place, and implementing erosion control best management practices during construction.

According to U.S. Army Corps of Engineers ("Corps") documentation, no waters considered navigable under Section 10 of the Rivers and Harbors Act are crossed by the Proposed or Alternative Routes for the Project. Waterbodies in the vicinity of the Project routes, inclusive of the proposed Centreport Substation site, are shown on Attachment 2 of the Wetland and Waterbody Desktop Summary for the Project, which is included in Attachment 2.D.1.

Centreport Loop

Proposed Route (Route 2)

The Proposed Route crosses six waterbodies, of which five are mapped by the NHD, including one perennial waterbody (Potomac Creek) and four unnamed, intermittent streams. Additionally, ERM identified one unmapped waterbody, which appears to be a stormwater control feature based on recent (2023) aerial imagery. See Table D-2 for waterbody acreage crossed that was identified in the Wetland and Waterbody Desktop Summary.

Alternative Route 1

Alternative Route 1 crosses nine waterbodies, of which seven are mapped by the NHD, including three perennial waterbodies (Potomac Creek, an unnamed, perennial tributary to Potomac Creek, and a lake/pond), and four unnamed, intermittent streams. Additionally, ERM identified two unnamed, unclassified streams within the right-of-way using recent (2023) aerial imagery. See Table D-2 for waterbody acreage crossed that was identified in the Wetland and Waterbody Desktop Summary.

Alternative Route 3

Alternative Route 3 crosses nine waterbodies, of which eight are mapped by the NHD, including three perennial waterbody crossings (two crossings of Potomac Creek and one crossing of an unnamed, perennial tributary to Potomac Creek) and the crossing of five unnamed, intermittent streams. Additionally, ERM identified one unmapped open waterbody, which appears to be a stormwater control feature based on recent (2023) aerial imagery. See Table D-2 for waterbody acreage crossed that was identified in the Wetland and Waterbody Desktop Summary.

Alternative Route 4

Alternative Route 4 crosses six waterbodies, of which five are NHD-mapped, including one crossing of perennial Potomac Creek and four unnamed, intermittent streams. The one unmapped open waterbody appears to be a stormwater control feature identified within the right-of-way using recent (2023) aerial imagery. See Table D-2 for waterbody acreage crossed that was identified in the Wetland and Waterbody Desktop Summary.

During construction, waterbodies will be maintained for proper drainage using culverts and/or other crossing devices, as needed, according to the Company's standard policies. Where clearing 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. To protect waterways from soil erosion and sedimentation during construction, the Company will use sediment barriers along waterways and steep slopes. If a section of line 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 that would be placed on erosion control fabric and removed when work is completed, returning the surface to original contours.

If necessary, a Joint Permit Application ("JPA") will be submitted for review by the VMRC, DEQ, and the Corps to authorize jurisdictional crossings and for any impacts to jurisdictional features.

C. Discharge of Cooling Waters

No discharge of cooling waters is associated with the Project.

D. Tidal and Non-tidal Wetlands

No tidal wetlands were identified within the Project area. Non-tidal wetlands are summarized below.

On behalf of the Company, ERM identified wetlands along the Project routes, inclusive of the proposed Centreport Substation site, using GIS and remote sensing data sources to conduct an offsite desktop wetlands delineation. A copy of ERM's Wetland and Waterbody Desktop Summary for Project is included in Attachment 2.D.1. Sources for this desktop summary include the USFWS NWI, the USGS NHD, the Natural Resources Conservation Service Web Soil Survey, ESRI World Elevation Terrain 2-foot contours, National Agricultural Imagery Program Digital Ortho-Rectified Natural Color and Infrared Images dating from 2024, recent (2023) and historic digital aerial photography (National Agricultural Imagery Program, VGIN Most Recent Imagery, and Google Earth).

ERM did not field delineate wetlands along the Project routes. A field wetland delineation will be completed for the approved route alignment selected by the Commission upon the Company receiving a final order on the Project.

ERM used a stepwise process to identify probable wetland and waterbody areas along the alternative transmission line routes as follows:

1. Infrared and natural color aerial photography was used in conjunction with USGS topographic maps, soils maps, and other data sources to identify potential wetland areas. Boundaries were assigned to the areas that appeared to exhibit wetland signatures based on this review (referred to here as "Interpreted Wetlands"), and a cover type was determined based on aerial photo interpretation.

2. To further determine the probability of a wetland occurring within a given location, polygon shapefiles for Interpreted Wetlands were digitally layered with NWI and NHD mapping and hydric soils information from the Natural Resources Conservation Service ("NRCS") soil survey database.

3. ERM assigned a probability of wetland occurrence based on the number of overlapping data layers (*i.e.*, indicators of potential wetland presence) in any given area (Table D-1).

Table D-1
Wetland Probability Criteria

Probability Class	Criteria
High	Areas where layers of hydric soils, Interpreted Wetlands, and NWI data overlap
Medium/High	Areas where NWI data overlaps hydric soils; or NWI data overlaps Interpreted Wetlands with or without partially hydric soils; or hydric soils overlap Interpreted Wetlands
Medium	Interpreted Wetlands with or without overlap by partially hydric soils
Medium/Low	Hydric soils only; or NWI data with or without overlap by partially hydric soils
Low	Partially hydric soils only
Very Low	Non-hydric soils only

Using the above criteria, wetland and waterbody occurrence probabilities ranging from very low to high were identified for each Project route, with acres of affected wetland calculated by probability class and cover type. The probability of wetland and waterbody occurrence increases as multiple indicators overlap toward the "high" end of the probability spectrum as shown in Table D-1. The medium to high probability categories were selected as the most reliable representation of in-situ conditions due to overlapping data sets. Results for these wetland probability classes are presented below.[1]

As explained further below and in Attachment 2.D.1, the majority of wetlands crossed by the Project routes or proposed Centreport Substation site are forested and are generally concentrated around Potomac Creek and its tributaries in the northern part of the study area

[1] Note that the sum of the wetland type addends presented for the Proposed and Alternative Routes may not equal the totals due to rounding.

and Claiborne Run and its tributaries in the southern part of the study area. For ease of reference, wetlands and waterbodies of medium or higher probability crossed by the Proposed and Alternative Routes are summarized in Table D-2.

Table D-2
Desktop-Delineated Wetlands and Waterbodies Crossed by the Proposed and Alternative Routes [a,b]

Aquatic Resource Classification	Proposed Route (Route 2)	Alternative Route 1	Alternative Route 3	Alternative Route 4
Palustrine Forested (PFO)	12.0	8.2	9.8	11.0
Palustrine Scrub-shrub (PSS)	1.3	NA	3.3	1.2
Palustrine Emergent (PEM)	2.1	0.5	2.3	2.1
Palustrine Unconsolidated Bottom (PUB)	0.1	0.3	0.1	0.1
Riverine	0.3	0.3	0.6	0.2
Total	**15.8**	**9.4**	**15.9**	**14.5**

a Inclusive of the 5.0-acre Centreport Substation
b The sum of the addends may not equal the totals due to rounding.

Proposed Route (Route 2)

Based on the wetland desktop delineation methodology described above, the Proposed Route right-of-way encompasses approximately 15.8 acres of wetlands, including 12.0 acres of palustrine forested ("PFO"), 2.1 acre of palustrine emergent ("PEM"), 1.3 acres of palustrine scrub-shrub ("PSS"), 0.1 acre of palustrine unconsolidated bottom ("PUB"), and 0.3 acre of riverine type wetlands.

Alternative Route 1

Based on the wetland desktop delineation methodology described above, the Alternative Route 1 right-of-way encompasses approximately 9.4 acres of wetlands, including 8.2 acres of PFO, 0.5 acre of PEM, 0.3 acre of PUB, and 0.3 acre of riverine wetlands.

Alternative Route 3

Based on the wetland desktop delineation methodology described above, the Alternative Route 3 right-of-way encompasses approximately 15.9 acres of wetlands, including 9.8 acres of PFO, 2.3 acre of PEM, 3.3 acres of PSS, 0.1 acre of PUB, and 0.6 acre of riverine wetlands.

Alternative Route 4

Based on the wetland desktop delineation methodology described above, the Alternative Route 4 right-of-way encompasses approximately 14.5 acres of wetlands, including 11.0 acres of PFO, 2.1 acre of PEM, 1.2 acres of PSS, 0.1 acre of PUB, and 0.2 acre of riverine wetlands.

All wetlands will require protective matting to be installed to support construction vehicles, equipment, and materials during construction. While most wetlands are anticipated to be spanned, with impacts limited to temporary construction impacts, permanent impacts would include any necessary structure placement within wetlands and clearing and conversion of PFO/PSS-type wetlands to PSS or PEM wetland types after construction is complete. This conversion would reduce riparian buffer benefits such as stream bank stabilization and erosion control, nutrient and sediment filtration, floodwater storage and peak flow reduction, and water temperature changes due to loss of shading. Construction impacts from the transmission lines on PEM and riverine wetlands would be temporary and would be restored to pre-construction conditions when construction is complete. Within PFO and PSS wetlands, vegetation will be allowed to return to maintained right-of-way heights, consistent with open meadow and/or shrub-scrub habitat, after construction is completed, which would provide some filtration and stabilization to protect waterbodies from runoff.

Prior to construction, the Company will delineate wetlands and other waters of the United States using the *Routine Determination Method*, as outlined in the *1987 Corps of Engineers Wetland Delineation Manual* and methods described in the *2012 Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Eastern Mountains and Piedmont Region* (Version 2.0) or the *2010 Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Atlantic and Gulf Coastal Plain Region* (Version 2.0), depending on the location of the wetlands. The Company will obtain any necessary permits to impact jurisdictional resources. The Company has sited structures to avoid wetlands and streams to the extent practicable. Temporary impacts will be restored to pre-existing conditions, and permanent impacts will be compensated for in accordance with all applicable state regulations and laws. The Project is expected to require a Virginia Water Protection general permit and a Nationwide Permit 57. A JPA will be submitted for further evaluation and final permit need determination by DEQ, VMRC, and the Corps.

E. Floodplains

As depicted on the Federal Emergency Management Agency's ("FEMA") online Flood Insurance Rate Maps # 51179C0143F, #51179C0139F, #51179C0140F, #51179C0201F, #51179C0202F, and #51179C0210G (effective dates all 6/20/2023), the Project study area contains regulatory flood zone around Potomac Creek (a watercourse channel and surrounding land that must be reserved to discharge a base flood), as well as flood zone hazard area Zone AE, base floodplain, areas, and moderate flood hazard Zone X, areas of minimal flood hazard. The Company will coordinate with the local floodplain coordinators as required.

F. Solid and Hazardous Waste

ERM identified environmentally regulated sites that use and/or store hazardous materials or waste-producing facilities operating under regulatory permits in the study area using publicly available GIS databases obtained from the U.S. Environmental Protection Agency ("EPA") and the DEQ. These databases provide information about facilities, sites, or places subject to environmental regulation or of environmental interest. These include sites

that use and/or store hazardous materials; waste producing facilities operating under permits from the EPA or other regulatory authorities; Comprehensive Environmental Response, Compensation, and Liability Act ("CERCLA" or "Superfund") sites; Resource Conservation and Recovery Act ("RCRA") sites; Brownfield sites; petroleum storage and petroleum release sites; and solid waste sites. The identification of a site in the databases does not mean that the site necessarily has contaminated soil or groundwater.

Sites regulated by the EPA under the Clean Air Act ("CAA") Compliance Monitoring Program, Toxic Release Inventory ("TRI"), National Pollutant Discharge Elimination System ("NPDES"), and RCRA, and sites regulated by the DEQ under the Air, Solid Waste, Virginia Pollutant Discharge Elimination System ("VPDES"), Voluntary Response Program ("VRP"), and Registered Petroleum Tank Facilities programs not associated with a petroleum leak, site assessment, remediation, corrective action or emergency response case are anticipated to have no effect on, and will not be affected by the Project. These sites are not discussed further.

A summary of the information from the EPA and DEQ databases within a 0.5-mile buffer of the centerlines of the Proposed and Alternative Routes is provided in Table F-1 below. The locations of the sites are depicted in Attachment 2.F.1.

TABLE F-1
230 kV Centreport Loop and Centreport Substation [a]

Environmental Regulated Facilities and Hazardous Waste/Petroleum Release Sites within 0.5 Mile

Site Type	Proposed Route (Route 2)	Alternative Route 1	Alternative Route 3	Alternative Route 4
Waste	1	4	2	2
Toxics	0	0	0	0
Land	7	10	11	8
Air	0	0	1	0
Water	19	8	19	19
Solid Waste Facilities	0	0	0	0
Petroleum Facilities	0	6	1	0
Petroleum Releases	3	10	3	3
Total [b]	**30**	**38**	**37**	**32**

[a] The Centreport Substation is included in the route analysis.

[b] Note that a single facility may be associated with multiple environmental permits; as such, the total number reflects the number of permits and releases within the specified distance from the Project.

Notes

Waste (Active and Inactive RCRA Facilities that handle or generate hazardous wastes)
Toxics (TRI Regulated facilities that handle and release toxic substances to the environment)
Land (Site cleanup under Superfund, RCRA or Brownfield programs, and/or DEQ VRP or Pollution Response program)
Air (EPA and DEQ regulated facilities with a release of pollutants to the air)
Water (EPA and DEQ regulated facilities that discharge or process water to surface water)
Solid Waste Facilities (Former and existing landfills)
Petroleum Facilities (Regulated petroleum storage facilities)
Petroleum Releases (Typically associated with storage tank releases)

To evaluate the potential impact to the routes, ERM further assessed the sites within 1,000 feet of the Project's Proposed and Alternative Routes (Table F-2).

TABLE F-2
230 kV Centreport Loop and Centreport Substation [a]

Environmental Regulated Facilities and Hazardous Waste/Petroleum Release Sites within 1,000 Feet

Site Type	Proposed Route (Route 2)	Alternative Route 1	Alternative Route 3	Alternative Route 4
Waste	1	1	1	1
Toxics	0	0	0	0
Land	6	6	6	6
Air	0	0	0	0
Water	5	1	6	5
Solid Waste Facilities	0	0	0	0
Petroleum Facilities	0	2	0	0
Petroleum Releases	1	5	3	2
Total [b]	**13**	**15**	**16**	**14**

[a] The Centreport Substation is included in the route analysis.

[b] Note that a single facility may be associated with multiple environmental permits; as such, the total number reflects the number of permits and releases within the specified distance from the Project.

Notes

Waste (Active and Inactive RCRA Facilities that handle or generate hazardous wastes)
Toxics (TRI Regulated facilities that handle and release toxic substances to the environment)
Land (Site cleanup under Superfund, RCRA or Brownfield programs, and/or DEQ VRP or Pollution Response program)
Air (EPA and DEQ regulated facilities with a release of pollutants to the air)
Water (EPA and DEQ regulated facilities that discharge or process water to surface water)
Solid Waste Facilities (Former and existing landfills)
Petroleum Facilities (Regulated petroleum storage facilities)
Petroleum Releases (Typically associated with storage tank releases)

EPA Regulated Sites

Based on the most recent available data in the EPA's "Cleanups in My Community" database, no Brownfield or Superfund sites are located within 0.5 mile of the Centreport Loop route alternatives. Six RCRA sites are located within 0.5 mile of the Proposed Route (Route 2), Alternative Route 1, Alternative Route 3, and Alternative Route 4; however, none of the sites are located within 200 feet of the Project, none are designated as a Corrective Action or Emergency Response site, and none are designated as a Large Quantity Generator ("LQG") of hazardous waste.

One EPA-regulated NPDES site is located within 200 feet of the Project Area. Additional information on this site is provided in Table F-3 and summarized below.

DEQ Regulated Sites

ERM reviewed DEQ Petroleum Release, VRP, and PREP databases to identify sites within 1,000 feet of the routes. No VRP sites were identified within 1,000 feet of the Proposed or Alternative Routes. Twelve PREP sites were identified; however, none of the PREP sites are located within 200 feet of Project routes. As such, no further review of VRP or PREP sites was conducted.

Petroleum release cases located within 1,000 feet of the routes are summarized in Table F-2. ERM identified one case within 200 feet of Alternative Route 3. Case files were obtained via Freedom of Information Act ("FOIA") requests to the DEQ for further review. Refer to Table F-3 and the case summaries below for additional information.

EPA and DEQ Regulated Sites Within 200 Feet of the Project

Of the regulated facilities and hazardous waste / petroleum release sites identified within 1,000 feet of the Project, two sites are within 200 feet of the Project. Site descriptions are provided in Table F-3 and the subsequent summaries below.

TABLE F-3
230 kV Centreport Loop and Centreport Substation *

Environmental Regulated Facilities and Hazardous Waste/Petroleum Release Sites within 200 Feet of the Proposed and Alternative Routes *

Site Name	Site Type	Regulatory Authority	Most Proximate Route *	Distance from Route (feet)	Gradient from Project (up/down/side)	Agency Status
Potomac Point Geriatric Care (PC 19941592)	Petroleum Release	DEQ	Alternative Route 3	120 feet	Upgradient	Closed (1994)
Rider Industrial Park Lot 1 (VAR10Q931)	NPDES	EPA	Alternative Route 1	180 feet	N/A	Active

* The Centreport Substation is included in the route analysis.

1) Potomac Point Geriatric Care (PC 19941592)

The Potomac Point Geriatric Care petroleum release site is located approximately 120 feet west of Alternative Route 3 along Jefferson Davis Highway. The site is associated with one petroleum release case (PC 19941592) that was reported in January 1994. The petroleum release involved a small aboveground storage tank ("AST") containing heating oil. Information regarding the volume of petroleum released, observed location of the AST, potential contamination to soil and/groundwater, or remediation actions taken, were not available from DEQ files. The case was closed by the DEQ in October 1994.

The site is estimated to be located hydraulically upgradient of Alternative Route 3. However, due to the duration of elapsed time since the release and the site being closed by the agency, it is unlikely that contamination will be encountered during the construction of the proposed Project. Should unanticipated contamination be observed during construction, the Company will implement its standard response and reporting procedures.

2) *Rider Industrial Park Lot 1 (VAR10Q931)*

The Rider Industrial Park Lot 1 (VAR10Q931) NPDES site is located approximately 180 feet east of Alternative Route 1 along Rider Road. Based on review of available EPA files, the site has not reported a violation of the Clean Water Act ("CWA") during the twelve quarters the site has been active (since April 2021). Due to the reported extent of facility compliance, it is unlikely that contaminated soils and/or groundwater will be encountered during project activities. If previously unidentified contamination is observed during project construction, the Company will follow proper safety and reporting procedures.

Summary

All of the Petroleum Release cases within close proximity to the routes and substation have been issued case closure by the DEQ, and the one NPDES site in close proximity to Alternative Route 1 is unlikely to have contaminated the soils and/or groundwater. The DEQ deems a petroleum release case closed once no further risk to the general public has been identified; however, risk assessments do not always consider the risk associated with temporary excavations and construction. Proper procedures will be followed to safely identify, manage, and dispose of any suspected hazardous and contaminated media that may be encountered during Project activities in accordance with applicable federal, state, and local regulations.

Although the Project is constructing overhead lines, minor subsurface work is required during installation. This disturbance occurs at discrete locations along the route, with temporary spoils contained as they are generated. The Company has a procedure in place to safely identify, manage, and dispose of any suspected hazardous or contaminated media encountered during construction. If contaminated soil or groundwater are identified, the associated regulatory agency will be coordinated with and the soils disposed of in accordance with applicable regulations.

Care will be taken to operate and maintain construction equipment to prevent any fuel or oil spills. Any waste created by the construction crews will be disposed of in a proper manner and recycled where appropriate and will be further detailed in the Company's stormwater pollution prevention plan, a component of the Virginia Stormwater Management Program, which falls under the purview of the DEQ.

G. Natural Heritage, Threatened and Endangered Species

On behalf of the Company, ERM conducted online database searches for threatened and endangered species in the vicinity of the Project, including the Virginia Department of Conservation and Recreation ("DCR") Natural Heritage Data Explorer ("NHDE"). The NHDE includes three components: Conservation Sites, Stream Conservation Units, and General Location Areas for Natural Heritage Resources. ERM also obtained query results from the Virginia Department of Wildlife Resources ("DWR") Fish and Wildlife Information Service ("VaFWIS"), and the USFWS Information for Planning and Consultation ("IPaC") System to identify federally- and state-listed species that may occur

within the study area. Digital data were obtained from the DCR-NHDE to identify locations within the study area that potentially support protected species. Results of these queries are provided in Attachment 2.G.1.

The review accounted for regulatory changes and requirements associated with the Northern long-eared bat ("NLEB") and the USFWS up-listing of this species from federally threatened to federally endangered, per the existing interim guidance from the USFWS for the NLEB that expired on March 31, 2024. The USFWS previously indicated that it planned to issue final NLEB guidance to replace the interim guidance by April 1, 2024; however, the interim guidance has been extended by USFWS until late summer 2024.

The review also accounted for regulatory changes and requirements associated with Tricolored bat ("TCB") and the proposed USFWS listing of this species as federally endangered. The Company is also monitoring potential regulatory changes associated with the potential listing of the TCB. On September 14, 2022, the TCB was proposed to be listed as Endangered, with an estimated announcement of a final decision within 12 months. USFWS extended its Final Rule issuance target from September 2023 to September 2024. Regulatory guidance on the TCB will be available upon listing.

To obtain the most current eagle nest data, ERM reviewed the Center for Conservation Biology ("CCB") Virginia Eagle Nest Locator mapping portal, which provides information about the Virginia bald eagle (*Haliaeetus leucocephalus*) population, including the results of the CCB's annual eagle nest survey.

Based on queries of the above referenced sources, six federal and/or state-listed or proposed threatened and endangered species have the potential to occur within the study area (Table G-1). For additional information, see Section 3.2.5 of the Environmental Routing Study.

TABLE G-1
230 kV Centreport Loop and Centreport Substation

Potential Federal-and State-Listed Species in the Project Area

Species	Status	Database	Habitat	Results
Northern long-eared bat (*Myotis septentrionalis*)	FE, ST	USFWS IPaC, DWR-NLEB Winter Habitat and Roost Tree Map	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.	Species not confirmed as present. Summer foraging habitat present, but no known hibernacula or maternity roost trees are documented within the Project area. The Project would require clearing of forested areas; however, given the lack of confirmed species presence, impacts are not anticipated.
Tricolored bat (*Perimyotis subflavus*)	FPE, SE	USFWS IPaC, DWR Tri-colored Bat Winter Habitat and Roost Tree Map	Typically roost in trees near forest edges during summer. Hibernate deep in caves or mines in areas with warm, stable temperatures during winter.	Species not confirmed as present, and no hibernaculum identified within a 0.5-mile-radius of the Project. No impacts are anticipated.

TABLE G-1
230 kV Centreport Loop and Centreport Substation

Potential Federal-and State-Listed Species in the Project Area

Species	Status	Database	Habitat	Results
Dwarf wedgemussel (*Alasmidonta heterodon*)	FE, SE	USFWS IPaC, VaFWIS	Large rivers and small streams, often burrowed into clay banks among the root systems of trees; deep quick running water on cobble, fine gravel, or on firm silt or sandy bottoms.	Species not confirmed as present, and no instream work would be performed. No impacts are anticipated.
Green floater (*Lasmigona subviridis*)	FPE, SE	USFWS IPaC, DCR	Small to medium streams in quiet pools and eddies with gravel and sand substrates.	Species not confirmed as present, and no instream work would be performed. No impacts are anticipated.
Harperella (*Ptilimnium nodosum*)	FE, SE	USFWS IPaC, VaFWIS	Fissures of bedrock outcrops in channel shelfs. Intolerant of deep water, but can tolerate periodic flooding.	Species not confirmed as present, and potential habitat is likely not present.
Small whorled pogonia (*Isotria medeoloides*)	FT, ST	USFWS IPaC, DCR	Variety of woodland habitats. Prefers mid-aged woodland habitats on north/northeast facing slopes within small draws.	DCR identified the potential for this species to occur within the study area with potential habitat likely present. DCR recommends conducting Small whorled pogonia surveys between June 1st and July 20th. If identified, the Company will work with the appropriate regulatory agencies to minimize any impacts on the species.

Federal/State Status:
FE Federally listed as endangered
SE State listed as endangered

FT Federally listed as threatened
ST State listed as threatened

FPE Federally proposed as endangered
FPT Federally proposed as threatened

Database queries identified four federally listed species and two species with a federally proposed listing under the Endangered Species Act ("ESA"), each of which are also state-listed species, that could potentially occur in the study area: Northern long-eared bat (*Myotis septentrionalis*), Tricolored bat (*Perimyotis subflavus*), Dwarf wedgemussel (*Alasmidonta heterodon*), Green floater (*Lasmigona subviridis*), Harperella (*Ptilimnium nodosum*), and Small whorled pogonia (*Isotria medeoloides*). The federal listing of the TCB and the Green floater have been proposed but have not been officially listed.

While all six of these species were identified by the DWR, the DCR Division of Natural Heritage ("DNH"), and/or USFWS databases as having potential occurrence within the Project study area, the DWR, VaFWIS, and Wildlife Environmental Review Map Service data shows that no occurrences of these species have been confirmed as present within the study area. On behalf of the Company, ERM submitted the Project to DCR-DNH for review. DCR-DNH conducted an official review dated March 1, 2024 (see Attachment 2.G.1). According to DCR-DNH's official review, a DCR biologist identified the potential for Small whorled pogonia to occur in the Project area if suitable habitat exists on site. Based on the DCR-DNH predicted suitable habitat model, ERM quantified the following

approximate acreage in Table G-2 of predicted suitable habitat where the Small whorled pogonia might exist along each route.

TABLE G-2
230 kV Centreport Loop and Centreport Substation
Predicted Suitable Habitat for the Small Whorled Pogonia

	Proposed Route (Route 2) (acres)	Alternative Route 1 (acres)	Alternative Route 3 (acres)	Alternative Route 4 (acres)
Small whorled pogonia	18.7	34.7	10.6	11.5

Due to the slope aspect and mostly forested nature of the land crossed by these footprints, there is potential for Small whorled pogonia habitat to occur within the study area. The Proposed Route (Route 2) would cross approximately 18.7 acres of potential Small whorled pogonia habitat. Alternative Routes 1, 3, and 4 would cross 34.7, 10.6, and 11.5 acres of potential Small whorled pogonia habitat, respectively. The required removal of trees would eliminate this potential habitat within the right-of-way of the selected route.

Due to the potential for the study area to support populations of Small whorled pogonia, DCR-DNH recommends an inventory for this species within the study area. With the survey results, DCR-DNH indicates that it can more accurately evaluate potential impacts to natural heritage resources and offer specific protection recommendations for minimizing impacts to the documented resources. DCR-DNH recommends conducting these surveys between June 1 and July 20, since Stafford County is located north of Caroline County, Virginia. Dominion Energy Virginia will survey the selected route for potential Small whorled pogonia habitat and based on the results, coordinate with regulatory and resource agencies to determine potential impacts to the species.

Ecological cores (cores) are areas of 100-acres or more of contiguous natural land cover associated with areas of high ecological value. They are ranked from C1 (Outstanding) to C5 (General). As part of its official review, DCR-DNH also found that the Proposed and Alternative Routes intersect ecological cores of ranks C4 (moderate integrity) and C5 (general integrity).

During the Project routing process, ERM attempts to avoid higher-ranking ecological cores to the extent practicable, while also taking into consideration other routing constraints. When avoidance is not possible, ERM attempts to minimize the crossing length of higher-ranking cores, collocate with existing linear corridors, cross previously cleared or disturbed areas, and to minimize fragmentation by following ecological core boundaries to the extent practicable. Where cores are crossed, the habitat is not fully lost as the transmission lines are maintained as open meadow/shrub habitat that is consistent with successional habitat.

The DCR-DNH review identified several ecological cores with the ranks of C4 (moderate ecological integrity) and C5 (general ecological integrity). The majority of cores crossed by the Proposed and Alternative Routes are around Potomac Creek and its tributaries. Cores crossed by Alternative Route 3 are generally associated with forested areas around tributaries to Potomac Creek and Claiborne Run. Of the mapped ecological cores, five (44143, 44324, 44219, 44368, 44266) are less than 100-interior acres and are therefore

classified as habitat fragments by DCR rather than ecological cores and are not discussed further. Ecological cores crossed by the Proposed and Alternative Routes are summarized in the Table G-3 below.

Table G-3
230 kV Centreport Loop and Centreport Substation

Ecological Cores Crossed by the Proposed and Alternative Routes

Core Rank	Core ID	Total Core Acres	Acres Crossed	Miles Crossed
Proposed Route (Route 2)				
C4 (Moderate)	44103	561	5.7	0.5
Alternative Route 1				
C4 (Moderate)	44176	388	9.3	0.8
	44654	303	10.0	0.8
C5 (General)	44560	160	8.3	0.7
Alternative Route 3				
C4 (Moderate)	44103	561	7.8	0.7
Alternative Route 4				
C4 (Moderate)	44103	561	5.3	0.4

The Proposed Route crosses one ecological core (ranked as C4), totaling approximately 0.5 mile in length and 5.7 acres. Route Alternative 1 crosses a total of three ecological cores (two ranked as C4 and one ranked as C5), totaling approximately 2.3 miles and 27.7 acres. Alternative Route 3 crosses one ecological core (ranked as C4), totaling approximately 0.7 mile and 7.8 acres. Alternative Route 4 crosses one ecological core (ranked as C4), totaling approximately 0.4 mile and 5.3 acres. Based on a review of recent aerial imagery (2023), all ecological cores crossed by the Proposed or Alternative Routes would be fragmented and may be reclassified as habitat fragments by the DCR due to the reduced contiguous forest acreage; however, the impact to the habitat of the cores would be limited to structure placement and conversion of forest cover to open, vegetated space within the maintained right-of-way. Due to the lower ranks of these cores and the maintenance of open, undeveloped land within the right-of-way, the ecological impacts are not anticipated to be significant. The Company will work with the appropriate jurisdictional agencies to minimize any impacts on SCUs, ecological cores, and protected species during implementation of the Project. Additional analysis on ecological core impacts can be found in the Environmental Routing Study.

Based on the CCB Virginia Eagle Nest Locator mapping portal, the Proposed Route and Alternative Routes do not intersect any primary or secondary buffers of currently documented bald eagle nests as identified in The Bald Eagle Protection Guidelines for Virginia (2012). According to the CCB database, the closest nest (Nest ID ST1301) is

approximately 2.6 miles southeast of the Project area and was last documented as occupied in 2015. None of the route alternatives are within the 660-foot management buffer for the nest. During field reconnaissance, bald eagles were observed flying east of Richmond Highway along Route 3. The Company will work with the appropriate jurisdictional agencies to minimize impacts on this species.

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.

Of the species identified in Table G-1 above, none have historically been documented within any of the Proposed or Alternative Routes. For impacts on wildlife habitat (forested, agricultural, open space, and open water/waterbodies), see Section K.

No other natural heritage resources (habitat of rare, threatened, or endangered species, unique or exemplary natural communities, or significant geological formations) were identified within the study area by the DCR. Additionally, DCR-DNH concluded that the Project does not cross any State Natural Area Preserves under DCR's jurisdiction. See Attachment 2.G.1.

New and updated information is continually added to DCR's Biotics database. The Company shall re-submit Project information and a map for an update on this natural heritage information if the scope of the Project changes and/or six months have passed before this information is utilized.[2]

H. Erosion and Sediment Control

The DEQ approved the Company's *Standards & Specification for Erosion & Sediment* Control *and Stormwater Management for Construction of Linear Electric Transmission Facilities (TE VEP 8000)*. These specifications are given to the Company's contractors and require erosion and sediment control measures to be in place before construction of the line begins and specifies the requirements for rehabilitation of the right-of-way. A copy of the current DEQ approval letter dated February 27, 2024, is provided as Attachment 2.H.1. According to the approval letter, coverage is effective from February 27, 2024, through February 26, 2025.

I. Archaeological, Historic, Scenic, Cultural or Architectural Resources

ERM conducted a Stage I Pre-Application Analysis ("Stage I Analysis") of potential impacts on cultural resources for the Proposed and Alternative Routes in accordance with the Virginia Department of Historic Resource's ("VDHR") *Guidelines for Assessing Impacts of Proposed Electric Transmission Lines and Associated Facilities on Historic Resources in the Commonwealth of Virginia* (VDHR 2008). A copy of the Stage I Analysis, which was provided to VDHR on September 18, 2024, is included as Attachment

[2] The Company updated this commitment consistent with discussions held between Company and DCR-DNH representatives on August 23, 2022.

2.I.1. For each route alternative, the analysis identified and considered previously recorded resources within the following study tiers as specified in the Guidelines:

- National Historic Landmark ("NHL") properties located within a 1.5-mile radius of each route centerline.
- National Register of Historic Places ("NRHP")-listed properties, NHLs, battlefields, and historic landscapes within a 1.0-mile radius of each route centerline.
- NRHP-eligible and -listed properties, NHLs, battlefields, and historic landscapes within a 0.5-mile radius of each route centerline.
- Qualifying architectural resources and archaeological sites located within the right-of-way for each alternative route.

Information on cultural resources within each of the above study tiers was obtained from the Virginia Cultural Resource Information System.

In addition to the V-CRIS, ERM collected information from Stafford County Historical Society (2023), Stafford County Historical Commission (2024), and Tour Stafford, Virginia (2024) to find locally significant resources within a 1.0-mile radius of each route alternative's centerline. One locally significant resource was identified within the relevant study tiers for the various route options during the data collection effort. ERM additionally collected information on battlefields surveyed and assessed by the National Park Service's American Battlefield Protection Program ("ABPP") (NPS 2023). No additional ABPP study areas, core areas, or potential NRHP boundaries for battlefields were identified within the relevant study tiers for the various route alternatives through this source.

Along with a records review carried out for the four tiers as defined by VDHR, ERM also conducted field assessments of the considered aboveground resources for the Proposed and Alternative Routes in accordance with the VDHR Guidelines. Digital photographs of each resource and views to the proposed transmission line were taken. All photographs were taken from the public right-of-way or where access to the property was granted. Photo simulations were prepared to assess potential viewshed impacts from construction of the proposed transmission line for each considered resource and relevant route. For previously recorded archaeological sites under consideration, aerial photographs were examined to assess the current land condition and the spatial relationship between the sites and any existing or planned transmission lines.

A summary of the considered resources identified in the vicinity of the Proposed and Alternative Routes, inclusive of the proposed Centreport Substation, and recommendations concerning Project effects are provided in the following discussion. The information presented here derives from existing records and does not purport to encompass the entire suite of historic and archaeological resources that may ultimately be affected by the undertaking.

Resources located within the right-of-way of the Proposed and Alternative Routes may be subject to both direct impacts from placement of the transmission line structures across the property as well as indirect visual impacts from changes to the viewshed introduced by the new transmission infrastructure. Resources in the 0.0 to 0.5-mile study tier would not be directly impacted but would likely be visually impacted unless topography or vegetation obscures the view from the resource to the transmission line. At a distance over 0.5-mile, it becomes less likely that a resource would be within line-of-sight of the new transmission facilities. Beyond 1.0-mile, it becomes even less likely that a given resource would be within line-of-sight of the Project. A complete architectural survey is necessary to determine which resources would be visually impacted and to survey for additional unrecorded resources. This survey would be completed after the Commission approves the Project.

The nature of the impacts on cultural resources from construction and operation of the Project, while estimated in the study with the assistance of photo simulations, will depend on the final Project design in which the exact placement and height of transmission line structures are confirmed. As part of the forthcoming architectural survey, Project impacts on these and any newly identified resources would be assessed. The study area for the survey would be defined based on the height of the transmission line structures, topography, tree cover, and other factors impacting line-of-sight from resources to the route.

Proposed Route (Route 2)

Two aboveground historic resources were identified within the VDHR study tiers for the Proposed Route, including the Centreport Substation site (Table I-1). Construction and operation of the new facilities along this route would have No Impact on one resource (089-0157) and a Minimal Impact on one resource (089-0013).

Buzzard's Roost (089-0013), a conical "monadnock-like landform" crowned with a large stone outcrop near a known Union Army encampment. This resource is located approximately 0.4 mile to the east-northeast of the Proposed Route (Route 2) at MP 2.3. The distance between the Proposed Route and resource consists of newly cleared land with industrial development and some mature vegetation. The resource remains on a slightly elevated mound shaded by a grouping of mature trees. Thus, its elevation will likely cause the viewshed of the resource to extend further than simulations suggest. The construction of the new transmission line would be visible from this resource and several vantage points across the resource. But due to the recent modern development, the resource's viewshed has already been heavily altered. The Proposed Route would add additional, modern infrastructure to the viewshed; however, as noted above, the resource's viewshed has already been compromised by the construction of the industrial/commercial landscape to the resource's western and northern viewsheds. Thus, ERM recommends that there would be a Minimal Impact to this resource from the Proposed Route (Route 2) due to these reasons.

The Proposed Route (Route 2) intersects the northeastern and southeastern boundaries of Oakenwold (089-1057), a former two-story Gothic Revival dwelling built circa 1855 with

14 associated outbuildings and associated archaeological sites, running southeast from the proposed Centreport Substation and moving south before the route deviated southeast at MP 1.5. The route alignment consists primarily of dense vegetation according to the most recent aerial imagery; however, it has been observed in recent survey and confirmed through conversations with the Company's cultural contact that this land has been partially cleared and all structures associated with Oakenwold have been razed. Thus, ERM recommends that there would be a No Impact to this resource from the Proposed Route (Route 2) due to these reasons.

TABLE I-1
230 kV Centreport Loop and Centreport Substation

Resources in VDHR Tiers for the Proposed Route (Route 2)

Buffer (miles)	Considered Resources	VDHR #	Description	Impact
1.0-1.5	National Historic Landmarks	NA	NA	NA
0.5-1.0	National Register—Listed	NA	NA	NA
	Battlefields—Potentially Eligible	NA	NA	NA
	Rural Historic District — Eligible	NA	NA	NA
0.0- 0.5	National Register—Eligible	089-0013	Buzzard's Roost	Minimal
	Locally Significant	NA	NA	NA
0.0 (within right-of-way)	National Register — Eligible	089-0157	Oakenwold	None

NA = not applicable; VDHR = Virginia Department of Historic Resources

The Stage I Analysis also considered the potential effects to archaeological resources. Proposed Route (Route 2) has four known archaeological sites within its right-of-way. Site 44ST0310 is an unknown prehistoric temporary camp site. The site was surveyed in 1995 by KCI Technologies that has been evaluated as not eligible for the NRHP.

Site 44ST0485 is a prehistoric camp dating to the early, middle, and late Archaic periods. The site was recorded and then relocated during the same 2013 Circa and 2022 Thunderbird Phase I surveys that Site 44ST1149, discussed further in relation to Alternative Route 1, It was recommended ineligible by both companies due to a lack of research potential but has not been evaluated by VDHR.

Site 44ST1274 is a prehistoric lithic scatter and Site 44ST1276 is an unknown prehistoric temporary camp site. Both sites were surveyed in previous Phase I surveys performed by Thunderbird Archeology in 2022 which both evaluated as not eligible for the NRHP.

Alternative Route 1

Three aboveground historic resources were identified within the VDHR study tiers for Alternative Route 1 (Table I-2). Construction and operation of the new facilities along this route would have a Minimal Impact on one resource (089-0013) and a Moderate Impact on two resources (089-0020 and 089-0157).

Buzzard's Roost (089-0013) is located approximately 0.4 miles to the east-northeast of Route 1 nearest MP 3.4. The distance between the proposed route and resource consists of newly cleared land with industrial development and some mature vegetation. The resource remains on a slightly elevated mound shaded by a grouping of mature trees. Because of its elevation, the viewshed of the resource extends farther than it might otherwise. Although the resource will likely have some view of Alternative Route 1, its surrounding landscape was already altered by an industrial/commercial building complex to the northwest and south of the resource, which cleared the area immediately surrounding it. Due to the recent modern development, the resource's viewshed has been heavily altered. The most recent clearing of the woodlands to the west would likely offer sight lines to Alternative Route 1, but this viewscape is already compromised by recent construction and does not approximate historic conditions. Therefore, little impact on the resource would derive from construction of Alternative Route 1. As such, ERM recommends that there would be a Minimal Impact to this resource from Alternative Route 1.

Glencairne (089-0020), a Federal style I-house with eight associated components, is intersected by Alternative Route 1 or a distance of approximately 590 feet on the resource's northeastern edge. The proposed route uses greenfield alignment and runs north to south, predominately through dense forest along with a small section of open field where an existing transmission line is found. The existing transmission line transects the resource on a west-southwest alignment. The view from the resource's architectural components towards Alternative Route 1's alignment would be somewhat obstructed by a dense row of mature trees. The new transmission line would entail a new tree cut perpendicular to the existing transmission line corridor within the boundary of the resource. Alternative Route 1 would further change the setting within the resource, and would be visible from at least one vantage point along public roads. Although the historic landscape has been previously altered already by similar infrastructure, Alternative Route 1 would entail the construction of additional new infrastructure within a new transmission line right-of-way, altering currently undeveloped land within the resource. Thus, ERM recommends that Alternative Route 1 would have a Moderate Impact on 089-0020.

Alternative Route 1 parallels the northwestern boundary of Oakenwold (089-0157) running southwest from the proposed Centreport Substation and moving south before the route deviates southwest at MP 2. The route alignment consists primarily of dense vegetation from current aerials; however, it has been observed in recent survey and confirmed through conversations with the Company's cultural contact as being partially cleared with all structures razed. Thus, ERM recommends that there would be a No Impact to this resource from Alternative Route 1.

TABLE I-2
230 kV Centreport Loop and Centreport Substation

Resources in VDHR Tiers for Alternative Route 1

Buffer (miles)	Considered Resources	VDHR #	Description	Impact
1.0-1.5	National Historic Landmarks	NA	NA	NA
0.5-1.0	National Register—Listed	NA	NA	NA
	Battlefields—Potentially Eligible	NA	NA	NA
	Rural Historic District — Eligible	NA	NA	NA
0.0- 0.5	National Register—Eligible	089-0013	Buzzard's Roost	Minimal
		089-0157	Oakenwold	None
	Locally Significant	NA	NA	NA
0.0 (within right-of-way)	National Register — Eligible	089-0020	Glencairne	Moderate

NA = not applicable, VDHR = Virginia Department of Historic Resources

The Stage I Analysis also considered the potential effects to archaeological resources. Two known archaeological sites are located within the right-of-way of Alternative Route 1. Site 44ST1149, also known as Oakenwold, is a prehistoric camp and historic cemetery. The prehistoric camp portion of the site dates to the Archaic and early Woodland periods. The cemetery contains three shallow unmarked depressions that are suspected to be graves associated with a nearby plantation. The site has been subject to Phase I surveys in 2013 by Circa and again in 2022 by Thunderbird. The prehistoric component of the site was determined ineligible by VDHR in 2022; however, the historic cemetery should be avoided.

Site 44ST1274 is discussed above in relation to the Proposed Route (Route 2).

Alternative Route 3

Two aboveground historic resources were identified within the VDHR study tiers for Alternative Route 3 (Table I-3). Construction and operation of the new facilities along this route would have No Impact on one resource (089-0157) and a Minimal Impact on one resource (089-0013).

Buzzard's Roost (089-0013) is located approximately 0.4 miles to the east-northeast of Alternative Route 3 at MP 2.1. The distance between Alternative Route 3 and the resource consists of newly cleared land with industrial development and some mature vegetation. The resource remains on a slightly elevated mound shaded by a grouping of mature trees.

Thus, its elevation will likely cause the viewshed of the resource to extend further than simulations suggest. The construction of the new transmission line would be visible from this resource and many vantage points across the resource. It would add additional modern infrastructure to the viewshed; however, the setting of the resource has already been compromised by the construction of the industrial/commercial landscape to the resource's western and northern viewshed. Thus, ERM recommends that there would be a Minimal Impact to this resource from Alternative Route 3.

Alternative Route 3 intersects the northeastern and southeastern boundaries of Oakenwold (089-0157) running southeast from the proposed Centreport Substation and moving south before the route deviated southeast at MP 1.3. The route alignment consists primarily of dense vegetation from current aerials; however, it has been observed in recent survey and confirmed through conversations with the Company's cultural contact as being partially cleared with all structures razed. Thus, ERM recommends that there would be No Impact to this resource from Alternative Route 3 due to these reasons.

TABLE I-3
230 kV Centreport Loop and Centreport Substation

Resources in VDHR Tiers for the Proposed Alternative Route 3

Buffer (miles)	Considered Resources	VDHR #	Description	Impact
1.0-1.5	National Historic Landmarks	NA	NA	NA
0.5-1.0	National Register—Listed	NA	NA	NA
	Battlefields—Potentially Eligible	NA	NA	NA
	Rural Historic District — Eligible	NA	NA	NA
0.0- 0.5	National Register—Eligible	089-0013	Buzzard's Roost	Minimal
	Locally Significant	NA	NA	NA
0.0 (within right-of-way)	National Register — Eligible	089-0157	Oakenwold	None

NA = not applicable; VDHR = Virginia Department of Historic Resources

The Stage I Analysis also considered the potential effects to archaeological resources. Alternative Route 3, which partially overlaps the Proposed Route, has seven known archaeological sites within its right-of-way. Four of the sites, 44ST0310, 44ST0485, 44ST1274 and 44ST1276, have been discussed above in the Proposed Route section. In addition to these, three sites (44ST1054, 44ST1072 and 44ST1073) are also located within the Alternative Route 3 right-of-way.

Site 44ST1054 is a historic (late eighteenth century) temporary camp site. According to previous archaeological reports, the site was mapped as a large box, as it was an unverified site location and previous Phase I and metal detecting surveys performed in 2010, 2016, and 2022 were not able to locate any cultural remains in the area that would verify this location as an archaeological site. It has been determined that the site is currently unevaluated for the NRHP.

Site 44ST1072 is a prehistoric (Late Archaic, Early–Late Woodland) temporary camp site previously surveyed by R. Christopher Goodwin & Associates, Inc. in 2022. The site as a being heavily disturbed and lacking temporally diagnostic artifacts or intact cultural features. It has been evaluated as not eligible for the NRHP.

Site 44ST1073 is a historic (nineteenth century) mill race that has been evaluated as not eligible for the NRHP (VCRIS 2024). A previous Phase I survey performed by Circa~ Cultural Resources Management, LLC for Angler Environmental in 2010 stated that some water still ran through portions of the race, but some areas had been developed and it was unconfirmed if there were any mill features in the area.

Alternative Route 4

Two aboveground historic resources were identified within the VDHR study tiers for Alternative Route 4 (Table I-4). Construction and operation of the new facilities along this route would have No Impact on one resource (089-0157) and a Minimal Impact on one resource (089-0013).

Buzzard's Roost (089-0013) is located approximately 0.4 miles to the east-northeast of Alternative Route 4 at MP 2.3. The distance between Alternative Route 4 and resource consists of newly cleared land with industrial development and some mature vegetation. The resource remains on a slightly elevated mound shaded by a grouping of mature trees. Thus, its elevation will likely cause the viewshed of the resource to extend further than simulations suggest. The construction of the new transmission line would be visible from this resource and many vantage points across the resource. It would add additional modern infrastructure to the viewshed; however, the setting of the resource has already been compromised by the construction of the industrial/commercial landscape to the resource's western and northern viewshed. Thus, ERM recommends that there would be a Minimal Impact to this resource from Alternative Route 4.

Alternative Route 4 intersects the northeastern and southeastern boundaries of Oakenwold (089-0157) running southeast from the proposed Centreport Substation and moving south before the route deviated southeast at MP 1.2. The route alignment consists primarily of dense vegetation from current aerials; however, it has been observed in recent survey and confirmed through conversations with the Company's cultural contact, as being partially cleared with all structures razed. Thus, ERM recommends that there would be No Impact to this resource from Alternative Route 4 due to these reasons.

TABLE I-4 230 kV Centreport Loop and Centreport Substation Resources in VDHR Tiers for the Proposed Alternative Route 4				
Buffer (miles)	Considered Resources	VDHR #	Description	Impact
1.0-1.5	National Historic Landmarks	NA	NA	NA
0.5-1.0	National Register—Listed	NA	NA	NA
	Battlefields—Potentially Eligible	NA	NA	NA
	Rural Historic District — Eligible	NA	NA	NA
0.0- 0.5	National Register—Eligible	089-0013	Buzzard's Roost	Minimal
	Locally Significant	NA	NA	NA
0.0 (within right-of-way)	National Register — Eligible	089-0157	Oakenwold	None

NA = not applicable; VDHR = Virginia Department of Historic Resources

The Stage I Analysis also considered the potential effects to archaeological resources. Alternative Route 4, which partially overlaps the Proposed Route (Route 2) and Alternative Route 3, has seven known archaeological sites within its right-of-way. All seven sites (44ST0310, 44ST0485, 44ST1054, 44ST1072, 44ST1073, 44ST1274, and 44ST1276) have been discussed above.

J. Chesapeake Bay Preservation Areas

Stafford County is a locality subject to the Chesapeake Bay Preservation Act, which regulates development of lands that could impact water quality in the Chesapeake Bay and its tributaries. Chesapeake Bay Preservation Areas that help maintain water quality are broken into Resource Protection Areas ("RPAs"), including tidal wetlands, tidal waterbodies, perennially flowing streams, wetlands associated with perennially flowing streams, and a 100-foot buffer around them; and Resource Management Areas, land that could degrade water quality or value of RPAs. As such, RPAs are located around perennial waterbodies and associated wetland areas along the routes, including Potomac Creek, other unnamed perennial tributaries, and their associated wetlands.

Construction, installation, operation, and maintenance of electric transmission lines are conditionally exempt from the Chesapeake Bay Act as stated in the exemption for public utilities, railroads, public roads and facilities in 9 VAC 25-830-150. The Company will meet those conditions and will use Best Management Practices to limit impacts to RPAs to

the minimum extent possible while safely and effectively constructing and maintaining this infrastructure.

K. Wildlife Resources

Forested, open water, agricultural, and open space land use areas and wetlands within the study area may provide wildlife habitat. Forested areas within the Alternative Route rights-of-way would be cleared of trees and converted to maintained vegetation, which would eliminate forest habitat and cover but may provide edge habitat or open space for some species. Waterbody habitat crossed by the Proposed and Alternative Routes would be spanned by the transmission line, with impacts to aquatic species limited to any temporary construction impacts associated with vegetation clearing adjacent to the waterbody and the elimination of riparian buffer benefits (erosion control, water filtration, habitat, and temperature control through shading). Impacts to agricultural and open space would be limited to structure placement if required and vegetation maintenance; the function of the land use would otherwise remain the same.

Proposed Route (Route 2)

The majority of the Proposed Route (Route 2) crosses forested (27.5 acres) and open space (5.5 acres) land use, with a small amount of open water (0.1 acre). The Proposed Route would cross six waterbodies, including one perennial stream (Potomac Creek), and approximately 15.8 acres of wetlands. No agricultural land is crossed by the Proposed Route.

Alternative Route 1

The majority of Alternative Route 1 crosses forested lands (43.1 acres), some agricultural land (1.2 acres), and minimal amounts of open space (0.6 acre) and open water (0.4). Alternative 1 crosses nine waterbodies, including two perennial waterbodies (Potomac Creek and an unnamed tributary to Potomac Creek), and about 9.4 acres of wetlands.

Alternative Route 3

The majority of Alternative Route 3 crosses forested (18.9 acres) and open space (11.9 acres) land use with a small amount of open water (0.2 acre). Alternative Route 3 crosses nine waterbodies, including three perennial waterbodies (two crossings of Potomac Creek and one unnamed tributary to Potomac Creek), and about 15.9 acres of wetlands.

Alternative Route 4

The majority of Alternative Route 4 crosses forested (24.2 acres) and open space (5.1 acres) land use with a small amount of open water (0.1 acre). Alternative Route 4 crosses six waterbodies, including one perennial stream (Potomac Creek), and about 14.5 acres of wetlands. No agricultural land is crossed by this route.

L. Recreation, Agricultural, and Forest Resources

The Project is expected to have minimal incremental impacts on recreational, agricultural, and forest resources. Opportunities for collocation with other rights-of-way were considered, where possible, as a means of avoiding or minimizing impacts on resources. Where the route crosses agricultural lands, impacts would be limited to structure placement and agricultural activities could resume post construction. Where forested areas are crossed, trees would be removed and vegetation kept to maintained heights within the right-of-way.

The Virginia Agricultural and Forestal Districts Act provides for the creation of conservation districts designed to conserve, protect, and encourage the development and improvement of a locality's agricultural and forested lands. According to the Virginia Department of Forestry ("VDOF"), there are no Agricultural and Forestal Districts crossed by the Project.

The Virginia Scenic Rivers Act seeks to identify, designate, and protect rivers and streams that possess outstanding scenic, recreational, historic, and natural characteristics of statewide significance for future generations. No state scenic rivers will be crossed by the Project.

Under the Virginia Open-Space Land Act, any public body can acquire title or rights to real property to provide means of preservation of open-space land. Most easements created under the Act are held by the Virginia Outdoors Foundation ("VOF"), but any state agency is authorized to create and hold an open-space easement. Such conservation easements are designed to preserve and protect open space and other resources and must be held for no less than five years in duration and can be held in perpetuity. According to the DCR's Managed Conservation Lands Database and the Protected Areas Database of the United States ("PAD-US"), there are two Northern Virginia Conservation Trust ("NVCT") easements, two VOF easements, and two county-owned conservation easements within 0.3 mile of the Proposed and Alternative Routes. Due to distance or vegetative buffers, visual impacts on easements near the Proposed and Alternative Routes are anticipated to be minimal.

Any tree along the right-of-way that is tall enough to endanger the conductors if it were to break at the stump or uproot and fall directly toward the conductors and exhibits signs or symptoms of disease or structural defect that make it an elevated risk for falling will be designated as a "danger tree" and may be removed. The Company's arborist will contact the property owner if possible before any danger trees are cut, except in emergency situations. The Company's Forestry Coordinator will field-inspect the rights-of-way and designate any danger trees present. Qualified contractors working in accordance with the Company's Electric Transmission specifications will perform all danger tree cutting.

None of the route alternatives run parallel to or cross any Virginia Byways, Scenic Rivers, or Resource Protection Areas. Recreational, agricultural, and forest resources identified within 0.3 mile of the Proposed and Alternative Routes are discussed below. An assessment of impacts on these resources is provided in the Environmental Routing Study.

Proposed Route (Route 2)

The Proposed Route crosses approximately 27.5 acres of forested land (69.7% of the route) and no agricultural land. NRCS soils data indicates approximately 11.2 acres (0.7 mile) of the Proposed Route right-of-way are classified as prime farmland and 3.7 acres (0.1 mile) are classified as farmland of statewide importance.

The Proposed Route collocates with approximately 0.4 mile of Centreport Parkway and is routed adjacent to two industrial developments for approximately 0.7 mile. The right-of-way crosses adjacent to the southern edge of an NVCT easement between I-95 and Richmond Highway for approximately 0.2 mile. This route crosses Fredericksburg Loop once at its crossing of Richmond Highway.

Alternative Route 1

Alternative Route 1 crosses approximately 43.1 acres of forested land (53.2% of the route) and 1.2 acres of agricultural land (2.6% of the route). NRCS soils data indicates approximately 11.6 acres (0.8 mile) of Alternative Route 1 right-of-way are classified as prime farmland and 9.9 acres (0.6 mile) are classified as farmland of statewide importance.

Alternative Route 1 collocates with Mountain View Road for approximately 0.2 mile.

The right-of-way crosses within 80 feet of an NVCT easement across from Mountain View Road for less than 0.1 mile and is adjacent to but does not cross the VOF easement abutting Cambridge Street. It also crosses adjacent to the southern end of Chichester Park for approximately less than 0.1 mile and within approximately 0.2 mile east of Musselman Park.

Alternative Route 3

Alternative Route 3 crosses approximately 18.9 acres of forested land (76.0% of the route) and no agricultural land. NRCS soils data indicates approximately 8.5 acres (0.5 mile) of Alternative Route 3 right-of-way are classified as prime farmland and 3.7 acres (0.1 mile) are classified as farmland of statewide importance.

Alternative Route 3 collocates with Centreport Parkway for approximately 0.4 mile and routes along the north side of an industrial development for approximately 0.1 mile.

The impacts of Alternative Route 3 are similar to the Proposed Route as they share an alignment for approximately 50% of their lengths. Alternative Route 3 crosses adjacent to the southern edge of an NVCT easement between I-95 and Richmond Highway for approximately 0.3 mile and passes approximately 380 feet west of it on the east side of Richmond Highway for approximately 0.2 mile. This route crosses Fredericksburg Loop once at its crossing of Richmond Highway.

Alternative Route 4

Alternative Route 4 crosses approximately 24.2 acres of forested land (79% of the route) and no agricultural land. NRCS soils data indicates approximately 10.1 acres (0.6 mile) of Alternative Route 4 right-of-way are classified as prime farmland and 3.7 acres (0.1 mile) are classified as farmland of statewide importance.

The impacts of Alternative Route 4 are similar to the Proposed Route as they share an alignment for approximately 50% of their lengths. Alternative Route 4 crosses adjacent to the southern edge of an NVCT easement between I-95 and Richmond Highway for approximately 0.3 mile. This route crosses Fredericksburg Loop once at its crossing of Richmond Highway.

M. Use of Pesticides and Herbicides

Of the techniques available, selective foliar is the preferred method of herbicide application. The Company typically maintains transmission line right-of-way by means of selective, low volume applications of EPA-approved, non-restricted use herbicides. The goal of this method is to exclude tall growing brush species from right-of-way by establishing early successional plant communities of native grasses, forbs, and low growing woody vegetation. "Selective" application means the Company sprays only the undesirable plant species (as opposed to broadcast applications). "Low volume" application means the Company uses only the volume of herbicide necessary to remove the selected plant species. The mixture of herbicides used varies from one cycle to the next to avoid the development of resistance by the targeted plants. There are four means of dispersal available to the Company, including by-hand application, backpack, fixed nozzle-radiarc, and aerial. Very little right-of-way maintenance incorporates aerial equipment. The Company uses licensed contractors to perform this work that are either certified applicators or registered technicians in the Commonwealth of Virginia.

DEQ has previously requested that only herbicides approved for aquatic use by the EPA or the USFWS be used in or around any surface water. The Company intends to comply with this request.

Additionally, based on a discussion between Company and DCR-DNH representatives, the Company reviewed its Integrated Vegetation Management Plan ("IVMP") for application to both woody and herbaceous species based on the species list available on the DCR website. The Company continues to coordinate with DNH on an addendum to the IVMP to further explain how the Company's operations and maintenance forestry program addresses invasive species. In November 2023, the Company submitted the addendum draft to DCR for review and continued discussions. DCR provided an initial response to the addendum in January 2024. The Company will continue to meet with DCR to further discuss the documentation provided. Once the addendum is finalized, the

Company will report on the results of its communications with DCR in future transmission certificate of public convenience and necessity filings.[3]

N. Geology and Mineral Resources

The study area is located within the transitional zone of the Piedmont and Coastal Plain geologic provinces. The Piedmont geologic province is characterized by strongly weathered bedrock due to the humid climate, thick soils overlying saprolite (weathered bedrock), and rolling topography that becomes more rugged to the west near the Blue Ridge mountains. The Coastal Plain province, located between the Piedmont province and the Atlantic Ocean, is defined by a terraced landscape consisting of unconsolidated sediment material deposited from fluctuating sea levels and the repetitive growth and retreat of large continental glaciers (William and Mary Department of Geology 2023). Based on review of the Geologic Map of Virginia, each of the Centreport Loop route alternatives encounter sections of unconsolidated, undifferentiated sediments deposited between the Cretaceous period (66 million years ago) and Quaternary period (2.6 million years ago to present), and briefly cross-over sections of metamorphic bedrock composed of either biotite-gneiss or diorite-gneiss.

ERM reviewed publicly available Virginia Department of Energy datasets (2023), USGS topographic quadrangles, and recent (2023) digital aerial photographs to identify mineral resources in the study area. Based on this review, no active mineral resources were identified within 0.3 mile of the Centreport route alternatives. The closest active mineral resource is located approximately 4.5 miles west of Alternative Route 1. There are two inactive mineral resource sites located within 0.3 mile of the Centreport Loop route alternatives, the closest being a stone quarry located adjacent to the Proposed Route. Because the closest active mineral resource site is located more than 0.3 mile from the Centreport project area, it is not anticipated that construction and operation of the Project's transmission infrastructure will impact site operations (Virginia Energy 2023).

O. Transportation Infrastructure

Road and Railroad Crossings

Major roads within the study area include I-95, principal arterial Richmond Highway, major collector roads (Enon Road, Mountain View Road, and Centreport Parkway), as well as local roads (Stafford Indians Lane, Pine View Drive, Oakenwold Lane). The

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[3] *See, Application of Virginia Electric and Power Company, For approval and certification of electric transmission facilities: 230 kV Line #293 and 115 kV Line #83 Rebuild Project*, Case No. PUR-2021-00272, Final Order at 9-11 (Aug. 31, 2022) *(The Commission agreed with the Chief Hearing Examiner and declined to adopt DCR-DNH's recommendation regarding an invasive species management plan ("ISMP"), but directed the Company to meet with DCR-DNH and to report on the status of the meetings in the Company's next transmission certificate of public convenience and necessity ("CPCN") filing); see also* Report of Alexander F. Skirpan, Jr., Chief Hearing Examiner (Jun. 22, 2022) at 22 *(agreeing with the Company that, with its IVMP, the Company should not be required to undergo the additional cost of DCR-DNH's ISMP; however, recommending that the Company meet with DCR-DNH regarding its IVMP and report the results of the meeting in the next transmission CPCN filing).*

interchange of Centreport Parkway and I-95 is located roughly in the center of the study area. All route alternatives would require a crossing of I-95 and Richmond Highway. Virginia Department of Transportation ("VDOT") maintains most road rights-of-way along roadways within the study area, including all the major roadways proximate to the Proposed and Alternative Routes.

ERM reviewed the Transportation Plan section of the Stafford County Comprehensive Plan, the draft TMP, and the VDOT Northern Virginia District project website for upcoming projects within the study area, including a widening project of Enon Road from Stafford Indians Lane to Truslow Road. Additionally, ERM met with local VDOT staff in March 2024, and they provided information on upcoming projects in the area, including an on-ramp onto Centreport Parkway near Hills Cemetery and a connection of Enon Road to Centreport Parkway. Upcoming transportation projects in the vicinity of the Proposed or Alternative Routes include an Enon Road widening project and a U.S. Route 1/Enon Road intersection improvement project.

There are no existing or planned railroads within the Project study area.

Proposed Route (Route 2)

The Proposed Route would cross three roads (Richmond Highway, I-95, and Oakenwold Lane) and collocates with Centreport Parkway for approximately 0.5 mile between approximate MPs 1.9 and 2.4. The crossings of Richmond Highway and I-95 would be perpendicular. The Proposed Route does not cross nor come within 0.3 mile of any planned transportation projects or improvements.

Alternative Route 1

Alternative Route 1 would cross four roads (I-95, Enon Road, Centreport Parkway, and Mountain View Road), and does not collocate with any existing roadways. The crossing of I-95 is required to be at an angle to avoid residences on the northwest side of the interstate and Stafford County owned-property (Chichester Park) on the southeast side. This route would cross the Enon Road widening project, however, the Company would coordinate with VDOT to ensure that construction of the Project would not interfere with its construction.

Alternative Route 3

Alternative Route 3 would cross three roads (Richmond Highway, I-95, and Oakenwold Lane) and follows the same alignment as the Proposed Route at the crossing of I-95, collocating along the same segment of Centreport Parkway for approximately 0.5 mile (between MPs 1.7 and 2.2). The crossings of Richmond Highway and I-95 would both be perpendicular. Alternative Route 3 does not cross nor come within 0.3 mile of any planned transportation projects or improvements.

Alternative Route 4

Alternative Route 4 would cross three roads (Richmond Highway, I-95, and Oakenwold Lane) and follows the same alignment as the Proposed Route between Richmond Highway and I-95, collocating along the same segment of Centreport Parkway for approximately 0.5 mile (between MPs 1.6 and 2.1). The crossings of Richmond Highway and I-95 would both be perpendicular. Alternative Route 4 does not cross nor come within 0.3 mile of any planned transportation projects or improvements.

Temporary closures of roads and or traffic lanes would be required during construction of the Proposed or Alternative Routes. No long-term impacts to roads are anticipated as a result of the Project. The Company will comply with VDOT and Stafford County requirements for access to the rights-of-way from public roads. At the appropriate time, the Company will obtain the necessary VDOT permits as required and comply with permit conditions.

The Company met with VDOT on March 4, 2024 regarding the proposed Project, and VDOT provided feedback via email on April 29, 2024. A copy of the VDOT email is included as Attachment 2.O.1.

Airports

The Federal Aviation Administration ("FAA") is responsible for overseeing air transportation in the United States. The FAA manages air traffic in the United States and evaluates physical objects that may affect the safety of aeronautical operations through an obstruction evaluation. The prime objective of the FAA in conducting an obstruction evaluation is to ensure the safety of air navigation and the efficient utilization of navigable airspace by aircraft.

The Company has reviewed the FAA's website[4] to identify airports within 10.0 nautical miles of the proposed Project. Based on this review, the following FAA-restricted airports are located within 10.0 nautical miles of the Project:

Airport Name	Approximate Distance and Direction from Proposed Project (nautical miles (approx.))	Use
Dogwood Airpark Airport	○ 0.2 mile northeast of Alternative Route 1 to the nearest end of the runway ○ 0.7 mile south of the Proposed Route and Alternative Route 4	Private
Stafford Regional Airport	○ 0.5 mile northeast of the Proposed Route, Alternative Route 3, Alternative Route 4,	Public

[4] *See* https://oeaaa.faa.gov/oeaaa/external/portal.jsp and https://adip.faa.gov/agis/public/#/public.

Airport Name	Approximate Distance and Direction from Proposed Project (nautical miles (approx.))	Use
	and Centreport Substation to nearest point on Primary Surface of runway 15/30	
Stafford Hospital Center Heliport	○ 2.9 miles northeast of the Proposed Route, Alternative Route 3, Alternative Route 4 and the proposed Centreport Substation	Private
Mary Washington Hospital Heliport	○ 2.7 miles south of Alternative Route 1	Public
Shannon Airport	○ 5.2 miles south of Alternative Route 1	Public
Chimney View Airport	○ 6.0 miles east of Alternative Route 3 and Alternative Route 4	Private
Spotsylvania Regional Medical Center Heliport	○ 8.3 miles south of Alternative Route 1	Private
Quantico MCAF (Turner Field) Airport	○ 9.6 miles east of Alternative Route 3 and Alternative Route 4	Private

ERM reviewed the height limitations associated with FAA defined imaginary surveys for all runways at Stafford Regional Airport and all other public or private registered airfields within 10.0 nautical miles of the proposed Project facilities to determine whether any structures planned to be installed for the Project would penetrate any of the relevant flight surfaces for any runways. ERM conducted a preliminary evaluation of structure heights and locations using the FAA defined Civil and Department of Defense Airport Imaginary Surfaces, and applied standard GIS tools, including ESRI's ArcGIS Pro software with Spatial Analyst, 3D Analyst, and Aviation Airports Extensions. This software was used to create and georeference the imaginary surfaces in space and in relationship to the transmission structures. Ground surface data for the study area was derived by using a USGS 10 Meter Digital Elevation Model. Of the five airports and three heliports listed in the table above, only the Stafford Regional Airport is in close enough proximity to the Project route alternatives for a transmission structure to potentially impact navigable airspace. The Dogwood Airpark Airport is in close proximity to the Proposed Route and Alternative Routes 3 and 4; however, it is a private airfield which is not regulated by the FAA, and there are no local ordinances associated with this airfield. As such, no impacts or notification requirements apply to the Dogwood Airpark Airport; however, the Company has notified the Dogwood Airpark Airport for awareness of the Project.

The Company conducted an analysis to determine if any of the FAA-defined airport imaginary surfaces for the Stafford Regional Airport could be penetrated by transmission structures associated with the Project. The Stafford Regional Airport's single runway is aligned in a northwest-southeast orientation and is referred to as Runway 15/33, with the northwest approach designated as Runway 15, and the southeast approach designated as Runway 33. All route alternatives are located generally perpendicular to Runway 15/33 and outside of the Runway 33 approach surface. The only exception is the Alternative Route 3 cut-in location. The ground elevation at the cut-in location is approximately 150

feet lower than the end of Runway 33, however, and is at a distance from the end of the runway which would allow the maximum structure height in this area to be over 290 feet tall. Consequently, no approach surface penetration is anticipated. The Proposed Route and Alternative Routes and 3 and 4 are located within the planimetric extent of the Runway 33 extended transitional surface, but due to the Project's distance from the airport, the transitional surface slope would exceed the height of the horizontal surface.

Existing ground elevations at the Centreport Substation site and within the rights-of-way of the Proposed Route (Route 2) and Alternative Routes 1 and 3 near the site are estimated to range from approximately 134 to 172 feet above mean sea level ("AMSL"). Ground elevations along the Proposed Route and Alternative Routes 3 and 4 generally decrease as the routes extend southeast towards Potomac Creek and the tap points. The elevation of Alternative Route 3 at its cut-in location is estimated to be approximately 44 feet AMSL. Alternative Route 1 is estimated to range in elevation from approximately 132 feet AMSL at the Centreport Substation, to a minimum elevation of 71 feet AMSL where it crosses Potomac Creek, and to a maximum elevation of 252 feet AMSL where it crosses Enon Road.

Based on the results of the ground elevation and structure height analysis, the horizontal surface at 369.1 feet AMSL, which is located 150 feet above the airport surface and extends 10,000 feet from the runways, is the most limiting surface for the Proposed Route and Alternative Routes 1 and 4. The most limiting surface for most structures associated with Alternative Route 3 is also the horizontal surface. At the location of Structure #2104/5459, however, the most limiting surface is the approach surface of Runway 33 at 310.6 feet AMSL, and at the location of Structure #2379/1, the most limiting surface is the transitional surface at 346.5 feet AMSL. Based on the calculated distances between ground elevations and the horizontal surface, structures would be limited to heights ranging from as high as 338 feet to as low as 140 feet, depending on location. Structure heights along the route alternatives are proposed to range between 85 to 185 feet tall and placed to avoid imaginary surface penetration.

Based on the above discussion, none of the structures along the Proposed and Alternative Routes are anticipated to penetrate civil airport imaginary surfaces or interfere with terminal instrument procedures established by the FAA. Therefore, no impacts to navigable airspace from the Project are anticipated, and no special features or design alterations are expected to be required for the transmission structures installed for the Project.

Because structures associated with all routes have the potential to penetrate the 100 to 1 Imaginary Notice Surface for Stafford Regional Airport, an FAA Form 7460-Notice of Proposed Construction or Alteration, will likely need to be filed for the Project.

Since the FAA manages air traffic in the United States, it will evaluate any physical objects that may affect the safety of aeronautical operations through an obstruction evaluation. If required during the permitting process, Dominion Energy Virginia will submit an FAA Form 7460-1 Notice pursuant to 14 CFR Part 77 for any tower locations that meet the review criteria.

P. Drinking Water Wells

The Company has coordinated with the Department of Health ("VDH"), Office of Drinking Water ("ODW") on the Company's analysis of drinking water sources in proximity to the Company's construction projects. VDH-ODW has requested the Company identify known drinking water wells within the project area on the Company's Erosion and Sediment Control Plans. Water wells within 1,000 feet of the Project, however, may be outside of the transmission line corridor. The Company does not have the ability or right to field-mark wells located on private property. The Company has agreed to a method of well protection, including plotting and calling out the wells on the Project's Erosion and Sediment Control Plan, to which VDH-ODW indicated that the Company's proposed method is reasonable. A copy of that correspondence is included as Attachment 2.P.1. The Company intends to follow this same approach as a standard practice with transmission line projects and will coordinate with VDH-ODW, as needed.

Q. Pollution Prevention

Generally, as to pollution prevention, as part of Dominion Energy Virginia's commitment to environmental compliance, the Company has a comprehensive Environmental Management System Manual in place that ensures it is complying with environmental laws and regulations, reducing risk, minimizing adverse environmental impacts, setting environmental goals, and achieving improvements in its environmental performance, consistent with the Company's core values. Accordingly, any recommendation by the DEQ to consider development of an effective environmental management system has already been satisfied.

ATTACHMENTS

ERM

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Office of Environmental Impact Review
Ms. Bettina Rayfield, Manager
P.O. Box 1105
Richmond, Virginia 23218

DATE
19 September 2024

SUBJECT
230 KV CENTREPORT LOOP AND
CENTREPORT SUBSTATION PROJECT

REFERENCE
0713641

Dear Ms. Rayfield:

Environmental Resources Management (ERM), on behalf of Virginia Electric and Power Company (Dominion Energy Virginia, Dominion, or the Company), conducted a desktop wetland and waterbody review of publicly available information for the new proposed 230 kilovolt (kV) Centreport Loop and Centreport Substation (Project) facilities in Stafford County, Virginia. This delineation was done using desktop resources and methodology. A field delineation is required to verify the accuracy and extent of aquatic resource boundaries. Project route alternatives are shown in Attachment 1, with wetland boundaries identified in this desktop review shown in Attachment 2.

Dominion Energy Virginia is filing an application with the State Corporation Commission (SCC) to construct:

- A new double circuit overhead 230 kV transmission line on new right-of-way by cutting the Company's existing 230 kV Aquia Harbour-Cranes Corner Line #2104, resulting in (i) 230 kV Centreport-Cranes Corner Line #2379 and (ii) 230 kV Centreport-Spartan Line #2104 ("Centreport Loop").
- A new 230-34.5 kV substation in Stafford County, Virginia, on property to be obtained by the Company ("Centreport Substation").

The Project is necessary to provide electrical service requested by a data center customer in Stafford County; maintain reliable service for the overall load growth in the area; and comply with mandatory North American Electric Reliability Corporation ("NERC") Reliability Standards.

The purpose of this desktop analysis is to identify and evaluate potential impacts of the Project on aquatic resources (wetlands, streams, creeks, runs, and open water features) in the area. In accordance with Virginia Department of Environmental Quality (DEQ) and the SCC's Memorandum of Agreement, the evaluation was conducted using various data sets that may indicate wetland location and type. This report is being submitted to the DEQ as part of the DEQ Wetland Impacts Consultation.

This assessment did not include field investigations required for wetland delineations in accordance with the U.S. Army Corps of Engineers Wetland Delineation Manual (Environmental Laboratory, 1987) and the Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Eastern Mountains and Piedmont Region (Version 2.0) or the 2010 Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Atlantic and Gulf Coastal Plain Region (Version 2.0), depending on the location of the wetland.

PROJECT STUDY AREA AND POTENTIAL ROUTES

A study area was developed encompassing the Project origin and termination points for the planned facilities (i.e., the proposed Project) as well as an area broad enough for the identification of reasonable route alternatives meeting the Project objectives. Additionally, and to the extent practicable, the limits of the study area were defined by reference to easily distinguishable landmarks, such as roads or other recognizable features.

Based on the above, ERM and Dominion defined the boundaries of the study area for the Project as follows:

- Eskimo Hill Road and Natts Court Road to the north;
- Stafford Regional Airport, Centreport Parkway, and the Company's existing Aquia Harbour-Cranes Corner Line #2104 to the east;
- Truslow Road and the Company's existing Aquia Harbour-Cranes Corner Line #2104 to the south and west.

The study area identified for the Project encompasses approximately 6.8 square miles within Stafford County. The Project origin is the Company's existing 230 kV Aquia Harbour-Cranes Corner Line (Line #2104), terminating at the proposed Centreport Substation located along the south side of Centreport Parkway approximately 0.8 mile northwest of Interstate 95 (I-95). There are no incorporated cities within the study area. Land use and land cover consists of a mix of industrial and commercial development, open land, and forested areas along Potomac Creek and associated tributaries. The largest forested/undeveloped areas are associated with riparian areas along Potomac Creek waterways. Commercial developments, including three recent or future data center campuses, are within the study area. The study area is shown in Attachment 1.

Dominion identified three potential cut-in locations along the Company's existing Line #2104, and four potential route alternatives. Descriptions of these routes are provided in the subsections below.

ROUTE ALTERNATIVES

ROUTE 1

Route 1 would consist of a new overhead 230 kV transmission line on double circuit monopoles in a new 100-foot-wide right-of-way from a cut-in at Structure #2157/1716 on the Company's Line #2157 and extending approximately 3.5 miles to the proposed Centreport Substation. The cut-in is approximately 0.1 mile west of the intersection of the existing transmission line and Cambridge Street along the southern boundary of the study area. From here, Route 1 heads northwest for about 0.2 mile and then turns west for about 0.6 mile, crossing forested land and passing adjacent to County-owned property to the northeast. The route next turns north, crosses I-95, and extends north for approximately 1.5 miles through forested land, crossing Enon Road. The route then turns northeast through forested lands for about 0.5 mile, crossing Centreport Parkway. It then turns north to parallel the west side of Mountain View Road for about 0.2 mile, crossing Potomac Creek near the intersection of Mountainview Road and Oakenwold Lane. At the crossing of Mountain View Road, the route heads north/northeast for about 0.4 mile through forested land to the proposed Centreport Substation.

Route 1 measures approximately 3.5 miles long. The right-of-way for this alternative (41.7 acres) and the proposed Centreport Substation site (5.0 acres) would encompass a combined 46.7 acres.

ROUTE 2

Route 2 would consist of a new overhead 230 kV transmission line on double circuit monopoles in a new 100-foot-wide right-of-way from a cut-in at Structure #2104/5456 on the Company's existing Line #2104 to the proposed Centreport Substation. The cut-in is about 0.3-mile northeast of the intersection of the existing transmission line and Cranes Corner Road. From here, Route 2 heads west/northwest for about 0.8 mile across forested land, generally parallel about 0.2 mile south of Potomac Creek. The route then heads northwest for about 0.1 mile, crossing Richmond Highway and paralleling the south side of a warehouse currently under construction. Alternative Route 2 next turns north, following the west side of the under-construction warehouse for approximately 0.3 mile, then heads northwest for about 0.3 mile, paralleling Potomac Creek for 0.2 mile through forested lands before crossing I-95. The route next turns and heads north for about 0.4 mile passing through a mix of forested and agricultural land and crossing Potomac Creek. It then follows the south side of Centreport Parkway for about 0.5 mile, before turning southwest to enter the proposed Centreport Substation site.

Route 2 measures approximately 2.5 miles long. The right-of-way for this alternative (29.4 acres) and the proposed Centreport Substation site (5.0 acres) combined would encompass 34.5 acres.

ROUTE 3

Route 3 would consist of a new overhead 230 kV transmission line on double circuit monopoles in a new 100-foot-wide right-of-way from a cut-in at Structure 2104/5458 on the Company's existing Line #2104 and extending approximately 2.3 miles to the proposed Centreport Substation. The cut-in is about 0.1 mile north/northeast of the intersection of the existing transmission line with Potomac Creek. Route 3 initially heads west/northwest for about 0.6 mile, paralleling the north side of Potomac Creek through partially forested, partially open land. It then turns south/southwest for approximately 0.2 mile and runs parallel to but east of Richmond Highway before crossing Potomac Creek. Route 3 then turns northwest for about 0.2 mile, paralleling the south side of Potomac Creek and crossing Richmond Highway. It then intersects and follows the same alignment as Route 1 for the remaining approximately 1.3 miles to the proposed Centreport Substation site.

Route 3 measures about 2.3 miles long. The right-of-way for this alternative (27.2 acres) and the proposed Centreport Substation site (5.0 acres) combined would encompass 32.2 acres.

ROUTE 4

Route 4 provides an alternate alignment to Route 3 between the cut-in location and Richmond Highway (from MP 0.0 to 0.8). This route reduces the length, number of angle structures, and eliminates a crossing of Potomac Creek, though it passes through a greater amount of forested wetlands. Route 4 begins approximately 0.3 mile north of Cranes Corner Road, cutting the Company's existing Line #2104 at Structure #2104/5456 and extending approximately 0.6 mile northwest, roughly parallel but south of Potomac Creek. It intersects and follows the same alignment as Route 3 on the south side of Potomac Creek, east of Richmond Highway, for the remaining approximately 1.5 miles to the proposed Centreport Substation site.

Route 4 measures approximately 2.2 miles long. The right-of-way for Route 4 (25.6 acres) and the proposed Centreport Substation site (5 acres) would encompass a combined 30.6 acres.

DESKTOP EVALUATION METHODOLOGY

The area of effect considered for this study consists of the proposed rights-of-way identified above within which the electric transmission lines would be constructed and operated. Data sources used for this review include the following, each of which is described briefly below:

- National Agricultural Imagery Program (NAIP) aerial imagery flown December 2023, (NAIP 2023)
- USA NAIP Imagery: Color Infrared NAIP Infrared Images, Virginia, 1-meter pixel resolution (NAIP 2024)

- USA NAIP Imagery: Natural Color Images (2010-2022), Virginia, 1-meter pixel or better resolution (NAIP 2024a)
- Google Earth Aerial Imagery (Google LLC 2024)
- ESRI World Elevation Terrain 2-foot contours (ESRI et al. 2024)
- U.S. Fish and Wildlife Service (USFWS) National Wetland Inventory (NWI) mapping (USFWS 2023)
- U.S. Department of Agriculture-Natural Resources Conservation Service (USDA-NRCS) Soil Survey Geographic (SSURGO) database (USDA-NRCS 2023)
- The National Hydrography Dataset Plus High Resolution (NHD) (USGS 2024)

NATURAL COLOR AND INFRARED AERIAL PHOTOGRAPHY

Recent (2023) natural color aerial photography was used to provide a visual overview of the Project area and to assist in evaluating current conditions. Infrared aerial photography was used to identify the potential presence of wetlands based on signatures associated with the levels of reflectance. For example, areas that are inundated with water appear very dark (almost black) due to the low level of reflectance in the infrared spectrum. The presence of these dark colors can be used as a potential indicator of hydric or inundated soils that are likely associated with wetlands.

TOPOGRAPHIC MAPS

Recent ESRI world topographic maps show the topography of the area as well as other important landscape features such as forest cover, development, buildings, agricultural areas, streams, lakes, and wetlands (USGS 2024; ESRI et al., 2024).

USFWS NATIONAL WETLAND INVENTORY MAPPING

NWI maps provide the boundaries and classifications of potential wetland areas as mapped by the USFWS (USFWS 2023). NWI data is based primarily on aerial photo interpretations with limited ground-truthing and may represent incorrect boundaries or wetland cover types. NWI data can be unreliable in some areas, especially in forested landscapes, where aerial photography is used as the major data source. The classifications of the majority of the NWI polygons in the study area appear to be accurate based on a review of the cover types observed in the aerial photography. However, in areas where there was an obvious discrepancy between the NWI classification and the aerial photography, ERM modified the classification to more accurately reflect current conditions. In order to acknowledge ERM's adjustment of NWI classifications where appropriate, all the wetland types referenced in this assessment are referred to as "assigned wetland cover types" regardless of whether the cover type was actually modified from the NWI classification.

USDA-NRCS SOILS DATA

Soils in the study area were identified and assessed using the SSURGO database, which is a digital version of the original county soil surveys (USDA-NRCS 2023). The attribute data within the SSURGO database provides the proportionate extent of the component soils and their properties (e.g., hydric rating) for each soil map unit. The soils in the study area were grouped into three categories based on the hydric rating of the component soils within each map unit: hydric, partially hydric, and non-hydric. Hydric soils were defined as those where the major component soils, and minor components in some cases, are designated as hydric. Hydric components in these map units account for more than 80 percent of the map unit. Partially hydric soils include map units that only contain minor component soils that are designated as hydric. The partially hydric map units in the Project area contain 10 percent or less hydric soils. The remaining map units do not contain any component soils that are designated as hydric. Areas mapped as hydric or partially hydric have a higher probability of containing wetlands than areas with no hydric soils.

USGS NATIONAL HYDROGRAPHY DATASET

The National Hydrography Dataset (NHD) dataset contains features such as lakes, ponds, streams, rivers, and canals (USGS 2024). The waterbodies mapped by the NHD appeared generally consistent with those visible on the USGS maps and aerial photography.

PROBABILITY ANALYSIS

ERM used a stepwise process to identify probable wetland areas along the proposed routes, as follows:

- Infrared and natural color aerial photography was used in conjunction with topographic maps and soils maps to identify potential wetland areas. Boundaries were assigned to the areas that appeared to exhibit wetland signatures based on this review and a cover type was determined based on aerial photo interpretation. For the purpose of the study, these areas are referred to as Interpreted Wetlands.

- To further determine the probability of a wetland occurring within a given location, the Interpreted Wetland polygon shape files were digitally layered with the NWI mapping and soils information from the SSURGO database.

- The probability of a wetland occurring was assigned based on the number of overlapping data layers (i.e., indicators of potential wetland presence) that occurred in a particular area.

The criteria assigned to each probability are outlined in Table 1.

TABLE 1: CRITERIA USED TO RANK THE PROBABILITY OF WETLAND OCCURRENCE

Probability	Criteria
High	Areas where layers of hydric soils, Interpreted Wetlands, and NWI data overlap
Medium/High	NWI data overlaps hydric soils; or NWI data overlaps Interpreted Wetlands with or without partially hydric soils; or Hydric soils overlap Interpreted Wetlands
Medium	Interpreted Wetlands with or without overlap by partially hydric soils
Medium/Low	Hydric soils only; or NWI data with or without overlap by partially hydric soils
Low	Partially hydric soils only
Very Low	Non-hydric soils only

WETLAND AND WATERBODY CROSSINGS

The desktop analysis provides a probability of wetlands and waterbody occurrence within each route. The desktop analysis provides a probability of wetlands and waterbody occurrence within each route, with wetlands and waterbodies classified based on the Cowardin classification system described below:

- 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);
- Palustrine Unconsolidated Bottom (PUB) open waters – characterized by bottom substrate particles smaller than stones (less than 10 inches) covering greater than 25 percent of the area, with plants covering less than 30 percent of the area; and
- Riverine streams – channels containing periodically or continuously moving water (USFWS 2013).

As stated above, field delineations were not performed and would be required to verify the accuracy and extent of aquatic resource boundaries. A range of wetland occurrence probabilities are reported by this study from very low to high. The probability of wetland occurrence increases as multiple indicators begin to overlap towards the "high" end of the

spectrum. The medium, medium-high, and high probability categories are the most reliable representation of in-situ conditions, due to overlapping data sets, and these categories are reported in the summary below as a percentage of the total acreage of each route. Attachment 2 depicts the interpreted wetlands displayed on color base map images.

RESULTS

Results of the probability analysis are presented in Table 2 below. Summaries are provided in the sections following the table. No wetlands or waterbodies were identified within the Centreport substation footprint.

Table 1: Summary of the Probabilities of Wetland and Waterbody Occurrence along the Route Alternatives [a,b]

Probability	Total Within Right-of-way (acres)[c]	Wetland and Waterbody type (acres)				
		PEM (Emergent)	PFO (Forested)	PSS (Scrub Shrub)	PUB (Freshwater pond)	Riverine (Stream)
Route 1						
High	3.8	0.0	3.3	NA	0.3	0.1
Medium/High	4.7	0.1	4.4	NA	0.0	0.2
Medium	0.9	0.4	0.4	NA	NA	0.0
Medium/Low	0.5	NA	0.4	NA	0.0	0.1
Low	NA	NA	NA	NA	NA	NA
Very Low	NA	NA	NA	NA	NA	NA
Route 2						
High	4.2	NA	4.2	NA	NA	0.0
Medium/High	9.5	0.9	7.0	1.3	0.1	0.2
Medium	2.1	1.2	0.9	NA	NA	0.0
Medium/Low	2.6	NA	1.3	1.1	NA	0.1

Probability	Total Within Right-of-way (acres)[c]	Wetland and Waterbody type (acres)				
		PEM (Emergent)	PFO (Forested)	PSS (Scrub Shrub)	PUB (Freshwater pond)	Riverine (Stream)
Low	NA	NA	NA	NA	NA	NA
Very Low	NA	NA	NA	NA	NA	NA
Route 3						
High	3.5	0.2	2.4	0.9	NA	0.0
Medium/High	10.5	1.0	6.8	2.2	0.1	0.4
Medium	1.9	1.1	0.6	0.1	NA	0.1
Medium/Low	2.2	NA	1.6	0.4	NA	0.2
Low	NA	NA	NA	NA	NA	NA
Very Low	NA	NA	NA	NA	NA	NA
Route 4						
High	6.0	NA	6.0	NA	NA	0.0
Medium/High	7.1	0.9	4.7	1.2	0.1	0.2
Medium	1.4	1.1	0.3	NA	NA	0.0
Medium/Low	2.1	NA	1.5	0.4	NA	0.2
Low	NA	NA	NA	NA	NA	NA
Very Low	NA	NA	NA	NA	NA	NA

NA: Not applicable due to absence of wetland or waterbody type within the alternative route

a Numbers in this table have been rounded for presentation purposes; as a result, the totals may not reflect the sum of the addends.

b Acreages include the proposed 5.0-acre Centreport Substation.

c Total acres may not total the sum of wetland and waterbody types because some of the lower probability rankings do not overlap with NWI or interpreted wetlands, and therefore do not have a wetland/waterbody type associated with them.

WETLAND CROSSINGS

Within the study area, most wetlands are forested and are generally concentrated around Potomac Creek and its tributaries in the northern part of the study area and Claiborne Run and its tributaries in the southern part of the study area. In particular there is a large, contiguous forested wetland area mapped by the NWI between the existing line #2104 and Richmond Highway. Riverine (stream) and PUB (open water features) are described in the Waterbody Crossings section below.

ROUTE 1

The length of the corridor for Centreport Route 1 is approximately 3.5 miles and encompasses a total of approximately 41.7 acres (including the 5.0-acre Centreport Substation footprint). Based on the methodology discussed above, the right-of-way footprint will encompass approximately 22.5 percent (9.4 acres) of land with a medium or higher probability of containing wetlands and waterbodies. Based on ERM's desktop wetland and waterbody analysis, the Route 1 right-of-way would cross approximately 9.4 acres of wetlands and waterbodies, including 8.2 acres of PFO, 0.5 acres of PEM.

ROUTE 2

The length of the corridor for Centreport Route 2 is approximately 2.5 miles and encompasses a total of approximately 29.4 acres (including the 5.0-acre Centreport Substation footprint). Based on the methodology discussed above, the right-of-way footprint will encompass approximately 53.7 percent (15.8 acres) of land with a medium or higher probability of containing wetlands and waterbodies. Based on ERM's desktop wetland and waterbody analysis, the Route 2 right-of-way would cross approximately 15.8 acres of wetlands and waterbodies, including 12.0 acres of PFO, 1.3 acres of PSS, 2.1 acres of PEM wetlands.

ROUTE 3

The length of the corridor for Centreport Route 3 is approximately 2.3 miles and encompasses a total of approximately 27.2 acres of existing ROW (including the 5.0-acre Centreport Substation footprint). Based on the methodology discussed above, the right-of-way footprint will encompass approximately 58.5 percent (15.9 acres) of land with a medium or higher probability of containing wetlands and waterbodies. Based on ERM's desktop wetland and waterbody analysis, the Route 3 right-of-way would cross approximately 15.9 acres of wetlands and waterbodies, including 9.8 acres of PFO, 3.3 acres of PSS, 2.1 acres of PEM.

ROUTE 4

The length of the corridor for Centreport Route 4 is approximately 2.2 miles and encompasses a total of approximately 30.6 acres (including the 5.0-acre Centreport Substation. Based on the methodology discussed above, the right-of-way footprint will encompass approximately 47.4 percent (14.5 acres) of land with a medium or higher probability of containing wetlands and waterbodies. Based on ERM's desktop wetland and waterbody analysis, the Route 4 right-of-way would cross approximately 14.5 acres of wetlands and waterbodies, including 11.0 acres of PFO, 1.2 acres of PSS, 2.1 acres of PEM.

WATERBODY CROSSINGS

ERM identified and mapped waterbodies in the study area using similar publicly available GIS databases as those used to identify and map wetlands. Waterbody counts crossed by the route alternatives are summarized in Table 2 below. Waterbodies crossed by the Centreport Routes include Potomac Creek, Claiborne Run, unnamed, intermittent tributaries to these waterbodies, and open waterbody features. No waterbodies were identified within the Centreport Substation footprint.

Table 2: Waterbodies Crossed by the Route Alternatives

Waterbodies Crossed	Route 1	Route 2	Route 3	Route 4
NHD-Mapped Perennial Streams/Rivers	2	1	3	1
NHD-Mapped Intermittent Streams/Rivers	4	4	5	4
NHD-Mapped Perennial Lakes/Ponds	1	0	0	0
Non-NHD Mapped Waterbodies [a]	2	1	1	1
Total	**9**	**6**	**9**	**6**

[a] Identified via current (2023) aerial imagery during desktop analysis.

ROUTE 1

Route 1 would have a total of nine waterbody crossings, of which seven are NHD-mapped, including two perennial waterbodies (Potomac Creek, an unnamed, perennial tributary to Potomac Creek, and a lake/pond), and two unnamed, streams. The two unmapped waterbodies include two unnamed, unclassified streams identified within the right-of-way using recent aerial imagery (NAIP Imagery, 2023). As described above, based on ERM's

desktop wetland and waterbody analysis, the right-of-way for Route 1 would encompass approximately 0.3 acre of riverine and 0.3 acre of PUB open waters.

ROUTE 2

Route 2 would have a total of six waterbody crossings, of which five are NHD-mapped, including one perennial waterbody (Potomac Creek) and four unnamed, intermittent streams. The one unmapped waterbody appears to be stormwater control feature identified within the right-of-way using recent aerial imagery (NAIP, 2023). As described above, based on ERM's desktop wetland and waterbody analysis, the right-of-way for Route 2 would encompass approximately 0.3 acre of riverine and 0.1 acre of PUB open waters.

ROUTE 3

Route 3 would have a total of nine waterbody crossings, of which eight are NHD-mapped, including three perennial waterbody crossing (including two crossings of Potomac Creek and one unnamed, perennial tributary to Potomac Creek) and five unnamed, intermittent streams. The one unmapped open waterbody appears to be stormwater control feature identified within the right-of-way using recent aerial imagery (NAIP, 2023). As described above, based on ERM's desktop wetland and waterbody analysis, the right-of-way for Route 3 would encompass approximately 0.6 acre of riverine and 0.1 acre of PUB open waters.

ROUTE 4

Route 4 would have a total of six waterbody crossings, of which five are NHD-mapped, including one crossing of perennial Potomac Creek and four unnamed, intermittent streams. The one unmapped open waterbody appears to be stormwater control feature identified within the right-of-way using recent aerial imagery (NAIP, 2023). As described above, based on ERM's desktop wetland and waterbody analysis, the right-of-way for Route 4 would encompass approximately 0.2 acre of riverine and 0.1 acre of PUB open waters.

PROJECT IMPACTS

Avoiding or minimizing new impacts on wetlands and streams was among the criteria used in developing routes for the Project. To minimize impacts on wetland areas, the transmission line has been designed to span or avoid wetlands where possible, keeping transmission structures outside of wetlands to the extent practicable. Direct impacts to wetlands would be limited to placement of structures within wetlands if unavoidable and the permanent conversion of PSS/PFO wetlands within the right-of-way to PSS or PEM type wetlands.

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

Best Management Practices (erosion and sediment controls) and would be removed from the wetland.

The majority of potential direct impacts on wetlands due to Project construction would be temporary in nature. Mats would be used for construction equipment to travel over wetlands, as appropriate. Due to the absence of an existing right-of-way, some new access roads may be necessary along the route. If a section of line cannot be accessed from existing roads, Dominion Energy Virginia may need to install a culvert, ford, or temporary bridge along the right-of-way to cross small streams. In such cases, some temporary fill material in wetlands adjacent to such 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. When siting transmission lines, perpendicular crossings of wetland systems are prioritized to minimize direct impacts to these sensitive areas and reduce overall impacts to the watershed.

Where the removal of trees or shrubby vegetation occurs within wetlands, Dominion Energy Virginia 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 streams and/or wetlands. Where tree clearing is required within the new right-of-way, PFO and PSS wetlands would be permanently converted to PSS or PEM wetland types. Forested wetlands and riparian buffers 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.

Required tree removal adjacent to waterbodies would 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. Vegetation within the right-of-way would be allowed to return to maintained grasses and shrubs after construction, which would provide some filtration stabilization to help protect waterbodies from pollutants. Within the stream buffers (100 feet), all trees will be hand felled with stumps left in place to reduce the potential for erosion. Shrubs and trees with a diameter at breast height of less than three inches will be left in place unless it impedes temporary access where they would be clipped, leaving roots in place which will be able to naturally regenerate.

SUMMARY

This Wetland and Waterbody Summary report was prepared in accordance with the Memorandum of Agreement between the DEQ and the SCC for the purpose of initiating a Wetlands Impact Consultation. Please note that a formal onsite wetland delineation was not conducted as part of this review.

ERM

DATE
19 September 2024

REFERENCE
0713641

In addition, there is a Project website where the SCC application will be available after filing, as well as maps and discussions about the Project. It can be accessed by going to: https://www.dominionenergy.com/centreport.

If you have any questions regarding this wetland assessment, please contact me at 860-817-2972 or by email at jake.bartha@erm.com.

Sincerely,

Jake Bartha
Environmental Resources Management

cc: Lucas Dupont, Dominion Energy Virginia
Brandon Luck, Dominion Energy Virginia

Enclosures: Attachments 1 and 2

REFERENCES

Environmental Laboratory. 1987. Technical Report Y-87-1: Corps of Engineers Wetlands Delineation Manual US Army Corps of Engineers, Waterways Experiment Station. January 1987.

Environmental Laboratory. 2012. Interim Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Eastern Mountains and Piedmont Region. Prepared for U.S. Army Corps of Engineers Wetlands Regulatory Assistance Program. ERDC/EL TR-12-9. Accessed October 2024.

ESRI, Airbus, USGS, NGA, NASA, CGIAR, NLS, OS, NMA, Geodatastyrelsen, GSA, GSI and the GIS User Community. 2024. World Elevation Terrain. Available online at: https://elevation.arcgis.com/arcgis/rest/services/WorldElevation/Terrain/ImageServer. Accessed January 2024.

Google Earth LLC. 2024. Google Earth Pro, Version 7.3.6.9796 (64-bit). Historic Aerial Imagery in Virginia, United States. Accessed June 2024.

National Agricultural Imagery Program (NAIP). 2023. Aerial imagery flown over Stafford County, Virginia December 17, 2023. Available online at: https://naip-usdaonline.hub.arcgis.com/. Accessed July 2024.

National Agricultural Imagery Program (NAIP). 2024. USA NAIP Imagery: Natural Color. Available online at: https://naip-usdaonline.hub.arcgis.com/. Accessed July 2024.

National Agricultural Imagery Program (NAIP). 2024a. USA NAIP Imagery: Color Infrared. Available online at: https://naip-usdaonline.hub.arcgis.com/. Accessed July 2024.

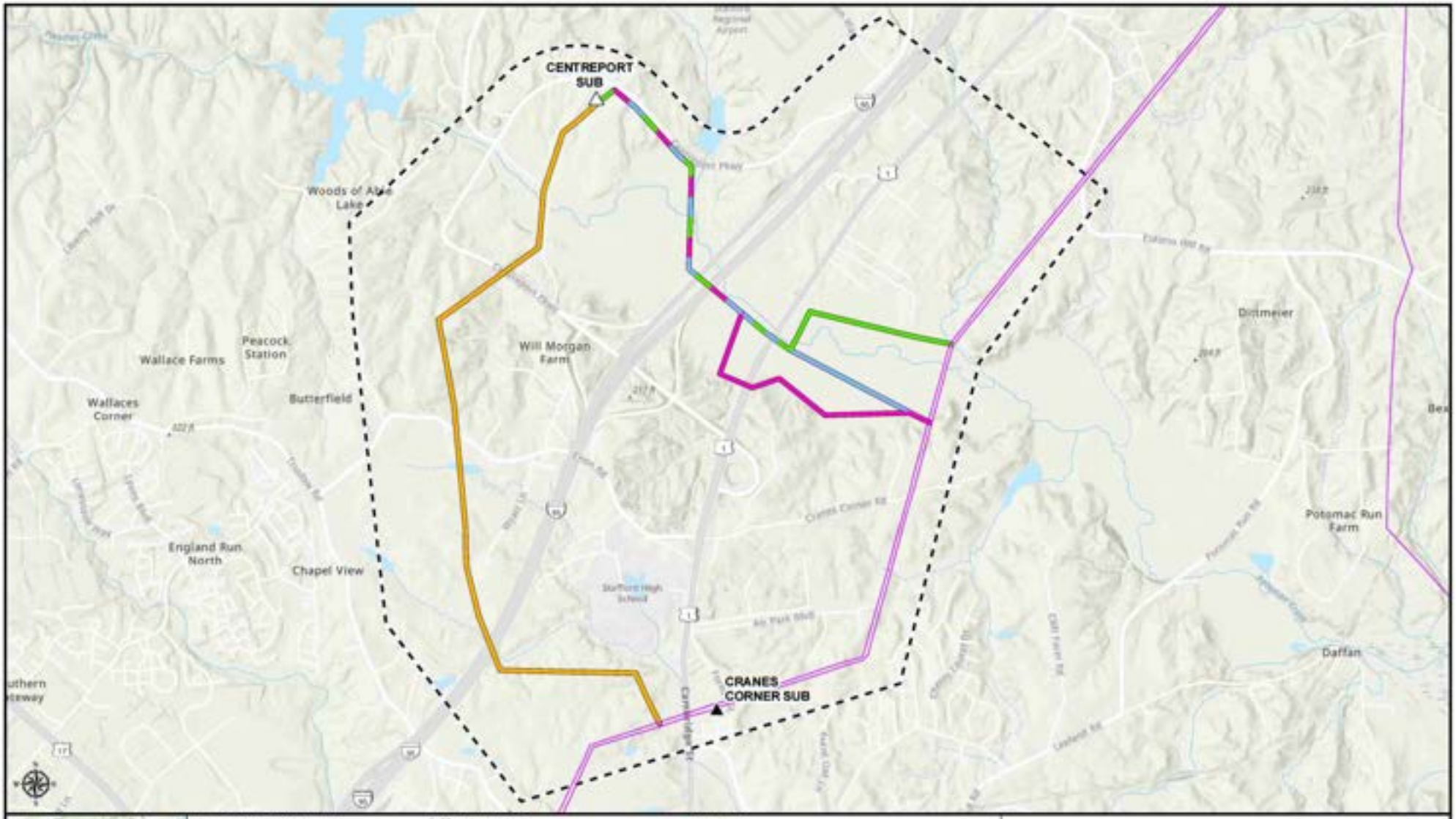
United States Department of Agriculture, Natural Resource Conservation (USDA-NRCS). 2023. Soil Survey Geographic Data (SSURGO). Available online at https://www.nrcs.usda.gov/wps/portal/nrcs/detail/soils/survey/?cid=nrcs142p2_053627. Accessed July 2024.

USFWS (U.S. Fish and Wildlife Service). 2013. Classification of Wetlands and Deepwater Habitats of the United States. Available online at: https://www.fws.gov/program/national-wetlands-inventory/classification-codes. Accessed July 2024.

U.S. Fish & Wildlife Service (USFWS) 2023. National Wetlands Inventory. U.S. Fish & Wildlife Service. https://www.fws.gov/program/national-wetlands-inventory/wetlands-mapper. Accessed July 2024.

USGS (U.S. Geological Survey). 2024. The National Hydrography Dataset Plus High Resolution. Accessed: July 2024. Retrieved from: https://hydro.nationalmap.gov/arcgis/rest/services/nhd/MapServer

ATTACHMENT 1



Attachment 1
Overview Map
Centreport 230 kV Electric Transmission Project
Dominion Energy Virginia
Stafford County, Virginia

ERM

Dominion Energy

ERM

222 South 9th Street
Suite 2900
Minneapolis, Minnesota 55402

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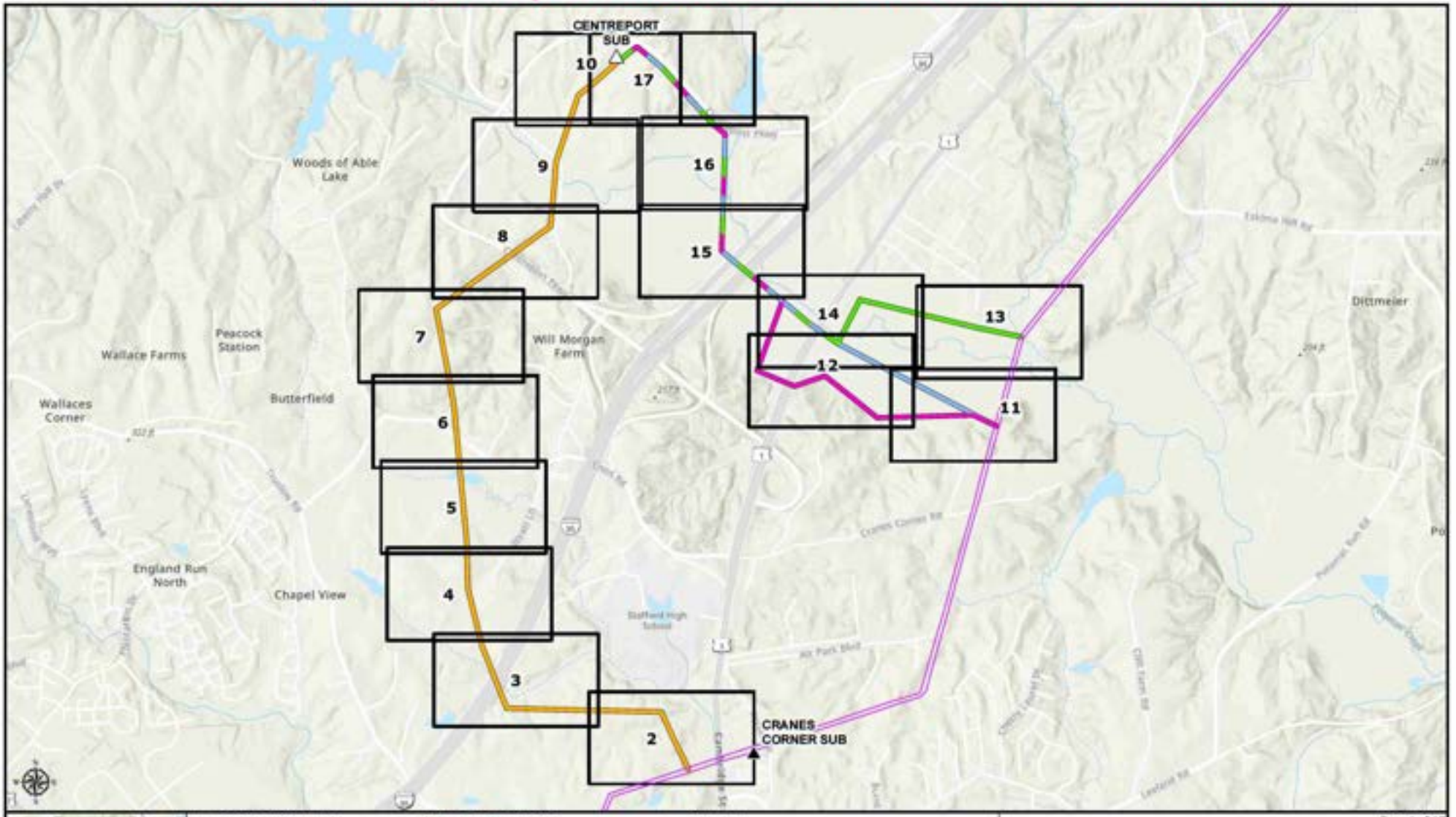
ATTACHMENT 2

The wetlands and waterbodies depicted on this map are an estimate of possible wetland and waterbody extent based on desktop data review only, and are subject to change in extent and location based on actual field delineation of wetlands and waterbodies



Page 1 of 17

Attachment 2
Overview Map Index
Centreport 230 kV Electric Transmission Project
Dominion Energy Virginia
Stafford County, Virginia

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Dominion Energy

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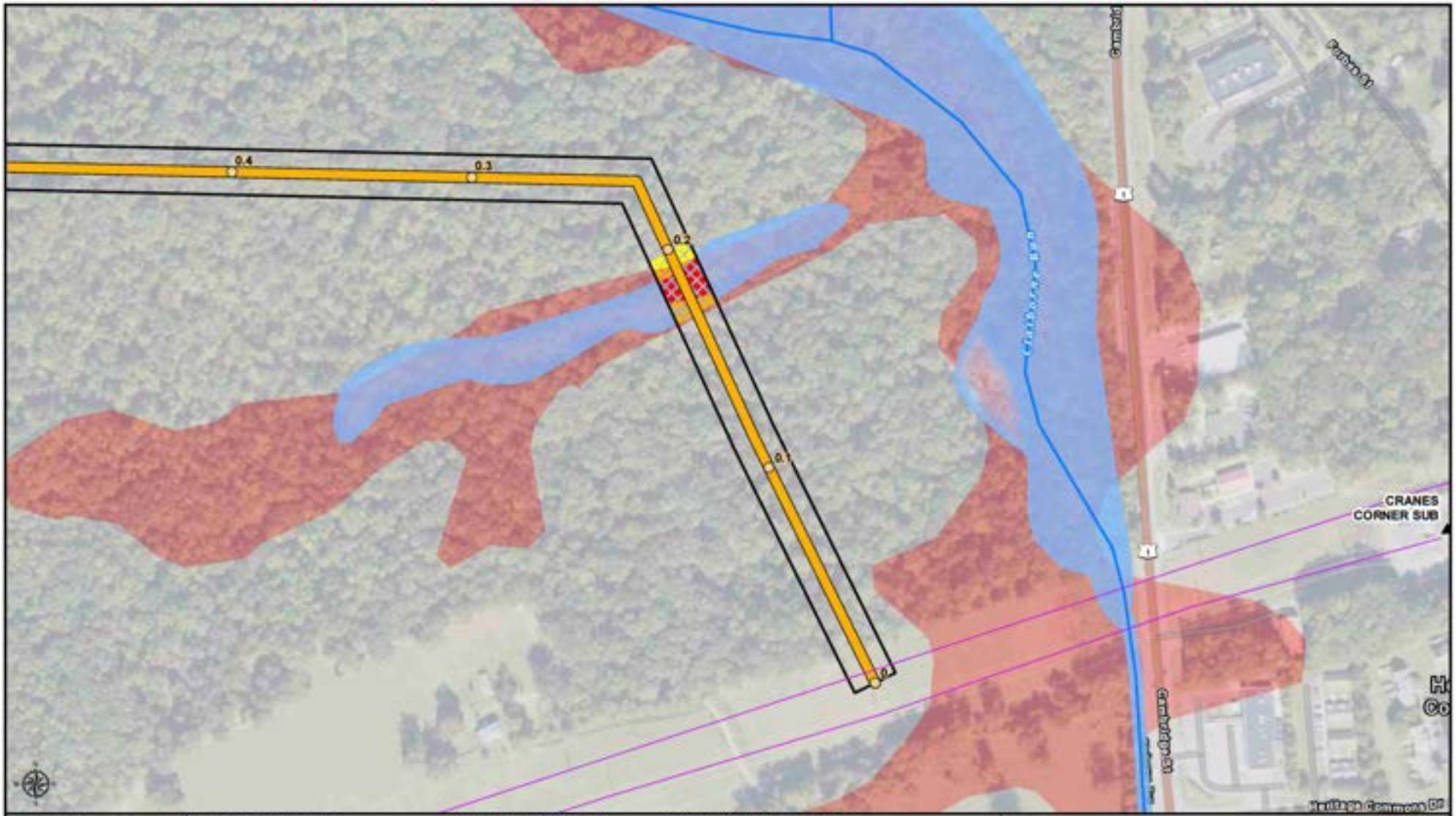

Attachment 2
Wetland Probability Map Set - Probability
Centreport 230 kV Electric Transmission Project
Dominion Energy Virginia
Stafford County, Virginia

ERM

Dominion Energy

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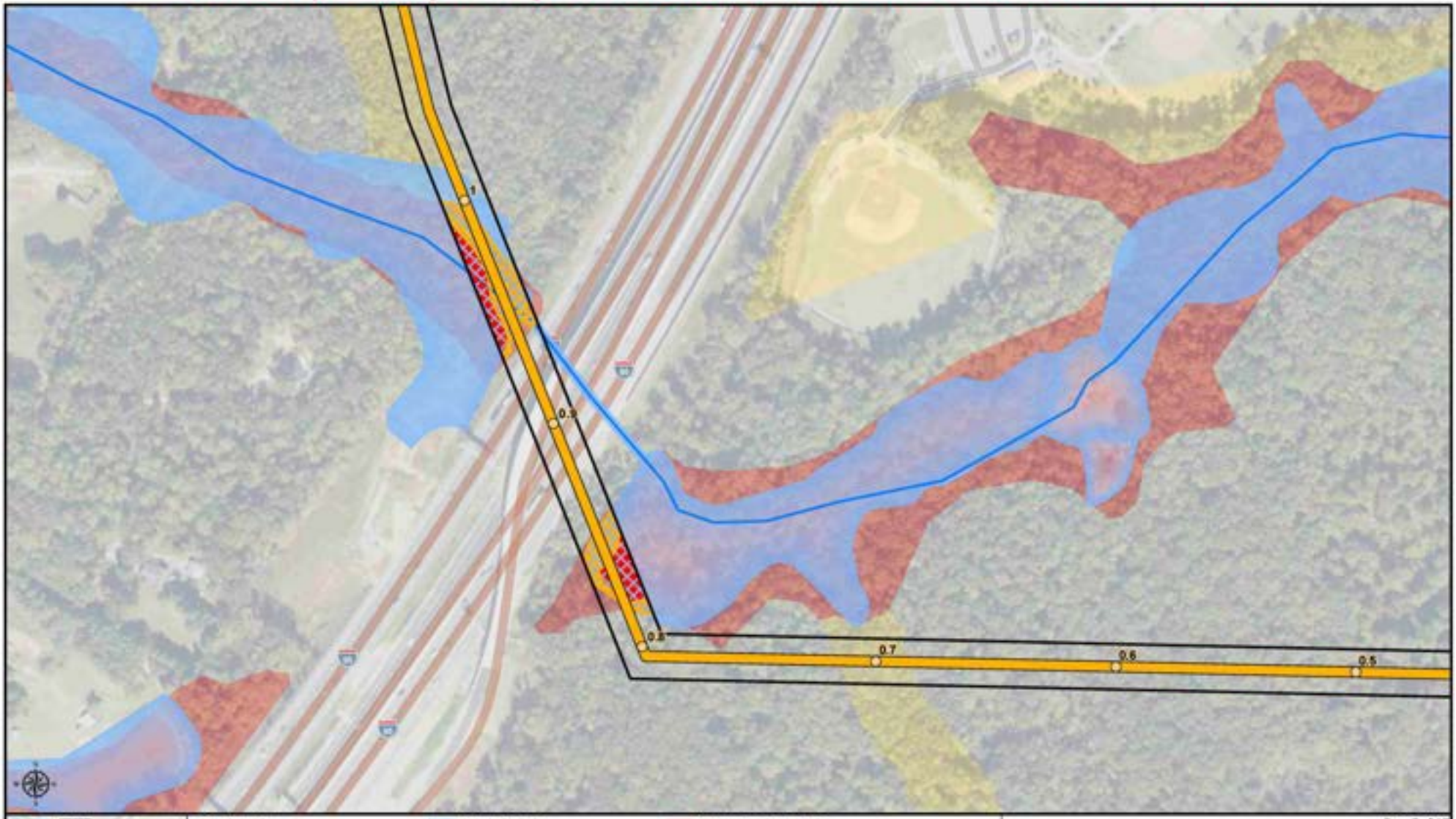

Route 1
Route 1 (100ft Right-of-Way)
NHD Stream
NWI Wetland
SSURGO Hydric Soil Rating
Nonhydric
Predominantly nonhydric
Predominantly hydric
0 100 200
Feet
1:2,400

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Stafford County, Virginia

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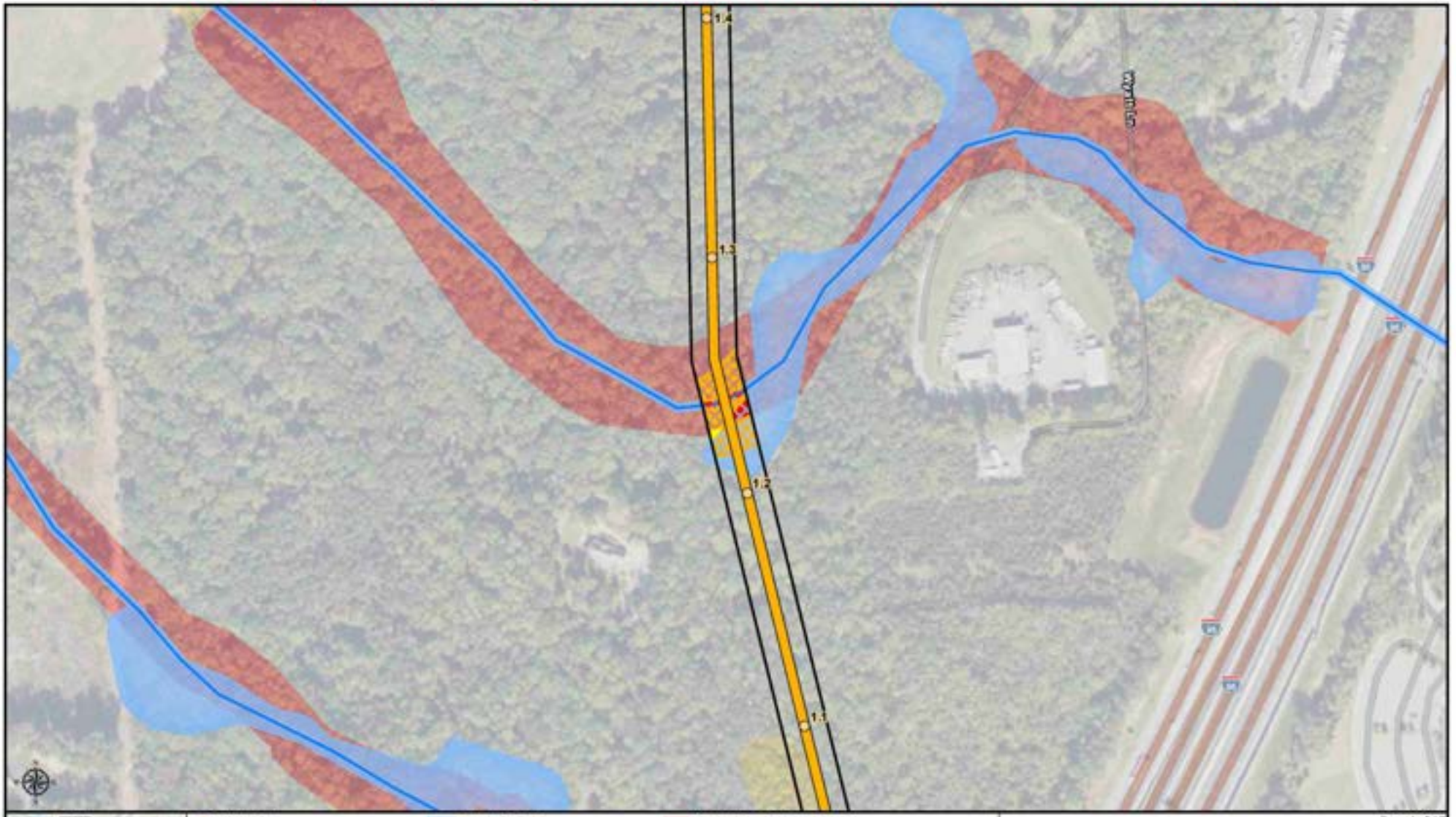

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Route 1
Route 1 (100ft Right-of-Way)
NHD Stream

NWI Wetland
SSURGO Hydric Soil Rating
Nonhydric
Predominantly nonhydric
Predominantly hydric

0 100 200
Feet
1:2,400

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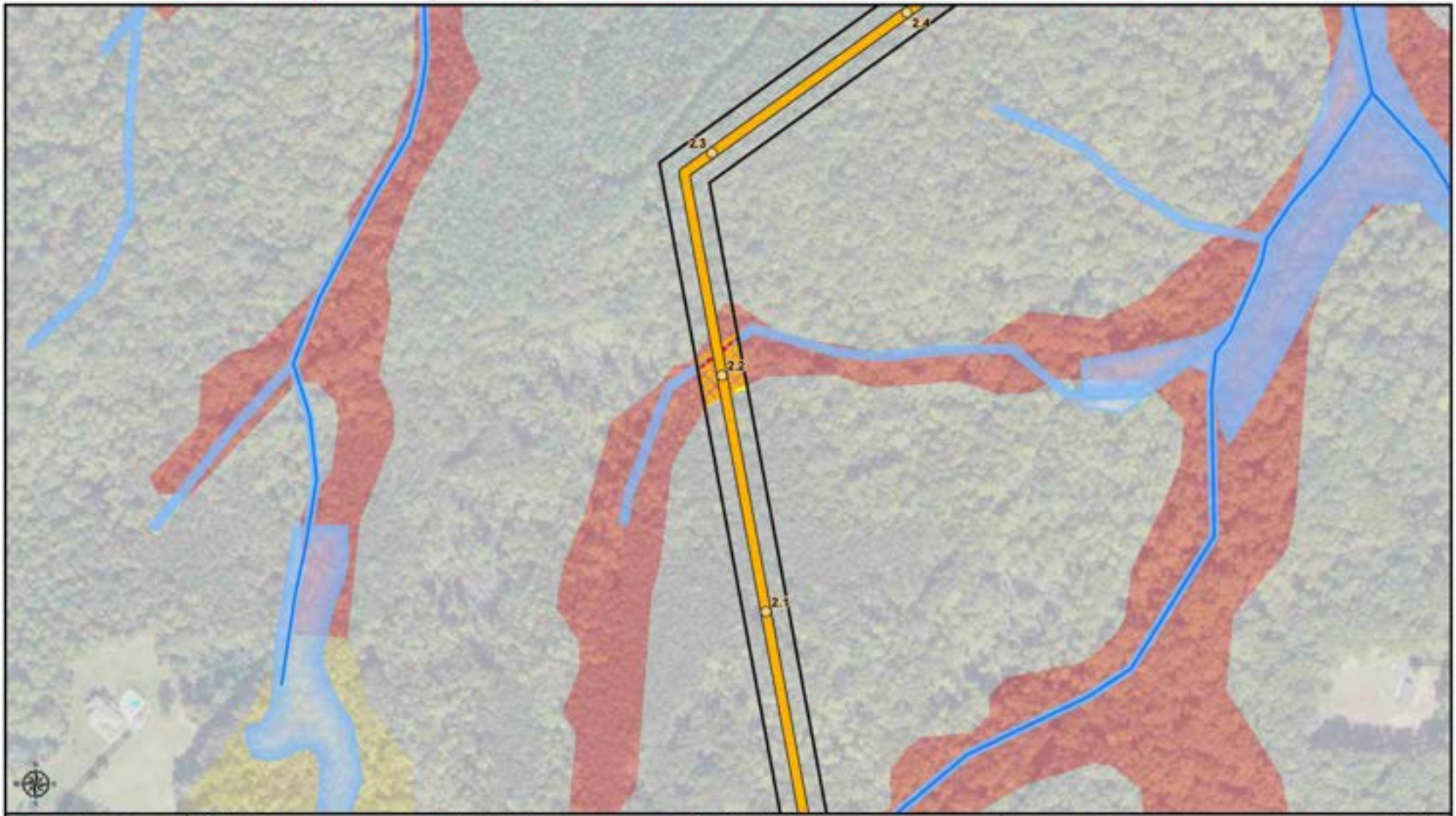

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Dominion Energy

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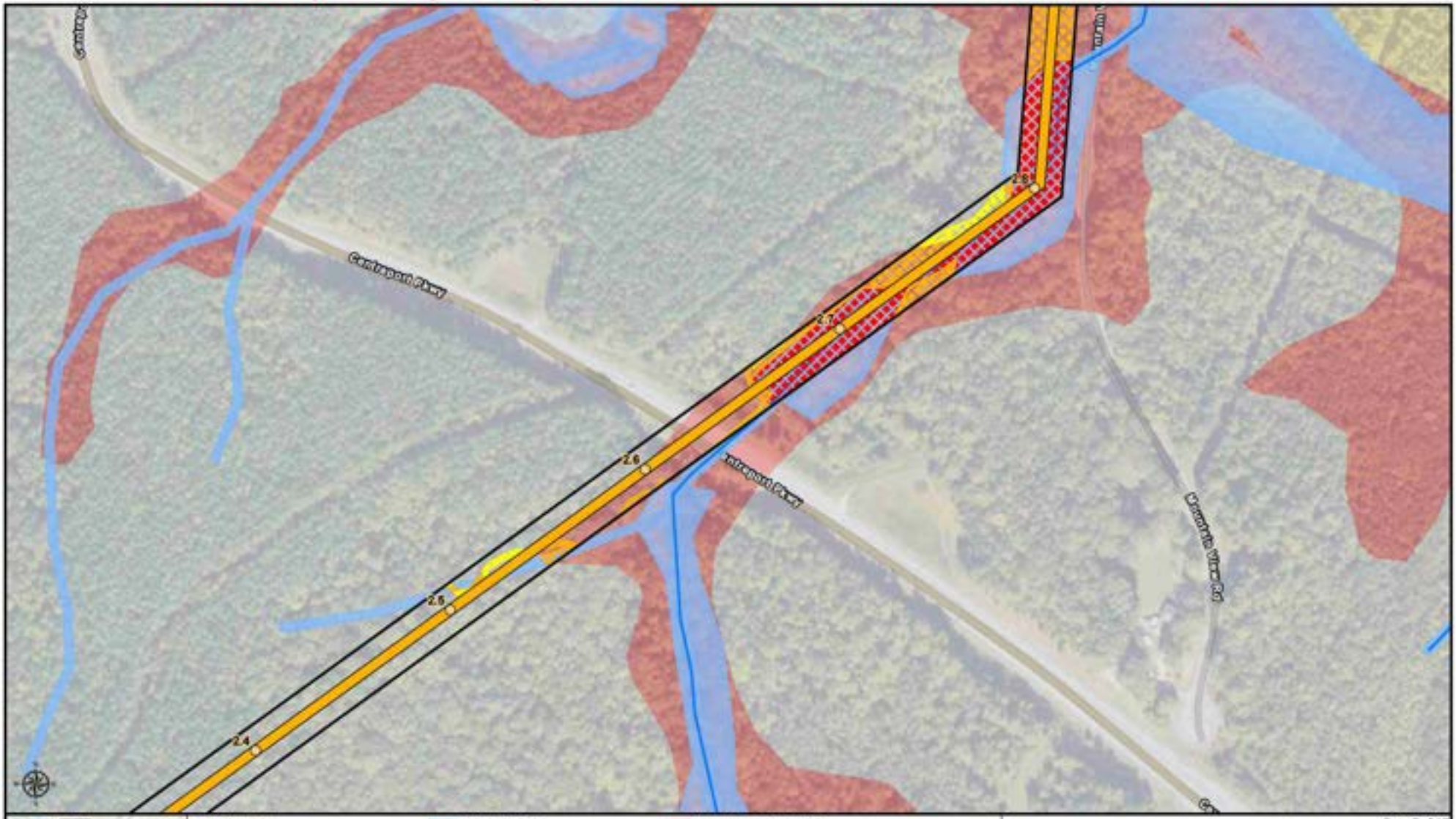

Route 1
Route 1 (100ft Right-of-Way)
NHD Stream
NWI Wetland
SSURGO Hydric Soil Rating
Nonhydric
Predominantly nonhydric
Predominantly hydric
0 100 200
Feet
1:2,400

Attachment 2
Wetland Probability Map Set - Probability
Centreport 230 kV Electric Transmission Project
Dominion Energy Virginia
Stafford County, Virginia

ERM

Dominion Energy

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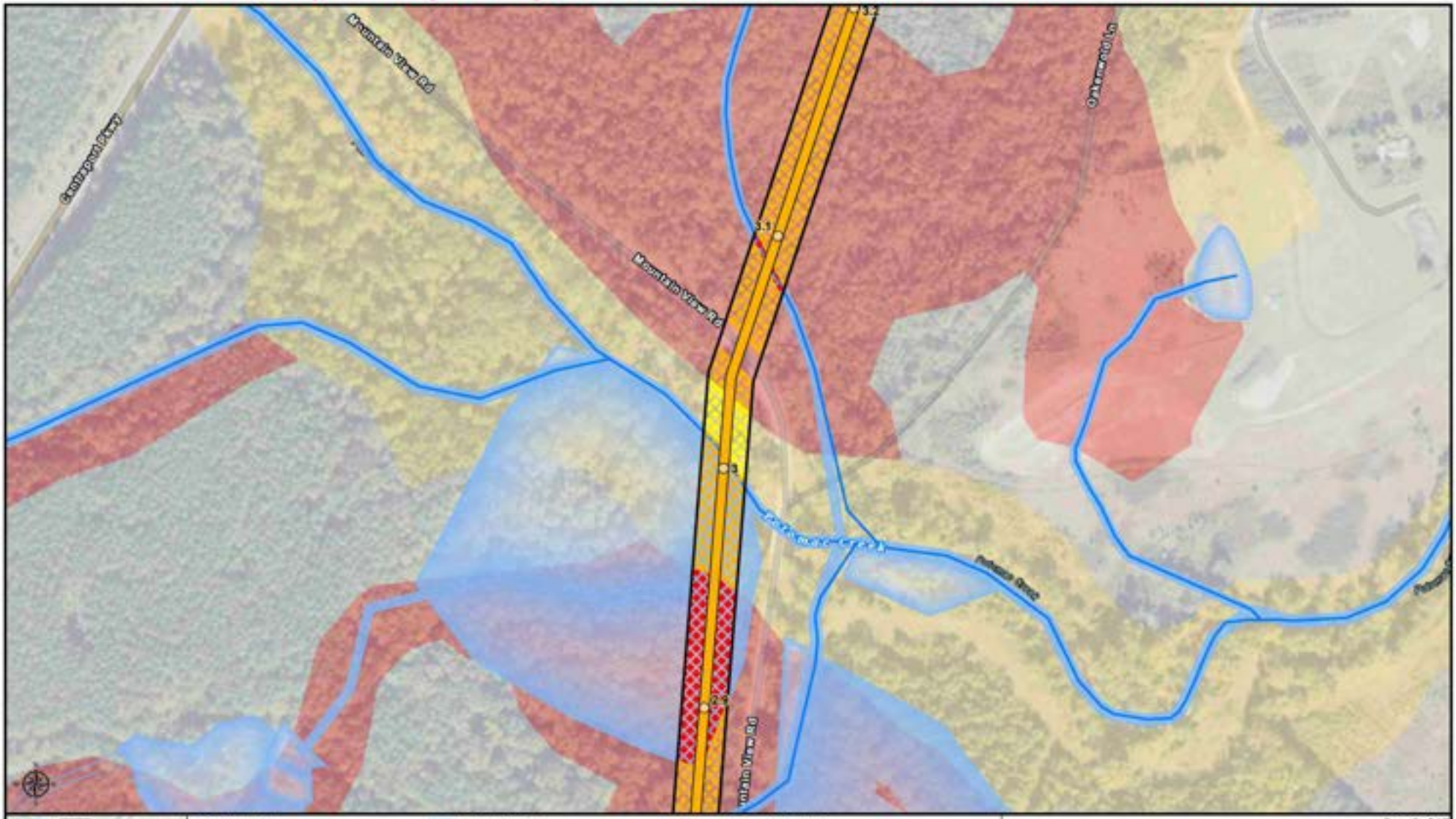

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Centreport 230 kV Electric Transmission Project
Dominion Energy Virginia
Stafford County, Virginia

ERM

Dominion Energy

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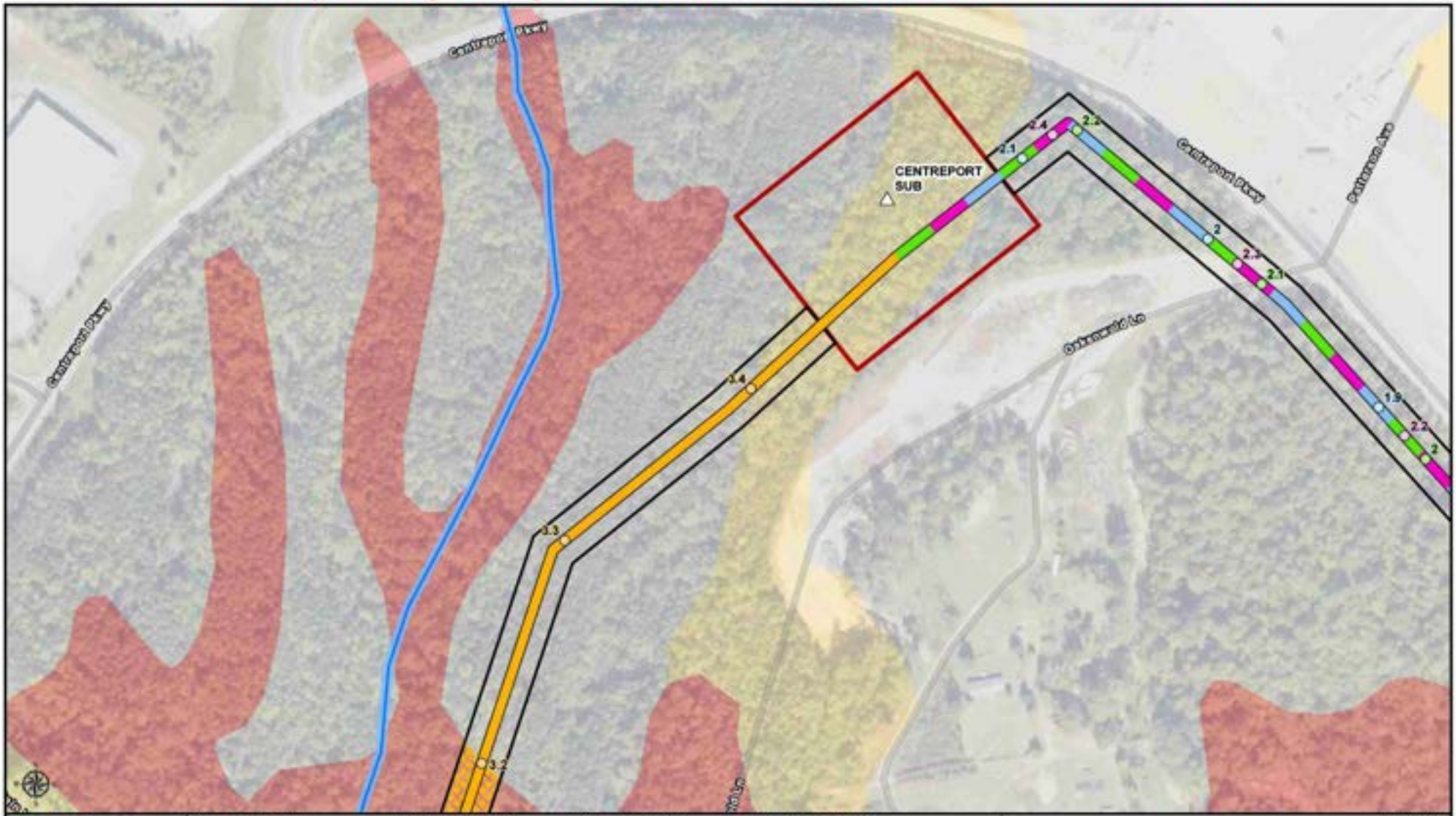

Attachment 2
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Centreport 230 kV Electric Transmission Project
Dominion Energy Virginia
Stafford County, Virginia

ERM

Dominion Energy

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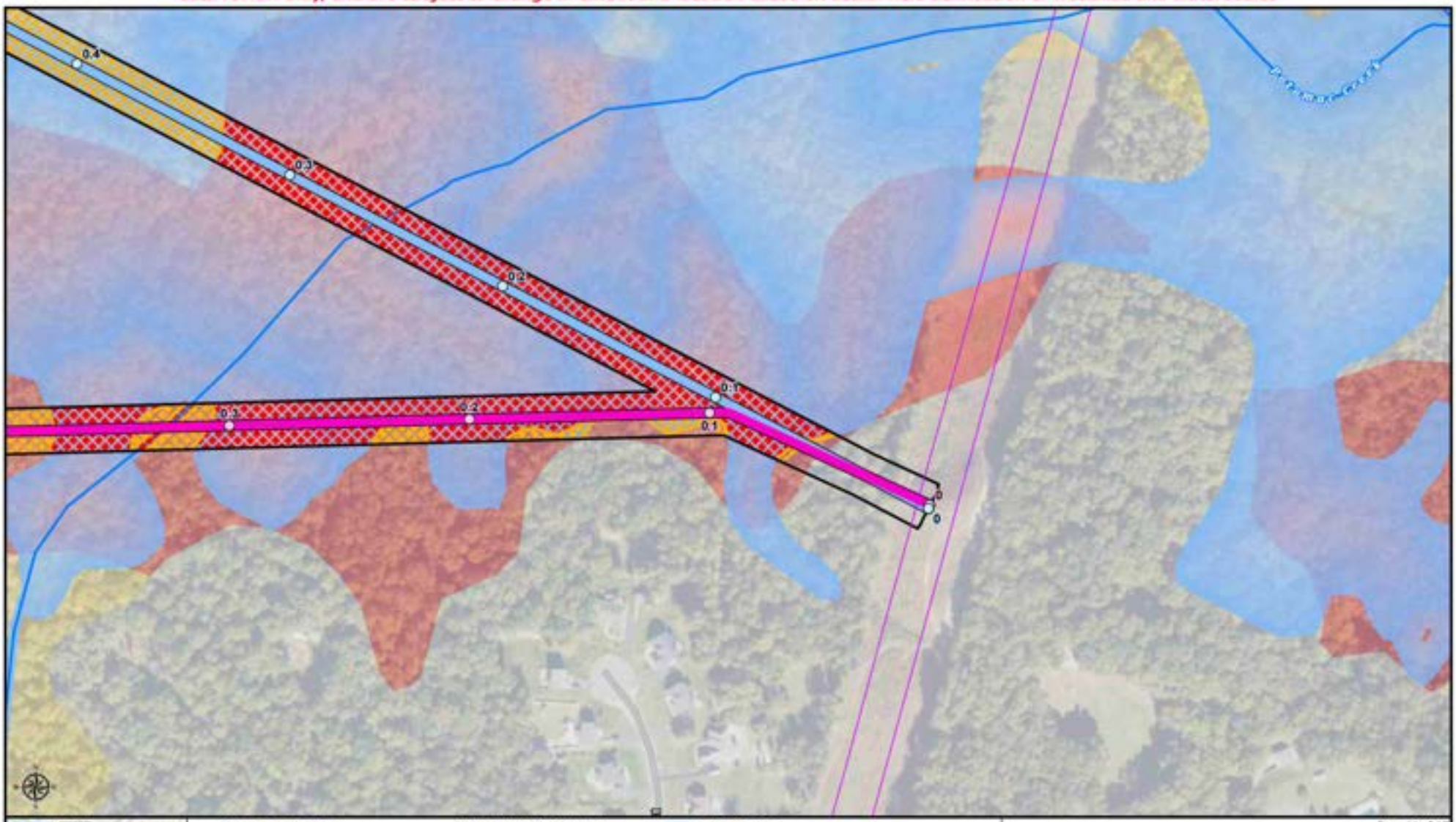

Dominion Exsiting Transmission Line
Route 2
Route 4
Route 2 (100ft Right-of-Way)
Route 4 (100ft Right-of-Way)
NHD Stream
NWI Wetland
SSURGO Hydric Soil Rating
Nonhydric
Predominantly nonhydric
Predominantly hydric
0 100 200
Feet
1:2,400

Attachment 2
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Centreport 230 kV Electric Transmission Project
Dominion Energy Virginia
Stafford County, Virginia

ERM

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Centreport 230 kV Electric Transmission Project
Dominion Energy Virginia
Stafford County, Virginia

ERM

Dominion Energy

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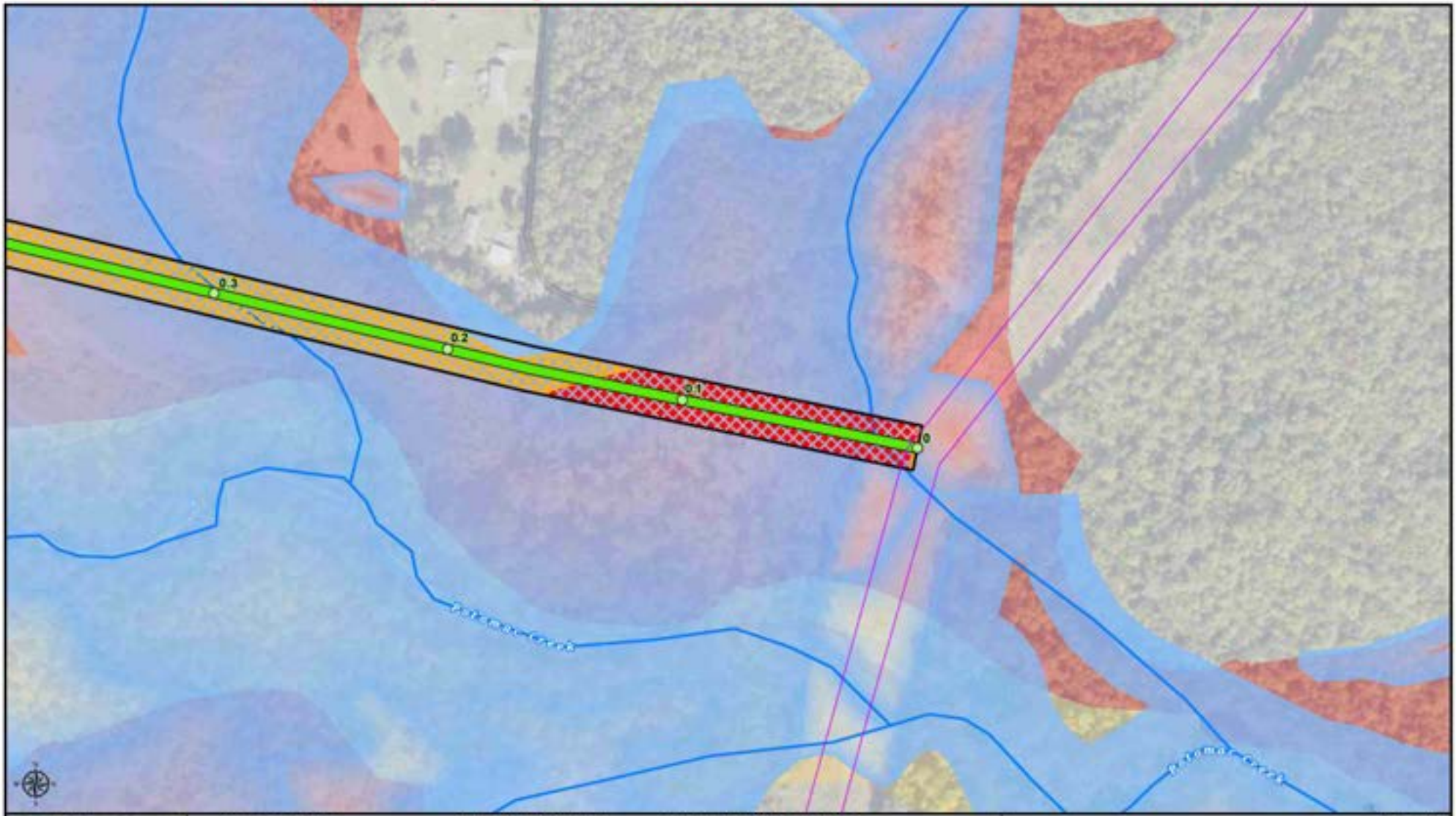

Attachment 2
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Centreport 230 kV Electric Transmission Project
Dominion Energy Virginia
Stafford County, Virginia

ERM

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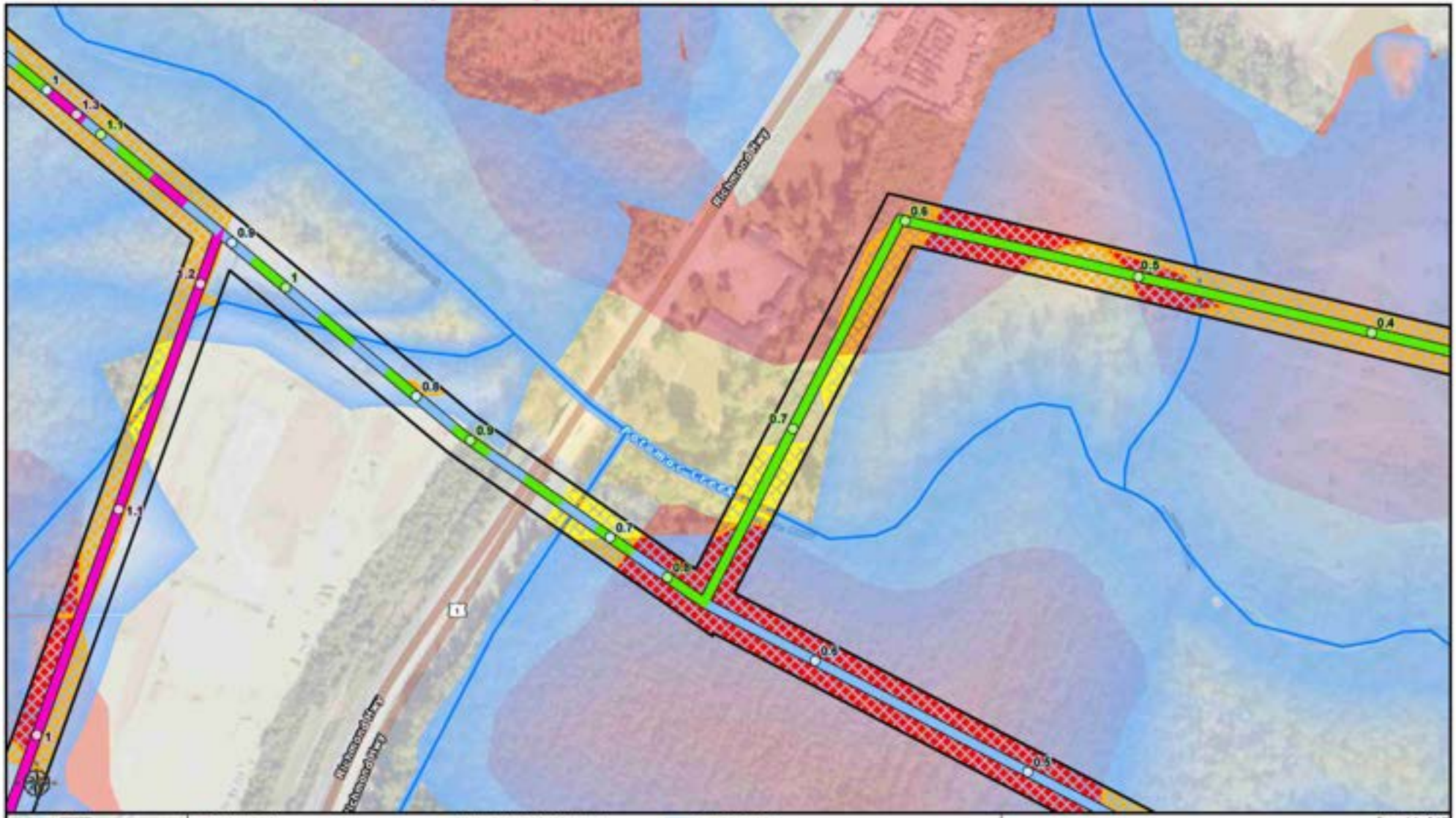

Attachment 2
Wetland Probability Map Set - Probability
Centreport 230 kV Electric Transmission Project
Dominion Energy Virginia
Stafford County, Virginia

ERM

Dominion Energy

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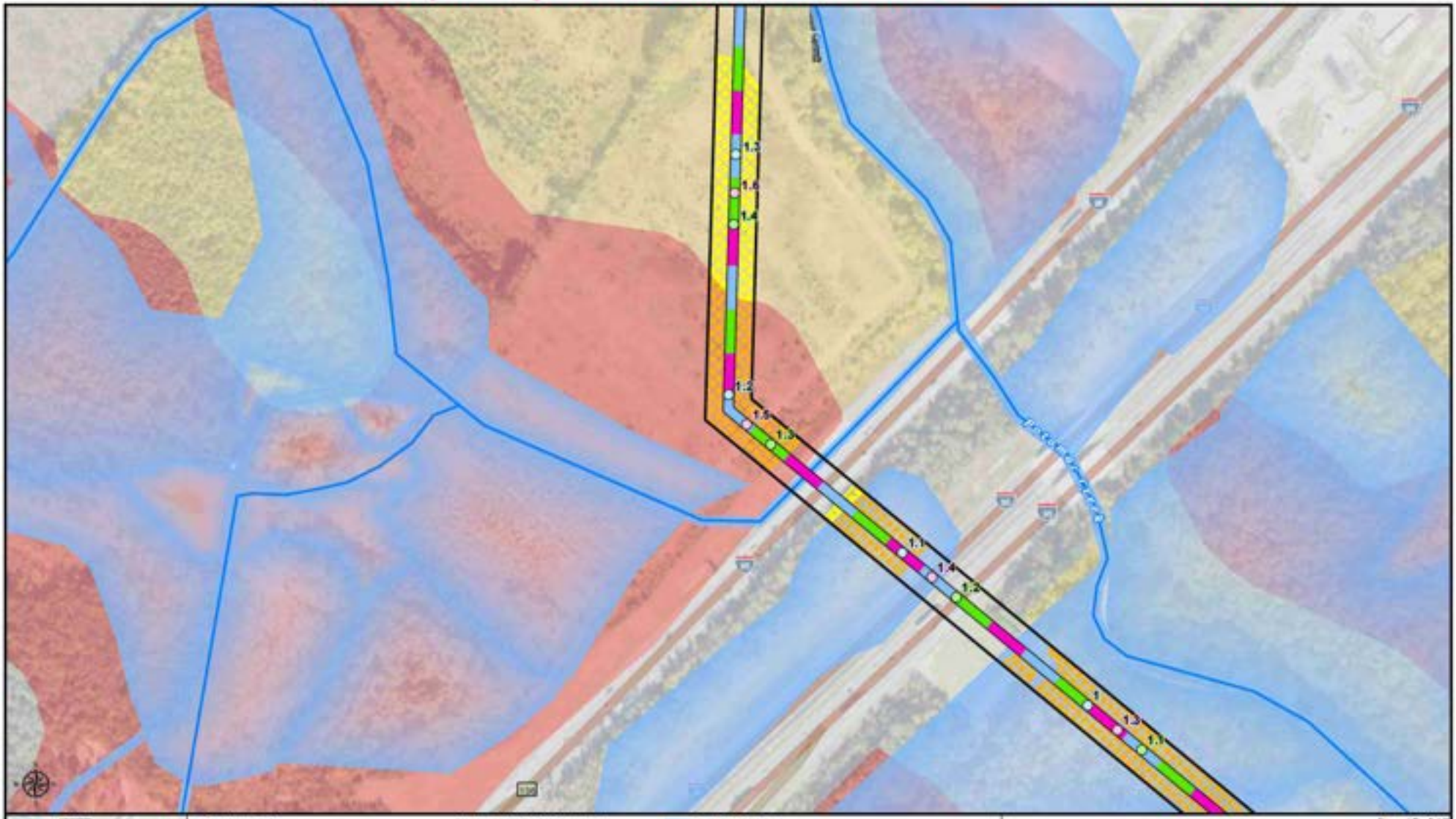

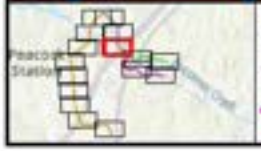

Route 2
Route 3
Route 4
Route 2 (100ft Right-of-Way)
Route 3 (100ft Right-of-Way)
Route 4 (100ft Right-of-Way)
NHD Stream
NWI Wetland

SSURGO Hydric Soil Rating
Nonhydric
Predominantly nonhydric
Predominantly hydric

0 100 200
Feet
1:2,400

Attachment 2
Wetland Probability Map Set - Probability
Centreport 230 kV Electric Transmission Project
Dominion Energy Virginia
Stafford County, Virginia

ERM

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Wetland Probability Map Set - Probability
Centreport 230 kV Electric Transmission Project
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ERM

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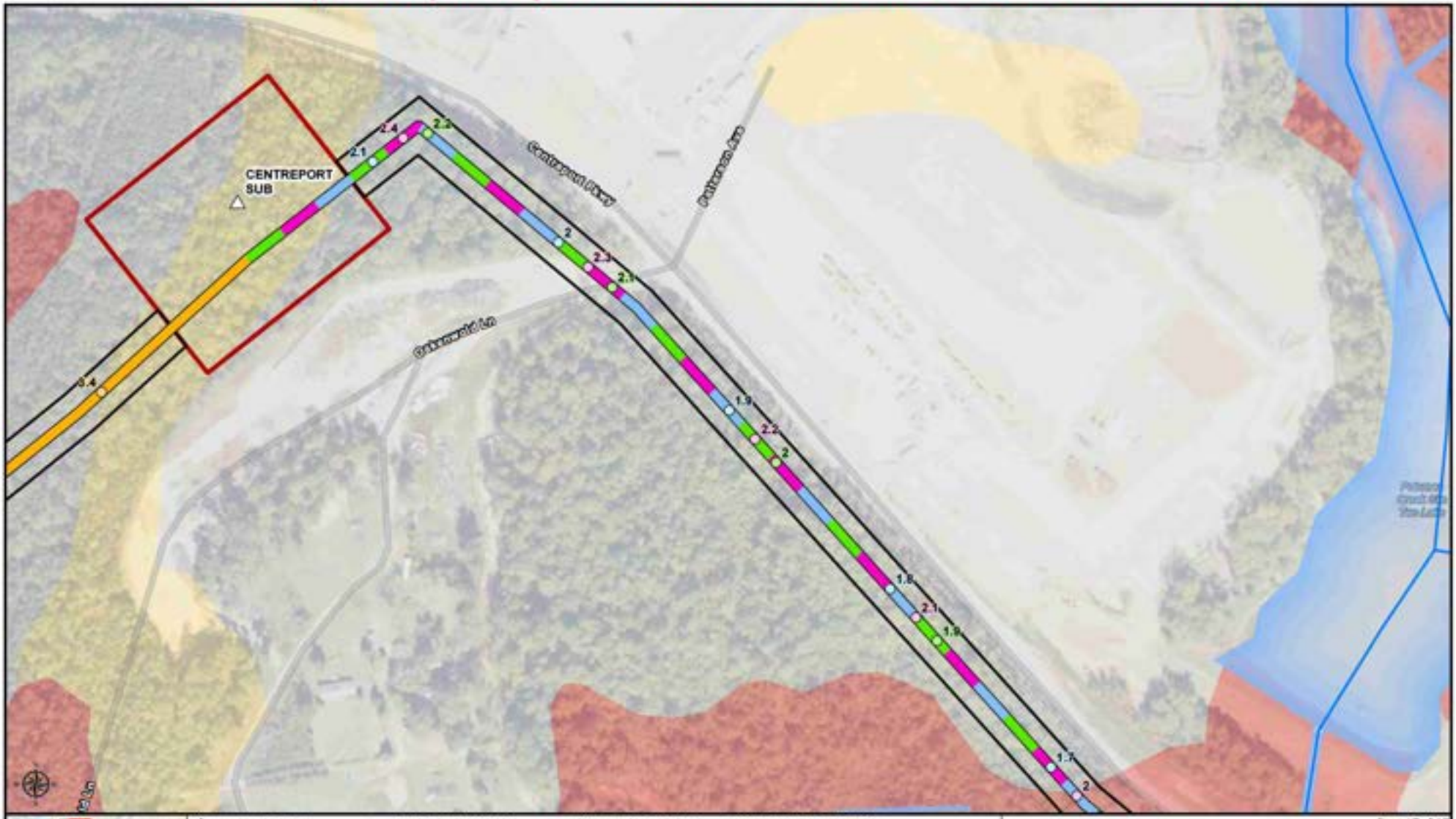
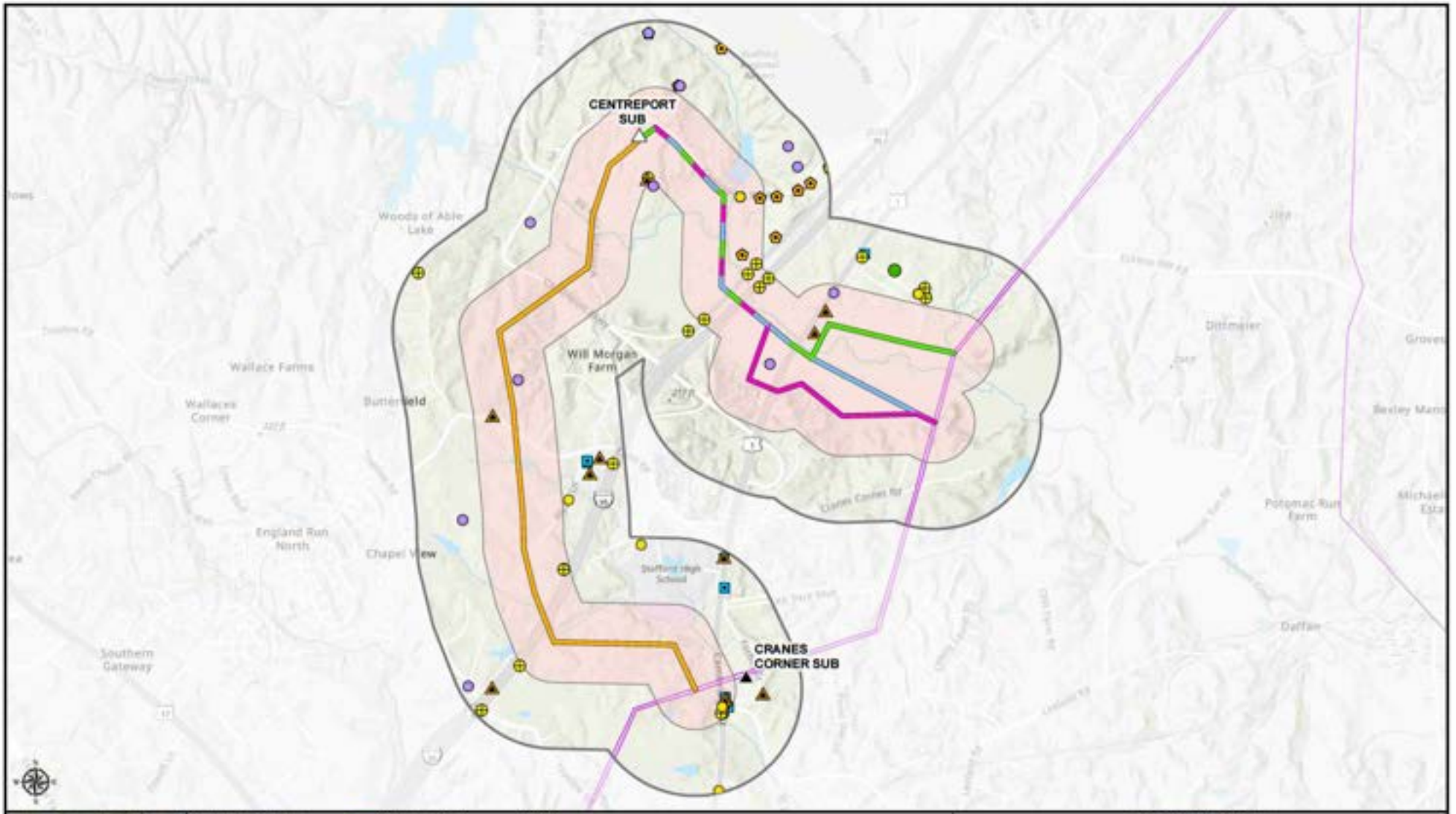


Attachment 2
Wetland Probability Map Set - Probability
Centreport 230 kV Electric Transmission Project
Dominion Energy Virginia
Stafford County, Virginia

ERM

Dominion Energy



Attachment 2.F.1
Solid and Hazardous Waste Sites Within 1,000 Feet and Half Mile of Centerline
Centreport 230 kV Electric Transmission Project
Dominion Energy Virginia
Stafford County, Virginia

ERM

Dominion Energy

COMMONWEALTH of VIRGINIA

DEPARTMENT OF CONSERVATION AND RECREATION

March 1, 2024

James Kowalsky
Environmental Resources Management, Inc.
1 Beacon Street, 5th Floor
Boston, MA 02108

Re: 0713641, Centerport

Dear Mr. Kowalsky:

The Department of Conservation and Recreation's Division of Natural Heritage (DCR) has searched its Biotics Data System for occurrences of natural heritage resources from the area outlined on the submitted map. Natural heritage resources are defined as the habitat of rare, threatened, or endangered plant and animal species, unique or exemplary natural communities, and significant geologic formations.

According to a DCR biologist and predicted suitable habitat modeling, there is potential for Small whorled pogonia (*Isotria medeoloides*, G2/S2/LT/LE) to occur in the project area if suitable habitat exists on site. Small whorled pogonia is a perennial orchid that grows in a variety of woodland habitats in Virginia, but tends to favor mid-aged woodland habitats on gently north or northeast facing slopes often within small draws. It is quite natural for plants of this species to remain dormant in the soil for long periods of time. Direct destruction, as well as habitat loss and alteration, are principal reasons for the species' decline (Ware, 1991). The Virginia Field Office of the U.S. Fish and Wildlife Service (USFWS) recommends that field surveys for this species be conducted in areas of Virginia south of Caroline County from May 25 through July 15 and in areas of Virginia from Caroline County and north from June 1 through July 20 (K. Mayne, pers. com. 1999). Please note that this species is currently classified as threatened by the USFWS and as endangered by the Virginia Department of Agriculture and Consumer Services (VDACS).

Due to the potential for this site to support populations of Small whorled pogonia, DCR recommends an inventory for the resource in the study area. With the survey results we can more accurately evaluate potential impacts to natural heritage resources and offer specific protection recommendations for minimizing impacts to the documented resources.

DCR-Division of Natural Heritage biologists are qualified to conduct inventories for rare, threatened, and endangered species. Please contact Anne Chazal, Natural Heritage Chief Biologist, at anne.chazal@dcr.virginia.gov or 804-786-9014 to discuss availability and rates for field work. For a list of USFWS-approved surveyors in Virginia visit https://www.fws.gov/media/collection-approved-surveyor-lists-project-review-process-virginia.

Under a Memorandum of Agreement established between the Virginia Department of Agriculture and Consumer Services (VDACS) and the DCR, DCR represents VDACS in comments regarding potential impacts on state-listed threatened and endangered plant and insect species. Survey results should be coordinated with DCR-DNH and USFWS. Upon review of the results, if it is determined the species is present, and there is a likelihood of a negative impact on the species, DCR-DNH will recommend coordination with VDACS to ensure compliance with Virginia's Endangered Plant and Insect Species Act.

DCR recommends the development and implementation of an invasive species plan to be included as part of the maintenance practices for the right-of-way (ROW). The invasive species plan should include an invasive species inventory for the project area based on the current DCR Invasive Species List (http://www.dcr.virginia.gov/natural-heritage/document/nh-invasive-plant-list-2014.pdf) and methods for treating the invasives. DCR also recommends the ROW restoration and maintenance practices planned include appropriate revegetation using native species in a mix of grasses and forbs to the extent that it is consistent with erosion and sediment control requirements, robust monitoring, and an adaptive management plan to provide guidance if initial revegetation efforts are unsuccessful or if invasive species outbreaks occur.

In addition, the proposed project may impact Ecological Cores **(C3, C4, C5)** as identified in the Virginia Natural Landscape Assessment (https://www.dcr.virginia.gov/natural-heritage/vaconvisvnla). Mapped cores in the project area can be viewed via the Virginia Natural Heritage Data Explorer, available here: http://vanhde.org/content/map.

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 utilize marsh, dune, and beach habitats. Interior core areas begin 100 meters inside core edges and continue to the deepest parts of cores. Cores also provide the natural, economic, and quality of life benefits of open space, recreation, thermal moderation, water quality (including drinking water recharge and protection, and erosion prevention), and air quality (including sequestration of carbon, absorption of gaseous pollutants, and production of oxygen). Cores are ranked from C1 to C5 (C5 being the least significant) using nine prioritization criteria, including the habitats of natural heritage resources they contain.

Impacts to cores occur when their natural cover is partially or completely converted permanently to developed land uses. Habitat conversion to development causes reductions in ecosystem processes, native biodiversity, and habitat quality due to habitat loss; less viable plant and animal populations; increased predation; and increased introduction and establishment of invasive species.

DCR recommends avoidance of impacts to cores. When avoidance cannot be achieved, DCR recommends minimizing the area of impacts overall and concentrating the impacted area at the edges of cores, so that the most interior remains intact.

There are no State Natural Area Preserves under DCR's jurisdiction in the project vicinity.

New and updated information is continually added to Biotics. Please re-submit a completed order form and project map for an update on this natural heritage information if the scope of the project changes and/or six months has passed before it is utilized.

A fee of $500.00 has been assessed for the service of providing this information. Please find attached an invoice for that amount. Please return one copy of the invoice along with your remittance made payable to the Treasurer of Virginia, DCR Finance, 600 East Main Street, 24th Floor, Richmond, VA 23219. Payment is due within thirty

days of the invoice date. Please note late payment may result in the suspension of project review service for future projects.

The U.S. Fish and Wildlife Service (USFWS) utilizes an online project review process (https://www.fws.gov/office/virginia-ecological-services/virginia-field-office-online-review-process) to facilitate compliance with the Endangered Species Act (16 U.S.C. 1531-1544, 87 Stat. 884) (ESA), as amended. The process enables users to 1) follow step-by-step guidance; 2) access information that will allow them to identify threatened and endangered species, designated critical habitat, and other Federal trust resources that may be affected by their project; and 3) accurately reach determinations regarding the potential effects of their project on these resources as required under the ESA. If you have questions regarding the online review process, please contact Rachel Case at rachel_case@fws.gov.

The Virginia Department of Wildlife Resources (VDWR) maintains a database of wildlife locations, including threatened and endangered species, trout streams, and anadromous fish waters that may contain information not documented in this letter. Their database may be accessed https://services.dwr.virginia.gov/fwis/ or contact Amy Martin at 804-367-2211 or amy.martin@dwr.virginia.gov.

Should you have any questions or concerns, please contact me at 804-225-2429. Thank you for the opportunity to comment on this project.

Sincerely,

Tyler Meader
Natural Heritage Locality Liaison

Literature Cited

Ware, D.M.E. 1991. Small whorled pogonia. In Virginia's Endangered Species: Proceedings of a Symposium. K. Terwilliger ed. The McDonald and Woodward Publishing Company, Blacksburg, Virginia.

Site Location

38,22,13.7 -77,27,39.2
is the Search Point

Show Position Rings
(•) Yes ( ) No
1 mile and 1/4 mile at the Search Point

Show Search Area
(•) Yes ( ) No
2 Search distance miles buffer

Search Point is at map center

Base Map Choices
Topography

Map Overlay Choices
Current List: Position, Search, BECAR, BAEANests, TEWaters, TierII, Habitat, Trout, Anadromous

Map Overlay Legend

T & E Waters
Federal
State

Predicted Habitat WAP Tier I & II
Aquatic
Terrestrial

Trout Waters
Class I - IV
Class V - VI

Anadromous Fish Reach
Confirmed
Potential

Impediment

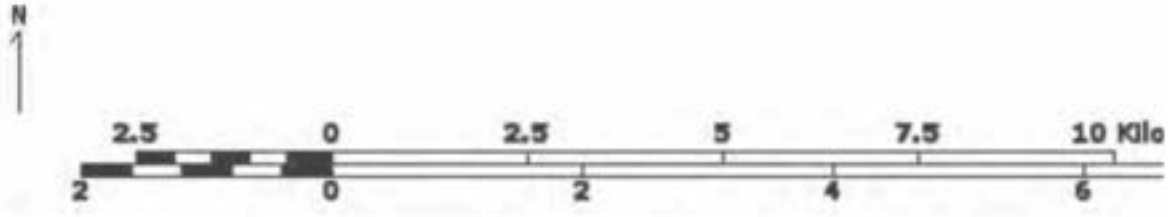
Position Rings
1 mile and 1/4 mile at the Search Point

2 mile radius Search Area

Bald Eagle Concentration Areas and Roosts

Refresh Browser Page

Map Click: Pan | Map Scale: In Zoom Out | Screen Size: Small Size Big | Help



Point of Search 38,22,13.7 -77,27,39.2
Map Location 38,22,17.3 -77,27,27.7

Select **Coordinate System:**
(•) Degrees,Minutes,Seconds Latitude - Longitude
( ) Decimal Degrees Latitude - Longitude
( ) Meters UTM NAD83 East North Zone
( ) Meters UTM NAD27 East North Zone

Base Map source: USGS 1:250,000 topographic maps (see Microsoft terraserver-usa.com for details)

Map projection is UTM Zone 18 NAD 1983 with left 275701 and top 4259492. Pixel size is 17. . Coordinates displayed are Degrees, Minutes, Seconds North and West. Map is currently displayed as 600 columns by 600 rows for a total of 360000 pixles. The map display represents 19200 meters east to west by 19200 meters north to south for a total of 368.6 square kilometers. The map display represents 63002 feet east to west by 63002 feet north to south for a total of 142.3 square miles.

Topographic maps and Black and white aerial photography for year 1990+-
are from the United States Department of the Interior, United States Geological Survey.
Color aerial photography aquired 2002 is from Virginia Base Mapping Program, Virginia Geographic Information Network.
Shaded topographic maps are from TOPO! ©2006 National Geographic
http://www.national.geographic.com/topo
All other map products are from the Commonwealth of Virginia Department of Wildlife Resources.

map assembled 2024-04-04 10:38:26 (qa/qc March 21, 2016 12:20 - ts=1977085.0 dist=3218 1)
$pos=38.3704900 -77.4608899

VaFWIS Search Report Compiled on 4/4/2024, 10:29:02 AM

Help

Known or likely to occur within a **2 mile buffer around polygon; center 38.3704900 -77.4608899** in **179 Stafford County, VA**

View Map of Site Location

496 Known or Likely Species ordered by Status Concern for Conservation
(displaying first 20) (20 species with Status* or Tier I** or Tier II**)

BOVA Code	Status*	Tier**	Common Name	Scientific Name	Confirmed	Database(s)
050022	FEST	Ia	Bat, northern long-eared	Myotis septentrionalis		BOVA
060003	FESE	Ia	Wedgemussel, dwarf	Alasmidonta heterodon		BOVA
010032	FESE	Ib	Sturgeon, Atlantic	Acipenser oxyrinchus		BOVA
050020	SE	Ia	Bat, little brown	Myotis lucifugus		BOVA
050027	FPSE	Ia	Bat, tri-colored	Perimyotis subflavus		BOVA
040293	ST	Ia	Shrike, loggerhead	Lanius ludovicianus		BOVA
060081	FPST	IIa	Floater, green	Lasmigona subviridis		BOVA,HU6
040292	ST		Shrike, migrant loggerhead	Lanius ludovicianus migrans		BOVA
100079	FC	IIIa	Butterfly, monarch	Danaus plexippus		BOVA
030063	CC	IIIa	Turtle, spotted	Clemmys guttata		BOVA,HU6
010077		Ia	Shiner, bridle	Notropis bifrenatus		BOVA,HU6
100248		Ia	Fritillary, regal	Speyeria idalia idalia		BOVA,HU6
040213		Ic	Owl, northern saw-whet	Aegolius acadicus		BOVA,HU6
040052		IIa	Duck, American black	Anas rubripes		BOVA,HU6
040036		IIa	Night-heron, yellow-crowned	Nyctanassa violacea violacea		BOVA
040181		IIa	Tern, common	Sterna hirundo		BOVA,HU6
040320		IIa	Warbler, cerulean	Setophaga cerulea		BOVA,HU6
040140		IIa	Woodcock, American	Scolopax minor	Yes	BOVA,BBA,SppObs,HU6
040203		IIb	Cuckoo, black-billed	Coccyzus erythropthalmus		BOVA
040105		IIb	Rail, king	Rallus elegans		BOVA,HU6

To view **All 496 species** View 496

*FE=Federal Endangered; FT=Federal Threatened; SE=State Endangered; ST=State Threatened; FP=Federal Proposed; FC=Federal Candidate; CC=Collection Concern

**I=VA Wildlife Action Plan - Tier I - Critical Conservation Need; II=VA Wildlife Action Plan - Tier II - Very High Conservation Need; III=VA Wildlife Action Plan - Tier III - High Conservation Need; IV=VA Wildlife Action Plan - Tier IV - Moderate Conservation Need

Virginia Widlife Action Plan Conservation Opportunity Ranking:

a - On the ground management strategies/actions exist and can be feasibly implemented.;

b - On the ground actions or research needs have been identified but cannot feasibly be implemented at this time.;

c - No on the ground actions or research needs have been identified or all identified conservation opportunities have been exhausted.

View Map of All Query Results from All Observation Tables

Bat Colonies or Hibernacula: **Not Known**

Anadromous Fish Use Streams (1 records)

View Map of All Anadromous Fish Use Streams

Stream ID	Stream Name	Reach Status	Anadromous Fish Species			View Map
			Different Species	Highest TE*	Highest Tier**	
P190	Claiborne Run	Potential	0			Yes

Impediments to Fish Passage (3 records)

View Map of All Fish Impediments

ID	Name	River	View Map
1278	HENDERSON DAM	TR-POTOMAC CREEK	Yes
1270	POTOMAC CREEK DAM #1	POTOMAC CREEK	Yes
1277	POTOMAC CREEK DAM #2	TR-POTOMAC CREEK	Yes

Colonial Water Bird Survey

N/A

Threatened and Endangered Waters

N/A

Managed Trout Streams

N/A

Bald Eagle Concentration Areas and Roosts

N/A

Bald Eagle Nests

N/A

Species Observations (33 records - displaying first 20)

View Map of All Query Results
Species Observations

obsID	class	Date Observed	Observer	N Species			View Map
				Different Species	Highest TE*	Highest Tier**	
300395	SppObs	Sep 15 2002	Linda D. Bailey	2		II	Yes
318129	SppObs	Sep 15 2002	Linda Bailey	2		II	Yes
425864	SppObs	Nov 17 1998	VCU - INSTAR	8		III	Yes
425863	SppObs	Aug 12 1998	VCU - INSTAR	7		III	Yes
16299	SppObs	Oct 2 1982	R. E. WATSON	10		III	Yes
29801	SppObs	Jan 1 1900	Mitchell, J. C.	1		III	Yes
634497	SppObs	Sep 22 2020	Tom Dickinson; Nancy Scott	6		IV	Yes
55566	SppObs	Aug 31 1996	PHILIP H. STEVENSON, CONSULTING ECOLOGIST FOR KCI TECHNOLOGIES	10		IV	Yes

630882	SppObs	Sep 1 2017	Susan Alexander; Mark Hartman; Mark Haus; Steve Sharp	2			Yes
318140	SppObs	Sep 15 2004	Linda Bailey	1			Yes
307154	SppObs	Sep 15 2004	LINDA BAILY, FREDERICKSBURG PARKS AND RECREATION	1			Yes
318132	SppObs	Sep 15 2004	Linda Bailey	1			Yes
307155	SppObs	Sep 15 2004	LINDA BAILY, FREDERICKSBURG PARKS AND RECREATION	1			Yes
300410	SppObs	Sep 15 2002	Linda D. Bailey	3			Yes
300418	SppObs	Sep 15 2002	Linda D. Bailey	1			Yes
318137	SppObs	Sep 15 2002	Linda Bailey	3			Yes
425862	SppObs	May 20 1998	VCU - INSTAR	8			Yes
8121	SppObs	Sep 26 1994	Werner Wieland	1			Yes
314568	SppObs	Oct 8 1993	PHILIP H. STEVENSON	4			Yes
6275	SppObs	Oct 8 1993	Phillip Stevenson	4			Yes

Displayed 20 Species Observations

Selected 33 Observations View all 33 Species Observations

Habitat Predicted for Aquatic WAP Tier I & II Species

N/A

Habitat Predicted for Terrestrial WAP Tier I & II Species

N/A

Virginia Breeding Bird Atlas Blocks (7 records)

View Map of All Query Results
Virginia Breeding Bird Atlas Blocks

BBA ID	Atlas Quadrangle Block Name	Breeding Bird Atlas Species			View Map
		Different Species	Highest TE*	Highest Tier**	
51154	Fredericksburg, CE	20		III	Yes
51153	Fredericksburg, CW	71		II	Yes
51152	Fredericksburg, NE	35		III	Yes
51151	Fredericksburg, NW	44		III	Yes
50152	Salem Church, NE	25		III	Yes
51166	Stafford, SE	72		III	Yes
50166	Storck, SE	74		III	Yes

Public Holdings:

N/A

Summary of BOVA Species Associated with Cities and Counties of the Commonwealth of Virginia:

FIPS Code	City and County Name	Different Species	Highest TE	Highest Tier
179	Stafford	431	FESE	I

USGS 7.5' Quadrangles:
Salem Church
Storck
Fredericksburg
Stafford

USGS NRCS Watersheds in Virginia:

N/A

USGS National 6th Order Watersheds Summary of Wildlife Action Plan Tier I, II, III, and IV Species:

HU6 Code	USGS 6th Order Hydrologic Unit	Different Species	Highest TE	Highest Tier
PL58	Accokeek Creek	51	SS	I
PL59	Potomac Creek-Long Branch	50	SS	I
PL60	Potomac Creek-Beaverdam Creek	57	SS	I
RA46	Rappahannock River-Hazel Run	63	FPST	I

Compiled on 4/4/2024, 10:29:02 AM 11977085.0 report=all searchType= P dist= 3218 poi= 38.3704900 -77.4608899 siteDD= 38.3526100 -77.4605338;38.3743530 -77.4380418;38.3798670 -77.4575288;38.3862540 -77.4571878;38.3906050 -77.4632588;38.3817080 -77.4691038;38.3769320 -77.4769578;38.3558090 -77.4724308;38.3556700 -77.4621868;38.3526100 -77.4605338;;;;;

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United States Department of the Interior

FISH AND WILDLIFE SERVICE
Virginia Ecological Services Field Office
6669 Short Lane
Gloucester, VA 23061-4410
Phone: (804) 693-6694

In Reply Refer To:
Project Code: 2024-0134824
Project Name: Centreport

08/23/2024 21:48:39 UTC

Subject: List of threatened and endangered species that may occur in your proposed project location or may be affected by your proposed project

To Whom It May Concern:

The enclosed species list identifies threatened, endangered, proposed, and candidate species, as well as proposed and final designated critical habitat, that may occur within the boundary of your proposed project and/or may be affected by your proposed project. The species list fulfills the requirements of the U.S. Fish and Wildlife Service (Service) under section 7(c) of the Endangered Species Act (Act) of 1973, as amended (16 U.S.C. 1531 *et seq.*).

New information based on updated surveys, changes in the abundance and distribution of species, changed habitat conditions, or other factors could change this list. Please feel free to contact us if you need more current information or assistance regarding the potential impacts to federally proposed, listed, and candidate species and federally designated and proposed critical habitat. Please note that under 50 CFR 402.12(e) of the regulations implementing section 7 of the Act, the accuracy of this species list should be verified after 90 days. This verification can be completed formally or informally as desired. The Service recommends that verification be completed by visiting the IPaC website at regular intervals during project planning and implementation for updates to species lists and information. An updated list may be requested through IPaC by completing the same process used to receive the enclosed list.

The purpose of the Act is to provide a means whereby threatened and endangered species and the ecosystems upon which they depend may be conserved. Under sections 7(a)(1) and 7(a)(2) of the Act and its implementing regulations (50 CFR 402 *et seq.*), Federal agencies are required to utilize their authorities to carry out programs for the conservation of threatened and endangered species and to determine whether projects may affect threatened and endangered species and/or designated critical habitat.

A Biological Assessment is required for construction projects (or other undertakings having similar physical impacts) that are major Federal actions significantly affecting the quality of the human environment as defined in the National Environmental Policy Act (42 U.S.C. 4332(2)(c)). For projects other than major construction activities, the Service suggests that a biological

evaluation similar to a Biological Assessment be prepared to determine whether the project may affect listed or proposed species and/or designated or proposed critical habitat. Recommended contents of a Biological Assessment are described at 50 CFR 402.12.

If a Federal agency determines, based on the Biological Assessment or biological evaluation, that listed species and/or designated critical habitat may be affected by the proposed project, the agency is required to consult with the Service pursuant to 50 CFR 402. In addition, the Service recommends that candidate species, proposed species and proposed critical habitat be addressed within the consultation. More information on the regulations and procedures for section 7 consultation, including the role of permit or license applicants, can be found in the "Endangered Species Consultation Handbook" at: https://www.fws.gov/sites/default/files/documents/endangered-species-consultation-handbook.pdf

Migratory Birds: In addition to responsibilities to protect threatened and endangered species under the Endangered Species Act (ESA), there are additional responsibilities under the Migratory Bird Treaty Act (MBTA) and the Bald and Golden Eagle Protection Act (BGEPA) to protect native birds from project-related impacts. Any activity, intentional or unintentional, resulting in take of migratory birds, including eagles, is prohibited unless otherwise permitted by the U.S. Fish and Wildlife Service (50 C.F.R. Sec. 10.12 and 16 U.S.C. Sec. 668(a)). For more information regarding these Acts, see Migratory Bird Permit | What We Do | U.S. Fish & Wildlife Service (fws.gov).

The MBTA has no provision for allowing take of migratory birds that may be unintentionally killed or injured by otherwise lawful activities. It is the responsibility of the project proponent to comply with these Acts by identifying potential impacts to migratory birds and eagles within applicable NEPA documents (when there is a federal nexus) or a Bird/Eagle Conservation Plan (when there is no federal nexus). Proponents should implement conservation measures to avoid or minimize the production of project-related stressors or minimize the exposure of birds and their resources to the project-related stressors. For more information on avian stressors and recommended conservation measures, see https://www.fws.gov/library/collections/threats-birds.

In addition to MBTA and BGEPA, Executive Order 13186: *Responsibilities of Federal Agencies to Protect Migratory Birds*, obligates all Federal agencies that engage in or authorize activities that might affect migratory birds, to minimize those effects and encourage conservation measures that will improve bird populations. Executive Order 13186 provides for the protection of both migratory birds and migratory bird habitat. For information regarding the implementation of Executive Order 13186, please visit https://www.fws.gov/partner/council-conservation-migratory-birds.

We appreciate your concern for threatened and endangered species. The Service encourages Federal agencies to include conservation of threatened and endangered species into their project planning to further the purposes of the Act. Please include the Consultation Code in the header of this letter with any request for consultation or correspondence about your project that you submit to our office.

Attachment(s):

- Official Species List

OFFICIAL SPECIES LIST

This list is provided pursuant to Section 7 of the Endangered Species Act, and fulfills the requirement for Federal agencies to "request of the Secretary of the Interior information whether any species which is listed or proposed to be listed may be present in the area of a proposed action".

This species list is provided by:

Virginia Ecological Services Field Office
6669 Short Lane
Gloucester, VA 23061-4410
(804) 693-6694

PROJECT SUMMARY

Project Code: 2024-0134824
Project Name: Centreport
Project Type: Transmission Line - New Constr - Above Ground
Project Description: The purpose and need for the Project is to provide electrical service requested by a data center customer in Fredericksburg, VA.

Project Location:

The approximate location of the project can be viewed in Google Maps: https://www.google.com/maps/@38.3714502,-77.4595306082976,14z

Counties: Stafford County, Virginia

ENDANGERED SPECIES ACT SPECIES

There is a total of 6 threatened, endangered, or candidate species on this species list.

Species on this list should be considered in an effects analysis for your project and could include species that exist in another geographic area. For example, certain fish may appear on the species list because a project could affect downstream species.

IPaC does not display listed species or critical habitats under the sole jurisdiction of NOAA Fisheries[1], as USFWS does not have the authority to speak on behalf of NOAA and the Department of Commerce.

See the "Critical habitats" section below for those critical habitats that lie wholly or partially within your project area under this office's jurisdiction. Please contact the designated FWS office if you have questions.

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1. NOAA Fisheries, also known as the National Marine Fisheries Service (NMFS), is an office of the National Oceanic and Atmospheric Administration within the Department of Commerce.

MAMMALS

NAME	STATUS
Tricolored Bat *Perimyotis subflavus* No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/10515	Proposed Endangered

CLAMS

NAME	STATUS
Dwarf Wedgemussel *Alasmidonta heterodon* No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/784	Endangered
Green Floater *Lasmigona subviridis* There is **proposed** critical habitat for this species. Your location does not overlap the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/7541	Proposed Threatened

INSECTS

NAME	STATUS
Monarch Butterfly *Danaus plexippus* No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/9743	Candidate

FLOWERING PLANTS

NAME	STATUS
Harperella *Ptilimnium nodosum* No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/3739	Endangered
Small Whorled Pogonia *Isotria medeoloides* Population: No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/1890	Threatened

CRITICAL HABITATS

THERE ARE NO CRITICAL HABITATS WITHIN YOUR PROJECT AREA UNDER THIS OFFICE'S JURISDICTION.

YOU ARE STILL REQUIRED TO DETERMINE IF YOUR PROJECT(S) MAY HAVE EFFECTS ON ALL ABOVE LISTED SPECIES.

IPAC USER CONTACT INFORMATION

Agency: Private Entity
Name: Madison Adams
Address: 222 South 9th Street, Suite 2900
City: Minneapolis
State: MN
Zip: 55402
Email madisonkadams16@gmail.com
Phone: 2188397343

Bald Eagle
Non-BCC
Vulnerable

Additional information can be found using the following links:

- Eagle Management https://www.fws.gov/program/eagle-management
- Measures for avoiding and minimizing impacts to birds https://www.fws.gov/library/collections/avoiding-and-minimizing-incidental-take-migratory-birds
- Nationwide conservation measures for birds https://www.fws.gov/sites/default/files/documents/nationwide-standard-conservation-measures.pdf
- Supplemental Information for Migratory Birds and Eagles in IPaC https://www.fws.gov/media/supplemental-information-migratory-birds-and-bald-and-golden-eagles-may-occur-project-action

MIGRATORY BIRDS

Certain birds are protected under the Migratory Bird Treaty Act[1] and the Bald and Golden Eagle Protection Act[2].

Any person or organization who plans or conducts activities that may result in impacts to migratory birds, eagles, and their habitats[3] should follow appropriate regulations and consider implementing appropriate conservation measures, as described in the links below. Specifically, please review the "Supplemental Information on Migratory Birds and Eagles".

---

1. The Migratory Birds Treaty Act of 1918.
2. The Bald and Golden Eagle Protection Act of 1940.
3. 50 C.F.R. Sec. 10.12 and 16 U.S.C. Sec. 668(a)

For guidance on when to schedule activities or implement avoidance and minimization measures to reduce impacts to migratory birds on your list, see the PROBABILITY OF PRESENCE SUMMARY below to see when these birds are most likely to be present and breeding in your project area.

NAME	BREEDING SEASON
Bald Eagle *Haliaeetus leucocephalus* This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities. https://ecos.fws.gov/ecp/species/1626	Breeds Sep 1 to Jul 31

NAME	BREEDING SEASON
Black-billed Cuckoo *Coccyzus erythropthalmus* This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/9399	Breeds May 15 to Oct 10
Chimney Swift *Chaetura pelagica* This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/9406	Breeds Mar 15 to Aug 25
Kentucky Warbler *Oporornis formosus* This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/9443	Breeds Apr 20 to Aug 20
Prairie Warbler *Dendroica discolor* This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/9513	Breeds May 1 to Jul 31
Prothonotary Warbler *Protonotaria citrea* This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/9439	Breeds Apr 1 to Jul 31
Red-headed Woodpecker *Melanerpes erythrocephalus* This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/9398	Breeds May 10 to Sep 10
Rusty Blackbird *Euphagus carolinus* This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA https://ecos.fws.gov/ecp/species/9478	Breeds elsewhere
Wood Thrush *Hylocichla mustelina* This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/9431	Breeds May 10 to Aug 31

PROBABILITY OF PRESENCE SUMMARY

The graphs below provide our best understanding of when birds of concern are most likely to be present in your project area. This information can be used to tailor and schedule your project activities to avoid or minimize impacts to birds. Please make sure you read "Supplemental Information on Migratory Birds and Eagles", specifically the FAQ section titled "Proper Interpretation and Use of Your Migratory Bird Report" before using or attempting to interpret this report.

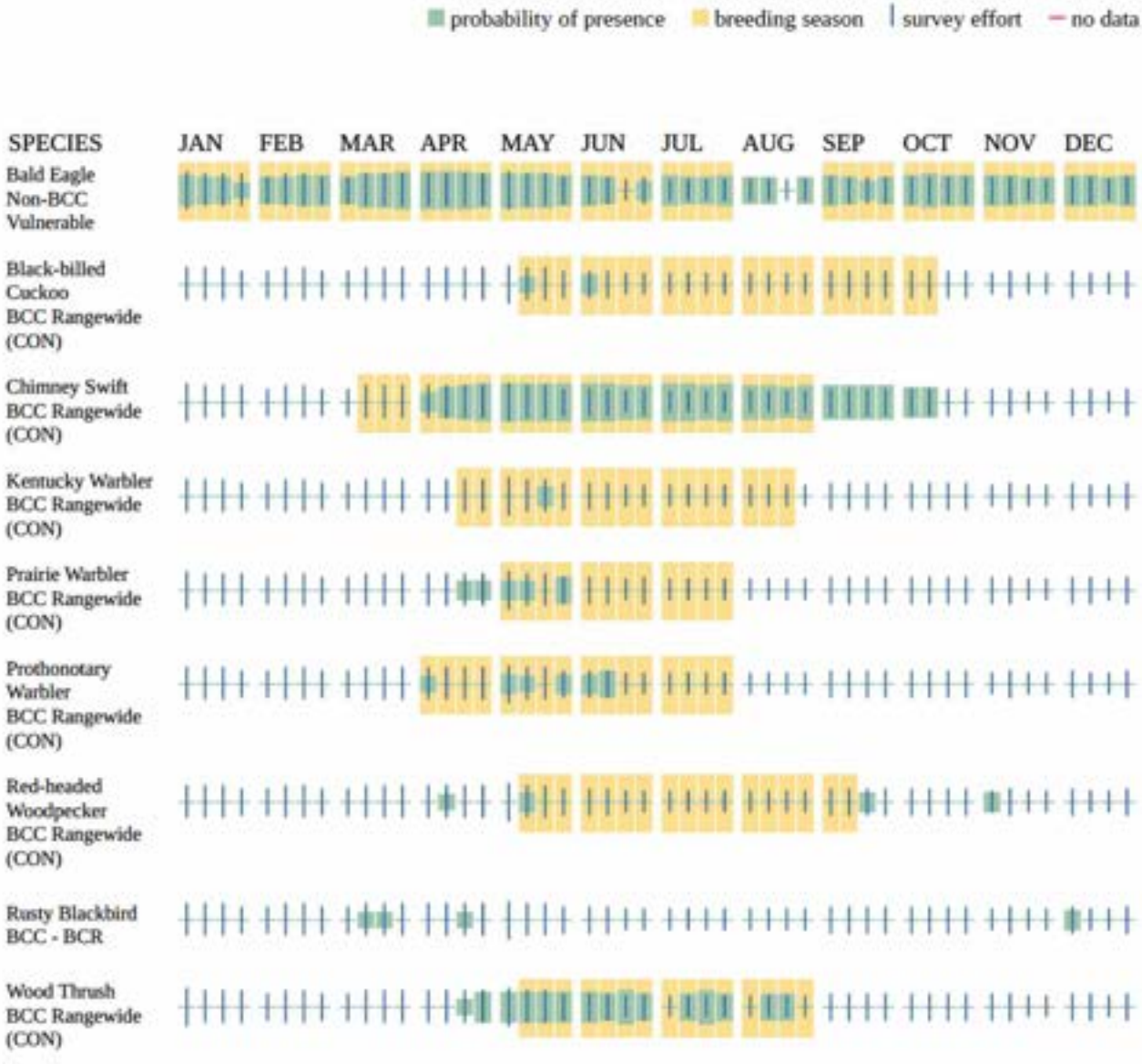
Probability of Presence (■)

Green bars; the bird's relative probability of presence in the 10km grid cell(s) your project overlaps during that week of the year.

Breeding Season (■)
Yellow bars; liberal estimate of the timeframe inside which the bird breeds across its entire range.

Survey Effort (|)
Vertical black lines; the number of surveys performed for that species in the 10km grid cell(s) your project area overlaps.

No Data (–)
A week is marked as having no data if there were no survey events for that week.



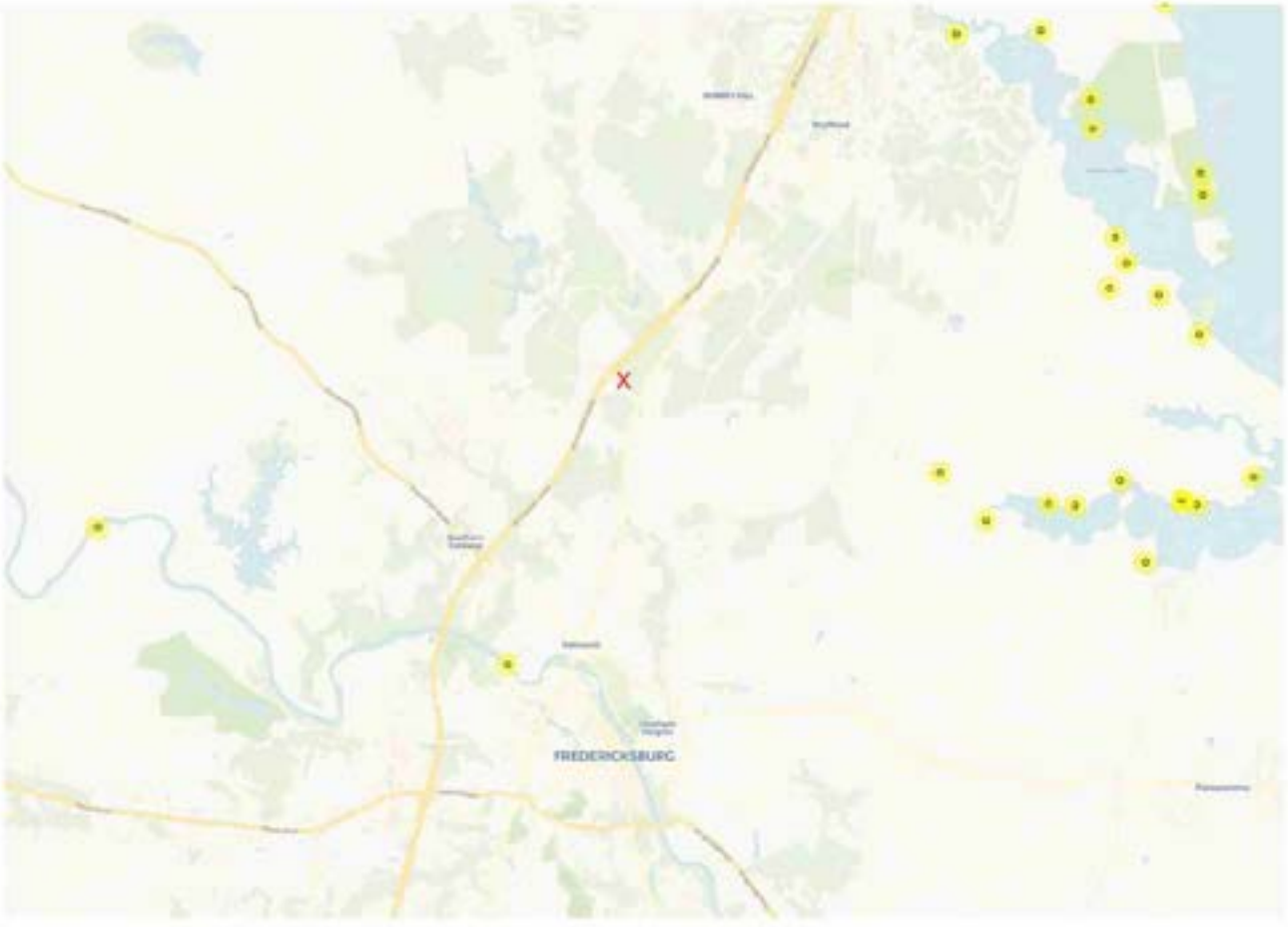
Additional information can be found using the following links:

- Eagle Management https://www.fws.gov/program/eagle-management
- Measures for avoiding and minimizing impacts to birds https://www.fws.gov/library/collections/avoiding-and-minimizing-incidental-take-migratory-birds
- Nationwide conservation measures for birds https://www.fws.gov/sites/default/files/documents/nationwide-standard-conservation-measures.pdf
- Supplemental Information for Migratory Birds and Eagles in IPaC https://www.fws.gov/media/supplemental-information-migratory-birds-and-bald-and-golden-eagles-may-occur-project-action

IPAC USER CONTACT INFORMATION

Agency:	Private Entity
Name:	James Kowalsky
Address:	Environmental Resources Management
Address Line 2:	One Beacon Street, 5th Floor
City:	Boston
State:	MA
Zip:	02108
Email	james.kowalsky@erm.com
Phone:	8573026613

CCB Mapping Portal



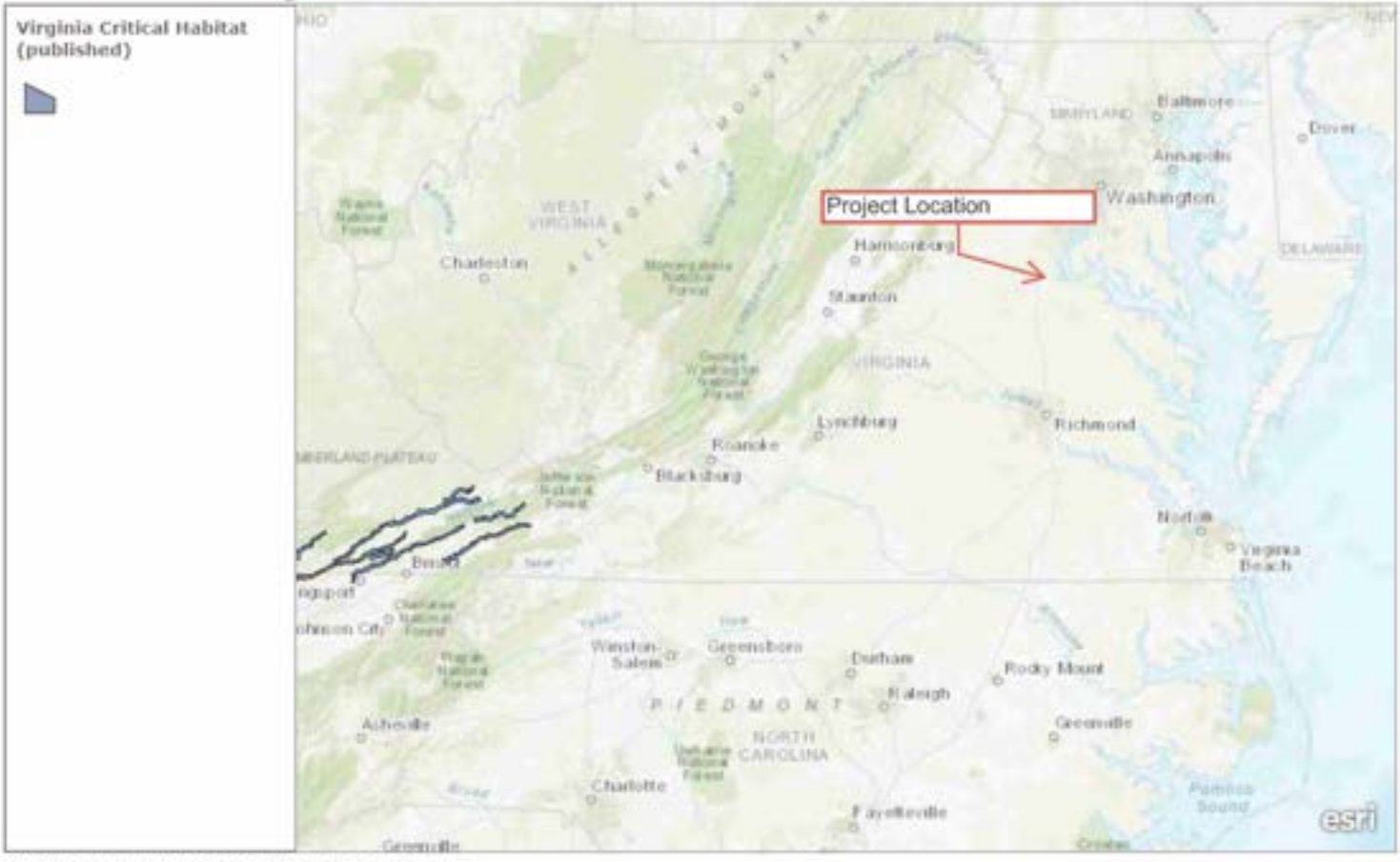
Layers: VA Eagle Nest Locator, VA Eagle Nest Buffers

Map Center [longitude, latitude]: [-77.44880676269531, 38.36824239711528]

Map Link:
https://ccbbirds.org/maps/#layer=VA+Eagle+Nest+Locator&layer=VA+Eagle+Nest+Buffers&zoom=13&lat=38.36824239711528&lng=-77.44880676269531&base=Street+Map+%28OSM%2FCarto%29

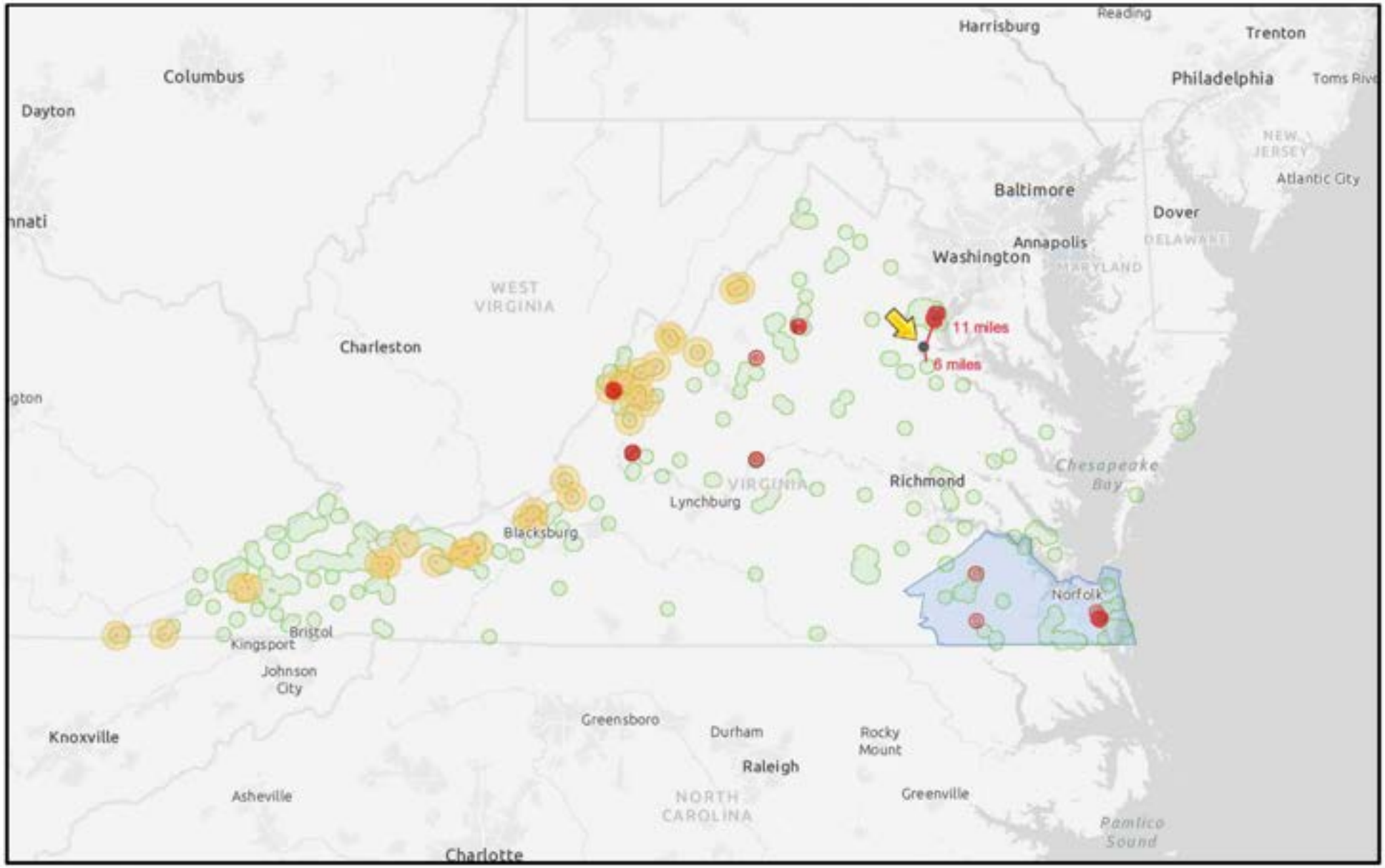
Report Generated On: 01/31/2024

Critical Habitat in Virginia



Designated and proposed critical habitat in Virginia

NLEB Locations and Roost Trees



4/4/2024, 11:06:41 AM

1:4,622,324

0 30 60 120 mi

0 50 100 200 km

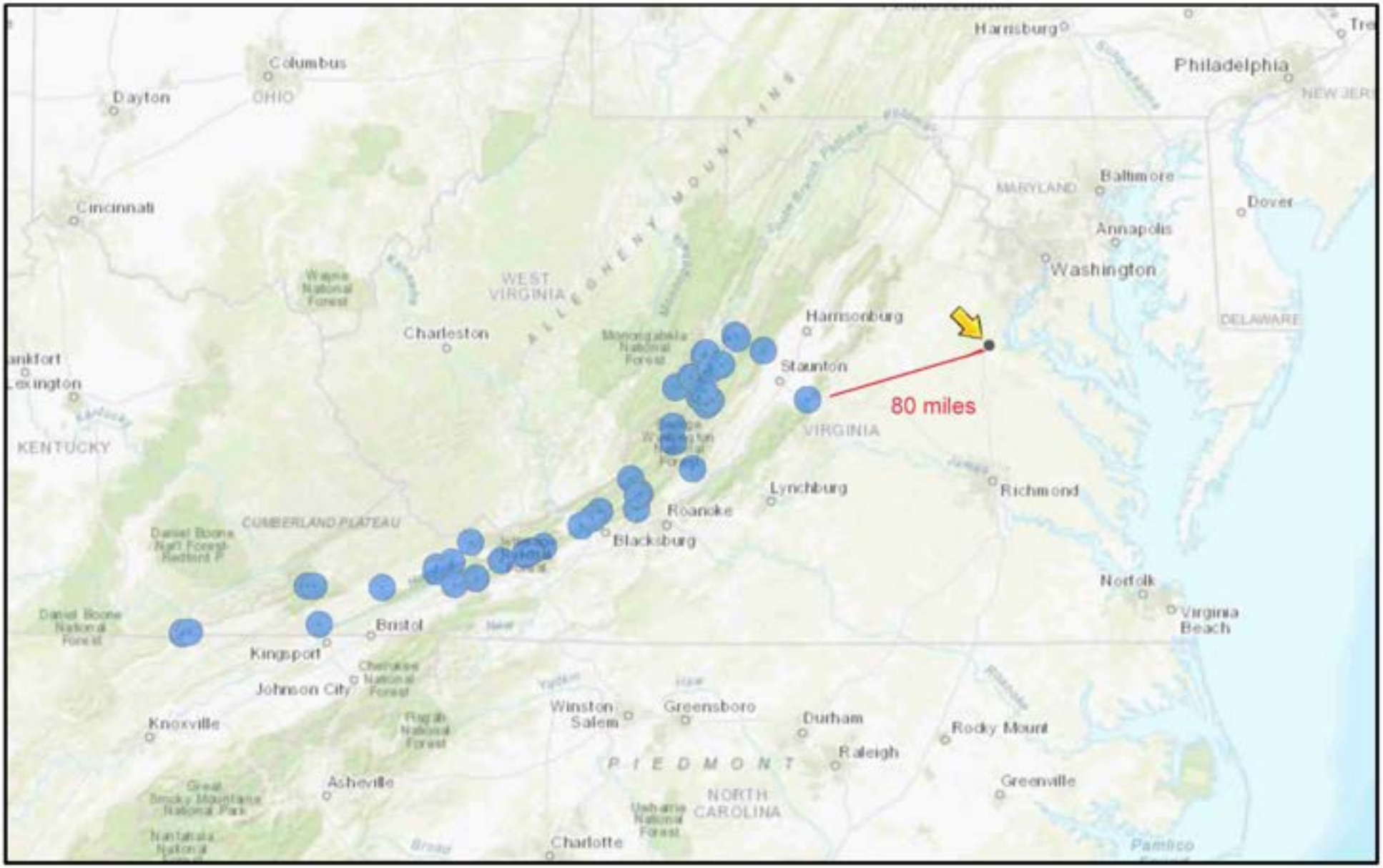
VGIN, Esri, TomTom, Garmin, FAO, NOAA, USGS, EPA, NPS, USFWS

- NLEB Known Occupied Maternity Roost (Summer Habitat)
- NLEB Roost Tree 150-Foot Buffer
- NLEB Hibernaculum Half Mile Buffer
- NLEB Hibernaculum 5.5 Mile Buffer
- NLEB Capture 3 Mile Buffer
- NLEB Year-Round Presence

VA Dept. Game & Inland Fisheries

VGIN, Esri, TomTom, Garmin, FAO, NOAA, USGS, EPA, NPS, USFWS | Virginia Geographic Information Network (VGIN), and the Census and Localities and Towns submitting data to the project | VGIN, Esri, TomTom, Garmin, FAO, NOAA, USGS, EPA, NPS, USFWS

ArcGIS Web Map



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Tri-colored and Little Brown Hibernaculum Half Mile Buffer

Tri-colored and Little Brown Hibernaculum 5.5 Mile Buffer

1:4,622,324

0 30 60 120 mi

0 50 100 200 km

Esri, HERE, Garmin, FAO, NOAA, USGS, EPA, NPS

Dept. Game and Inland Fisheries

Esri, HERE, Garmin, FAO, NOAA, USGS, EPA, NPS |

Commonwealth of Virginia

VIRGINIA DEPARTMENT OF ENVIRONMENTAL QUALITY

1111 E. Main Street, Suite 1400, Richmond, Virginia 23219
P.O. Box 1105, Richmond, Virginia 23218
(800) 592-5482
www.deq.virginia.gov

Travis A. Voyles
Secretary of Natural and Historic Resources

Michael S. Rolband, PE, PWD, PWS Emeritus
Director
(804) 698-4020

February 27, 2024

Dominion Energy
120 Tredegar Street
Richmond, VA 23219
Attn: Elizabeth L. Hester

Transmitted Via Email: (Elizabeth.l.hester@dominionenergy.com)

Re: Dominion Energy (Electric Transmission) - AS&S - Program Renewal – 2024/2025

Dear Ms. Hester:

The Virginia Department of Environmental Quality (DEQ) hereby approves the Annual Standards and Specifications for Erosion & Sediment Control and Stormwater Management for Construction and Maintenance of Linear Electric Transmission Facilities for Dominion Energy's document dated "February 2024". This coverage is effective from February 27, 2024, to February 26, 2025.

To ensure compliance with approved specifications, the Virginia Erosion and Sediment Control Law and the Virginia Stormwater Management Act, DEQ staff will conduct random site inspections, respond to complaints, and provide on-site technical assistance with specific erosion and sediment control and stormwater management measures and plan implementation.

Please note that your approved Annual Standards and Specifications include the following requirements:

1. Variance, exception, and deviation requests must be submitted to DEQ separately from this Annual Standards and Specifications' submission. DEQ may require project-specific plans associated with such requests to be submitted for review and approval.

2. The following information must be submitted to DEQ for each project at least two weeks in advance of the commencement of regulated land-disturbing activities. Notifications shall be sent by email to: StandardsandSpecs@deq.virginia.gov
   a. Project name or project number;
   b. Project location (including nearest intersection, latitude and longitude, access point);
   c. On-site project manager name and contact info;

d. Responsible Land Disturber (RLD) name and contact info;
e. Project description;
f. Acreage of disturbance for project;
g. Project start and finish date; and
h. Any variances/exceptions/deviations associated with this project.

3. Project tracking of all regulated land disturbing activities (LDA) must be submitted to DEQ once per 6-month period. Project tracking records shall contain the same information as required in the two week e-notifications for each regulated LDA.

4. Erosion & Sediment Control and Stormwater Management plans must be reviewed by DEQ-certified Plan Reviewers. Dominion Energy, as the AS&S holder, retains the authority to approve plans and must do so in writing. Should an AS&S holder contract out to a third-party to fulfill the plan review function, the third-party Plan Reviewer may recommend approval of the plan, but final approval must come from the AS&S holder.

To ensure an efficient information exchange and response to inquiries, DEQ Central Office is your primary point of contact. Central Office staff will coordinate with our Regional Office staff as appropriate

Please contact Abigail Snider at 804-486-0365 or Abigail.Snider@deq.virginia.gov if you have any questions about this letter.

Respectfully,

Kyle Kennedy, Manager
Office of Stormwater Management

Cc: Larry Gavan, DEQ-CO
Antony Angueira, DEQ-CO

ERM

230 kV Centreport Look and Centreport Substation

Pre-Application Analysis

PREPARED FOR

Dominion Energy

Dominion Energy Virginia

DATE
20 August 2024

REFERENCE
0713641

SIGNATURE PAGE

230 kV Centreport Loop and Centreport Substation

Pre-Application Analysis

0713641

Megan Wiginton
Senior Architectural Historian

Mary Beth Derrick
Senior Architectural Historian

MacKenzie Carroll
Architectural Historian

Kara Wallace
Archaeologist

Larissa Thomas, Ph.D.
Senior Archaeologist/Senior Reviewer

ERM
3300 Breckenridge Boulevard
Suite 300
Duluth, GA 30096

CONTENTS

LIST OF TABLES

LIST OF FIGURES

ACRONYMS AND ABBREVIATIONS

ERM	Environmental Resources Management
ESRI	Environmental Systems Research Institute
GNSS	Global Navigation Satellite System
KOP	Key Observation Points
kV	kilovolt
MP	Milepost
NHL	National Historic Landmarks
NRHP	National Register of Historic Places
ROW	Right-of-Way
SCC	State Corporation Commission
USGS	U.S. Geological Survey
UTM	Universal Transverse Mercator
VCRIS	Virginia Cultural Resources Information System
VDHR	Virginia Department of Historic Resources

EXECUTIVE SUMMARY

This report presents the findings of a pre-application analysis conducted for Dominion Energy Virginia's 230 kilovolt (kV) Centreport Loop and Centreport Substation in Stafford County, Virginia. For this Project, the Company is proposing to construct and operate:

- A new double circuit, overhead 230 kV transmission line on new right-of-way by cutting the Company's existing 230 kV Aquia Harbour-Cranes Corner Line #2104, resulting in (1) the 230 kV Centreport-Cranes Corner Line #2379 and (2) the 230 kV Centreport-Spartan Line #2104 ("Centreport Loop").
- A new 230-34.5 kV substation in Stafford County, Virginia, on property to be obtained by the Company ("Centreport Substation").

Four potential routes were evaluated for the Centreport Loop, each of which cut into the Centreport Substation. This pre-application analysis assesses and compares potential impacts on previously recorded architectural and archaeological resources in relation to each route. Impacts associated with construction and operation of the proposed Centreport Substation were also considered and combined with the findings for each route. ERM conducted the analysis on behalf of Dominion Energy Virginia to assist in the development of a feasible project design that minimizes impacts to historic resources. The pre-application analysis is a required study for transmission line projects regulated by the State Corporation Commission (SCC). The study was completed in accordance with the Virginia Department of Historic Resources' (VDHR's) *Guidelines for Assessing Impacts of Proposed Electric Transmission Lines and Associated Facilities on Historic Resources in the Commonwealth of Virginia* (VDHR 2008) (Guidelines).

Eight known archaeological sites were identified within the right-of-way of the routes for the Centreport Loop (Table 1). Of these, four are considered not eligible for listing in the National Register of Historic Places (NRHP) and four have not been evaluated. Seven sites are located in what would be the right-of-way for Route 3 and 4, four sites are located within what would be the right-of-way for Route 2, and two are located within what would be the right-of-way for Route 1. The archaeological sites associated with each route and their current NRHP status are summarized in Table 1. The sites could be impacted by construction traffic or clearing within the right-of-way. Note that 44ST1149 within the right-of-way for Route 1 contains a historic period cemetery component and should be avoided. A confident evaluation of the nature of archaeological deposits at each site and impacts on the sites from prior land use activities would require a field survey.

Three previously recorded historic architectural resources meeting criteria specified in the Guidelines fall within study tiers defined by the VDHR for identifying architectural resources along and near transmission line routes (Table 2). The likely impacts on individual architectural resources associated with each route are presented in the table below.

Route 1 passes near three architectural resources meeting the criteria specified in the Guidelines. Routes 2, 3, and 4 each pass by two architectural resources meeting the criteria specified in the Guidelines. ERM recommends that Route 1 would have No Impact on one resource, a Minimal Impact on one resource, and a Moderate Impact on one resource; Routes 2, 3, and 4 would each have No Impact on one resource and a Minimal Impact on one resource which meet the criteria specified in the Guidelines.

The proposed Centreport Loop line would be constructed entirely in new right-of-way measuring 100-feet-wide. Dominion Energy Virginia would use multiple structure configurations for the Project. The new structures would be double circuit weathering steel monopoles, with heights ranging from 85 to 185 feet and an average height dependent on the selected route, excluding foundation reveal, and subject to change based on final engineering. Two circuits would be supported on the same structure type at approximately 600–700-foot intervals along the right-of-way for the Project.

Route 2 appears to present the least impact on cultural resources based on the total number of resources (archaeological and architectural) that would be impacted. In terms of the severity of impacts on considered historic resources, Route 2 would have the same level of effect on its two associated resources—Minimal and None—as Routes 3 and 4, and less than Route 1, which has a Moderate impact on one resource. It is also relevant to note that for Route 2, no proposed transmission structures would be installed within the identified archaeological site boundaries. For these reasons, Route 2 would have the least impact on known architectural and archaeological resources.

TABLE 1 EXECUTIVE SUMMARY OF NATIONAL REGISTER STATUS OF CONSIDERED ARCHAEOLOGICAL RESOURCES IN THE STUDY AREA OF THE ROUTE ALTERNATIVES

Considered Resource	Route Alternatives			
	Route 1	Route 2	Route 3	Route 4
44ST0310	-	Ineligible	Ineligible	Ineligible
44ST0485	-	Unevaluated	Unevaluated	Unevaluated
44ST1054	-	-	Unevaluated	Unevaluated
44ST1072	-	-	Ineligible	Ineligible
44ST1073	-	-	Ineligible	Ineligible
44ST1149	Ineligible*	-	-	-
44ST1274	Unevaluated	Unevaluated	Unevaluated	Unevaluated
44ST1276	-	Unevaluated	Unevaluated	Unevaluated

Source: VCRIS (2024)

* Although 44ST1149 has been determined ineligible for the NRHP, it contains a historic period cemetery and should be avoided.

TABLE 2 EXECUTIVE SUMMARY OF PROJECT IMPACTS TO CONSIDERED HISTORIC ARCHITECTURAL RESOURCES IN THE STUDY AREA OF THE ROUTE ALTERNATIVES

Considered Resource	Route Alternatives			
	Route 1	Route 2	Route 3	Route 4
089-0013	Minimal	Minimal	Minimal	Minimal
089-0020	Moderate	-	-	-
089-0157	No Impact	No Impact	No Impact	No Impact

Source: VCRIS (2024)

1. INTRODUCTION

This report presents the findings of a pre-application analysis conducted for Dominion Energy Virginia's 230 kilovolt (kV) Centreport Loop and Centreport Substation in Stafford County, Virginia. For this Project, the Company is proposing to construct and operate:

- A new double circuit, overhead 230 kV transmission line on new right-of-way by cutting the Company's existing 230 kV Aquia Harbour-Cranes Corner Line #2104, resulting in (1) the 230 kV Centreport-Cranes Corner Line #2379 and (2) the 230 kV Centreport-Spartan Line #2104 ("Centreport Loop").
- A new 230-34.5 kV substation in Stafford County, Virginia, on property to be obtained by the Company ("Centreport Substation").

Four potential routes were evaluated for the proposed Centreport Loop, each of which cut into the Centreport Substation (Figure 1). The pre-application analysis assesses potential impacts on previously recorded architectural and archaeological resources relative to each route alternative. ERM conducted the pre-application analysis on behalf of Dominion Energy Virginia to assist in the development of a feasible Project design that minimizes impacts on historic resources. The study was completed in accordance with the Virginia Department of Historic Resources' (VDHR's) *Guidelines for Assessing Impacts of Proposed Electric Transmission Lines and Associated Facilities on Historic Resources in the Commonwealth of Virginia* (VDHR 2008) (Guidelines).

1.1 ROUTE ALTERNATIVES

1.1.1 ROUTE 1

Route 1 extends from Structure # 2157/1716 along the Company's existing Line #2157 (the cut-in) to the proposed Centreport Substation site. The cut-in is approximately 0.1 mile west of the intersection of the existing transmission line and Cambridge Street along the southern boundary of the study area. From here, Route 1 heads northwest for about 0.2 mile and then turns west for about 0.6 mile, crossing forested land and passing adjacent to County-owned property to the northeast. The route next heads north for approximately 1.5 miles, crossing mostly forested and some agricultural land and intersecting both I-95 and Enon Road. The route next heads northeast through forested lands for about 0.5 mile, also crossing Centreport Parkway. It then turns north to parallel the west side of Mountain View Road for about 0.3 mile, crossing Potomac Creek near the intersection of Mountain View Road and Oakenwold Lane. From its crossing of Mountain View Road, the route heads north/northeast for about 0.4 mile through forested land to the proposed Centreport Substation.

Route 1 measures approximately 3.5 miles long. The right-of-way for this alternative (41.7 acres) and the proposed Centreport Substation site (5.0 acres) would encompass a combined 46.7 acres.

1.1.2 ROUTE 2

Route 2 extends from a cut-in at Structure #2104/5456 on the Company's existing Line #2104 to the proposed Centreport Substation. The cut-in is about 0.3-mile northeast of the intersection of the existing transmission line and Cranes Corner Road. From here, Route 2 heads west/northwest

for about 0.8 mile across forested land, generally parallel to and about 0.2 mile south of Potomac Creek. The route then heads northwest for about 0.1 mile, crossing Richmond Highway and paralleling the south side of a warehouse currently under construction. Alternative Route 2 next turns north, following the west side of the under-construction warehouse for approximately 0.3 mile, then heads northwest for about 0.3 mile, paralleling Potomac Creek for 0.2 mile through forested lands before crossing I-95. The route next turns and heads north for about 0.4 mile passing through a mix of forested and agricultural land and crossing Potomac Creek. It then follows the south side of Centreport Parkway for about 0.5 mile, before turning southwest to enter the proposed Centreport Substation site.

Route 2 measures approximately 2.5 miles long. The right-of-way for this alternative (29.4 acres) and the proposed Centreport Substation site (5.0 acres) combined would encompass 34.5 acres.[1]

1.1.3 ROUTE 3

Route 3 extends from a cut-in at Structure #2104/5458 on the Company's existing Line #2104 to the proposed Centreport Substation. The cut-in is about 0.1 mile north/northeast of the intersection of the existing transmission line with Potomac Creek. Route 3 initially heads west/northwest for about 0.6 mile, paralleling the north side of Potomac Creek through partially forested, partially open land. It then turns south/southwest for approximately 0.2 mile, parallel to but east of Richmond Highway and crossing Potomac Creek. Route 3 then turns northwest for about 0.2 mile, paralleling the south side of Potomac Creek and crossing Richmond Highway. It then intersects and follows the same alignment as Route 1 for the remaining approximately 1.3 miles to the proposed Centreport Substation site.

Route 3 measures about 2.3 miles long. The right-of-way for this alternative (27.2 acres) and the proposed Centreport Substation site (5.0 acres) combined would encompass 32.2 acres.

1.1.4 ROUTE 4

Route 4 begins at the same cut-in as Route 2 (Structure #2104/5456 along the Company's existing Line #2104), then extends approximately 0.6-mile northwest, roughly parallel to, but south of, Potomac Creek. On the south side of Potomac Creek, just east of Richmond Highway, Route 4 shares an alignment with Alternative Route 3 for the remaining approximately 1.5 miles to the Centreport Substation site.

Route 4 measures approximately 2.2 mile long. The right-of-way for Route 4 (25.6 acres) and the proposed Centreport Substation site (5.0 acres) would encompass a combined 30.6 acres.

1.2 MANAGEMENT RECOMMENDATIONS

Eight known archaeological sites were identified within the right-of-way of the routes for the Centreport Loop (see Table 1). Of these, four are considered ineligible for listing in the NRHP and four have not been evaluated. Seven sites are located in what would be the right-of-way for Routes 3 and 4, four of which are not evaluated and three which are not eligible. Four sites are located within what would be the right-of-way for Route 2, three of which are not evaluated and

[1] Sum of the addends may not equal the totals due to rounding.

one is not eligible. Two sites are located within what would be the right-of-way of Route 1, one is not evaluated and one is not eligible. Note that 44ST1149 within the right-of-way for Route 1 contains a historic period cemetery component and should be avoided despite the fact that the site has been determined not eligible for the NRHP. The known archaeological sites in what would be the rights-of-way for the routes could be impacted by equipment traffic or clearing during construction. A confident evaluation of the nature of archaeological deposits at each site and impacts on the sites from prior land use activities would require a field survey.

Three previously recorded historic architectural resources meeting criteria specified in the Guidelines fall within study tiers defined by the VDHR for identifying architectural resources along and near transmission line routes (see Table 2). Route 1 passes near three considered architectural resources, while Routes 2, 3, and 4 each pass near two architectural resources. For the Centreport Loop, ERM recommends that Route 1 would have No Impact on one resource, a Minimal Impact on one resource, and a Moderate Impact on one; Routes 2, 3, and 4 would each have No Impact on one resource and a Minimal Impact on one resource.

Based on the above discussion, Route 2 appears to present the least impact on cultural resources based on the total number of resources (archaeological and architectural) that would be impacted. Routes 3 and 4 would intersect five NRHP-ineligible and two unevaluated archaeological sites within the right-of-way and encounter two architectural resources. Route 2 would encounter only four archaeological sites. Additionally, Route 2 would have the same level of impact on its two associated architectural resources—Minimal and None—as Routes 3 and 4. It is also relevant to note that no proposed transmission structures for Route 2 would be installed within the identified archaeological site boundaries. Route 1 presents the greatest impact on cultural resources, with two archaeological sites and three considered architectural resources in the right-of-way, one of which (089-0020) would experience a Moderate impact. More information about each resource and the nature of potential impacts associated with the various route alternatives are found in the sections that follow.

FIGURE 1 OVERVIEW OF TRANSMISSION LINE ROUTES UNDER CONSIDERATION FOR THE PROJECT

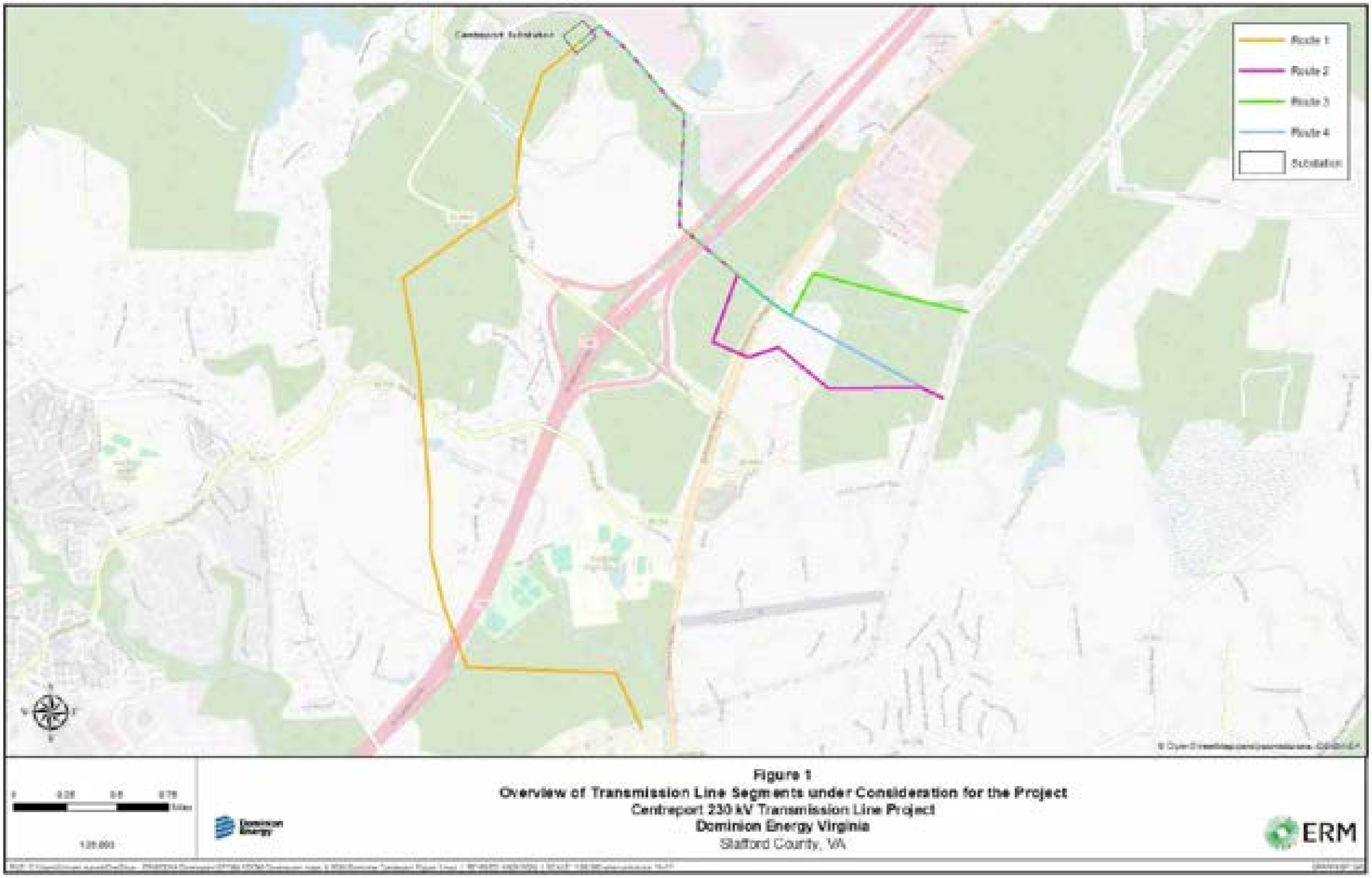


Figure 1
Overview of Transmission Line Segments under Consideration for the Project
Centreport 230 kV Transmission Line Project
Dominion Energy Virginia
Stafford County, VA

2. RECORDS REVIEW

2.1 DATA COLLECTION APPROACH

ERM conducted an analysis of potential cultural resource impacts for the route alternatives under consideration in accordance with the VDHR Guidelines. For each route, this analysis identified and considered the following previously recorded resources.

- National Historic Landmarks (NHLs) within a 1.5 mile-radius of each centerline;
- NRHP-listed properties, NHLs, battlefields, and historic landscapes within a 1.0-mile radius of each centerline;
- NRHP-eligible and NRHP-listed properties, NHLs, battlefields, and historic landscapes within a 0.5 mile radius of each centerline; and
- All of the above qualifying resources as well as archaeological sites within the right-of-way for each route alternative.

Information on the considered resources in each study tier was collected from the Virginia Cultural Resource Information System (VCRIS).

In addition to the VCRIS, ERM collected information from Stafford County Historical Society (2023), Stafford County Historical Commission (2024), and Tour Stafford, Virginia (2024) to find locally significant resources within a 1.0-mile radius of each centerline.

Along with the records review, ERM conducted field assessments of the considered architectural resources along each route alternative in accordance with the Guidelines. Digital photographs of each architectural resource and views to the proposed transmission line were taken. Photo simulations and vegetative visual analysis were then prepared to assess the potential for visual impacts on the new transmission infrastructure on the resources. For previously recorded archaeological sites under consideration, aerial photographs were examined to assess the current land condition and the spatial relationship between the sites and any existing or planned transmission lines.

2.2 ARCHAEOLOGICAL RESOURCES

Crossings of archaeological sites were considered a constraint in this study due to the potential for an electric transmission line to impact cultural deposits in these areas (for example, due to transmission structure placement, tree clearing, or heavy equipment traffic within a site). Information on the known archaeological sites in the right-of-way for each transmission line route alternative are summarized in Table 3 while the site locations are depicted on Figure 2. Individual maps for each proposed alternative route are provided in Attachment 1.

Of the eight previously recorded sites within what would be the right-of-way for the Centreport Loop, four are considered not eligible for the NRHP and the remaining four are unevaluated (VCRIS 2024). Two sites are within the right-of-way for Route 1, four are within the right-of-way for Route 2, and Routes 3 and 4 each have seven sites in their right-of-way.

FIGURE 2 LOCATION OF ARCHAEOLOGICAL RESOURCES IN THE RIGHT-OFWAY FOR EACH ALTERNATIVE ROUTE (REDACTED)

TABLE 3 ARCHAEOLOGICAL RESOURCES IN THE RIGHT-OF-WAY FOR EACH ALTERNATIVE ROUTE

Route Alternative	Greenfield or Existing/ Expanded ROW	Site Number	Description	NRHP Status
Route 1	Greenfield	44ST1149	Prehistoric temporary camp and historic cemetery	Not eligible
	Greenfield	44ST1274	Prehistoric lithic scatter	Unevaluated
Route 2	Greenfield	44ST0310	Prehistoric temporary camp site	Not eligible
	Greenfield	44ST0485	Prehistoric temporary camp site - (Early-Late Archaic)	Unevaluated
	Greenfield	44ST1274	Prehistoric lithic scatter	Not eligible
	Greenfield	44ST1276	Prehistoric temporary camp site	Not eligible
Route 3	Greenfield	44ST0310	Prehistoric temporary camp site	Not eligible
	Greenfield	44ST0485	Prehistoric temporary camp site - (Early-Late Archaic)	Unevaluated
	Greenfield	44ST1054	Historic temporary camp site - (late 18th century)	Unevaluated
	Greenfield	44ST1072	Prehistoric temporary camp site - (Late Archaic, Early-Late Woodland)	Not eligible
	Greenfield	44ST1073	Historic mill site - (19th century)	Not eligible
	Greenfield	44ST1274	Prehistoric lithic scatter	Not eligible
	Greenfield	44ST1276	Prehistoric temporary camp site	Not eligible
Route 4	Greenfield	44ST0310	Prehistoric temporary camp site	Not eligible
	Greenfield	44ST0485	Prehistoric temporary camp site - (Early-Late Archaic)	Unevaluated
	Greenfield	44ST1054	Historic temporary camp site - (late 18th century)	Unevaluated
	Greenfield	44ST1072	Prehistoric temporary camp site - (Late Archaic, Early-Late Woodland)	Not eligible
	Greenfield	44ST1073	Historic mill site - (19th century)	Not eligible
	Greenfield	44ST1274	Prehistoric lithic scatter	Not eligible
	Greenfield	44ST1276	Prehistoric temporary camp site	Not eligible

ROW = right-of-way

2.3 ARCHITECTURAL RESOURCES

The following discussion summarizes the known architectural resources in the vicinity of each route alternative based on the VDHR's tiered study model defined in the Guidelines. The locations of the considered historic architectural resources and the various route alternatives are shown on Figure 3. Individual maps for each route alternative are provided in Attachment 1.

Resources located within what would be the right-of-way of a route may be subject to both direct impacts from placement of the line across the property as well as visual impacts from changes to the viewshed introduced by the new transmission line structures and conductors. Resources in the 0.5-mile tier would not be directly impacted, but would likely be visually impacted, unless topography, vegetation, or the built environment obscures the view to the transmission line. At a distance of over 0.5 mile, it becomes less likely that a resource would be within line-of-sight of the proposed transmission line. Beyond 1.0 mile, it becomes even less likely that a given resource would be within line-of-sight of a transmission line.

Areas of overlap between routes mean that the impacts on some architectural resources will likely be identical in those cases, depending on required structure placement. The nature of the impacts, while estimated in this study with the assistance of photo simulations, would depend on the final Project design in which the exact placement and height of transmission structures are determined. The purpose of the simulations and associated assessments in this report are to provide data on likely impacts and to compare those impacts to support the selection of a preferred route.

Once a route is selected by the SCC, that route would be subject to a full historic architectural survey in which additional (as of yet, unrecorded) historic properties could be identified and Project impacts assessed. The survey area would be defined based on the design height of the transmission line structures, topography, tree cover, and other factors impacting line-of-sight from architectural resources to the selected route.

2.3.1 ROUTE 1

The considered resources that lie within the VDHR tiers for Route 1 are presented in Table 4 and depicted in Attachment 1, Sheet 1. There are three architectural resources identified within the VDHR tiers for Route 1. The considered resources were subjected to field reconnaissance and a preliminary assessment of impacts, discussed in the next chapter.

TABLE 4 HISTORIC RESOURCES IN THE VDHR TIERS FOR ROUTE 1

Buffer (Miles)	Resource Category	Resource Number	Description
0.0 to 0.5	National Register - Eligible	089-0013	Buzzard's Roost
		089-0157	Oakenwold Farm
0.0 (within ROW)	National Register - Eligible	089-0020	Glencairne

ROW = right-of-way

FIGURE 3 LOCATION OF CONSIDERED ARCHITECTURAL RESOURCES ALONG AND NEAR ALTERNATIVE ROUTES

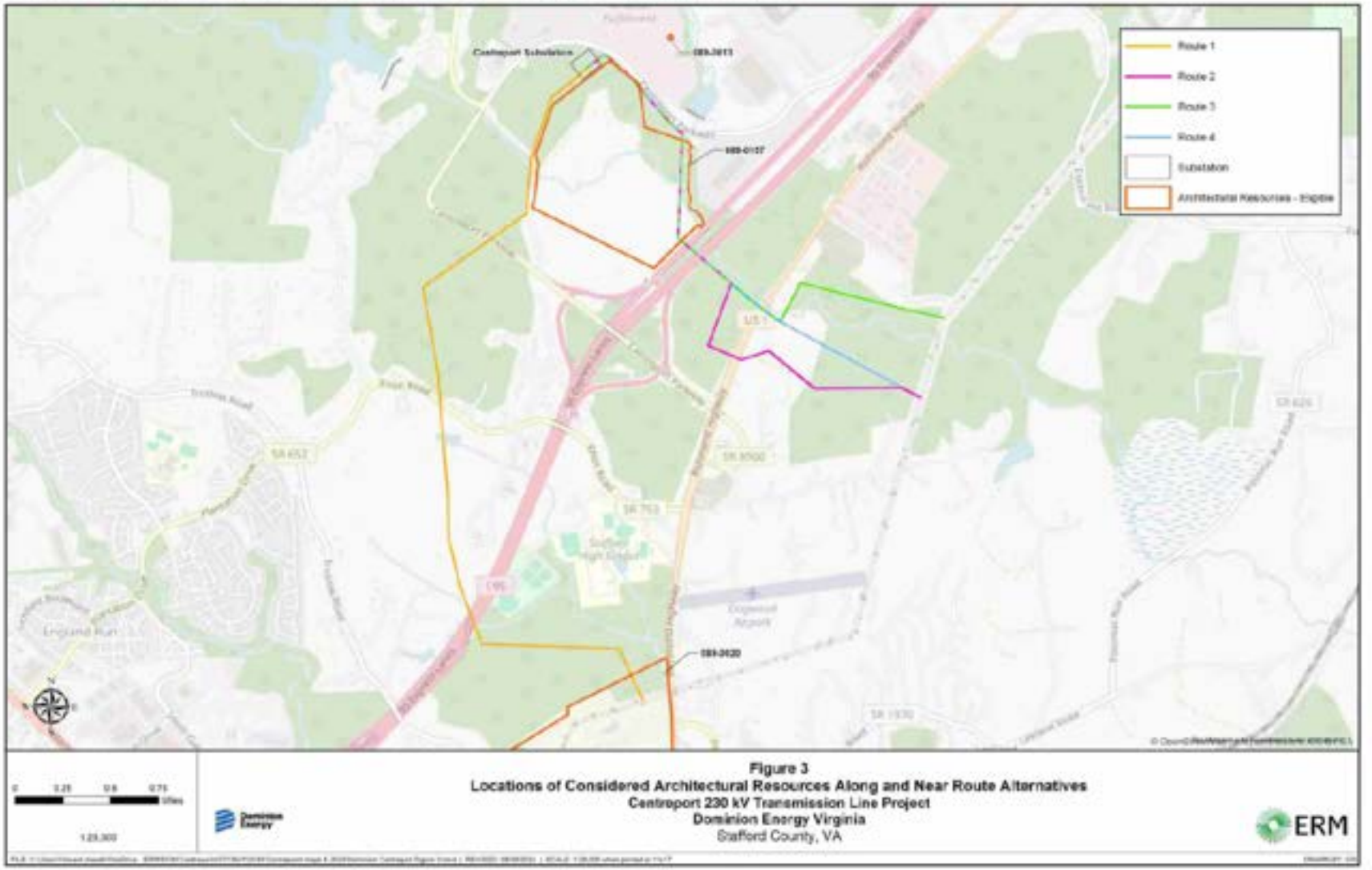


Figure 3
Locations of Considered Architectural Resources Along and Near Route Alternatives
Centreport 230 kV Transmission Line Project
Dominion Energy Virginia
Stafford County, VA

2.3.2 ROUTE 2

The considered architectural resources that lie within the VDHR tiers for Route 2 are presented in Table 5 and depicted in Attachment 1, Sheet 2. There are two architectural resources identified within the VDHR tiers for Route 2. The considered resources were subjected to field reconnaissance and a preliminary assessment of impacts, discussed in the next chapter.

TABLE 5 ARCHITECTURAL RESOURCES IN THE VDHR TIERS FOR ROUTE 2

Buffer (Miles)	Resource Category	Resource Number	Description
0.0 to 0.5	National Register - Eligible	089-0013	Buzzard's Roost
0.0 (within ROW)	National Register - Eligible	089-0157	Oakenwold Farm

ROW = right-of-way

2.3.3 ROUTE 3

The considered architectural resources that lie within the VDHR tiers for Route 3 are presented in Table 6 and depicted in Attachment 1, Sheet 3. There are two architectural resources identified within the VDHR tiers for Route 3. The considered resources were subjected to field reconnaissance and a preliminary assessment of impacts, discussed in the next chapter.

TABLE 6 ARCHITECTURAL RESOURCES IN THE VDHR TIERS FOR ROUTE 3

Buffer (Miles)	Resource Category	Resource Number	Description
0.0 to 0.5	National Register - Eligible	089-0013	Buzzard's Roost
0.0 (within ROW)	National Register - Eligible	089-0157	Oakenwold Farm

ROW = right-of-way

2.3.4 ROUTE 4

The considered architectural resources that lie within the VDHR tiers for Route 4 are presented in Table 7 and depicted in Attachment 1, Sheet 4. There are two architectural resources identified within the VDHR tiers for Route 4. The considered resources were subjected to field reconnaissance and a preliminary assessment of impacts, discussed in the next chapter.

TABLE 7 ARCHITECTURAL RESOURCES IN THE VDHR TIERS FOR ROUTE 4

Buffer (Miles)	Resource Category	Resource Number	Description
0.0 to 0.5	National Register - Eligible	089-0013	Buzzard's Roost
0.0 (within ROW)	National Register - Eligible	089-0157	Oakenwold Farm

ROW = right-of-way

3. PREVIOUS SURVEYS

Large portions of the various route alternatives have been previously surveyed for cultural resources, providing expansive information about known resources in the area, although some of the surveys focused exclusively on archaeological resources. Thirteen previous cultural resource surveys intersect at least one of the route alternatives under consideration. Information on these previous surveys—including VDHR survey number, report title, report authors, and report date—is provided in Table 8. The extent of the previous survey coverage is depicted on maps provided in Attachment 2.

TABLE 8 CULTURAL RESOURCE SURVEYS COVERING PORTIONS OF THE ALTERNATIVE ROUTES

VDHR Survey #	Title	Authors	Date
ST-010	Phase I Archaeological Reconnaissance Survey Potomac Creek Wastewater Transmission System	Browning & Associates	1988
ST-040	Phase I Cultural Resources Identification Survey for the I-95 Improvement Project, Virginia Route 630 to Virginia Route 627, Stafford County, Virginia	Richard A. Geidel, Margaret A. Bishop, Elizabeth L. Roman	1995
ST-078	Addendum Report, Phase I Cultural Resources Identification Survey, I-95 Improvement Project, VA Route 627 Interchange, Alternate B, Stafford County, Virginia	Marcia G. Menihan, Margaret Bishop Parker, Brooke S. Blades	1997
ST-177	Phase I Archeological Investigation of the I-95/ 395 HOV/Bus/HOT Lanes Project, Stafford and Spotsylvania Counties, and the City of Fredericksburg, Virginia	Jarod Hutson, William Barse, Johnna Flahive, Anne McQuillan	2007
ST-228	Supplemental Archaeological Survey for the I-95 Southbound Collector and Distributor (CD) Lanes - Rappahannock River Crossing Project, Stafford County, Spotsylvania County, and the City of Fredericksburg, Virginia	Robert Clarke, Timothy Roberts	2017
ST-250	Archaeological Survey for the Rappahannock River Crossing Re-Evaluation, I-95 Northbound Collector Distributor (CD) Lanes Project, City of Fredericksburg, Stafford and Spotsylvania Counties, Virginia	Robert Clarke, Nicholas Arnhold	2018
ST-275	Phase I Cultural Resources Survey of Oakenwold Tract, Stafford County, Virginia	Dawn M. Muir-Frost, Carol D. Tyrer	2014
ST-299	Phase I Cultural Resources Survey of Stafford Commerce Center, Stafford County, Virginia	Amy Humphries, Dawn M. Frost, Carol D. Tyrer	2011
ST-306	Cultural Resources Survey of Approximately 0.3 Miles Associated With Potomac Creek Bridge Replacement at Route 1, Stafford County, Virginia	Aimee Leithoff, Sandra DeChard, Ellen Brady	2016

VDHR Survey #	Title	Authors	Date
ST-368	Phase I Cultural Resources Survey of the Capitol 95 Logistics/Project Ivy (aka Oakenwold Tract), Stafford County, Virginia	Carol D. Tyrer, Dawn M. Muir, Skye Hughes	2022
ST-373	Phase I Cultural Resources Investigation, Melrod, Stafford County, Virginia	Kathleen Jockel Schneider, Boyd Sipe	2022
ST-374	Phase I Archaeological Survey for the Crossroads Industrial Park, Stafford County, Virginia	Michael B. Hornum, Katherine Grandine	2022
ST-375	Phase I Cultural Resources Investigation, Blue Ridge Property, Stafford County, Virginia	David Carroll, Daniel Baicy	2022

4. STAGE 1 PRE-APPLICATION ANALYSIS FINDINGS

4.1 METHODS FOR ANALYSIS

Fieldwork for the pre-application analysis was conducted by Secretary of the Interior Qualified architectural historian MacKenzie Carroll between April 24–26, 2024. The fieldwork involved photographing architectural resources requiring visual assessment according to the Guidelines and examining potential line-of-sight views from each resource toward the route alternatives. For resources where property owner approval was granted for historic resource documentation, photographs were taken toward the proposed transmission line(s) from the property at the most prominent view of the landscape. When such permission was not available, photographs were taken from the public right-of-way (typically a road) nearest to the resource facing toward the applicable route(s).

Panoramic photographs were taken from each resource, with an effort to capture the direction with the clearest, most unobstructed view toward the applicable route or routes. The precise location of the photograph was captured with a mobile tablet device connected to a sub-meter accurate Global Navigation Satellite System (GNSS) receiver, the Trimble R1. The locations where photographs were taken were noted as Key Observation Points (KOP). Site visits to the KOPs were prioritized based on their location relative to the resource, so that viewpoints east of the resource were visited in the morning and viewpoints west of the resource were visited in the afternoon. This helped ensure, where possible, that the sun was behind the photographer at the time the viewpoint photography was captured. Additionally, minor adjustments to position were made to obtain as clear a view to the site center as possible, avoiding trees, landscaping, or built obstructions. Tablets recorded the center bearing, angle of view, altitude, and camera lens height. Upon receipt of the viewpoint location information, the viewpoints were plotted onto open source mapping from the Environmental Systems Research Institute (ESRI) using the Universal Transverse Mercator (UTM) 18N coordinate system.

The process of taking panoramas included setting up the tripod and camera. The camera was placed on the panoramic head in a landscape orientation where its lens height was confirmed and set at 1.5 meters (note: a portrait camera orientation was sometimes used in situations where the viewpoint is very close to a development so that the top of the development is not cut off by the image boundaries). The tripod head and camera combination was then leveled. With the camera's viewfinder centered on the perceived site center, exposure and focus settings were taken. These were then fixed manually on the camera so that they could not be inadvertently altered. The head was rotated 90 degrees to the left where the first frame of the 360-degree sequence was then taken. Each subsequent frame was taken using a 50 percent overlap of the previous frame until the full 360 degree sequence was captured. The camera was then removed from the tripod and a viewpoint location photograph was captured showing the tripod in its position.

The following camera and tripod configuration was used:

- Camera body: Nikon D800 professional specification digital SLR (full frame CMOS sensor)
- Camera lens: Nikkor AF 50mm f1.4D prime
- Tripod: Manfrotto 055MF4 with Manfrotto 438 ball leveler

- Panoramic head: Manfrotto 303SPH

The following camera settings were used for all photography:

- Camera mode: Manual Priority
- ISO: 100
- Aperture: f13
- Image format: RAW

After the photos were complete, they were uploaded to a server to begin the simulation/ visualization process. The single-frame photographs were opened in Adobe Photoshop CC 2022 where they were checked, and any camera sensor dust spots were removed before being saved as high-resolution JPEG images. If required, discrete color and tonal adjustments were made to each frame before they were saved. The single-frame photographs were stitched together in PTGui Pro version 12.11 professional photographic stitching software using cylindrical projection settings. The camera locations were plotted in Global Mapper version 23.1. Digital models of the transmission line structures were provided by Dominion, then cleaned up and textured in Autodesk 3DS Max 2021. The transmission structures along each route were rendered in Vray version 5.2 from each SP camera location. 3D imagery was produced at the field of view using camera matching. Renderings for each route and each tower combination were then exported for use as an overlay.

Detailed, correctly dimensioned 3D computer models of the transmission structures along each route were generated using Autodesk 3DS Max 2021 and iToo RailClone. The virtual 3D model of the structures was created using real-world measurements and elevation drawings provided by the Company (see Attachment 3). These were textured using Vray PBR materials to simulate the weathering steel texture. The detailed, textured models were rendered to a digital image using a simulated physical camera and a sun and sky simulation lighting model in the computer software consistent with conditions within the original viewpoint photography.

Photomontages were produced by overlaying the rendered image on the photograph, using known control points and the wireline imagery showing the tower columns at the correct height and distance. Final adjustments were then made to the brightness and contrast of the rendered images to match them to the photograph. Final photomontages were prepared from each viewpoint for each route. These were then opened in Adobe Photoshop CC 2022 where minor changes were made such as placing relevant tree/building/hedge screening or telegraph wires over the proposed development renders where necessary. Finally, the final images were cropped to the proportions required for the visual simulation figures, and the visualization figures were prepared in Adobe InDesign CC2022 and exported in a PDF format.

4.2 ASSESSMENT OF POTENTIAL IMPACTS

The assessment of potential Project impacts on individual architectural resources made use of the visual assessment findings and categorized the level of impacts by severity according to the following scale devised by VDHR:

- **None**–Project is not visible from the resource.
- **Minimal**–Viewsheds have existing transmission lines, there would be only a minor change in height, and/or other views are partially obscured by topography or vegetation.
- **Moderate**–Viewsheds have more expansive views of the transmission line, more dramatic changes in height are proposed, and/or the overall visibility of the Project would be greater.
- **Severe**–Existing viewshed contains no transmission line, the view to the Project would be relatively unobstructed, the new transmission line would introduce a significant change to the setting of historic properties, and/or a dramatic change in the height of an existing transmission line would take place in close proximity to historic properties.

4.3 ARCHITECTURAL RESOURCE DESCRIPTIONS

4.3.1 089-0013, BUZZARD'S ROOST

Buzzard's Roost is located approximately 0.21 mile northeast of Centreport Parkway (State Route 8900). Located near the west bank of a Potomac Creek tributary, the resource is described as an elevated outcropping of rocks, approximately 200 feet above sea level. Situated on an approximately 58.9-acre plot, the immediate surrounding area was once heavily wooded but was predominantly cleared between 2021 and 2022, leaving the resource as a small, dense copse of trees within a heavily disturbed landscape (Attachment 4, Figure 1).

First surveyed by EHT Traceries, Inc. in 1992, the resource was recommended eligible under Criterion A for its association with broad patterns of history. It was surveyed again by David Carroll for Thunderbird Archaeology in 2021. Carroll noted that the resource resides on a crest overlooking a known winter encampment of Union Army soldiers in 1863, historically significant to the Civil War. The resource is described by Carroll as a conical, "monadnock-like landform" crowned with a large stone outcrop and surrounded by mature trees and mountain laurel. Carroll also noted inscriptions, which were mostly faded and illegible during their survey, on at least six stones at and near the crest of the outcropping. The legible stones were inscribed with names of infantrymen from the Central Grand Division of General Ambrose Burnside's Army of the Potomac. Some stones were removed and curated by the Stafford County Government (Carroll 2021). Carroll also recommended the resource as eligible for the NRHP (Carroll 2021).

The resource was first determined eligible for the NRHP by the VDHR in 2021. Architectural resource 089-0013 lies within the half-mile study tier for Routes 1, 2, 3, and 4.

4.3.2 089-0020, GLENCAIRNE

Glencairne is located on the west side of Cambridge Street encompassing a 199-acre parcel. The parcel is predominantly cleared with manicured landscaping and rows of trees subdividing it into smaller rectangular sections. The boundaries of the parcel are defined by tree lines in all directions. The primary dwelling is surrounded by mature trees, and the remaining buildings are

predominantly in the open with a few mature trees scattered nearby. The surrounding area is heavy with residential and commercial development to the west, east, and south, while the north remains densely forested (Attachment 4, Figure 2).

Architectural resource 089-0020 was surveyed multiple times, first in 1937 by Julia Marie Heflin, again in 1972 by Leu, and again in 1992 by Traceries/KPW/KAW. A National Register of Historic Places nomination form was drafted in 1992 by John P. Cooke. Described as a two-and-a-half story I-house, the dwelling represents the Federal style. The front elevation features five bays, three gabled dormers, and end chimneys constructed of brick. A later rear addition altered the footprint to an L-plan. Prior survey notes that the interior of the dwelling was renovated in 1958 (VCRIS 1992). In addition to the dwelling, eight accessory resources were also recorded. Only the building or resource types were identified, and no further details were noted at that time. They include a dairy barn, well house, silo, garage, a dairy, two sheds, and a cemetery.

The VDHR determined 089-0020 as eligible for the NRHP in 1994. 089-0020 lies within the right-of-way of Route 1.

4.3.3 089-0157, OAKENWOLD

Oakenwold Farm consists of a 234.5-acre parcel situated northwest of I-95. It is surrounded by Centerport Parkway to the north, east, and west. Dense trees border the cleared lands of the resource, which is roughly bisected by the Potomac Creek running east to west. The surrounding area is predominately rural, with commercial development northeast of Centerport Parkway, including Stafford Regional Airport approximately 0.7 mile to the northeast. Immediately east of the resource is the interstate, which was further developed between 2019 and 2021. During recent survey in April, ERM observed that the resource was under heavy construction and that a number of the associated structures had been demolished (Attachment 4, Figure 3). On June 25, 2024, Dominion's cultural contact notified ERM that all structures for this resource have been razed (Attachment 4, Figure 4).

Architectural resource 089-0157, located at 70 Oakenwold Lane, is situated on a 234.5-acre parcel. It was previously surveyed five times between 1937 and 2021. It was first surveyed by Julia Marie Heflin for the National Park Service in 1937. Subsequently it was surveyed in 1992 by EGT Traceries, Inc., in 1997 by Helen Ross for the Virginia Department of Transportation, and in 2013 by Circa - Cultural Resource Management, LLC. It was most recently surveyed in August of 2021 by Dawn Muir again for Circa – Cultural Resource Management, LLC. According to the Architectural Survey Form, the resource includes a two-story, Gothic Revival style dwelling built circa 1855. A three-bay, gable roofed "Gothic cottage"-like dwelling was described as the inner core of the structure, with numerous additions being added throughout the life of the structure (Muir 2021). The gabled roof was noted as being clad in standing seam metal and the exterior of weatherboard siding, all of which rested on a rusticated stone foundation. Other details of the dwelling include interior and exterior brick chimneys and six-over-six, double-hung wood windows. A full-width wood porch also boasted carved finials, decorative vergeboards, and some lattices and brackets. In addition to the dwelling, the resource also encompasses 14 outbuildings and a cemetery.

The outbuildings were located mostly northwest of the dwelling. A kitchen, school building, corncrib, icehouse, and a cemetery were all contemporary to the dwelling. The kitchen was located closest to the dwelling. Recorded as being constructed later, the remaining ten outbuildings included seven sheds (two circa 1900, four circa 1950, and one circa 1990), two well houses (circa 1900), and a secondary dwelling (circa 1968). During the most recent survey in 2021, the property was in fair to ruinous condition. Numerous outbuildings were noted by Muir as having significant vegetation overgrowth. The school building was specifically noted as collapsed (Muir 2021).

During ERM's April 2024 survey, a shed was the only visible structure still standing (see Attachment 4, Figure 3). However, Dominion confirmed after receiving additional information, that no more standing structures were present as of June 2024. The associated Moncure Cemetery once held the remains of the Moncure family members, but their graves were removed in the mid-twentieth century. Therefore, the cemetery is no longer extant. Additionally, another cemetery (44ST1149) is located in close proximity to the resource. This cemetery is potentially associated with this resource, however more information is needed to verify this assumption. Therefore, this site is treated as its own resource covered in Section 4.8. Despite recent demolition, ERM is including 089-0157 within the report since at the time of the initial survey, there was at least one standing structure and it still appears in VCRIS as an extant resource.

The resource was determined eligible by the VDHR in 1997. It is a considered resource for this analysis on that basis, but as noted above, the resource's structures are no longer extant. The only remaining component to the resource is a potentially associated cemetery that has been assigned a separate archaeological site number. Architectural resource 089-0157 lies within the right-of-way of Routes 2, 3, and 4 and within a half-mile of Route 1.

4.4 ARCHITECTURAL RESOURCE FINDINGS FOR ROUTE 1

The impacts to each architectural resource in the Route 1 study tiers are discussed below. Photo simulations are provided in Attachment 5.

4.4.1 089-0013, BUZZARD'S ROOST

Buzzard's Roost is located approximately 0.4 miles to the east-northeast of Route 1, which uses greenfield alignment (Attachment 5, Figure 1). The distance between Route 1 and the resource consists of newly cleared land with industrial development and some mature vegetation. One photo simulation, KOP 003H, was prepared from a vantage point along Centreport Parkway, situated approximately 0.2 mile from the boundary of 089-0013 (Attachment 5, Figure 1). The resource remains on a slightly elevated mound shaded by a grouping of mature trees. Because of its elevation, the viewshed of the resource extends farther than it might otherwise. As shown by the simulation, there would be no view to the route due to dense vegetation on the west side of Centreport Parkway and intervening distance. However, subsequent to the initial survey being conducted, the area to the west of Centreport Highway has been cleared of most of its vegetation and partially leveled for construction. Although the resource will likely have some view of Route 1, its surrounding landscape was already altered by an industrial/commercial building complex to the northwest and south of the resource, which cleared the area immediately surrounding it in 2022.

ERM conducted additional modeling using the vegetative viewshed analysis, which analyzes vantage points across the resource and in the surrounding area looking towards Route 1. The model depicts where there is potential for transmission structures to be visible and quantifies the number of structures likely to be visible. According to the analysis, there will be no view of structures from the resource (Attachment 6, Figure 2). However, this analysis used current available aerial imagery, which may differ from current conditions deriving from construction impacts.

Although Route 1 is not visible according to the simulation or vegetative analysis, the likelihood of visibility increased when the land to the west of Centreport Parkway was cleared. Due to the recent modern development, the resource's viewshed has been heavily altered. The most recent clearing of the woodlands to the west would likely offer sight lines to Route 1, but this viewscape is already compromised by recent construction and does not approximate historic conditions. Therefore, little impact on the resource would derive from construction of Route 1. As such, ERM recommends that there would be a **Minimal Impact** to this resource from Route 1.

4.4.2 089-0020, GLENCAIRNE

Route 1 intersects Glencairne for a distance of approximately 590 feet on the resource's northeastern edge (Attachment 5, Figure 3). Route 1 uses greenfield alignment and runs north to south, predominately through dense forest along with a small section of open field where an existing transmission line is found. An existing transmission line transects the resource on a west-southwest alignment.

One simulation was prepared from KOP 017, which is located along Cambridge Street, directly adjacent to the eastern boundary of 089-0020. This KOP was chosen as the closest point to the resource in vicinity of Route 1 from the nearest public right-of-way. At this location, as illustrated in the simulation from KOP 017H, the new transmission structures would be visible due to the existing cleared transmission line corridor (Attachment 5, Figure 4). However, while this view from an existing corridor towards Route 1 is unobstructed, the view from the resource's architectural components towards the route alignment would be somewhat obstructed by a dense row of mature trees. Route 1 would entail a new tree cut perpendicular to the existing transmission line corridor within the boundary of the resource. Route 1 would further change the setting within the resource and would be visible from at least one vantage point along public roads. As illustrated in the simulation from KOP 017, the resource's viewshed has already been impacted by the existing overhead transmission lines, which transect the resource parcel, but Route 1 would introduce additional comparable infrastructure.

Although the historic landscape has been previously altered already by similar infrastructure, Route 1 would entail the construction of additional new infrastructure within a new transmission line right-of-way, altering currently undeveloped land within the resource. Thus, ERM recommends that Route 1 would have a **Moderate Impact** on 089-0020.

4.4.3 089-0157, OAKENWOLD

Route 1 parallels the northwestern boundary of Oakenwold, running southwest from the proposed Centreport Substation and moving south before the route deviates southwest at MP 2 (Attachment

5, Figure 5). The route alignment consists primarily of dense vegetation according to the most recent aerial imagery; however, it has been observed in recent survey and through conversations with Dominion's cultural contact that this land has been partially cleared, and all structures associated with Oakenwold have been razed. Additionally, the associated cemetery burials have been previously removed. Due to the recent demolition of the resource's architectural components, ERM contacted VDHR. After conversations with VDHR on July 3, 2024, simulations were determined to not be needed due to the current state of the resource. Based on the status of the resource, there would be **No Impact** on Oakenwold from Route 1 as nothing remains to be impacted.

4.5 ARCHITECTURAL RESOURCE FINDINGS FOR ROUTE 2

The impacts to each architectural resource in the Route 2 study tiers are discussed below. Photo simulations are provided in Attachment 5.

4.5.1 089-0013, BUZZARD'S ROOST

Buzzard's Roost is located approximately 0.4 miles to the east-northeast of Route 2, which uses greenfield alignment (Attachment 5, Figure 6). The distance between Route 2 and the resource consists of newly cleared land with industrial development. Two photo simulations were prepared from KOP 003H, which is located along Centreport Parkway, situated approximately 0.2 mile from the boundary of 089-0013 (Attachment 5, Figures 7 and 8). The resource remains on a slightly elevated mound shaded by a grouping of mature trees. Because of its elevation, the viewshed of the resource extends farther than it might otherwise. As shown by the simulation, there would be no view to the route due to dense vegetation and intervening distance to the west. However, subsequent to the initial survey being conducted, the area to the west of Centreport Parkway was cleared of most of its vegetation and partially leveled for construction. Although the resource will likely have some view of Route 2, its surrounding landscape was already altered by an industrial/commercial building complex to the northwest and south, which cleared the area in 2022.

ERM conducted additional modeling using the vegetative viewshed analysis, which analyzes vantage points across the resource and in the surrounding area looking towards Route 2. The model depicts where there is potential for any transmission structures to be visible and quantifies the number of structures likely to be visible. According to the analysis, there may be potential to see up to 12–16 structures from the southwest boundary of the resource, while the majority of vantage points along the resource perimeter (ranging from the from the southwest and southeast) have potential to see 6–12 structures. There would also be potential to see 3–6 structures from the upper northwest boundary of the resource (Attachment 6, Figure 2).

Although Route 2 is not visible based on the simulation or vegetative analysis, the likelihood of visibility increased when the land to the west of Centreport Parkway was cleared. Due to the recent modern development, the resource's viewshed has been heavily altered. The most recent clearing of the woodlands to the west would likely offer sight lines to Route 2, but this viewscape is already compromised by recent construction and does not approximate historic conditions.

Therefore, little impact on the resource would derive from construction of Route 2. As such, ERM recommends that there would be a **Minimal Impact** to this resource from Route 2.

4.5.2 089-0157, OAKENWOLD

Route 2 intersects the northeastern and southeastern boundaries of Oakenwold, running southeast from the proposed Centreport Substation and moving south before the route deviates southeast at MP 1.5 (Attachment 5, Figure 9). The route alignment consists primarily of dense vegetation according to the most recent aerial imagery; however, it has been observed in recent survey and through conversations with Dominion's cultural contact that this land has been partially cleared, and all structures associated with Oakenwold have been razed. Additionally, the associated cemetery burials have been previously removed. Due to the recent demolition of the resource's architectural components, ERM contacted VDHR. After conversations with VDHR on July 3, 2024, simulations were determined to not be needed due to the current state of the resource. Based on the status of the resource, there would be **No Impact** on Oakenwold from Route 2 as nothing remains to be impacted.

4.6 ARCHITECTURAL RESOURCE FINDINGS FOR ROUTE 3

The impacts to each architectural resource in the Route 3 study tiers are discussed below. Photo simulations are provided in Attachment 5.

4.6.1 089-0013, BUZZARD'S ROOST

Buzzard's Roost is located approximately 0.4 mile to the east-northeast of Route 3, which uses greenfield alignment (Attachment 5, Figure 10). The distance between Route 3 and the resource consists of newly cleared land with industrial development. One photo simulation was prepared from KOP 003H, which is located along Centreport Parkway, situated approximately 0.2 mile from the boundary of 089-0013 (Attachment 5, Figures 11 and 12). The resource remains on a slightly elevated mound shaded by a grouping of mature trees. Because of its elevation, the viewshed of the resource extends farther than it might otherwise. As shown by the simulation, there would be no view to the route due to dense vegetation and intervening distance to the west. However, subsequent to the initial survey, the area to the west of Centreport Parkway has been cleared of most of its vegetation and partially leveled for construction. Although the resource will likely have some view of Route 3, its surrounding landscape was already altered by an industrial/commercial building complex to the northwest and south of the resource, which cleared the immediate surrounding area in 2022.

ERM conducted additional modeling using the vegetative viewshed analysis, which analyzes vantage points across the resource and in the surrounding area looking towards Route 3. The model depicts where there is potential for any transmission structures to be visible and quantifies the number of structures likely to be visible. According to the analysis, there may be potential to see up to 6–12 structures from the southwest boundary and a potential to see 3–6 structures from a majority of the southeastern boundary (Attachment 6, Figure 3).

Although the installation of the transmission line would add modern elements to the resource's viewshed, the surrounding area has already been significantly altered by the construction of the

industrial/commercial building to the northwest and the recent clearing of the land to the south and west. For these reasons, ERM recommends that there would be a **Minimal Impact** to this resource from Route 3.

4.6.2 089-0157, OAKENWOLD

Route 3 intersects the northeastern and southeastern boundaries of Oakenwold, running southeast from the proposed Centreport Substation and moving south before the route deviates southeast at MP 1.3 (Attachment 5, Figure 13). The route alignment consists primarily of dense vegetation according to current aerial imagery; however, it has been observed in recent survey and through conversations with Dominion's cultural contact as being partially cleared with all structures having been razed. Additionally, the associated cemetery burials have been previously removed. Due to the recent demolition of the resource's architectural components, ERM contacted VDHR. After conversations with VDHR on July 3, 2024, simulations were determined to not be needed due to the current state of the resource. Based on the status of the resource, there would be **No Impact** on Oakenwold from Route 3 as nothing remains to be impacted.

4.7 ARCHITECTURAL RESOURCE FINDINGS FOR ROUTE 4

The impacts to each architectural resource in the Route 4 study tiers are discussed below. Photo simulations are provided in Attachment 5.

4.7.1 089-0013, BUZZARD'S ROOST

Buzzard's Roost is located approximately 0.4 mile to the east-northeast of Route 4 in an area where the route uses greenfield alignment (Attachment 5, Figure 14). The distance between Route 4 and the resource consists of newly cleared land with industrial development and some mature vegetation. One photo simulation was prepared from KOP 003H, which is located along Centreport Parkway, situated approximately 0.2 mile from the boundary of 089-0013 (Attachment 5, Figures 15 and 16). The resource remains on a slightly elevated mound shaded by a grouping of mature trees. Because of its elevation, the viewshed of the resource extends farther than it might otherwise. As shown by the simulation, there would be no view to the route due to dense vegetation and intervening distance to the west. However, subsequent to the initial survey, the area to the west of Centreport Parkway has been cleared of most vegetation and partially leveled for construction. Although the resource will likely have some view of Route 4, its surrounding landscape has already been altered by an industrial/commercial building complex to the northwest of the resource, which cleared the immediate surrounding area in 2022.

ERM conducted additional modeling using the vegetative viewshed analysis, which analyzes vantage points across the resource and in the surrounding area looking towards Route 4. The model depicts where there is potential for any transmission structures to be visible and quantifies the number of structures likely to be visible. According to the analysis, there may be potential to see up to 6–12 structures from the southwest boundary and a potential to see 3–6 structures from a majority of the southeastern boundary (Attachment 6, Figure 4).

Although the installation of the transmission line would add modern elements to the resource's viewshed, the surrounding area has already been significantly altered by the construction of the

industrial/commercial building to the northwest and the recent clearing of the land to the west. For these reasons, ERM recommends that there would be a **Minimal Impact** to this resource from Route 4.

4.7.2 089-0157, OAKENWOLD

Route 4 intersects the northeastern and southeastern boundaries of Oakenwold running southeast from the proposed Centreport Substation and moving south before the route deviates southeast at MP 1.3 (Attachment 5, Figure 17). The route alignment consists primarily of dense vegetation according to current aerials; however, it has been observed in recent survey and through conversations with Dominion's cultural contact as being partially cleared with all structures having been razed. Additionally, the associated cemetery burials have been previously removed. Due to the recent demolition of the resource's architectural components, ERM contacted VDHR. After conversations with VDHR on July 3, 2024, simulations were determined to not be needed due to the current state of the resource. Based on the status of the resource, there would be **No Impact** on Oakenwold from Route 4 as nothing remains to be impacted.

4.8 ARCHAEOLOGICAL RESOURCES WITHIN THE RIGHT-OF-WAY FOR THE ROUTE ALTERNATIVES

Eight known archaeological sites are located in the right-of-way of the transmission line routes (Table 9): two intersected by the right-of-way of Route 1 (44ST1149 and 44ST1274), four intersected by Route 2 (44ST0310, 44ST0485, 44ST1274, and 44ST1276), and seven intersected by both Route 3 and Route 4 (44ST0310, 44ST0485, 44ST1054, 44ST1072, 44ST1073, 44ST1274, and 44ST1276).

TABLE 9 ARCHAEOLOGICAL RESOURCES WITHIN THE RIGHT-OF-WAY FOR THE ROUTE ALTERNATIVES

Considered Resource	Route Alternatives			
	Route 1	Route 2	Route 3	Route 4
44ST0310	-	X	X	X
44ST0485	-	X	X	X
44ST1054	-	-	X	X
44ST1072	-	-	X	X
44ST1073	-	-	X	X
44ST1149	X	-	-	-
44ST1274	X	X	X	X
44ST1276	-	X	X	X
Total Resources	*2*	*4*	*7*	*7*

"X" indicates that the resource is within the right-of-way of the route.

The sites that would be impacted by each route are described below. The descriptions include information on the NRHP eligibility of each site for listing in the NRHP as well as an assessment of each site's condition based on desktop review. A confident evaluation of the nature of archaeological deposits at each site and impacts from prior land use activities would require a field survey to verify the desktop analysis.

4.8.1 ROUTE 1

There are two previously recorded archaeological resources mapped within Route 1 (44ST1149 and 44ST1274).

Site 44ST1149 is a multicomponent unknown prehistoric temporary camp and historic cemetery site that has been evaluated as not eligible for the NRHP (VCRIS 2024). A previous Phase I survey performed by Circa~ Cultural Resource Management, LLC for The Engineering Groupe, Inc. in 2013 recorded three shallow depressions in the site area that were interpreted to be unmarked graves associated with the local enslaved population (Muir-Frost and Tryer 2013; Tryer et al. 2021). [redacted]. As there is a recorded unmarked cemetery as a component of this site, it is recommended that this area be avoided if possible or that Dominion employs an unanticipated discovery plan during construction, use, and decommissioning of the Project to assure that human remains, and cultural materials are appropriately managed, if encountered.

Site 44ST1274 is an unknown prehistoric lithic scatter that has been evaluated as not eligible for the NRHP (VCRIS 2024). A previous Phase I survey performed by Thunderbird Archeology in 2022 recorded a sparse lithic scatter representing a single-use or short-term camp that has been partially destroyed by previous ground disturbance (Smith and Carroll 2022). [redacted].

4.8.2 ROUTE 2

There are four previously recorded archaeological resources within the proposed right-of-way of Route 2 (44ST0310, 44ST0485, 44ST1274, and 44ST1276).

Site 44ST0310 is an unknown prehistoric temporary camp site that has been evaluated as not eligible for the NRHP (VCRIS 2024). A previous Phase I survey performed by KCI Technologies for the Virginia Department of Transportation in 1995 recorded a lithic scatter representing a temporary camp that had been partially destroyed by previous ground disturbance (Bishop et al. 1995). [redacted].

Site 44ST0485 is a prehistoric (Early–Late Archaic) temporary camp site that is currently unevaluated for the NRHP (VCRIS 2024). A previous Phase I survey performed by Circa~ Cultural Resource Management, LLC for The Engineering Groupe, Inc. in 2013 recommended the site as not eligible for the NRHP due to the low density of artifacts and little significant stratification (Muir-Frost and Tryer 2013; Tryer et al. 2021). From these previous survey results, it is unlikely that any intact cultural remains that would be evaluated as eligible for the NRHP would be

encountered. [redacted].

Site 44ST1274 is an unknown prehistoric lithic scatter that has been evaluated as not eligible for the NRHP (VCRIS 2024). A previous Phase I survey performed by Thunderbird Archeology in 2022 recorded a sparse lithic scatter representing a single-use or short-term camp that has been partially destroyed by previous ground disturbance (Smith and Carroll 2022). [redacted].

Site 44ST1276 is an unknown prehistoric temporary camp site that has been evaluated as not eligible for the NRHP (VCRIS 2024). A previous Phase I survey performed by Thunderbird Archeology in 2022 recorded a lithic scatter representing a lithic workshop that has been partially destroyed by previous ground disturbance (Smith and Carroll 2022). [redacted].

4.8.3 ROUTE 3

There are seven previously recorded archaeological resources intersected by Route 3 (44ST0310, 44ST0485, 44ST1054, 44ST1072, 44ST1073, 44ST1274, and 44ST1276).

Site 44ST0310 is an unknown prehistoric temporary camp site that has been evaluated as not eligible for the NRHP (VCRIS 2024). A previous Phase I survey performed by KCI Technologies for the Virginia Department of Transportation in 1995 recorded a lithic scatter representing a temporary camp that had been partially destroyed by previous ground disturbance (Bishop et al. 1995). [redacted].

Site 44ST0485 is a prehistoric (Early–Late Archaic) temporary camp site that is currently unevaluated for the NRHP (VCRIS 2024). A previous Phase I survey performed by Circa~ Cultural Resource Management, LLC for The Engineering Groupe, Inc. in 2013 recommended the site as not eligible for the NRHP due to the low density of artifacts and little significant stratification (Muir-Frost and Tryer 2013; Tryer et al. 2021). From these previous survey results, it is unlikely that any intact cultural remains that would be evaluated as eligible for the NRHP would be encountered. [redacted].

Site 44ST1054 is a historic (late eighteenth century) temporary camp site (American Wagon Train Return March Camp No. 6) that is currently unevaluated for the NRHP (VCRIS 2024). According to previous archaeological reports, the site was mapped as a large box, as it was an unverified site location and previous Phase I and metal detecting surveys performed in 2010, 2016, and 2022 were not able to locate any cultural remains in the area that would verify this location as an archaeological site (Humphries et al. 2011; Hornum and Grandine 2022; Leithoff et al. 2016). As there have been no recorded archaeological remains located in the site to date after several previous surveys, it is unlikely that any intact cultural remains that would be evaluated as eligible for the NRHP would be encountered. [redacted]

[redacted].

Site 44ST1072 is a prehistoric (Late Archaic, Early–Late Woodland) temporary camp site that has been evaluated as not eligible for the NRHP (VCRIS 2024). A previous Phase II investigation performed by R. Christopher Goodwin & Associates, Inc. in 2022 described the site as being heavily disturbed and lacking temporally diagnostic artifacts or intact cultural features (Hornum and Melton 2022). [redacted].

Site 44ST1073 is a historic (nineteenth century) mill race that has been evaluated as not eligible for the NRHP (VCRIS 2024). A previous Phase I survey performed by Circa~ Cultural Resources Management, LLC for Angler Environmental in 2010 stated that some water still ran through portions of the race, but some areas had been developed and it was unconfirmed if there were any mill features in the area (Humphries et al. 2011). [redacted].

Site 44ST1274 is an unknown prehistoric lithic scatter that has been evaluated as not eligible for the NRHP (VCRIS 2024). A previous Phase I survey performed by Thunderbird Archeology in 2022 recorded a sparse lithic scatter representing a single-use or short-term camp that has been partially destroyed by previous ground disturbance (Smith and Carroll 2022). [redacted].

Site 44ST1276 is an unknown prehistoric temporary camp site that has been evaluated as not eligible for the NRHP (VCRIS 2024). A previous Phase I survey performed by Thunderbird Archeology in 2022 recorded a lithic scatter representing a lithic workshop that has been partially destroyed by previous ground disturbance (Smith and Carroll 2022). [redacted].

4.8.4 ROUTE 4

There are seven previously recorded archaeological resources that overlap Route 4 (44ST0310, 44ST0485, 44ST1054, 44ST1072, 44ST1073, 44ST1274, and 44ST1276).

Site 44ST0310 is an unknown prehistoric temporary camp site that has been evaluated as not eligible for the NRHP (VCRIS 2024). A previous Phase I survey performed by KCI Technologies for the Virginia Department of Transportation in 1995 recorded a lithic scatter representing a temporary camp that had been partially destroyed by previous ground disturbance (Bishop et al. 1995). [redacted].

Site 44ST0485 is a prehistoric (Early–Late Archaic) temporary camp site that is currently unevaluated for the NRHP (VCRIS 2024). A previous Phase I survey performed by Circa~ Cultural Resource Management, LLC for The Engineering Groupe, Inc. in 2013 recommended the site as not eligible for the NRHP due to the low density of artifacts and little significant stratification (Muir-Frost and Tryer 2013; Tryer et al. 2021). From these previous survey results, it is unlikely

that any intact cultural remains that would be evaluated as eligible for the NRHP would be encountered. [redacted].

Site 44ST1054 is a historic (late eighteenth century) temporary camp site (American Wagon Train Return March Camp No. 6) that is currently unevaluated for the NRHP (VCRIS 2024). According to previous archaeological reports, the site was mapped as a large box, as it was an unverified site location and previous Phase I and metal detecting surveys performed in 2010, 2016, and 2022 were not able to locate any cultural remains in the area that would verify this location as an archaeological site (Humphries et al. 2011; Hornum and Grandine 2022; Leithoff et al. 2016). As there have been no recorded archaeological remains located in the site to date after several previous surveys, it is unlikely that any intact cultural remains that would be evaluated as eligible for the NRHP would be encountered. [redacted].

Site 44ST1072 is a prehistoric (Late Archaic, Early–Late Woodland) temporary camp site that has been evaluated as not eligible for the NRHP (VCRIS 2024). A previous Phase II survey performed by R. Christopher Goodwin & Associates, Inc. in 2022 described the site as being heavily disturbed and lacking temporally diagnostic artifacts or intact cultural features (Hornum and Melton 2022). [redacted].

Site 44ST1073 is an historic (nineteenth century) mill race that has been evaluated as not eligible for the NRHP (VCRIS 2024). A previous Phase I survey performed by Circa~ Cultural Resources Management, LLC for Angler Environmental in 2010 stated that some water still ran through portions of the race, but some areas had been developed and it was unconfirmed if there were any mill features in the area (Humphries et al. 2011). [redacted].

Site 44ST1274 is an unknown prehistoric lithic scatter that has been evaluated as not eligible for the NRHP (VCRIS 2024). A previous Phase I survey performed by Thunderbird Archeology in 2022 recorded a sparse lithic scatter representing a single-use or short-term camp that has been partially destroyed by previous ground disturbance (Smith and Carroll 2022). [redacted].

Site 44ST1276 is an unknown prehistoric temporary camp site that has been evaluated as not eligible for the NRHP (VCRIS 2024). A previous Phase I survey performed by Thunderbird Archeology in 2022 recorded a lithic scatter representing a lithic workshop that has been partially destroyed by previous ground disturbance (Smith and Carroll 2022). [redacted].

5. CONCLUSIONS AND RECOMMENDATIONS

As part of the effort to evaluate potential impacts from route alternatives associated with the Project, the pre-application analysis gathered information on archaeological and architectural resources that qualify for consideration according to the VDHR Guidelines for transmission line projects.

Eight known archaeological sites are located in the right-of-way of the transmission line routes reviewed in this study. An assessment of the condition and research potential of those sites is contingent upon archaeological field investigations, which will be conducted at relevant sites once a preferred alternative is selected by the SCC. Potential impacts to sites along the preferred route will be assessed as part of the field survey.

Three architectural resources fall within the VDHR study tiers for the route alternatives under consideration. A comparison of the resources impacted and the degree of impact of each route is presented in Table 10. The specific resources affected by each alternative are covered in the subsections that follow.

TABLE 10 COMPARISON OF PROJECT IMPACTS ON ARCHITECTURAL RESOURCES IN THE STUDY AREAS OF THE ROUTE ALTERNATIVES

Route Alternative	Number of Considered Resources in Each Impact Category				
	None	Minimal	Moderate	Severe	Total
Route 1	1	1	1	0	3
Route 2	1	1	0	0	2
Route 3	1	1	0	0	2
Route 4	1	1	0	0	2

Final assessments of Project impacts will be dependent on the completion of identification-phase archaeological and architectural surveys along the route selected by the SCC, followed by review of survey results by VDHR and other consulting parties. For any resources where the agencies concur in a finding of moderate or severe impact, the Company will propose treatments to avoid, minimize, or mitigate those impacts. Treatment options for archaeological sites could include selective structure placement to avoid direct impacts on sites, minor route adjustments to avoid crossing sites, or archaeological data recovery. Treatment options for architectural resources could include detailed site documentation, historic research, and historic preservation studies; preparation of digital media or museum-type exhibits on sites for public interpretation; installation of historic markers or signs; installation of vegetative screening; or contributions to historical preservation organizations or specific preservation projects. Additional mitigations could be identified through consultation with VDHR and other consulting parties.

5.1 ROUTE 1

Three previously recorded historic architectural resources meet the criteria specified in the Guidelines within the VDHR study tiers for Route 1 (Table 11). The route would have No Impact on one historic resource, a Minimal Impact on one, and a Moderate Impact on one.

TABLE 11 IMPACTS ON ARCHITECTURAL RESOURCES IN THE VDHR STUDY TIERS FOR ROUTE 1

Buffer (miles)	Resource Category	Resource Number	Description	Impact
1.0 to 1.5	National Historic Landmarks	-	-	-
0.5 to 1.0	National Register Properties (Listed)	-	-	-
	National Register – eligible (Battlefields/Historic Landscape)	-	-	-
	Locally Significant	-	-	-
0.0 to 0.5	National Register Properties (Listed)	-	-	-
	National Register – Eligible	089-0013	Buzzard's Roost*	Minimal
		089-0157	Oakenwold*	None
	Locally Significant	-	-	-
0.0 (within ROW)	National Register Properties (Listed)	-	-	-
	National Register – Eligible	089-0020	Glencairne	Moderate

ROW = right-of-way
** Resource is within the designated tiers for the proposed Centreport Substation*

5.2 ROUTE 2

Two previously recorded historic architectural resources meet the criteria specified in the Guidelines within the VDHR study tiers for Route 2 (Table 12). The route would have No Impact on one and a Minimal Impact on one resource.

TABLE 12 IMPACTS ON ARCHITECTURAL RESOURCES IN THE VDHR STUDY TIERS FOR ROUTE 2

Buffer (miles)	Resource Category	Resource Number	Description	Impact
1.0 to 1.5	National Historic Landmarks	-	-	-
0.5 to 1.0	National Register Properties (Listed)	-	-	-
	National Register – eligible (Battlefields/Historic Landscape)	-	-	-
	Locally Significant	-	-	-
0.0 to 0.5	National Register Properties (Listed)	-	-	-
	National Register – Eligible	089-0013	Buzzard's Roost*	Minimal
	Locally Significant	-	-	-
0.0 (within ROW)	National Register Properties (Listed)	-	-	-
	National Register – Eligible	089-0157	Oakenwold*	None

ROW = right-of-way
** Resource is within the designated tiers for the proposed Centreport Substation*

5.3 ROUTE 3

Two previously recorded historic architectural resources meet the criteria specified in the Guidelines within the VDHR study tiers for Route 3 (Table 13). The route would have No Impact on one and a Minimal Impact on one historic resource.

TABLE 13 IMPACTS ON ARCHITECTURAL RESOURCES IN THE VDHR STUDY TIERS FOR ROUTE 3

Buffer (miles)	Resource Category	Resource Number	Description	Impact
1.0 to 1.5	National Historic Landmarks	-	-	-
0.5 to 1.0	National Register Properties (Listed)	-	-	-
	National Register – eligible (Battlefields/Historic Landscape)	-	-	-
	Locally Significant	-	-	-
0.0 to 0.5	National Register Properties (Listed)	-	-	-
	National Register – Eligible	089-0013	Buzzard's Roost*	Minimal
	Locally Significant	-	-	-
0.0 (within ROW)	National Register Properties (Listed)	-	-	-
	National Register – Eligible	089-0157	Oakenwold*	None

ROW = right-of-way
** Resource is within the designated tiers for the proposed Centreport Substation*

5.4 ROUTE 4

Two previously recorded historic architectural resources meet the criteria specified in the Guidelines within the VDHR study tiers for Route 4 (Table 14). The route would have No Impact on one and a Minimal Impact on one historic resource.

TABLE 14 IMPACTS ON ARCHITECTURAL RESOURCES IN THE VDHR STUDY TIERS FOR ROUTE 4

Buffer (miles)	Resource Category	Resource Number	Description	Impact
1.0 to 1.5	National Historic Landmarks	-	-	-
0.5 to 1.0	National Register Properties (Listed)	-	-	-
	National Register – eligible (Battlefields/Historic Landscape)	-	-	-
	Locally Significant	-	-	-
0.0 to 0.5	National Register Properties (Listed)	-	-	-
	National Register – Eligible	089-0013	Buzzard's Roost*	Minimal
	Locally Significant	-	-	-
0.0 (within ROW)	National Register Properties (Listed)	-	-	-
	National Register – Eligible	089-0157	Oakenwold*	None

ROW = right-of-way
** Resource is within the designated tiers for the proposed Centreport Substation*

5.5 FUTURE INVESTIGATIONS

The next stage of assessing impacts on historic resources will be to conduct an identification-phase field survey to identify and assess resources along the specific route selected by the SCC that could be impacted by the Project. Survey will be conducted in accordance with the following guidelines:

- Guidelines for Assessing Impacts of Proposed Electrical Transmission Lines and Associated Facilities on Historic Resources in the Commonwealth of Virginia (VDHR 2008);
- Guidelines for Conducting Historic Resources Survey in Virginia (VDHR 2017);
- National Register Bulletin 15: How to Apply the National Register Criteria for Evaluation (National Park Service [NPS] 1995).

The survey teams will be led by individuals meeting the Secretary of the Interior's professional qualifications standards for archaeology and architectural history, respectively. Teams will traverse the length of the Project corridor, revisiting previously recorded archaeological and historic architectural resources and documenting additional as-of-yet unrecorded resources in the survey area defined in the Guidelines for the Project design. The archaeological survey will adhere to VDHR survey standards (VDHR 2017) and will entail systematic coverage of the approved route. All material culture, including artifacts and features, that could be 50 years old or older will be recorded. Sites will be delineated within the proposed right-of-way and investigations will include

subsurface testing sufficient to inform recommendations of potential eligibility for the NRHP under Criterion D. Each site will be fully documented with appropriate mapping, digital photography, and artifact collection/analysis. Site forms will be prepared for V-CRIS submittal along with full descriptions in the technical report. The historic architectural survey will likewise adhere to VDHR standards. While the NPS Bulletin 15 (NPS 1995) defines a historic property as a resource that is 50 years or older, for the purposes of this Project, survey will include those 45 years or older to accommodate the length of time needed to complete the permitting phase for the Project. Furthermore, the survey will also record those resources that may have reached significance prior to the 50 (45) year age in accordance with NPS guidance if they are integral parts of districts or have merit to be considered eligible for the NRHP on their own. Digital photographs will be taken to record resources' overall appearance and details. Sketch maps will be drawn depicting the relationship of dwellings to outbuildings and associated landscape features. Additional information on the structures' appearance and integrity will be recorded to assist in making recommendations of NRHP eligibility. Historic maps, aerial photographs, and tax assessor data will be consulted to assist in dating the resources. Resources identified in the field effort will be reported to the VDHR, VCRIS numbers will be obtained, and shapefiles and database information will be provided. Sufficient information will be collected to make recommendations for each identified architectural resource regarding eligibility for listing on the NRHP and to assess Project impacts.

REFERENCES

Bishop, Margaret A., Richard A. Geidel, and Elizabeth L. Roman
1995 *Phase I Cultural Resources Identification Survey for the I-95 Improvement Project, VA Route 630 to VA Route 627, Stafford Count VA.* Performed by KCI Technologies, Inc. for the Virginia Department of Transportation. Fredericksburg, Virginia.

Carroll, David
2021 VCRIS Architecture Form, 089-0013. On file, Virginia Department of Historic Resources.

Hornum, Michael B. and Amanda Melton
2022 *Phase II Archaeological Evaluation of Site 44ST1072 for the Crossroads Industrial Park, Stafford County, Virginia*. VDHR# 2022-3532. RC Goodwin & Associates, Inc. Frederick, Maryland.

Hornum, Michael B., and Katherine Grandine
2022 *Phase I Archaeological Survey for the Crossroads Industrial Park, Stafford County, Virginia*. VDHR# 2022-3532. Matan Crossroads, LLC. Frederick, Maryland.

Humphries, Amy, Dawn M. Frost, and Carol D. Tryer
2011 *Phase I Cultural Resources Survey of Stafford Commerce Center, Stafford County, Virginia*. VDHR# 2010-0407. Prepared by Circa~ Cultural Resources Management, LLC for Angler Environmental. Williamsburg, Virginia.

Google Earth Pro
2023 Aerial Imagery. https://www.google.com/earth/. Accessed March 2023.

Leithoff, Aimee, Sandra DeChard, and Ellen Brady
2016 *Cultural Resources Survey of Approximately 0.3 Miles Associated With Potomac Creek Bridge Replacement At Route 1, Stafford County, Virginia*. VDHR# 2016-0566. Stantec Consulting Services, Inc. Glen Allen, Virginia.

Muir, Dawn
2021 VCRIS Architecture Form, 089-0157. On file, Virginia Department of Historic Resources.

Muir-Frost, Dawn M., and Carol D. Tryer
2013 *Phase I Cultural Resources Survey of Oakenwold Tract, Stafford County, Virginia*. Circa~ Cultural Resource Management, LLC. Williamsburg, Virginia.

National Park Service (NPS)
1995 National Register Bulletin: *How to Apply the National Register Criteria for Evaluation* (NRB 15). Revised for Internet 1995. Accessed: March 21, 2023. Retrieved from: https://www.nps.gov.

NETROnline (National Environmental Title Research)
2023 Historic Aerials and Topographic Maps, Virginia. Accessed March 2023. Retrieved from: https://www.historicaerials.com/viewer.

Smith, Jeremy, and David Carroll
2022 *Phase I Cultural Resources Investigation, Blue Ridge Property, Stafford County, Virginia*. VDHR# 2022-3283. Thunderbird Archeology, a division of Wetland Studies and Solutions, Inc. Gainesville, Virginia.

Stafford County Historical Commission
2024 Stafford County – Historical Commission. https://staffordcountyva.gov/government/departments_p-z/planning_and_zoning/planning_boards___commissions/historical_commission/index.php. Accessed August 9, 2024.

Stafford County Historical Society
2024 Historical Society. Historical Society - Discover Stafford. Accessed August 9, 2024.

Tour Stafford County
2024 Tour Stafford County. https://www.tourstaffordva.com. Accessed August 9, 2024.

Traceries/KPW/KAW
1992 VCRIS Architecture Form, 089-0020. On file, Virginia Department of Historic Resources.

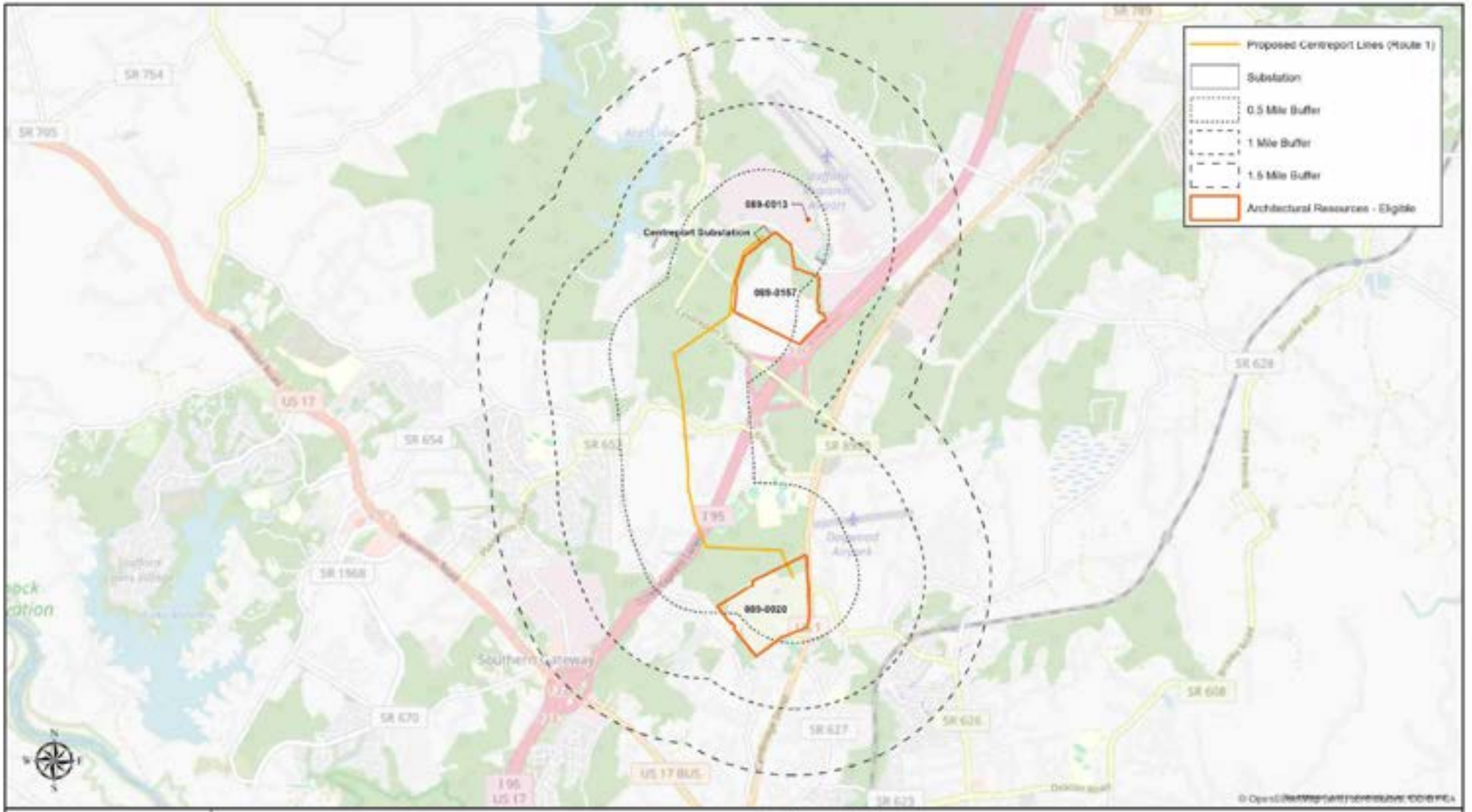
Tryer, Carol D., Dawn M. Muir, and Skye Hughes
2021 *Phase I Cultural Resources Survey of The Capitol 95 Logistics/Project Ivy (AKA Oakenwold Tract), Stafford County, Virginia*. Revised February 2022. Circa~ Cultural Resource Management, LLC. Williamsburg, Virginia.

Virginia Cultural Resource Information System (VCRIS)
2024 Data Viewer. Virginia Department of Historic Resources. http://dhr.virginia.gov/vcris/vcrisHome.htm. Accessed June 21, 2024.

Virginia Department of Historic Resources (VDHR)
2008 Guidelines for Assessing Impacts of Proposed Electric Transmission Lines and Associated Facilities on Historic Resources in the Commonwealth of Virginia. Accessed June 2022. Retrieved from: https://www.dhr.virginia.gov/wp-content/uploads/2018/08/DHR_Guidelines_for_Transmission_Line_Assessment.pdf.

2017 Guidelines for Conducting Historic Resources Survey in Virginia. Accessed February 2024. Retrieved from: https://www.dhr.virginia.gov/wp-content/uploads/2023/05/SurveyManual_2017.pdfeyManual_2017.pdf (virginia.gov).

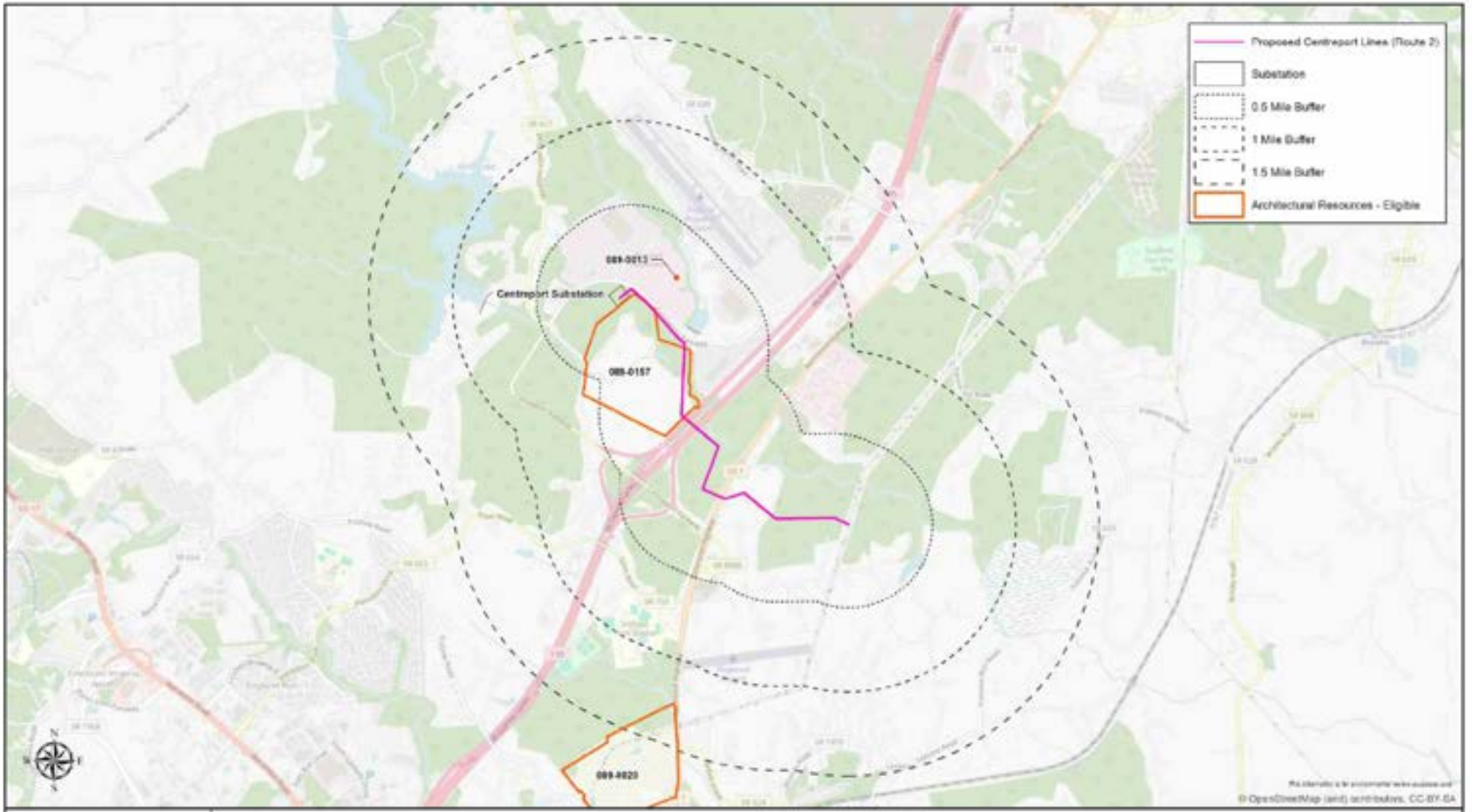
ATTACHMENT 1 LOCATIONS OF CONSIDERED ARCHITECTURAL RESOURCES ASSOCIATED WITH PROPOSED PROJECT



Attachment 1, Sheet 1
Locations of Considered Resources Associated with Proposed Project Alternatives - Centreport Route 1
Centreport Project
Dominion Energy Virginia
Stafford County, VA

Dominion Energy

ERM



0 0.4 0.8 1.2 Miles

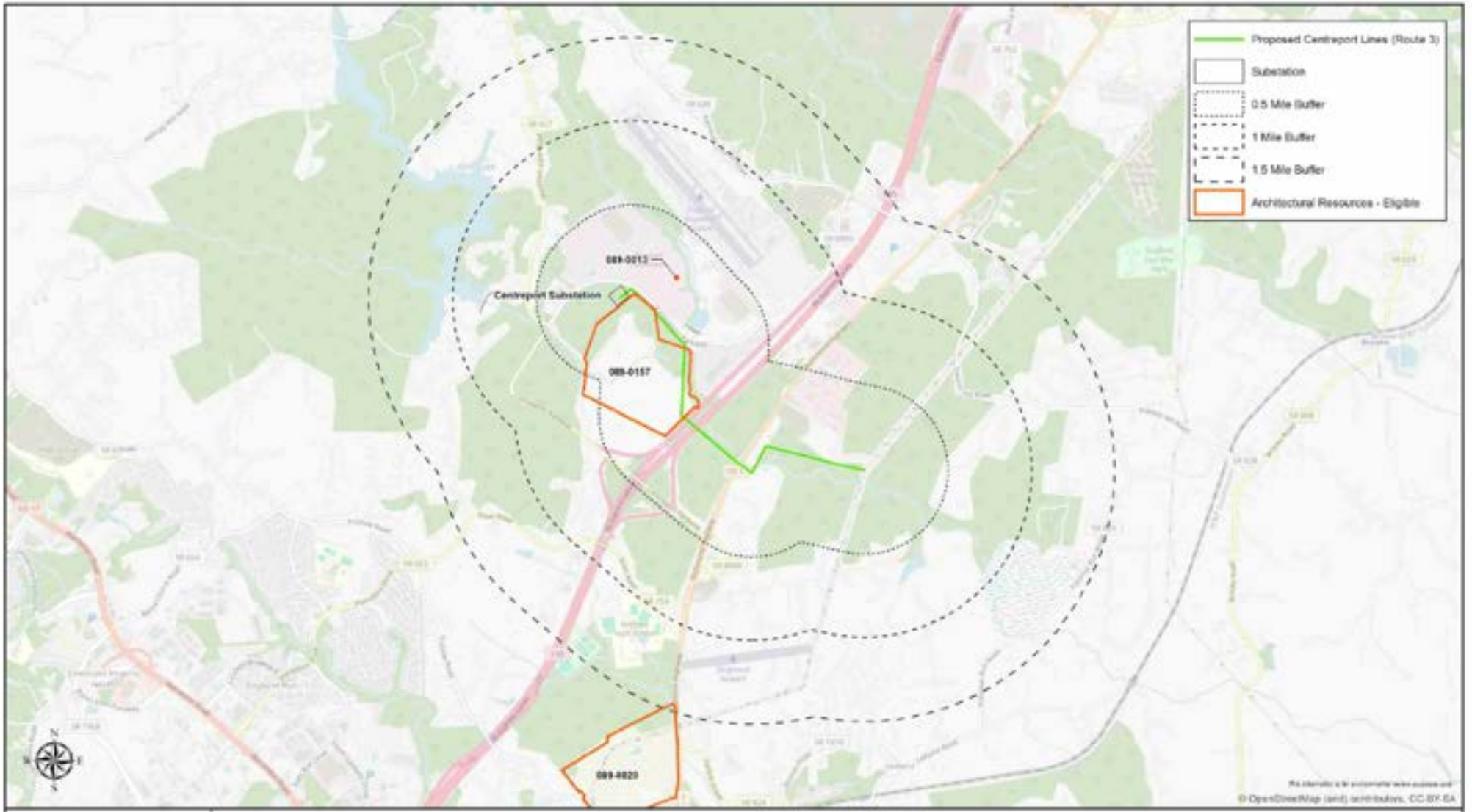
1:44,000

Attachment 1, Sheet 2
Locations of Considered Resources Associated with Proposed Project Alternatives - Centreport Route 2
Centreport 230 kV Transmission Line Project
Dominion Energy Virginia
Stafford County, VA

Dominion Energy

ERM

Attachment 2.1.1
Page 44 of 75



0 0.4 0.8 1.2 Miles

1:44,000

Attachment 1, Sheet 3
Locations of Considered Resources Associated with Proposed Project Alternatives - Centreport Route 3
Centreport 230 kV Transmission Line Project
Dominion Energy Virginia
Stafford County, VA

Dominion Energy

ERM

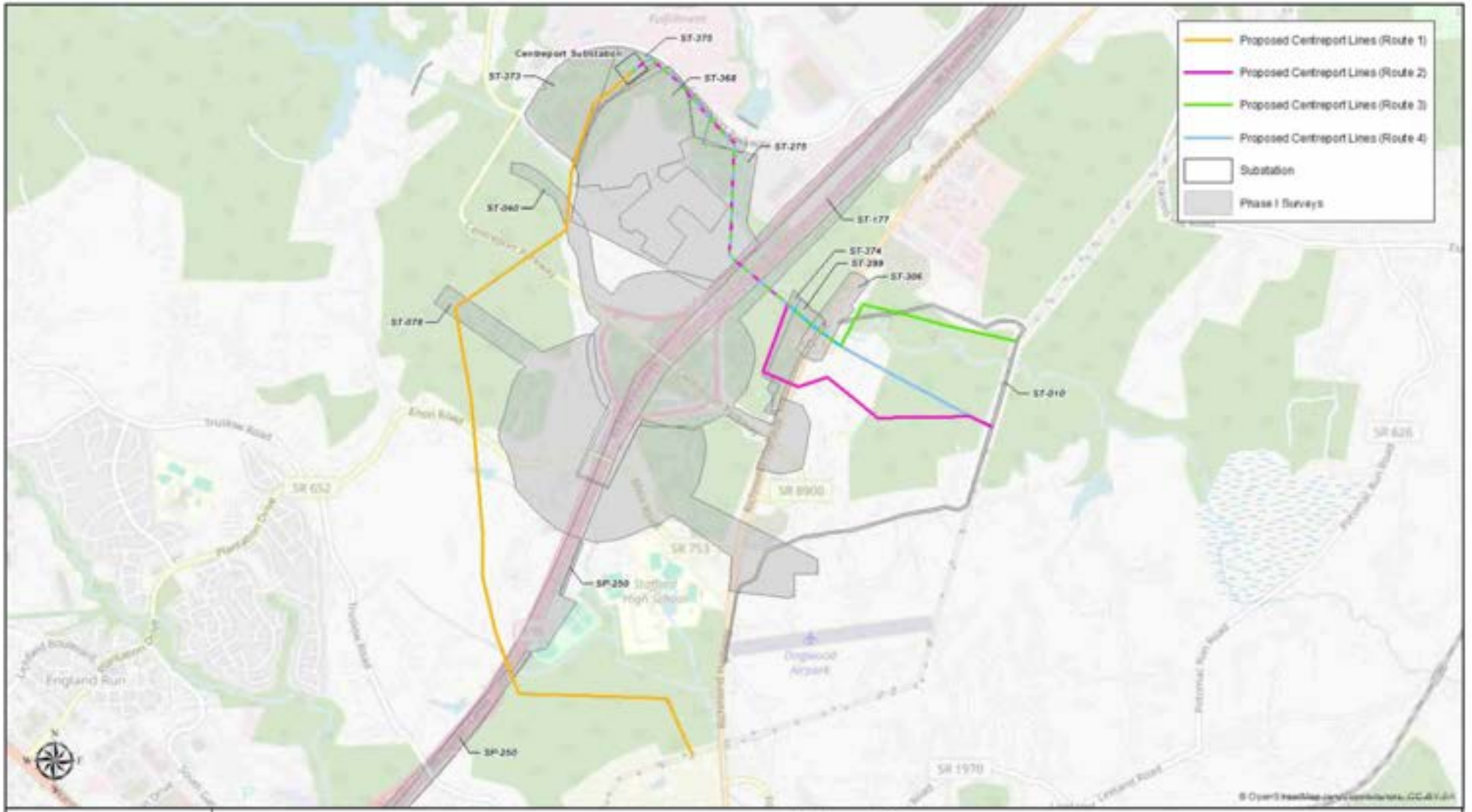
Attachment 1, Sheet 4
Locations of Considered Resources Associated with Proposed Project Alternatives - Centreport Route 4
Centreport 230 kV Transmission Line Project
Dominion Energy Virginia
Stafford County, VA

Dominion Energy

ERM

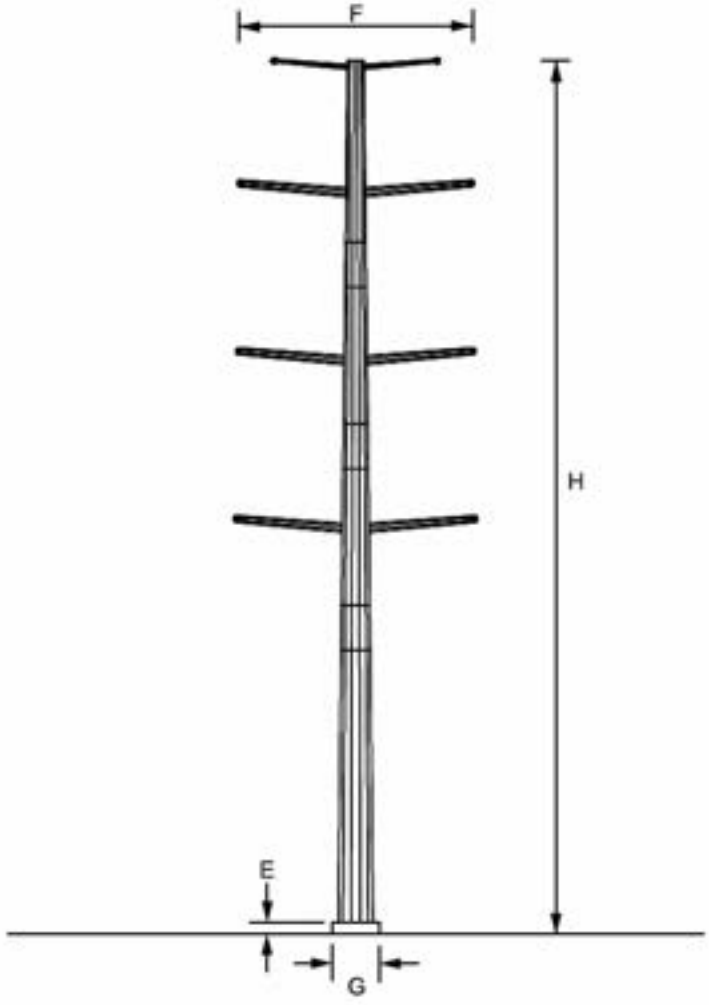
Attachment 2.1.1
Page 44 of 79

ATTACHMENT 2 CULTURAL RESOURCES SURVEYS COVERING PORTIONS OF ROUTES



Attachment 2
Locations of Phae I Surveys Associated with Proposed Project Alternatives
Centreport 230 kV Transmission Line Project
Dominion Energy Virginia
Stafford County, VA

ATTACHMENT 3 TYPICAL DESIGN AND LAYOUT



TYPICAL DC ENGINEERED MONOPOLE DOUBLE DEADEND STRUCTURE

A. STRUCTURE MAPPING	N/A
B. RATIONALE FOR STRUCTURE TYPE:	MINIMIZES RIGHT OF WAY ACQUISITION
C. LENGTH OF R/W (STRUCTURE QTY):	2.5 MILES (4 STRUCTURES) - SEE NOTE 1
D. STRUCTURE MATERIAL:	WEATHERING STEEL
RATIONALE FOR STRUCTURE MATERIAL:	MATCH CURRENT STANDARDS8 AND EXISTING STRUCTURES IN THE AREA
E. FOUNDATION MATERIAL: AVERAGE FOUNDATION REVEAL:	CONCRETE SEE NOTE 2
F. AVERAGE WIDTH AT CROSSARM:	26'
G. AVERAGE WIDTH AT BASE:	SEE NOTE 3
H. MINIMUM STRUCTURE HEIGHT (SEE NOTE 4): MAXIMUM STRUCTURE HEIGHT (SEE NOTE 4): AVERAGE STRUCTURE HEIGHT (SEE NOTE 4):	85' 125' 105'
I. AVERAGE SPAN LENGTH (RANGE):	687' - SEE NOTE 5
J. MINIMUM CONDUCTOR-TO-GROUND:	25.5' (AT MAXIMUM OPERATING TEMPERATURE)

NOTES:
1. ROW LENGTH & STRUCTURE QUANTITY ARE EXCLUSIVE OF COMPANY-OWNED SUBSTATION PROPERTIES
2. MINIMUM FOUNDATION REVEAL SHALL BE 1.5'
3. FOUNDATION DIAMETER SHALL BE BASED ON GEOTECHNICAL FINDINGS DURING FINAL ENGINEERING
4. THE SPAN LENGTHS ASSOCIATED WITH THIS STRUCUTRE TYPE ARE THE AHEAD SPANS

THE INFORMATION CONTAINED ON THIS DRAWING IS CONSIDERED PRELIMINARY IN NATURE AND IS SUBJECT TO CHANGE BASED ON FINAL DESIGN

Dominion Energy
Dominion Energy
5000 Dominion Blvd.
Glen Allen, VA 23060

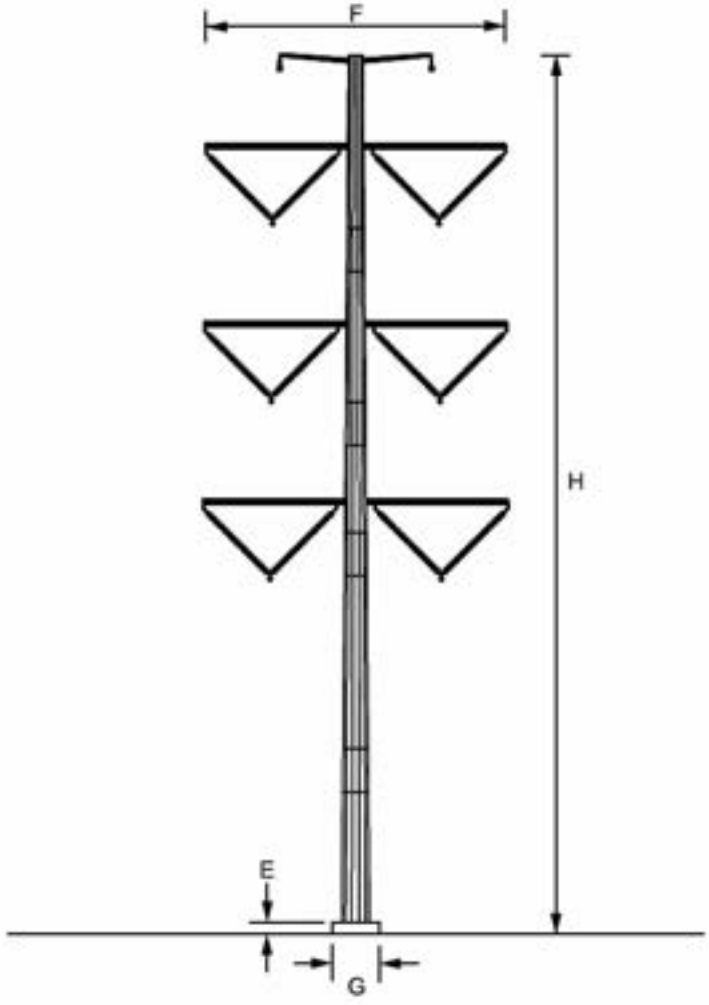
LINES 2104, 2379

TYPICAL DC ENGINEERED MONOPOLE DOUBLE DEADEND STRUCTURE

ATTACHMENT NO.

II.B.3.a

DRAWN BY: SDH



TYPICAL DC ENGINEERED MONOPOLE SUSPENSION STRUCTURE (V-STRING)

A. STRUCTURE MAPPING	N/A
B. RATIONALE FOR STRUCTURE TYPE:	MINIMIZES RIGHT OF WAY ACQUISITION; V-STRING INCREASES CLEARANCES AND OPTMIZES EXISTING ROW USAGE
C. LENGTH OF R/W (STRUCTURE QTY):	2.5 MILES (10 STRUCTURES) - SEE NOTE 1
D. STRUCTURE MATERIAL:	WEATHERING STEEL
RATIONALE FOR STRUCTURE MATERIAL:	MATCH CURRENT STANDARDS8 AND EXISTING STRUCTURES IN THE AREA
E. FOUNDATION MATERIAL: AVERAGE FOUNDATION REVEAL:	CONCRETE SEE NOTE 2
F. AVERAGE WIDTH AT CROSSARM:	34.5'
G. AVERAGE WIDTH AT BASE:	SEE NOTE 3
H. MINIMUM STRUCTURE HEIGHT (SEE NOTE 4): MAXIMUM STRUCTURE HEIGHT (SEE NOTE 4): AVERAGE STRUCTURE HEIGHT (SEE NOTE 4):	110' 135' 115'
I. AVERAGE SPAN LENGTH (RANGE):	623' - SEE NOTE 5
J. MINIMUM CONDUCTOR-TO-GROUND:	25.5' (AT MAXIMUM OPERATING TEMPERATURE)

NOTES:
1. ROW LENGTH & STRUCTURE QUANTITY ARE EXCLUSIVE OF COMPANY-OWNED SUBSTATION PROPERTIES
2. MINIMUM FOUNDATION REVEAL SHALL BE 1.5'
3. FOUNDATION DIAMETER SHALL BE BASED ON GEOTECHNICAL FINDINGS DURING FINAL ENGINEERING
4. THE SPAN LENGTHS ASSOCIATED WITH THIS STRUCUTRE TYPE ARE THE AHEAD SPANS

THE INFORMATION CONTAINED ON THIS DRAWING IS CONSIDERED PRELIMINARY IN NATURE AND IS SUBJECT TO CHANGE BASED ON FINAL DESIGN

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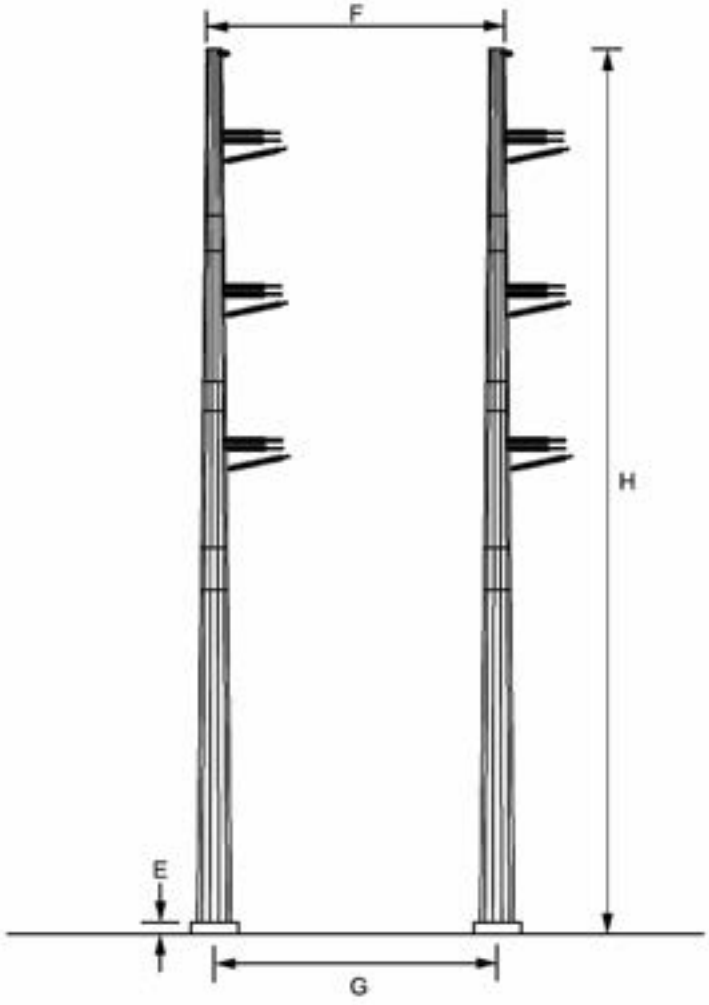
TYPICAL DC ENGINEERED MONOPOLE SUSPENSION STRUCTURE (V-STRING)

ATTACHMENT NO.

II.B.3.b

DRAWN BY: SDH



TYPICAL DC ENGINEERED 2-POLE DOUBLE DEADEND STRUCTURE

A. STRUCTURE MAPPING	N/A
B. RATIONALE FOR STRUCTURE TYPE:	MINIMIZES RIGHT OF WAY ACQUISITION; 2-POLES USED FOR HEAVY ANGLES TO OPTIMIZE POLE/FOUNDATION SIZE AND COST
C. LENGTH OF R/W (STRUCTURE QTY):	2.5 MILES (5 STRUCTURES) - SEE NOTE 1
D. STRUCTURE MATERIAL:	WEATHERING STEEL
RATIONALE FOR STRUCTURE MATERIAL:	MATCH CURRENT STANDARDS8 AND EXISTING STRUCTURES IN THE AREA
E. FOUNDATION MATERIAL: AVERAGE FOUNDATION REVEAL:	CONCRETE SEE NOTE 2
F. AVERAGE WIDTH AT CROSSARM:	36'
G. AVERAGE WIDTH AT BASE:	SEE NOTE 3
H. MINIMUM STRUCTURE HEIGHT (SEE NOTE 4): MAXIMUM STRUCTURE HEIGHT (SEE NOTE 4): AVERAGE STRUCTURE HEIGHT (SEE NOTE 4):	100' 100' 100'
I. AVERAGE SPAN LENGTH (RANGE):	502' - SEE NOTE 5
J. MINIMUM CONDUCTOR-TO-GROUND:	25.5' (AT MAXIMUM OPERATING TEMPERATURE)

NOTES:
1. ROW LENGTH & STRUCTURE QUANTITY ARE EXCLUSIVE OF COMPANY-OWNED SUBSTATION PROPERTIES
2. MINIMUM FOUNDATION REVEAL SHALL BE 1.5'
3. FOUNDATION DIAMETER SHALL BE BASED ON GEOTECHNICAL FINDINGS DURING FINAL ENGINEERING
4. THE SPAN LENGTHS ASSOCIATED WITH THIS STRUCUTRE TYPE ARE THE AHEAD SPANS

THE INFORMATION CONTAINED ON THIS DRAWING IS CONSIDERED PRELIMINARY IN NATURE AND IS SUBJECT TO CHANGE BASED ON FINAL DESIGN

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Glen Allen, VA 23060

LINES 2104, 2379

TYPICAL DC ENGINEERED 2-POLE DOUBLE DEADEND STRUCTURE

ATTACHMENT NO.

II.B.3.c

DRAWN BY: SDH

ATTACHMENT 4 ARCHITECTURAL RESOURCE PHOTOS

Figure 1. 089-0013, Buzzard's Roost, View to the Northeast.

Figure 2. 089-0020, Glencairne, No View from Public ROW, View to the Northwest.

Figure 3. 089-0157, Oakenwold, Ongoing Construction, April 2024, View to the Southwest.

Figure 4. 089-0157, Oakenwold, Construction from Oakenwold Lane, June 2024, View to the North.

ATTACHMENT 5 PHOTO SIMULATIONS

Figure 1. Aerial photograph depicting land use and photo view for 089-0013.

Existing View

Proposed view showing hidden transmission line structures

Dominion Energy

ERM

Viewpoint Location UTM Zone 18N:	285124E 4251878N
View Direction:	224 degrees
Viewpoint Elevation:	154 feet
Distance to Development:	1350 feet
Horizontal Field of View:	95 degrees

Date of Photography:	24th April 2024 10:35
Camera:	Nikon D800
Lens:	Nikkor 50mm 1.4
Camera Height:	65 inches

Figure 2
Viewpoint KOP 003H
Centreport Pkwy SE of Oakenwold Ln
089-0013

Pre-Application Analysis
Centreport

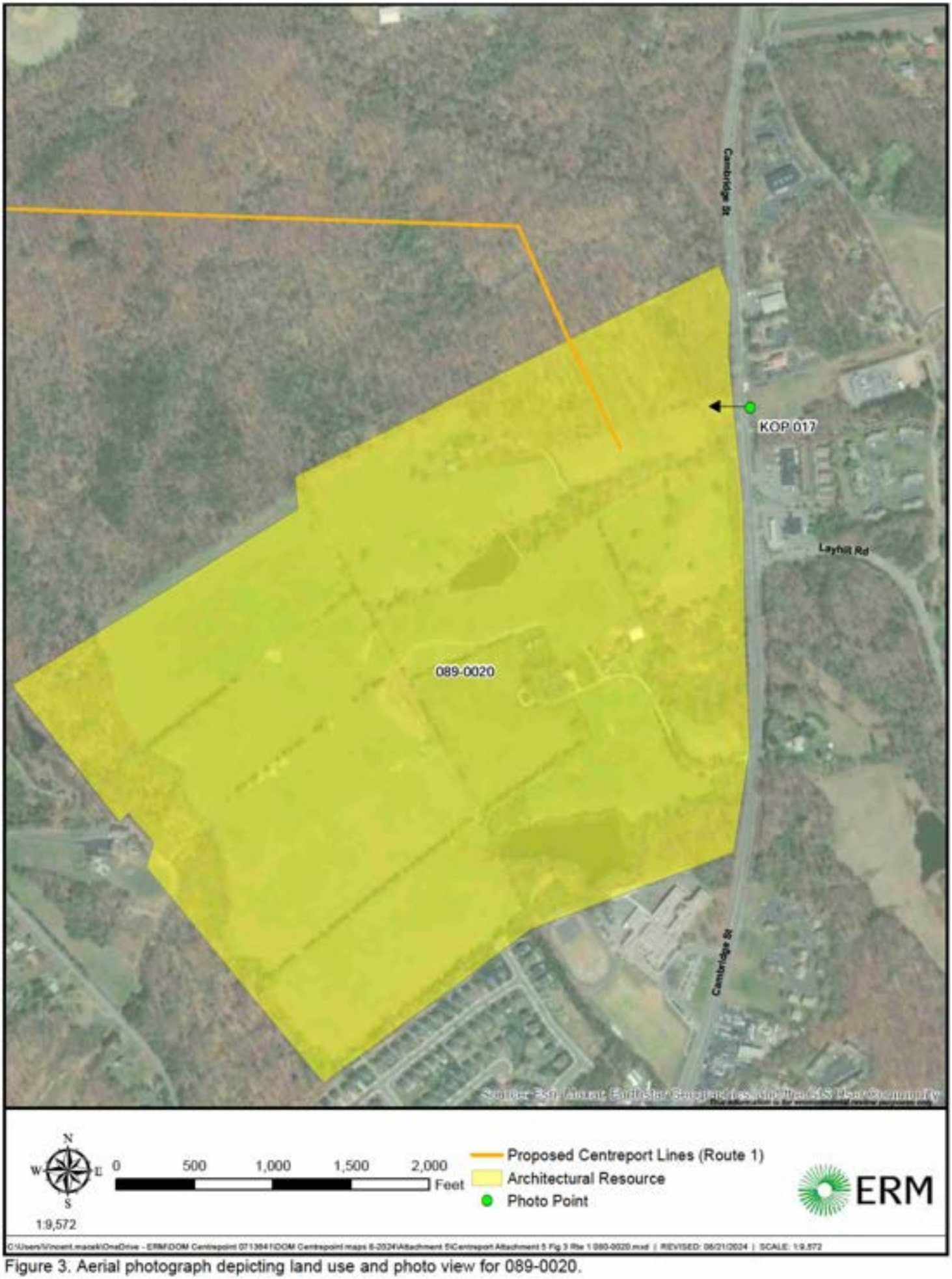

Figure 3. Aerial photograph depicting land use and photo view for 089-0020.

Existing View

Proposed view showing transmission line structures

Dominion Energy

ERM

Viewpoint Location UTM Zone 18N:	285216E 4247873N
View Direction:	292 degrees
Viewpoint Elevation:	163 feet
Distance to Development:	631 feet
Horizontal Field of View:	90 degrees

Date of Photography:	25th April 2024 13:23
Camera:	Nikon D800
Lens:	Nikkor 50mm 1.4
Camera Height:	65 inches

Figure 4
Viewpoint KOP 017
Cambridge St N of Heritage Commons Dr
089-0020

Pre-Application Analysis Centreport

Attachment 2.1.1
Page 60 of 79

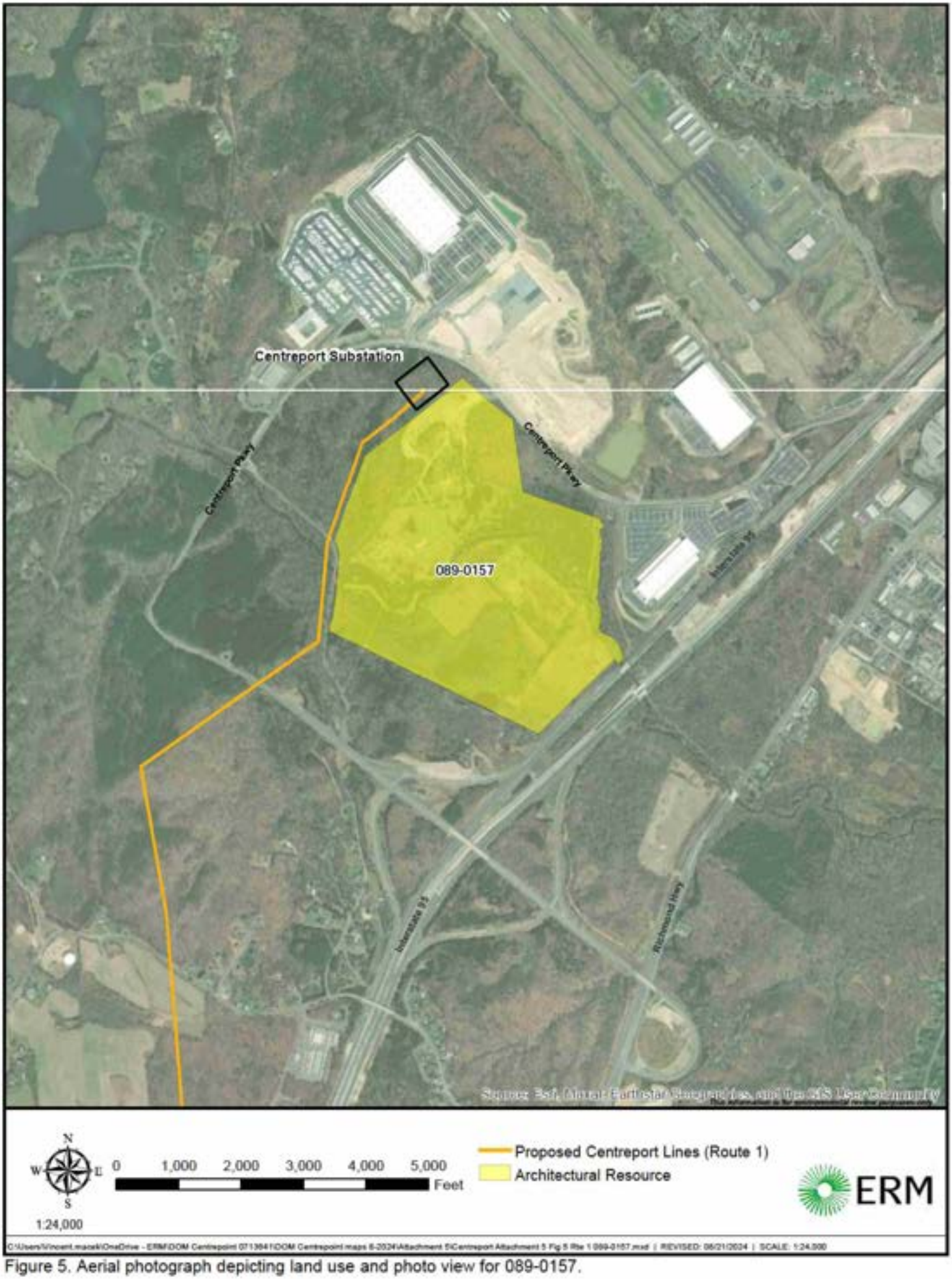

Figure 5. Aerial photograph depicting land use and photo view for 089-0157.

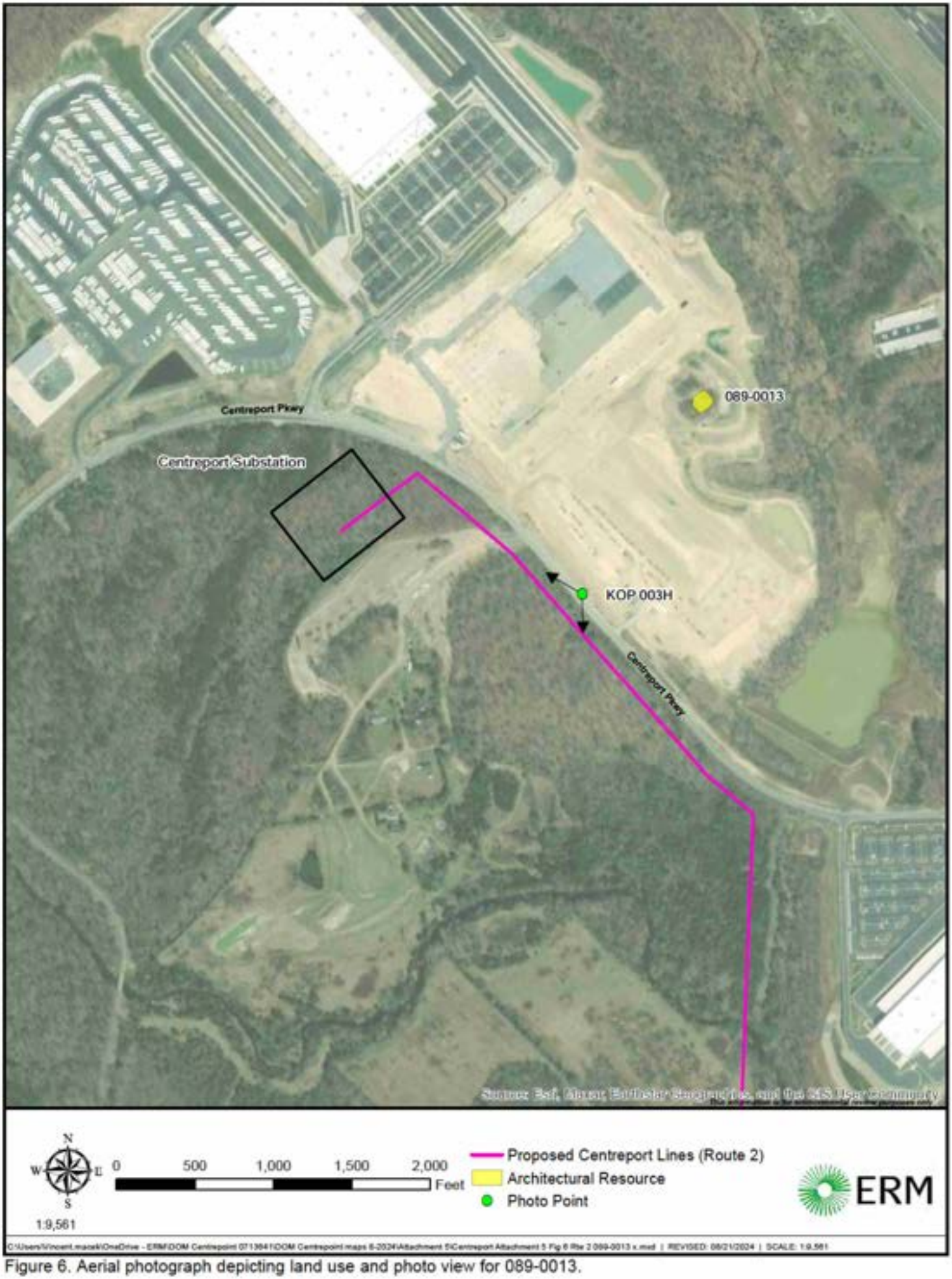

Figure 6. Aerial photograph depicting land use and photo view for 089-0013.

Existing View

Proposed view showing transmission line structures

Dominion Energy

ERM

Viewpoint Location UTM Zone 18N:	285124E 4251878N
View Direction:	224 degrees
Viewpoint Elevation:	154 feet
Distance to Development:	1350 feet
Horizontal Field of View:	95 degrees

Date of Photography:	24th April 2024 10:35
Camera:	Nikon D800
Lens:	Nikkor 50mm 1.4
Camera Height:	65 inches

Figure 7
Viewpoint KDP 003H
Centreport Pkwy SE of Oakenwold Ln
089-0013

Pre-Application Analysis
Centreport

Attachment 2.1.1
Page 63 of 79

Existing View

Proposed view showing transmission line structures

Dominion Energy

ERM

Viewpoint Location UTM Zone 18N:	285124E 4251878N
View Direction:	177 degrees
Viewpoint Elevation:	154 feet
Distance to Development:	80 feet
Horizontal Field of View:	95 degrees

Date of Photography:	24th April 2024 10:35
Camera:	Nikon D800
Lens:	Nikkor 50mm 1.4
Camera Height:	65 inches

Figure 8
Viewpoint KOP 003H
Centreport Pkwy SE of Oakenwold Ln
089-0013

Pre-Application Analysis
Centreport

Attachment 2.1.1
Page 64 of 79

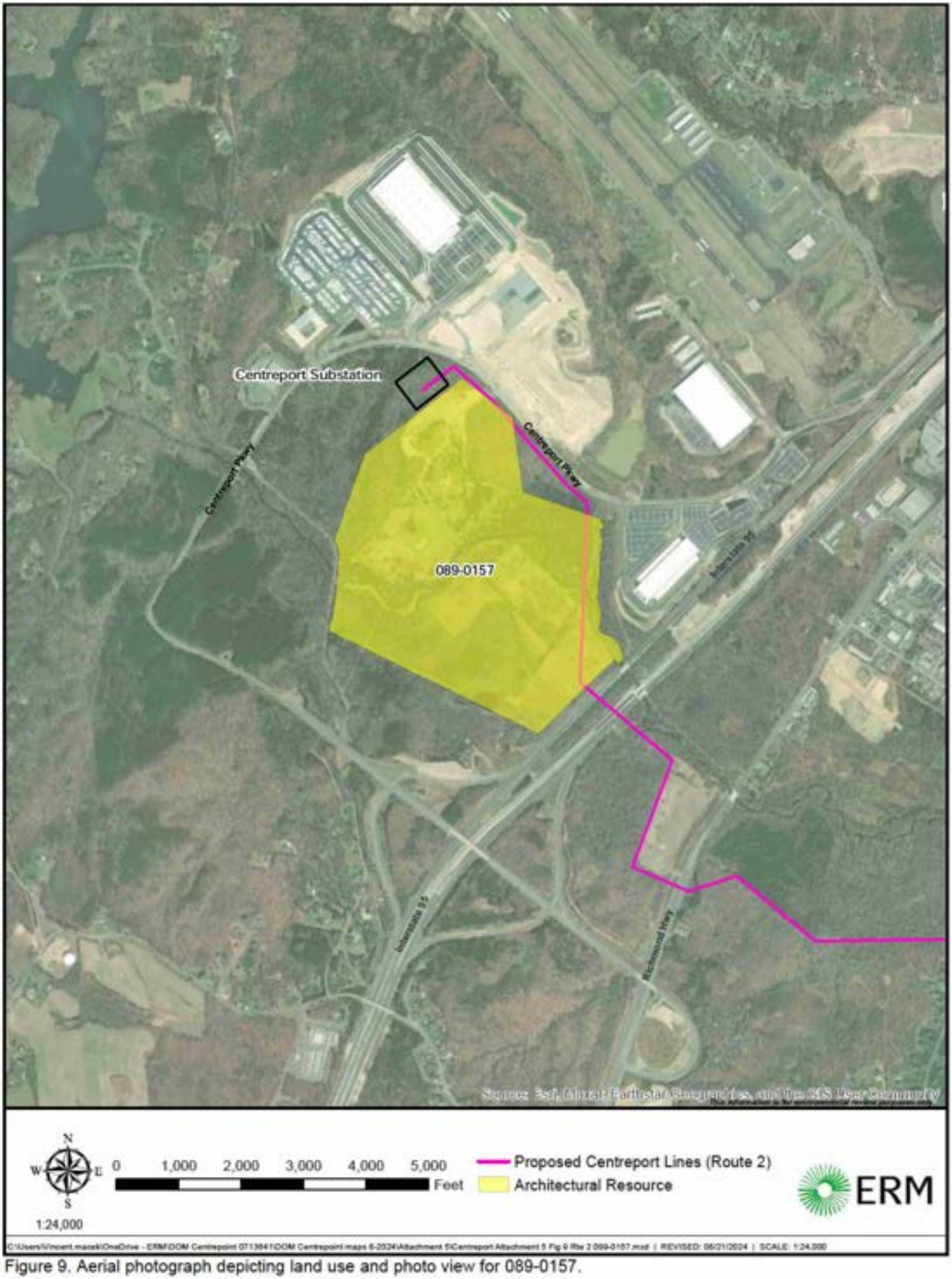

Figure 9. Aerial photograph depicting land use and photo view for 089-0157.

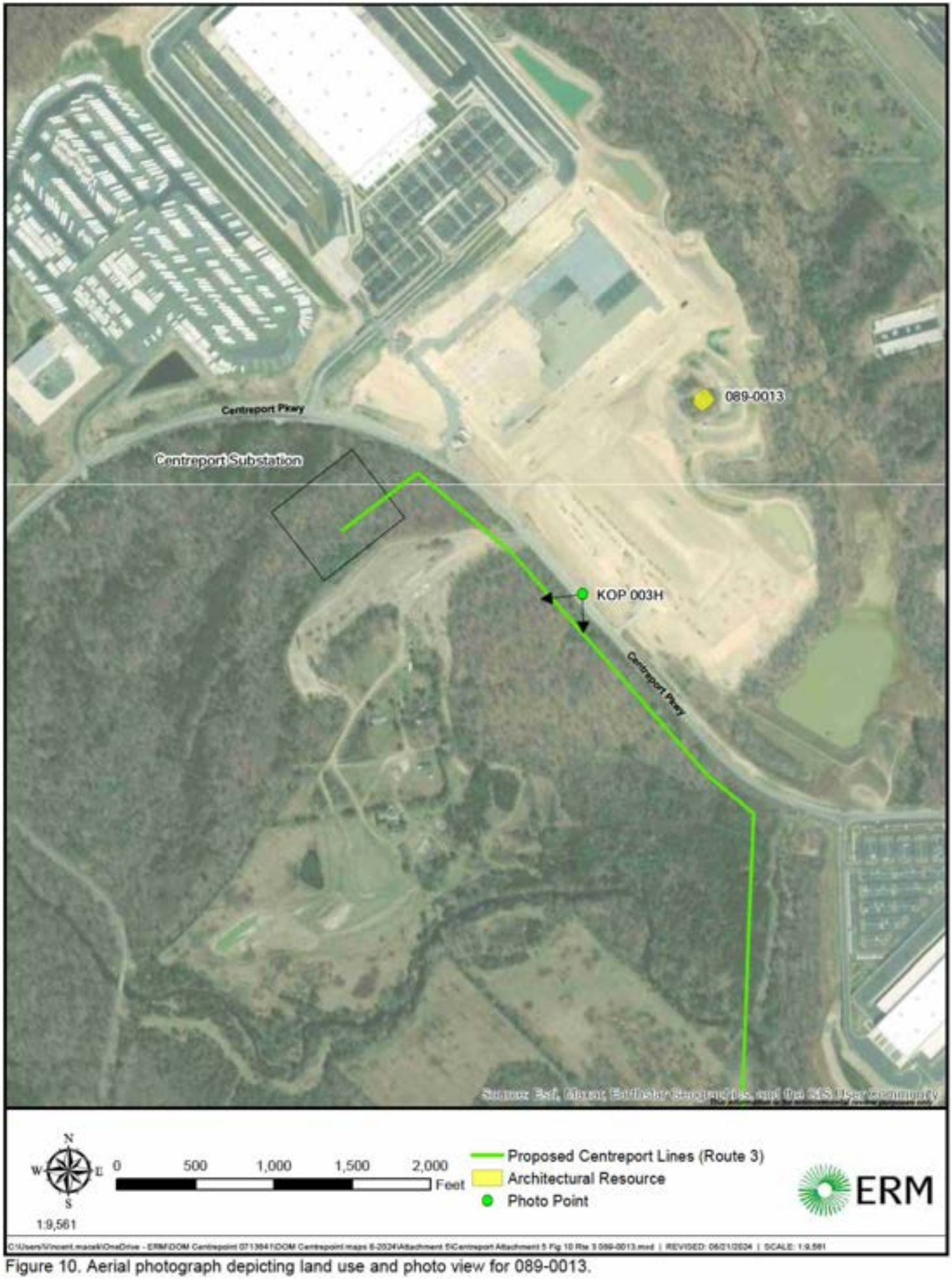

Figure 10. Aerial photograph depicting land use and photo view for 089-0013.

Existing View

Proposed view showing transmission line structures

Dominion Energy

ERM

Viewpoint Location UTM Zone 18N:	285124E 4251878N
View Direction:	224 degrees
Viewpoint Elevation:	154 feet
Distance to Development:	1350 feet
Horizontal Field of View:	95 degrees

Date of Photography:	24th April 2024 10:35
Camera:	Nikon D800
Lens:	Nikkor 50mm 1.4
Camera Height:	65 inches

Figure 11
Viewpoint KOP 003H
Centreport Pkwy SE of Oakenwald Ln
089-0013

Pre-Application Analysis
Centreport

Existing View

Proposed view showing transmission line structures

Dominion Energy

ERM

Viewpoint Location UTM Zone 18N:	285124E 4251878N
View Direction:	177 degrees
Viewpoint Elevation:	154 feet
Distance to Development:	80 feet
Horizontal Field of View:	95 degrees

Date of Photography:	24th April 2024 10:35
Camera:	Nikon D800
Lens:	Nikkor 50mm 1.4
Camera Height:	65 inches

Figure 12
Viewpoint KOP 003H
Centreport Pkwy SE of Oakenwold Ln
089-0013

Pre-Application Analysis
Centreport

Attachment 2.1.1
Page 69 of 79

Figure 13. Aerial photograph depicting land use and photo view for 089-0157.

Figure 14. Aerial photograph depicting land use and photo view for 089-0013.

Existing View

Proposed view showing transmission line structures

Dominion Energy

ERM

Viewpoint Location UTM Zone 18N:	285124E 4251878N
View Direction:	224 degrees
Viewpoint Elevation:	154 feet
Distance to Development:	1350 feet
Horizontal Field of View:	95 degrees

Date of Photography:	24th April 2024 10:35
Camera:	Nikon D800
Lens:	Nikkor 50mm 1.4
Camera Height:	65 inches

Figure 15
Viewpoint KOP 003H
Centreport Pkwy SE of Oakenwold Ln
089-0013

Pre-Application Analysis
Centreport

Existing View

Proposed view showing transmission line structures

Dominion Energy

ERM

Viewpoint Location UTM Zone 18N:	285124E 4251878N
View Direction:	177 degrees
Viewpoint Elevation:	154 feet
Distance to Development:	80 feet
Horizontal Field of View:	95 degrees

Date of Photography:	24th April 2024 10:35
Camera:	Nikon D800
Lens:	Nikkor 50mm 1.4
Camera Height:	65 inches

Figure 16
Viewpoint KOP 003H
Centreport Pkwy SE of Oakenwold Ln
089-0013

Pre-Application Analysis
Centreport

Attachment 11
Page 72 of 73

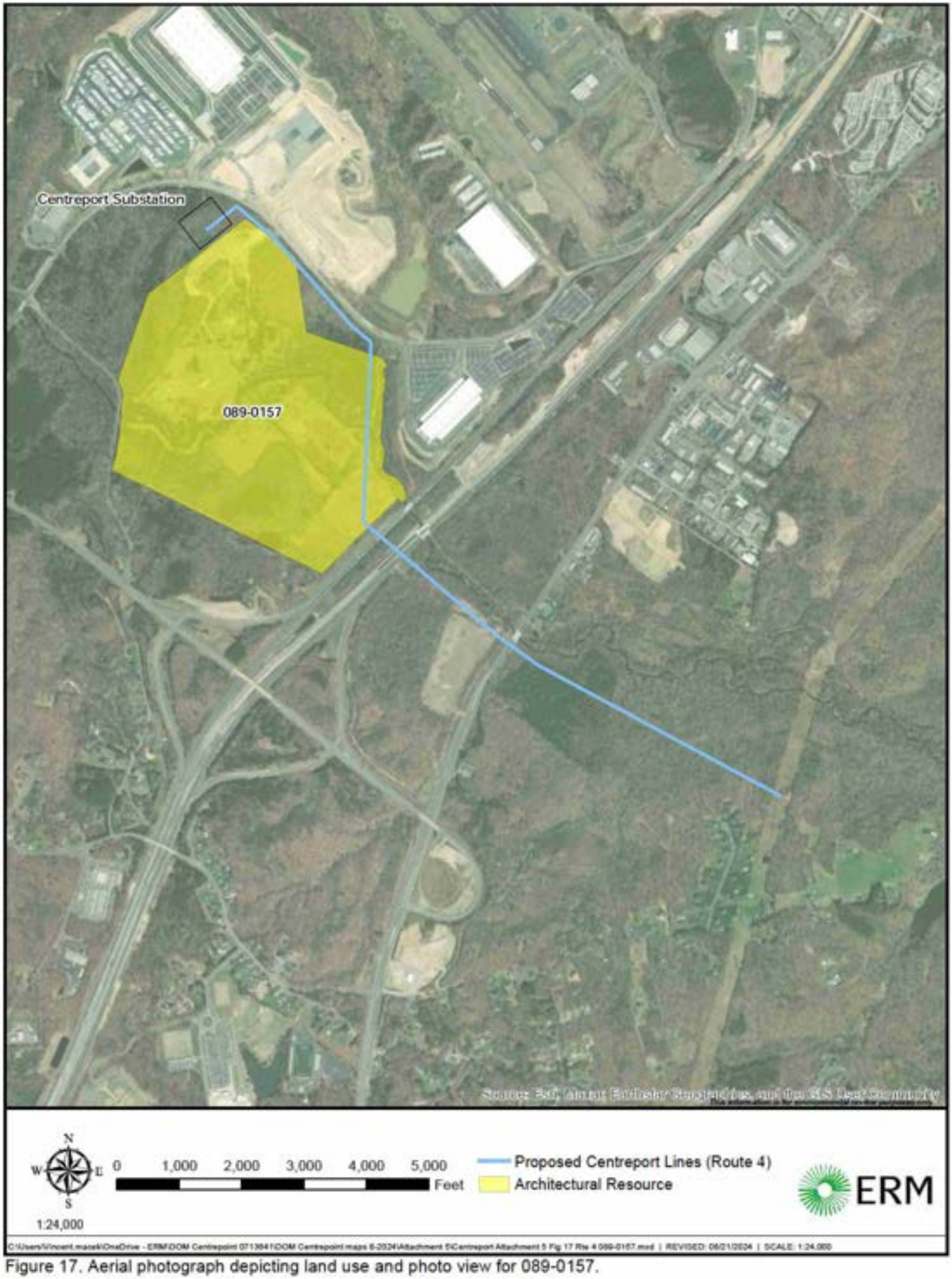

Figure 17. Aerial photograph depicting land use and photo view for 089-0157.

ATTACHMENT 6 VEGETATIVE ANALYSIS

Figure 1
Route 1 - Vegetated Viewshed Analysis
Centerport 230 kV Transmission Line Project
Stafford County, Virginia

ERM

Dominion Energy

Attachment 2.1.1
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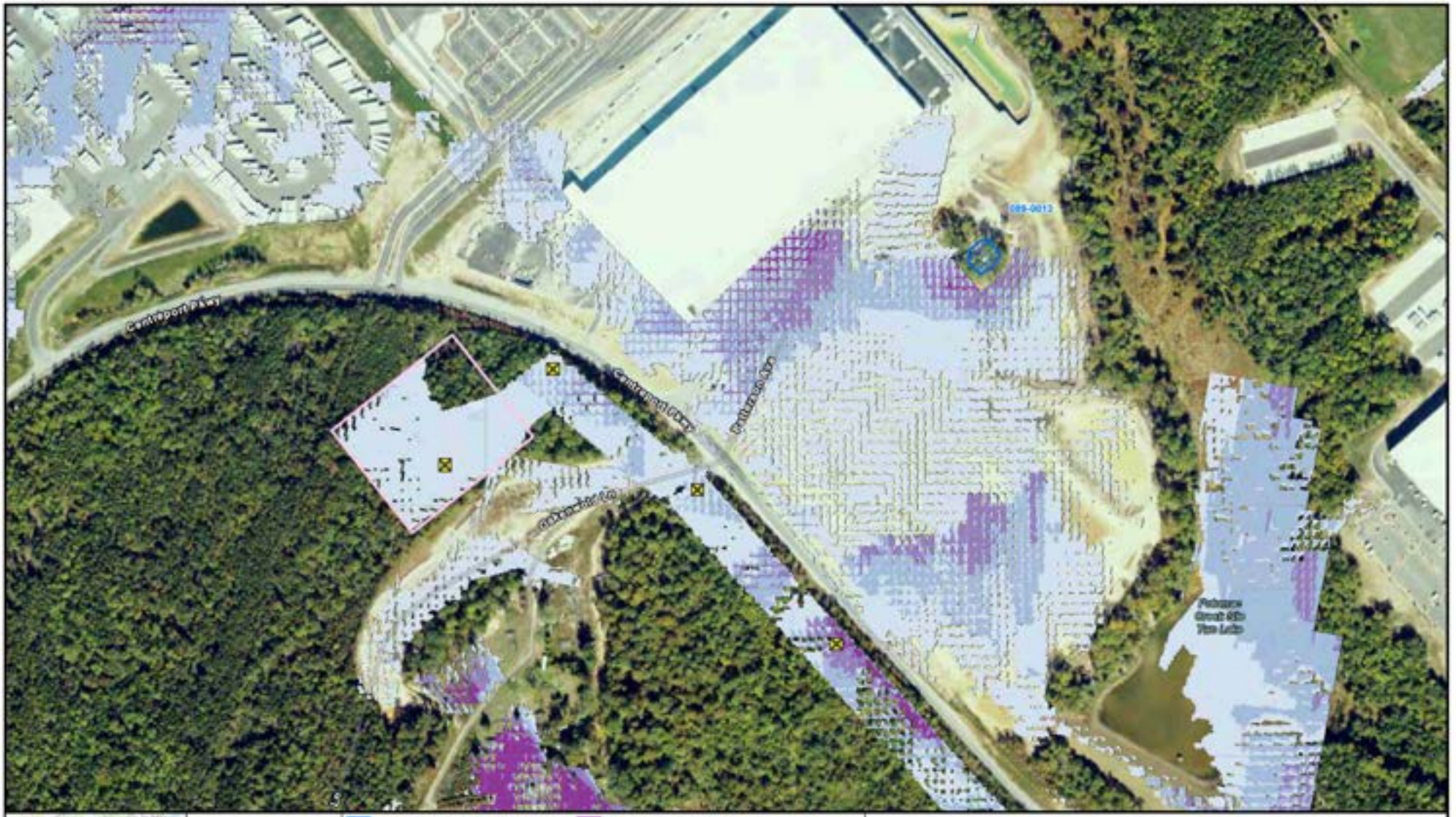

Figure 2
Route 2 - Vegetated Viewshed Analysis
Centerport 230 kV Transmission Line Project
Stafford County, Virginia

Figure 3
Route 3 - Vegetated Viewshed Analysis
Centerport 230 kV Transmission Line Project
Stafford County, Virginia


Centerport Pkwy
Centerport Ct
Centerport Ct
089-0013
Project Location
Virginia
0 150 300
Feet
1:3,600
Eligible Architecture Resource
Structure Location
Substation Boundary
20 - 26 Structures Visible
12 - 20 Structures Visible
6 - 12 Structures Visible
3 - 6 Structures Visible
1 - 3 Structures Visible
ERM
Figure 4
Route 4 - Vegetated Viewshed Analysis
Centerport 230 kV Transmission Line Project
Stafford County, Virginia
Dominion Energy

ERM HAS OVER 160 OFFICES ACROSS THE FOLLOWING COUNTRIES AND TERRITORIES WORLDWIDE

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Belgium
Brazil
Canada
China
Colombia
France
Germany
Ghana
Guyana
Hong Kong
India
Indonesia
Ireland
Italy
Japan
Kazakhstan
Kenya
Malaysia
Mexico
Mozambique
The Netherlands
New Zealand
Peru
Poland
Portugal
Puerto Rico
Romania
Senegal
Singapore
South Africa
South Korea
Spain
Switzerland
Taiwan
Tanzania
Thailand
UAE
UK
US
Vietnam

ERM
3300 Breckinridge Boulevard
Suite 300
Duluth, GA 30096

T: 678-781-1370

www.erm.com

From: Rice, James (VDOT)
To: Tracey S McDonald (Services - 6)
Cc: Oster, Carolyn (VDOT); Lupo, Shane (VDOT)
Subject: [EXTERNAL] Re: Centreport Transmission Line Project-VDOT Reply
Date: Monday, April 29, 2024 11:46:49 AM
Attachments: image001.png
Outlook-kfz5flvq.png

Hi Tracey,

As discussed, due to the very preliminary nature of the data (colored paths on GIS), VDOT does not have a preference on the alignments yet. While we appreciate Dominion sharing the possible alignments, VDOT is not in a position to agree/disagree with them. We need more design information to further evaluate the routes. Dominion's chosen path should consider minimizing impacts to the RW. I am providing talking points from our previous meeting in March 2024.

DOM Routes 1-3 (Based on revised ERM drawing dated 3/19/2024)

- Route 1 Orange- Skew crossing on Interstate 95. No structures in VDOT R/W unless absolutely necessary. Enon Road Extension- Enon Road to Centrepoint project may impact Dominion's alignment.
- Route 2 Red-Crosses Route 1 and Interstate 95 at right angles which is preferred since it minimizes impacts in the RW. Parallel alignment along Interstate 95 should be outside VDOT R/W. We need design to be further developed to provide meaningful comments.
- Route 3 Green-Crosses Interstate 95 at right angle. Parallel alignment should be outside the VDOT R/W.

Your request for the height of the exit overpass on the Orange Route will take time for us to research. Our section does not have those roadway plans, so we need to reach out to others. My understanding is that the plans are not needed by your team until design.

Thank you,

Jim Rice, PE
Land Development Engineer
Fredericksburg Residency
Virginia Department of Transportation
540-907-2068
James.Rice@VDOT.Virginia.gov

From: Warren, Arlene <arlene.warren@vdh.virginia.gov>
Sent: Tuesday, June 22, 2021 7:53 AM
To: Rachel.M.Studebaker@dominionenergy.com
Subject: [EXTERNAL] Re: FW: SCC Case No. PUR-2021-00010/DEQ21-013S

The proposal from Dominion is reasonable and we consider it acceptable.

Best Regards,

Arlene Fields Warren

GIS Program Support Technician

Office of Drinking Water

Virginia Department of Health

109 Governor Street

Richmond, VA 23219

(804) 864-7781

On Thu, Jun 17, 2021 at 4:33 PM Rachel.M.Studebaker@dominionenergy.com <Rachel.M.Studebaker@dominionenergy.com> wrote:

Hello Ms. Warren,

I am reaching out in regard to the DEQ Report for SCC Case No. PUR-2021-00010/DEQ21-013S (230 kV lines #2113 and #2154 Transmission Line Rebuilds and Related Projects). As part of the VDH ODW review, it was recommended that all wells within a 1,000-foot radius of the project site be field marked and protected from accidental damage. It is our custom construction process to not conduct any work outside of the existing right-of-way (ROW), with the exception of entry using existing access roads, and use DEQ approved erosion and sediment controls. These well are located outside of the project area ROW on private land and Dominion Energy does not have permission to enter private property to field mark the wells.

Therefore, we are proposing to plot and call out the wells on the Erosion and Sediment control plans as a way of flagging them for the construction team for protection from accidental damage. Is this a sufficient approach to comply with the ODW recommendation?

Thank you,

Rachel Studebaker

Environmental Specialist II

Dominion Energy Services

120 Tredegar Street, Richmond, VA 23219

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