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

Before the State Corporation Commission of Virginia

Hornbaker 230 kV Line Loop and Hornbaker Switching Station

Application No. 349

Case No. PUR-2025-00046

Filed: March 14, 2025

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

Hornbaker 230 kV Line Loop and Hornbaker Switching Station Project

Application No. 349

DEQ Supplement

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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 Hornbaker 230 kV Line Loop and Hornbaker Switching Station Project (the "Project") by DEQ and other relevant agencies.

1. Project Description

At the request of the Northern Virginia Electric Cooperative ("NOVEC"), in order to provide service to its data center customer in Prince William County, Virginia, to maintain reliable service for the overall load growth in the area, and to comply with mandatory North American Electric Reliability Corporation ("NERC") Reliability Standards, Virginia Electric and Power Company ("Dominion Energy Virginia" or the "Company") proposes in Prince William County, Virginia, to:

(1) Cut existing Line #2187 between Structures #2187/7 and #2187/8 north of the existing Wellington Substation and construct a new approximately 0.6-mile overhead 230 kilovolt ("kV") double circuit transmission line on new primarily 100-foot-wide right-of-way from the Wellington Substation cut-in location to the Pegasus Switching Station resulting in Line #2325 and Line #2423 ("Wellington – Pegasus Route 1"). The proposed line will be constructed primarily with double circuit galvanized steel monopole structures, utilizing two circuits of three-phase twin-bundled 768.2 ACSS/TW/HS (20/7) conductor with a summer transfer capability of 1,573 MVA.

(2) Construct a new approximately 1.9-mile overhead 230 kV double circuit transmission line on new primarily 100-foot-wide right-of-way from the Pegasus Switching Station to the new proposed Hornbaker Switching Station resulting in Line #2187 and Line #2424 ("Pegasus – Hornbaker Route 1"). The proposed line will be constructed primarily with double circuit galvanized steel monopole structures, utilizing two circuits of three-phase twin-bundled 768.2 ACSS/TW/HS (20/7) conductor with a summer transfer capability of 1,573 MVA.

(3) Construct a new approximately 2.8-mile overhead 230 kV double circuit transmission line on new primarily 100-foot-wide right-of-way from the Devlin Switching Station to the Pegasus Switching Station[1] resulting in Line #2419 and Line #2420 ("Devlin – Pegasus Route 2").[2] These proposed lines will be

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[1] The Devlin and Pegasus Switching Stations are being constructed as part of separate projects.

[2] As part of the construction associated with Devlin – Pegasus Route 2, the Company will perform minor substation work at the Pegasus Switching Station. While a component of the Devlin – Pegasus Route 2 construction, the Company considers the substation-related work at Pegasus Switching Station, which is entirely within existing right-of-way and/or Company-owned property, to qualify as an "ordinary extension[] or improvement[] in the usual course of business" (*i.e.*, "ordinary course") pursuant to § 56-265.2 A 1 of the Code of Virginia ("Va. Code") and, therefore, does not require approval pursuant to Va. Code § 56-46.1 B or a certificate of public convenience and necessity ("CPCN") from the Commission. The costs associated with the substation-related work have not been included in the total substation-related conceptual costs but are described in Section II.C of the Appendix. Should the Commission determine that a CPCN is required for the work described herein, the Company requests that the Commission grant such CPCN as part of its final order in this proceeding.

constructed primarily with double circuit galvanized steel monopole structures, utilizing two circuits of three-phase twin-bundled 768.2 ACSS/TW/HS (20/7) conductor with a summer transfer capability of 1,573 MVA.[3]

(4) Construct the new 230 kV Hornbaker Switching Station (the "Hornbaker Switching Station") on property to be obtained by the Company.

Together, Wellington – Pegasus Route 1, Pegasus – Hornbaker Route 1, and Devlin – Pegasus Route 2 are referred to herein as the "Hornbaker 230 kV Line Loop." The Hornbaker 230 kV Line Loop and Hornbaker Switching Station are collectively referred to as the "Hornbaker 230 kV Line Loop Project" or the "Project."[4]

For this Project, the Company requested 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. As described above, the Project includes multiple new transmission corridors, each containing a new double circuit 230 kV transmission line, which will be constructed in new 100-foot-wide right-of-way for the overhead components and new 80-foot-wide right-of-way for underground component.

ERM reviewed multiple route options for the Project, identifying five routes that were deemed feasible for construction. The five routes identified for the Project can be combined into two electrical solutions that would serve the need for the Project, with each electrical solution including a group of three route alternatives. The table below identifies the routes included in each electrical solution.

Electrical Solution	Route	Summary
Solution 1 (Overhead)	Wellington – Pegasus Route 1	Overhead route from a cut-in on existing Lines #172/#2187, north of the existing Wellington Substation, to the proposed Pegasus Switching Station. [a]
	Pegasus – Hornbaker Route 1	Overhead route between the proposed Hornbaker Switching Station and the proposed Pegasus Switching Station. [a]

[3] Apparent power, measured in megavolt amperes ("MVA"), is made up of real power (megawatt or "MW") and reactive power (megavolt ampere reactive or "MVAR"). The power factor ("pf") is the ratio of real power to apparent power. For loads with a high pf (approaching unity), real power will approach apparent power and the two can be used interchangeably. Load loss criteria specify real power (MW) units because that represents the real power that will be dropped; however, MVA is used to describe the equipment ratings to handle the apparent power, which includes the real and reactive load components.

[4] The Project as proposed by the Company is identified as Solution 1B in Section II of the Appendix and in the Environmental Routing Study included with this Application.

Electrical Solution	Route	Summary
	Devlin – Pegasus Route 1 OR Devlin – Pegasus Route 2	Overhead route between the proposed Pegasus Switching Station and the proposed Devlin Switching Station. [a]
Solution 2 (Hybrid)	Hourglass – Hornbaker Route 1 (Hybrid)	Hybrid underground and overhead route between a cut in on Dominion's existing Line #2196, adjacent to the existing Hourglass Substation, and the proposed Hornbaker Switching Station.
	Pegasus – Hornbaker Route 1	Overhead route between the proposed Hornbaker Switching Station and the proposed Pegasus Switching Station. [a]
	Devlin – Pegasus Route 1 OR Devlin – Pegasus Route 2	Overhead route between the proposed Pegasus Switching Station and the proposed Devlin Switching Station. [a]

As outlined in the table above, both electrical solutions provide an alternative route option for one of the three route components of the Project, resulting in the following four solutions:

- Proposed Solution 1B – Comprises Wellington - Pegasus Route 1, Pegasus - Hornbaker Route 1, and Devlin - Pegasus Route 2.
- Alternative Solution 1A – Comprises Wellington - Pegasus Route 1, Pegasus - Hornbaker Route 1, and Devlin - Pegasus Route 1.
- Alternative Solution 2A – Comprises Hourglass - Hornbaker Route 1 (Hybrid), Pegasus - Hornbaker Route 1, and Devlin - Pegasus Route 1.
- Alternative Solution 2B – Comprises Hourglass - Hornbaker Route 1 (Hybrid), Pegasus - Hornbaker Route 1, and Devlin - Pegasus Route 2.

The viable routes that make up the various solutions for the Project, all of which the Company is proposing for State Corporation Commission ("Commission") consideration and notice, are described below:

Wellington - Pegasus Route 1: The Wellington – Pegasus Route 1 is an overhead route that taps Dominion existing Line #2187 approximately 0.2 mile north of the existing Wellington Substation. From the tap, the route extends southwest for approximately 0.2 mile, crossing an industrial yard, Thong Pan Road, and Wellington Road, as well as a forested parcel bounded by these roads. The route then turns west, paralleling the south side of Wellington Road for approximately 0.2 mile (including a crossing of Prince William Parkway). The route turns south paralleling the west side of Hornbaker Road for approximately 0.1 mile before crossing the road and terminating at the proposed Pegasus Switching Station.

Wellington – Pegasus Route 1 is approximately 0.6 mile long and requires approximately 7.2 acres of right-of-way. Existing land use along the route largely consists of a mix of forested and industrial lands and a small amount of residential development.

Pegasus - Hornbaker Route 1: Pegasus – Hornbaker Route 1 is an overhead route that begins at the proposed Pegasus Switching Station, extending southeast for approximately 0.1 mile and then turning southwest for approximately 0.7 mile. This segment crosses through forested land adjacent to industrial and commercial development and crosses University Boulevard. East of Industrial Court, the route turns generally southeast and collocates with the east side of the road for about 0.2 mile, crossing an industrial storage yard/parking lot. The route then turns south for about 0.1 mile, crossing Industrial Court and Industrial Road and another industrial storage yard, before turning southeast and paralleling the west side of Hawkins Drive for about 0.2 mile. At this point, the route turns east, crosses the most southern part of Hawkins Drive and an industrial storage yard for 0.1 mile. The route then turns north and then back east for 0.2 mile, following parcel lines. The Route then turns to the south-southeast for about 0.3 mile (collocated with the west side of Hornbaker Road) before terminating at the proposed Hornbaker Switching Station.

Pegasus – Hornbaker Route 1 is approximately 1.9 miles long and requires approximately 24.8 acres, including approximately 22.5 acres for transmission right-of-way and 2.3 acres for the proposed Hornbaker Switching Station. The Hornbaker Switching Station acreage is included in Pegasus – Hornbaker Route 1 throughout this routing study. Existing land use along the route is primarily industrial development with some forested land.

Hourglass - Hornbaker Route 1 (Hybrid): The Hourglass - Hornbaker Route 1 (Hybrid) is a combination of approximately 0.5 mile of overhead transmission with approximately 0.8 mile of underground transmission and includes an approximately 3.1-acre transition station. Hourglass - Hornbaker Route 1 (Hybrid) begins as an overhead line that taps the Company's existing Line #2196 just outside the Hourglass Switching Station. The route then extends approximately 0.4-mile northwest adjacent to an existing data center development. The route turns southwest for approximately 0.2 mile and enters the proposed transition station (currently an existing parking lot and adjacent forested area), where it transitions from overhead to an underground route. The route then continues out of the station to the southwest, including a trenchless crossing of Prince William Parkway. On the west side of the Parkway, the route turns west for approximately 0.2 mile through county-owned property, parallel to and south of Challenger Court and across Discovery Boulevard. West of Discovery Boulevard, the route turns west for approximately 0.4 mile through forested lands and an industrial parcel and crosses Hornbaker Road before terminating at the proposed Hornbaker Switching Station.

Hourglass - Hornbaker Route 1 (Hybrid) is approximately 1.3 miles long (0.5 mile overhead and 0.8 mile underground) and requires approximately 17.1 acres of right-of-way, including 14.0 acres of transmission right-of-way and 3.1 acres for the proposed

transition station. Existing land use along the route and transition station consists primarily of industrial development with a small amount of forested land.

Devlin - Pegasus Route 1: Starting at the proposed Devlin Switching Station, Devlin–Pegasus Route 1 is an overhead route that heads generally southeast for approximately 0.3 mile, crossing Hansen Farm Road and Balls Ford Road. The route turns east/southeast for 0.5 mile, following vegetated/forested parcel boundaries before angling slightly to the east to pass south of a data center building currently under construction. The route then turns northeast for 0.1 mile to cross Buckey Timber Drive and then heads southeast for 0.4 mile, passing between industrial buildings and crossing Virginia Meadows Drive and Dawkins Branch. The route then turns south, paralleling the east side of Dawkins Branch for approximately 0.2 mile before turning southeast for approximately 0.8 mile. This segment crosses Lexington Valley Drive and Sudley Manor Drive, passing between residential areas east of Lexington Valley Drive. After crossing an existing natural gas pipeline near MP 2.1, the route turns northeast for approximately 0.1 mile and then southeast for approximately 0.2 mile before terminating at the proposed Pegasus Switching Station.

Devlin – Pegasus Route 1 is approximately 2.4 miles long and requires approximately 28.6 acres of right-of-way. Existing current land use along the route largely consists of a mix of forested and industrial lands and a small amount of residential development.

Devlin - Pegasus Alternative Route 2: Devlin – Pegasus Route 2 is an overhead route that begins at the proposed Devlin Switching Station and follows the same alignment as Devlin – Pegasus Route 1 for the first 1.2 miles, diverging just east of Dawkins Branch. At this point, Devlin – Pegasus Route 2 turns north-northeast, passing through forested land and paralleling the west side of Dawkins Branch for approximately 0.2 mile before turning east for approximately 0.2 mile, collocating with the south side of Wellington Road. The route then crosses Lexington Valley Drive and continues southeast, paralleling the north side of Wellington Road for approximately 0.5 mile. Just before Sudley Manor Drive, the route turns southwest and crosses back over Wellington Road, paralleling the north side of Sudley Manor Drive for approximately 0.2 mile. At this point the route turns southeast and follows the same alignment as Devlin – Pegasus Route 1 for the remaining 0.6 mile to the proposed Pegasus Switching Station.

Devlin – Pegasus Route 2 is approximately 2.8 miles long and requires approximately 33.4 acres of right-of-way. Existing land use along the route largely consists of a mix of forested and industrial lands and a small amount of residential development.

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 the appropriate permits and will comply with any conditions set forth by the locality or take actions 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 (streams and open water features) 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"), Prince William County GIS Data Portal 2-foot contours, the United States Fish and Wildlife Service ("USFWS") National Wetland Inventory ("NWI") wetlands mapper, recent (2023) and historic digital aerial photography (National Agricultural Imagery Program, Virginia Geographic Information Network Most Recent Imagery, and Google Earth).

All route alternatives, with the exception of the Hourglass - Hornbaker Route 1 underground component, utilize an overhead configuration that would span waterbodies. The distance between transmission line structures proposed by Dominion Energy Virginia will be adequate to span the waterbodies identified along the route alternatives. Along the Hourglass - Hornbaker Route 1 underground component, one waterbody will be crossed. Tree clearing would be required within forested riparian areas at waterbody crossing locations. The removal of forested riparian areas adjacent to waterbodies will reduce riparian buffer functions such as stream bank stabilization, erosion control, nutrient and sediment filtration, floodwater storage, peak flow reduction, and water temperature changes due to loss of shading 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 and sediment control best management practices during construction.

According to U.S. Army Corps of Engineers ("Corps") Norfolk District documentation, no waters considered navigable under Section 10 of the Rivers and Harbors Act are crossed by the Proposed or Alternative Solutions for the Project. Waterbodies in the vicinity of the Project's routes, inclusive of the proposed substation footprints, are shown on Attachment 2 of the Wetland and Waterbody Desktop Summaries for the Project, which is included in Attachment 2.D.1. For waterbody acreage crossed, as identified in the Wetland and Waterbody Desktop Summary, see Table D-2 below.

Recent (2023) aerial imagery shows that one of the NHD-mapped intermittent streams near the footprint of the proposed Hornbaker Switching Station, which is relevant to each of the four solutions, was diverted around the footprint and only passes through the route rights-of-way; thus, there are no waterbodies within the proposed switching station footprint.[5]

Proposed Solution 1B

Based on ERM's desktop analysis, Proposed Solution 1B would cross 21 waterbodies. Of these, 18 are NHD-mapped waterbodies: three perennial streams (Dawkins Branch and two unnamed perennial streams), four lakes/ponds, and 11 unnamed, intermittent streams. ERM also identified three non-NHD mapped waterbodies using recent (2023) aerial imagery.[3]

Based on historic aerial imagery, an NHD-mapped intermittent stream crossed by the Pegasus - Hornbaker Route 1 component, where it collocates with Hawkins Drive, appears to be eliminated or diverted underground, therefore there is no above ground stream crossing in this location. Based on recent (2023) aerial imagery, the NHD-mapped intermittent stream and open waterbody feature within the footprint of the proposed Hornbaker Switching Station have been diverted around the switching station. There is no longer a PUB open waterbody feature, and the NHD stream crossing is now below-ground within the right-of-way. As a result, no waterbodies are within the proposed switching station footprint.

Alternative Solution 1A

Based on ERM's desktop analysis, Alternative Solution 1A would cross 20 waterbodies. Of these, 17 are NHD-mapped waterbodies: three perennial streams (Dawkins Branch and two unnamed perennial streams), four lakes/ponds, and 10 unnamed, intermittent streams. ERM also identified three non-NHD mapped waterbodies using recent (2023) aerial imagery.[3]As noted under Proposed Solution

[5] NAIP (National Agricultural Imagery Program). 2023. Aerial imagery flown over Prince William County, Virginia October 11, 2023. Accessed January 2025. https://naip-usdaonline.hub.arcgis.com/.

1B above, two of the NHD-mapped intermittent streams are no longer above ground and one PUB open water feature is no longer present.

Alternative Solution 2A

Based on ERM's desktop analysis, Alternative Solution 2A would cross 22 waterbodies. Of these, 19 are NHD-mapped waterbodies: three perennial streams (Dawkins Branch and two unnamed perennial streams), five lakes/ponds, and 11 unnamed, intermittent streams. ERM also identified three non-NHD mapped waterbodies using recent (2023) aerial imagery.[3]

As noted under Proposed Solution 1B above, two of the NHD-mapped intermittent streams are no longer above ground and one PUB open water feature is no longer present.

Alternative Solution 2B

Based on ERM's desktop analysis, Alternative Solution 2B would cross 23 waterbodies. Of these, 20 are NHD-mapped waterbodies: three perennial streams (Dawkins Branch and two unnamed perennial streams), five lakes/ponds, and 12 unnamed, intermittent streams. ERM also identified three non-NHD mapped waterbodies using recent (2023) aerial imagery.[3]

As noted under Proposed Solution 1B above, two of the NHD-mapped intermittent streams are no longer above ground and one PUB open water feature is no longer present.

During construction, proper drainage of waterbodies will be maintained 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 Virginia Marine Resources Commission (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's solutions, inclusive of the proposed Hornbaker Switching Station, 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 the 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, Prince William County 2-foot contours, National Agricultural Imagery Program Digital Ortho-Rectified Infrared Images dating from 2023, recent (2024) and historic digital aerial photography [National Agricultural Imagery Program, Virginia Geographic Information Network ("VGIN") Most Recent Imagery and Google Earth].

ERM did not field delineate wetlands along the Project's solutions. 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 solutions 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
Hornbaker 230 kV Line Loop and Hornbaker Switching Station Project
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

Table D-1 Hornbaker 230 kV Line Loop and Hornbaker Switching Station Project Wetland Probability Criteria	
Probability Class	**Criteria**
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 solution, 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.

As explained further below and in Attachment 2.D.1, the majority of wetlands crossed by the Project infrastructure are forested and emergent types and are generally concentrated around Dawkins Branch and its tributaries, Cannon Branch and its tributaries, and tributaries to Broad Run. Wetlands and waterbodies of medium or higher probability crossed by the Proposed and Alternative Solutions are summarized in Table D-2 and the sections below.

Table D-3 Hornbaker 230 kV Line Loop and Hornbaker Switching Station Project Desktop-Delineated Wetlands Crossed by Proposed and Alternative Solutions [a,b]				
Aquatic Resource Classification	**Proposed Solution 1B (acres)**	**Alternative Solution 1A (acres)**	**Alternative Solution 2A (acres)**	**Alternative Solution 2B (acres)**
Palustrine Forested (PFO)	4.4	5.0	5.7	5.0
Palustrine Scrub-shrub (PSS)	NA	NA	NA	NA
Palustrine Emergent (PEM)	0.6	0.6	0.6	0.6
Palustrine Unconsolidated Bottom (PUB)	0.8	1.1	1.1	0.8
Riverine (streams)	0.7	0.6	0.6	0.7
Total	**6.4**	**7.4**	**8.0**	**7.1**

a NA = Not applicable due to absence of a wetland type within the route alternative footprint.
b Wetland acreages have been rounded to the tenths place; as a result, the totals may not reflect the sum.

Proposed Solution 1B

Based on the wetland desktop delineation method described above, the Proposed Solution 1B right-of-way encompasses approximately 6.4 acres of wetlands and waterbodies, including 4.4 acres of palustrine forested ("PFO") wetlands, 0.6 acre of palustrine emergent ("PEM") wetlands, 0.8 acre of palustrine unconsolidated bottom ("PUB") open water features, and 0.7 acre of riverine (stream) features.

Alternative Solution 1A

Based on the wetland desktop delineation method described above, the Alternative Solution 1A right-of-way encompasses approximately 7.4 acres of wetlands and waterbodies, including 5.0 acres of PFO wetlands, 0.6 acre of PEM wetlands, 1.1 acres of PUB open water features, and 0.6 acre of riverine features.

Alternative Solution 2A

Based on the wetland desktop delineation method described above, the Alternative Solution 2A right-of-way encompasses approximately 8.0 acres of wetlands and waterbodies, including 5.7 acres of PFO wetlands, 0.6 acre of PEM wetlands, 1.1 acres of PUB open water features, and 0.6 acre of riverine features.

Alternative Solution 2B

Based on the wetland desktop delineation method described above, the Alternative Solution 2B right-of-way encompasses approximately 7.1 acres of wetlands and waterbodies, including 5.0 acres of PFO wetlands, 0.6 acre of PEM wetlands, 0.8 acre of PUB open water features, and 0.7 acre of riverine features.

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 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 Project. The Company will obtain any necessary permits, if impacts to jurisdictional resources are necessary for the construction of the Project. The Company has sited structures to avoid wetlands, streams, and open water to the extent practicable. If necessary, temporary impacts will be restored to pre-existing conditions, and permanent impacts will be permitted and

compensated for in accordance with all applicable federal, state, and local 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 # 51153C0087D, 51153C0091D, 51153C0089D, 51153C0093D, 51153C0094D, 51153C0157D, 51153C0156D, and 51153C0152D (effective dates 1/5/1995), 51059C0225E (effective date 9/17/2010), and 51061C0375D (effective date 4/25/2024), the Project study area contains flood zone hazard area Zone A, the 100-year flood zone, around tributaries to Broad Run and tributaries to Rocky Branch. The Project study area also contains flood zone hazard area Zone AE, a high-risk flood zone around Broad Run, Cannon Branch, Dawkins Branch Rocky Branch, and their tributaries. The Company will coordinate with the local floodplain coordinators as required.

F. Solid and Hazardous Waste

On behalf of the Company, 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"), 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.

Information from the EPA and DEQ databases within a 0.5-mile buffer of the edge of the rights-of-way of each solution is provided in Table F-1 below. The locations of the sites are depicted in Attachment 2.F.1.

TABLE F-1 Horn Hornbaker 230 kV Line Loop and Hornbaker Switching Station Project [a, b] Environmental Regulated Facilities and Hazardous Waste/Petroleum Release Sites within 0.5 Mile				
Site Type	Proposed Solution 1B	Alternative Solution 1A	Alternative Solution 2A	Alternative Solution 2B
Waste	34	33	29	29
Toxics	0	0	0	0
Land	21	21	28	28
Air	57	56	70	73
Water	69	64	79	78
Solid Waste Facilities	3	3	6	6
Petroleum Facilities	27	27	29	30
Petroleum Releases	21	21	18	19
Total	**221**	**224**	**252**	**262**

a 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.

b The Hornbaker Substation is included in the route analysis.

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 further evaluate the potential impact to the routes, ERM also assessed the sites within 1,000 feet of the edge of the rights-of-way of the solutions (Table F-2). The 1,000 foot buffer was used to account for discrepancies between the EPA and DEQ point data and the actual location of a hazardous waste and/or petroleum release site. Additional review of sites within 1,000 feet was completed to identify any sites whose actual location may be within 200 feet of any of the solutions, as those sites have a higher potential of contaminated media being encountered by the Project.

TABLE F-2 Hornbaker 230 kV Line Loop and Hornbaker Switching Station Project [a, b] Environmental Regulated Facilities and Hazardous Waste/Petroleum Release Sites within 1,000 Feet				
Site Type	Proposed Solution 1B	Alternative Solution 1A	Alternative Solution 2A	Alternative Solution 2B
Waste	16	14	13	14
Toxics	0	0	0	0
Land	11	9	11	13
Air	17	16	19	20
Water	36	36	38	40
Solid Waste Facilities	1	1	2	2
Petroleum Facilities	13	13	12	12
Petroleum Releases	11	10	10	11
Total	**106**	**100**	**106**	**113**

a 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.

b The Hornbaker Substation is included in the route analysis.

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)

Potential impacts of sites within 200 feet of any of the solutions are discussed below and in Table F-3.

EPA Regulated Sites

Based on the most recently available data in the EPA's "Cleanups in My Community" database, no Brownfield, Superfund or RCRA Corrective Action or Emergency Response sites are located within 0.5 mile of the rights-of-way of the solutions. DEQ

Regulated Sites

ERM reviewed DEQ Petroleum Release, Pollution Response Program (PREP) and Voluntary Remediation Program (VRP) databases to identify cases located on parcels within 200 feet of the edge of the rights-of-way. Six Petroleum Release sites and six PREP cases were identified on parcels within 200 feet of the edge of the rights-of-way. 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.

TABLE F-3
Hornbaker 230 kV Line Loop and Hornbaker Switching Station Project
Historic Contamination, Investigation, Cleanup and Corrective Action Cases Mapped on Parcels within 200 Feet of Solution Rights-of-Way

Site Name	Program ID Number	Site Address [1]	Most Proximate Solution	Distance from Route [2]	Gradient from Project [3]	Agency Status
DEQ Petroleum Release Cases						
Innovation (DC) PIP III LLLP Property	PC 20163116	9604 Hornbaker Rd, Prince William County, VA	All Solutions (Hornbaker Switching Station)	15 feet	Up-gradient	Closed (2016)
Iron Mountain Data Centers Virginia 4/5	PC 20243136	11600 Hayden Rd, Manassas, VA	Proposed Solution 1B and Alternative Solution 2B (D-P 2)	700 feet	Up-gradient	Closed (2024)
Quality Roofing Numbers and Acuity Audiovisual	PC 19983500 PC 20073038	11301 Industrial Rd Lot 7B, Manassas, VA	All Solutions (PH)	Route Overlaps Property	Side-gradient	Closed (2000 & 2006)
Rivers and Tucker Building Supply	PC 19920653	11304 Industrial Rd, Manassas, VA	All Solutions (PH)	185 feet	Down-gradient	Closed (1994)
Tarquin Lee Property and Industrial Court LLC	PC 20033126 PC 20233099	9251 Industrial Ct, Manassas, VA	All Solutions (PH)	585 feet 600 feet	Up and Side-gradient	Closed (2003 & 2023)

TABLE F-3
Hornbaker 230 kV Line Loop and Hornbaker Switching Station Project
Historic Contamination, Investigation, Cleanup and Corrective Action Cases Mapped on Parcels within 200 Feet of Solution Rights-of-Way

Site Name	Program ID Number	Site Address [1]	Most Proximate Solution	Distance from Route [2]	Gradient from Project [3]	Agency Status
VDOT – Finley Towing	PC 19954252	Wellington Rd and Bethlehem Rd, Gainsville, VA	Proposed Solution 1B and Alternative Solution 1A (WP)	100	Up-gradient	Closed (1995)
DEQ Pollution Response Program (PREP) Cases						
Alleged Illicit Discharge - Unknown RP	IR 309355, 309192	9261 Industrial Ct, Manassas, VA	All Solutions (PH)	185 feet	Up-gradient	Closed (2023)
Alleged Illicit Dumping - Muller Inc.	IR 304398	9460 Hawkins Dr, Manassas, VA	All Solutions (PH)	Route Overlaps Property	N/A	Closed (2022)
Asbestos Concern (Construction Site) - Unknown RP	IR 316551	13050 Hansen Farm Rd, Bristow, VA	Proposed Solution 1B and Alternative Solution 2B (D-P 2 and)	Route Overlaps Property	N/A	Closed (2024)
Diesel Spill - Iron Mountain Data Center	IR 305889	11680 Hayden Rd, Manassas, VA	Proposed Solution 1B and Alternative Solution 2B (D-P 2)	>1,000 feet	N/A	Closed (2022)
Diesel Spill – VA Sign & Lighting Co.	IR 295988, 295999	Wellington Rd and Hornbaker Rd, Manassas, VA	Proposed Solution 1B and Alternative Solution 1A (WP)	190	Down-gradient	Closed (2020)
Land Disturbance - Data Center Construction	IR 313444	Willington Rd and Sudley Manor Rd, Manassas, VA	Proposed Solution 1B and Alternative Solution 2B (D-P 2)	185	N/A	Closed (2024)

ID = Identification Number, PC = Pollution Complaint Number (DEQ Petroleum Release Program), IR = Incident Report Number (DEQ Pollution Response Program [PREP]), WP = Wellington-Pegasus Route 1, PH = Pegasus-Hornbaker Route 1, D-P2 = Devlin-Pegasus Route 2

[1] Site address was obtained from DEQ database records. The true location of a release may deviate from reference points and addresses. Refer to case summaries for descriptions of verified release locations.

[2] Distance from route is reported from the nearest point along the nearest right-of-way to the nearest case-file-verified point of the release. If case documents were not available, or if the release location is unknown, distance is reported to the nearest case file point, as mapped in the agency database.

[3] Estimated surface gradient based on available elevation data. Groundwater gradients may vary.

Innovation (DC) PIP III LLLP Property – PC 20163116

The Innovation (DC) PIP III LLLP Property petroleum release case is located at 9604 Hornbaker Rd, Prince William County, VA. The DEQ case point is mapped approximately 55 feet west of the Hornbaker Switching Station southwestern boundary. All solutions and the future Hornbaker Switching Station are anticipated to be located on a parcel adjacent to the release case parcel, which are both part of the same property.

Based upon a review of DEQ files, the petroleum release case was opened in 2015 after three buried drums filled with unknown liquid product were excavated from the banks of an onsite pond. Various metals were detected in the contents of the sampled drums above laboratory detection limits, and Methyl ethyl ketone (MEK) was detected in one drum at 1,460 micrograms per liter (µg/L), exceeding MEK's RCRA toxicity characteristic level of 200 µg/L. The drums were treated as toxic hazardous waste and removed from the site. Soil samples taken from the excavation detected benzene, toluene, ethylbenzene, and xylenes (BTEX) above action levels. 39 tons of contaminated soil was removed from the pond banks in 2016 for offsite disposal. During the operation, free product was observed at a depth of 4-5 feet below ground surface

(bgs) and was removed with the soil. Prior to backfilling, soil samples were taken from the floor and walls of the excavation, which returned residual concentrations of volatile organic compounds (VOCs), including acetone, ethylbenzene, isopropylbenzene, methylcyclohexane, methyl tert butyl ether (MBTE), tetrachloroethene, toluene and xylenes at levels above laboratory limits, but below DEQ Tier II Screening Concentrations for Residential use. The excavation was backfilled, and riprap was installed along the pond bank upon completion. The site was closed by the DEQ in 2016.

Based on case file maps and available aerial imagery, the pond and release location was located approximately 15 feet west of the Hornbaker Switching Station southwestern boundary, and 225 feet northwest of a future transmission line structure, and hydraulically up-gradient of the project area; however, the property was completely regraded between 2021 and 2023, and the pond has since been removed from the site. Due to the reported history at the site and aerial imagery evidence of additional soil disturbance since the time of the cleanup, it is not anticipated that contaminated soils and/or groundwater will be encountered during project activities. However, should contaminated media be encountered during construction, the Company will implement its standard response and reporting procedures.

Iron Mountain Data Centers Virginia 4/5 – PC 20243136

The Iron Mountain Data Centers Virginia 4/5 petroleum release case is located at 11600 Hayden Rd, Manassas, VA. The DEQ case point is mapped approximately 700 feet northeast of Proposed Solution 1B and Alternative Solution 2B (Devlin-Hornbaker Route 2). The solutions and associated transmission line structures are anticipated to be located within the parcel boundaries of the property on which this case point is located.

ERM, on behalf of the Company, requested case files from the DEQ for PC 20243136; however, no files were provided. Based on the DEQ Petroleum Release Database, the case was opened and closed in 2024. Information regarding the exact location of the petroleum release case or potential extent of contamination to soil and/or groundwater was not readily available. Based on the placement of the case point mapped by DEQ, the release location is estimated to be located hydraulically up-gradient of Proposed Solution 1B and Alternative Solution 2B; however, due to the distance from the nearest proposed transmission line structure from the property, it is not anticipated that contaminated soils and/or groundwater will be encountered during project activities.

Quality Roofing Numbers and Acuity Audiovisual – PC 2007 3038

The Quality Roofing Numbers and the Acuity Audiovisual petroleum release cases are both located at 11301 Industrial Rd Lot 7B, Manassas, VA. DEQ case points are mapped approximately 100 feet west of the right-of-way of all solutions (Pegasus-Hornbaker Route 1) along Industrial Road between Hawkins Drive and Contractors Court. The solutions and future transmission line structures are anticipated to be located within the case's property boundaries.

Based upon a review of DEQ files associated with the first release case (PC 19983500), a petroleum release was reported at the site in 1997 during the removal of a gasoline UST and a diesel UST. According to the 1997 Initial Abatement Measures Report, impacts to soils were reported at the bottom of the tank pit basin. The detected soil contaminant was total petroleum hydrocarbons (TPH; 3,000 milligrams per kilogram [mg/kg]) at a depth of approximately 8 feet bgs. Groundwater samples were not collected due to the absence of groundwater in the tank pit basin. Contaminated soil was excavated and removed from the site and the tank pit was backfilled. The case was closed by the DEQ in 2000.

A second petroleum release case (PC 20073038) was opened in 2006 during the removal of four USTs. According to the 2006 Initial Abatement Measures Report, impacts to soils were reported within the tank pit basin. The detected soil contaminant was total petroleum hydrocarbons – diesel range organics (TPH-DRO; 3,400 mg/kg) at a depth of 10.5 feet bgs. Groundwater samples were not collected due to the absence of groundwater in the tank pit basin. An onsite water supply well located 130 feet northeast of the petroleum release originally detected concentrations of xylenes (9.2 µg/L) below residential tap water screening levels (19.0 µg/L); however, upon further sampling, no detections of volatile organic compounds (VOCs) were reported. The site was closed by the DEQ in 2006.

Based on case file maps, the tank pits and release was located behind an on-site building, approximately 110 feet west of the right-of-way of all solutions (Pegasus-Hornbaker Route 1). The location of the onsite water supply well which had detected minor concentrations of xylenes in 2006, is located within the right-of-way, approximately 110 feet north of a proposed structure location. The release locations are estimated to be located hydraulically side-gradient of the project area. Due to the reported history at the site and length of time since the release, it is not anticipated that contaminated soils and/or groundwater will be encountered during project activities. However, should contaminated media be encountered during construction, the Company will implement its standard response and reporting procedures.

Rivers and Tucker Building Supply

The Rivers and Tucker Building Supply petroleum release case is located at 11304 Industrial Rd, Manassas, VA. DEQ case points are mapped approximately 185 feet west of the rights-of-way of all solutions (Pegasus-Hornbaker Route 1) along Industrial Court. The route is anticipated to cross the eastern corner of the property, and a proposed transmission line structure is anticipated to be located on the adjacent parcel at the corner of Industrial Court and Industrial Road.

Based upon a review of DEQ files, a petroleum release was reported at the site in 1991 following the removal of two underground storage tanks in 1990. Soil sampling detected TPH (115 mg/kg) within the tank basin. Additional information regarding the exact location of the petroleum release, potential impacts to groundwater, and remediation activities performed at the site were not readily available in DEQ files. The site was closed by the DEQ in 1994. Based on available topographic information, the

site is estimated to be hydraulically down-gradient of the route and proposed transmission line structure locations.

Due to the unknown extent of contamination and potential proximity to the Project, the site may have impacted soil and/or groundwater in the project area. However, due to the duration of time that has elapsed since the release, the DEQs site closure determination, and estimated hydraulic gradient between the case location and the nearest route components, there is a limited risk that contamination associated with this release could be encountered during the construction of the proposed Project. Should contaminated media be encountered during construction, the Company will implement its standard response and reporting procedures.

Tarquin Lee Property – PC 20033126 and Industrial Court LLC – PC 20233099

The Tarquin Lee Property and the Industrial Court LLC petroleum release cases are both located at 9251 Industrial Ct, Manassas, VA. DEQ case points are mapped approximately 455 feet west of the rights-of-way of all solutions (Pegasus-Hornbaker Route 1).

Based upon a review of DEQ files associated with the first release case (PC 20033126), a petroleum release was reported at the site in 2002 when a heating oil leak was detected from an onsite 10,000-gallon underground tank. Initial abatement soil samples detected TPH (340 mg/kg) and TPH-DRO (170 mg/kg), and all other screened contaminants were absent or blow detection limits. The tank was removed from the site and replaced with a new tank in 2003. During removal, no free product was observed, and limited quantities of impacted soil/gravel were recovered due to shallow bedrock at the tank location. The case was closed by the DEQ in 2003. Several underground storage tanks were noted to exist at the property; however, the tank associated with PC 20033126 was located behind the main onsite building near the southwestern property boundary, approximately 585 feet north of the nearest future transmission line structure in the right-of-way of Industrial Court.

A second petroleum release case (PC 20233099) was opened in 2023 during the detection of product loss at a dispenser island and tank field located at the northern corner of the property. At the time of detection, TPH was detected in soil samples at a maximum concentration of 2,830 mg/kg at approximately 6 feet bgs. Monitoring wells were installed in the vicinity of the tank field, which detected maximum TPH-DRO concentrations of 1,100 µg/L, and MBTE was detected at maximum concentrations of 0.64 µg/L and below residential groundwater screening levels. No free product was observed in wells. Depth to groundwater was reported to range between 4.75 and 10.04 feet bgs and flow to the south. A 12,000-gallon underground tank and associated dispenser infrastructure was removed from the site in 2023. Based on the conclusions of a 2023 Site Characterization Report, residual contaminated soils were left on site and buried during tank and dispenser pit backfilling. The case was closed by the DEQ in 2023. The tank associated with PC 20233099 was located approximately 600 feet east-northeast of the nearest proposed transmission line structure on the eastern property boundary.

The two known release case locations are both estimated to be up or side-gradient of the solutions. Based on the distance, reported extent of contamination, and anticipated excavation locations, it is unlikely that the two known releases have impacted soils and/or groundwater in the area of the solutions. Based on property records provided by the DEQ with case files, it appears that several underground storage tanks may still exist on site, and the predominant use of the site is industrial in nature. In addition, two PREP cases are associated with the property or the adjacent property that are reviewed below (refer to the *Alleged Illicit Discharge - Unknown RP – IR 309355 & 309192* section). As such, the potential exists to encounter previously unidentified contamination during project excavation within or on the property. Should contaminated media be encountered during construction, the Company will implement its standard response and reporting procedures.

VDOT – Finley Towing - PC 19954252

The DEQ case point for the VDOT – Finley Towing petroleum release case is mapped within the roadway of Wellington Road, and has a reference address at the intersection of Wellington Road and Bethlehem Road. The case point is mapped approximately 100 feet north and west of the rights-of-way of Proposed Solution 1B and Alternative Solution 1A (Wellington-Pegasus Route 1).

Based upon a review of DEQ files, a petroleum release was reported at the site in 1995 during the removal of an UST. Impacts to groundwater observed within the tank pit basin (approximately 7.5 feet bgs were reported. The detected groundwater contaminants included total petroleum hydrocarbons – gasoline range organics (TPH-GRO; 42.4 milligrams per liter [mg/L]), benzene (3.78 µg/L), toluene (6.70 µg/L), ethylbenzene (0.760 µg/L), and xylene (2.04 µg/L). Of these, only benzene exceeded its respective residential groundwater screening threshold (1.59 µg/L). Impacts to soil were not detected. Information regarding the exact location of the petroleum release was not readily available in DEQ files. The site was closed by the DEQ in 1995.

The site is estimated to be located hydraulically upgradient of the solutions. Due to the proximity to the project, hydraulic gradient and lack of information regarding exact location and cleanup, the site may have impacted soil and/or groundwater in the right-of-way for the solutions. Should contaminated media be encountered during construction, the Company will implement its standard response and reporting procedures.

Alleged Illicit Discharge - Unknown RP – IR 309355 & 309192

The Alleged Illicit Discharge - Unknown RP PREP cases are both located at 9261 Industrial Ct, Manassas, VA. DEQ case points are mapped approximately 185 feet north of the rights-of-way of all solutions (Pegasus-Hornbaker Route 1). The solution and future transmission line structures are anticipated to be located on the eastern property boundary, and along the Industrial Court Road right-of-way.

Based upon a review of DEQ files, both cases were reported to the DEQ via citizen complaints in 2022. Claims associated with IR309355 alleged that impacts include the potential stormwater runoff of petroleum-based fluids originating from cranes and 55-gallon drums stored on the property. Claims associated with IR309192 alleged that oil staining was observed near a construction site on or near the property. According to the 2022 Pollution Incident Summary Reports, the DEQ determined that no impacts to soil, groundwater, or stormwater had occurred from either PREP case during site investigations. The cases were closed by the DEQ in 2023.

Due to the reported site history, it is not anticipated that soil and/or groundwater were impacted by the cases in the rights-of-way for the solutions. Additional case reviews associated with this property and the adjacent property at 9251 Industrial Court are provided in the *Tarquin Lee Property – PC 20033126 and Industrial Court LLC – PC 20233099* section above. Should contaminated media be encountered during construction, the Company will implement its standard response and reporting procedures.

Alleged Illicit Dumping - Muller Inc. – IR 304398

The Alleged Illicit Dumping – Muller Inc. PREP case is located at 9460 Hawkins Dr, Manassas, VA. DEQ case points are mapped within the rights-of-way of all solutions (Pegasus-Hornbaker Route 1).

Based upon a review of DEQ files, the case was reported in 2022 via citizen complaint. Alleged actions included unauthorized disposal of petroleum and petroleum-contaminated materials to a concrete slab and drainageway. According to the 2022 Pollution Incident Summary Report, the DEQ conducted a site investigation and no evidence of the alleged action was detected. The DEQ verified with the site manager that petroleum impacted debris was not stored onsite. The site was closed by the DEQ in 2022.

Due to the reported case history, it not anticipated that soils and/or groundwater were impacted by the case in the right-of-way for the solutions. Should contaminated media be encountered during construction, the Company will implement its standard response and reporting procedures.

Asbestos Concern (Construction Site) - Unknown RP – IR 316551

The Asbestos Concern (Construction Site) - Unknown RP PREP case is located at 13050 Hansen Farm Rd, Bristow, VA. The DEQ case point is mapped approximately 575 feet west of the right-of-way of all solutions (the northern termini of Devlin-Pegasus Route 1 and 2).

Based upon a review of DEQ files, the case was reported in 2024 via citizen complaint. Alleged actions included the crushing of bedrock causing uncontrolled dust on a construction site that was suspected to contain asbestos. According to the 2024 Pollution Incident Summary Report, the DEQ does not monitor for naturally occurring atmospheric-borne asbestos, and the case was referred to the EPA, Virginia Department

of Emergency Management (VDEM) and the National Response Center (NRC). No additional information was available from the DEQ, and no other agency cases have been identified during this review.

Diesel Spill - Iron Mountain Data Center – IR 305889

The Diesel Spill - Iron Mountain Data Center case has a reference address at 11680 Hayden Rd, Manassas, VA. The DEQ case point is mapped within the property boundaries of 11600 Hayden Rd, Manassas, VA, which is associated with the previously reviewed Iron Mountain Data Centers Virginia 4/5 – PC 20243136 case. The case point is mapped approximately 500 feet northeast of the rights-of-way of Proposed Solution 1B and Alternative Solution 2B (Devlin-Pegasus Route 2); however, 11680 Hayden Road is located 1,600 feet northwest of this location. 11680 Hayden Road is associated with one additional PREP case (IR 305888), which is mapped on this property.

Based upon a review of DEQ files, the two cases are associated with a petroleum release of approximately 100 gallons of petroleum. According to the 2022 Spill Cleanup Report, the actual point of petroleum release occurred greater than 1,000 feet north of Proposed Solution 1B and Alternative Solution 2B (Devlin-Pegasus Route 2). The sites were closed by the DEQ in 2022. Due to the distance from the Project, it is not anticipated that soils and/or groundwater have been impacted by the case in the project area.

Diesel Spill – VA Sign & Lighting Co. - IR 295988 & 295999

The Diesel Spill – VA Sign & Lighting Co. PREP cases are mapped within the roadway of Wellington Road near the intersection with Hornbaker Road, approximately 190 feet west of the rights-of-way of Proposed Solution 1B and Alternative Solution 1A (Wellington-Pegasus Route 1).

Based upon a review of DEQ files, both cases were reported via citizen complaint in 2020, and are associated with one petroleum release incident involving a spill of approximately 10 gallons of diesel fuel to pavement. According to the 2020 Pollution Incident Summary Report, the spill potentially infiltrated a nearby storm drain. During a site investigation conducted by the DEQ, no signs of a petroleum sheen or odor were observed, and no impacts to soil, groundwater, or surface waters were suspected. The site was closed by the DEQ in 2020.

Based on the DEQ's investigation and the reported extent of the spill, it is not anticipated that soils and/or groundwater in the right-of-way for the solutions were impacted by the case. Should contaminated media be encountered during construction, the Company will implement its standard response and reporting procedures.

Land Disturbance - Data Center Construction – IR 313444

The Land Disturbance - Data Center Construction PREP site has a reference address at the intersection of Willington Road and Sudley Manor Road. The DEQ case point is mapped on the parcel northwest of this intersection, approximately 185 feet from the

rights-of-way of Proposed Solution 1B and Alternative Solution 2B (Devlin - Pegasus Route 2).

Based upon a review of DEQ files, the case was reported in 2024 via citizen complaint. Alleged actions included the illicit discharge of turbid water from a construction site. No contaminated media was reported by the DEQ in the 2024 Pollution Incident Summary Report and the case was closed in 2024. As no chemical contaminants are associated with the case, it is not anticipated that soils and/or groundwater has been impacted in the Project area.

Summary

The six petroleum release cases and six PREP cases identified for review have all been closed by the DEQ, which deems them no further risk to the general public. However, it was determined after review of available DEQ files that the Rivers and Trucker Building Supply (PC 19920653), Tarquin Lee Property (PC 20033126), the Industrial Court LLC (PC 20233099) and the VDOT – Finley Towing petroleum release case (PC 19954252) may have impacted soil and/or groundwater in the project area.

Although the Project is constructing overhead lines, minor subsurface work is required during installation at structure locations. All temporary spoils will be 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 federal, state, and local 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

Threatened and Endangered Species

On behalf of the Company, ERM conducted online database searches for threatened and endangered ("T&E") species within the study area and/or within a 2.0-mile radius of the study area of the Project. One online database search included the Virginia Department of Conservation and Recreation ("DCR") Natural Heritage Data Explorer ("NHDE"). The NHDE Screening Layer includes two components: Conservation Sites and Stream Conservation Sites (SCSs). 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 federal- and state-listed species that may occur within the study area and/or within a 2.0-mile radius of 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 USFWS uplisting of the Northern long-eared bat ("NLEB," *Myotis septentrionalis*) from federally threatened to federally endangered. On October 15, 2024, USFWS issued the NLEB Final Guidance for development projects. The USFWS Interim Guidance for the NLEB expired on November 30, 2024, and the Final Guidance for NLEB took effect.

The review also accounted for regulatory changes and requirements associated with Tricolored bat ("TCB," *Perimyotis subflavus*) and the proposed USFWS listing of this species as federally endangered. The Company is anticipating the TCB will be listed; therefore, it assumes any regulatory changes associated with the potential listing of the TCB will affect this Project. On September 14, 2022, the TCB was proposed to be listed as Endangered by the USFWS. USFWS extended its Final Rule issuance target from September 2023 to the end of 2024. At this time, the TCB Final Rule has not been issued.

In October 2024 USFWS issued a final NLEB and TCB Range-wide Determination Key ("Dkey") to allow project proponents to assess project impacts, practicable avoidance and minimization measures, and consultation requirements under the final NLEB guidance and the eventual TCB listing ahead of the final decision. The Company will utilize the DKey to further assess project impacts and determine appropriate avoidance and minimization measures to ensure compliance with state and federal regulations when the project enters permitting.

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 the CCB Virginia Eagle Nest Locator mapping portal, the study area is not located within an Eagle Concentration Area, and the Project's Proposed or Alternative Solutions, inclusive of the proposed substation, do not intersect any Primary (i.e., 330-feet) or Secondary (i.e., 660-feet) Buffers of currently documented Bald eagle nests as identified in The Bald Eagle Protection Guidelines for Virginia (2012). According to the CCB database, the eagle nest nearest to the Project (Nest ID PW1403) is approximately 0.8 mile south of Hourglass - Hornbaker Route 1 (Hybrid) and was last observed to be occupied in 2017. None of the route alternatives are within the 660-foot Secondary Buffer for the nest. The Company will work with the USFWS to minimize impacts on this species.

Based on queries of the above referenced sources, eight federal- and/or state-listed or proposed T&E species have the potential to occur within the Project study area (Table G-1). For additional information, see Section 5.4.3 of the Environmental Routing Study.

TABLE G-1
Hornbaker 230 kV Line Loop and Hornbaker Switching Station Project
Potential Federal-and State-Listed Species in the Project Area

Species	Status	Database	Habitat	Results
Northern long-eared bat (*Myotis septentrionalis*)	FE, ST	IPaC	Generally associated with old growth or late successional interior forests. Use partially dead or decaying trees 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	IPaC	Typically roost in trees near forest edges during summer. Hibernate deep in caves or mines in mountainous areas with warm, stable temperatures during winter.	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.
Brook floater (*Alasmidonta varicosa*)	SE	VaFWIS. NHDE	Clean and fast-flowing waters where substrate consists of gravel, rubble, and sand. Found buried in substrate in shallow riffle and shoal areas.	VaFWIS Search Report confirmed species presence within 2.0-mile radius of study area boundary, and the Project intersects Broad Run (T&E Waters and location of observance), but no instream work would be performed. Shading along streambanks could be reduced due to tree clearing, and indirect impacts are anticipated if streambank shade is significantly reduced.
Dwarf wedgemussel (*Alasmidonta heterodon*)	FE, SE	IPaC	Large rivers and small streams, often burrowed into clay banks among the root systems of trees; also associated with mixed substrates of cobble, gravel, and sand.	Species not confirmed as present, and no instream work would be performed. However, shading along streambanks could be reduced due to tree clearing. Indirect impacts are anticipated if streambank shade is significantly reduced.
Yellow lance *(Elliptio lanceolata)*	FT, ST	VaFWIS	Depend on clean, moderately flowing water with high dissolved oxygen and found in medium-sized rivers to smaller streams. Bury deep into coarse to medium sand substrate and sometimes gravel. Move with shifting sand and settles in downstream end of stable sand and gravel bars.	VaFWIS Search Report confirmed species presence within 2.0-mile radius of study area boundary, and the Project intersects tributaries of Broad Run (location of observance), but no instream work would be performed. Shading along streambanks could be reduced due to tree clearing, and indirect impacts are anticipated if streambank shade is significantly reduced.
Loggerhead shrike (*Lanius ludovicianus*)	ST	VaFWIS	Prefer grazed pastures for nesting purposes and shrub/open forest habitats during winters. For breeding season, the species prefer open country with shrubs, scrub, and scattered trees.	VaFWIS Search Report listed as potentially present. Impacts to grassland habitats will be minimal. No impacts are anticipated.

TABLE G-1 Hornbaker 230 kV Line Loop and Hornbaker Switching Station Project Potential Federal-and State-Listed Species in the Project Area				
Species	Status	Database	Habitat	Results
Wood turtle (*Glyptemys insculpta*)	ST	VaFWIS	Although highly terrestrial, must remain in a moist habitat. Primarily in or near clear streams or brooks in deciduous woodlands but also utilize woodland bogs and marshy fields. Hibernates in deep pools or mud/sand bottom waterways, also under submerged logs, beaver lodges, and muskrat burrows. In Virginia specifically, species found in floodplains of creeks and along trout streams.	VaFWIS Search Report listed as potentially present. No impacts are anticipated due to lack of suitable habitat due to development in the area.
Torrey's mountain-mint (*Pycnanthemum torreyi*)	ST	NHDE	Dry, rocky or sandy woodlands and clearings. Occurs on both extremely acidic and strongly basic substrates.	Species not confirmed as present, and potential habitat is likely not present.
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

Within the Project study area and/or within a 2.0-mile radius of the study area, database queries identified three federally listed species and one 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: Dwarf wedgemussel (*Alasmidonta heterodon*), Yellow lance (*Elliptio lanceolata*), TCB, and NLEB. The federal listing of the TCB has been proposed but it has not been officially listed. Brook floater (*Alasmidonta varicosa*), Loggerhead shrike (*Lanius ludovicianus*), Wood turtle (*Glyptemys insculpta*), and Torrey's mountain-mint (*Pycnanthemum torreyi*) are state-listed species, which are not federally listed. These species are identified as having the potential to occur within the study area and/or within a 2.0-mile radius of the study area.

All eight 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 and DCR data identified Yellow lance as a species that has been confirmed within a 2.0-mile radius around the study area. As mentioned in Table G-1, Broad Run is classified as T&E Waters for the Brook floater, meaning the waterbody contains documented occurrences of this state-listed species and its habitat. While no instream construction would be required for the Project, if shade is reduced along the streambanks due to right-of-way clearing, water temperatures may increase in the area adjacent to the tree-clearing, which could adversely impact the presence of the Yellow lance, Brook floater, and/or Dwarf wedgemussel. As the presence of Yellow lance and Brook floater have been confirmed within the study area, and Pegasus-

Hornbaker Route 1 and Devlin - Pegasus Routes 1 and 2 cross tributaries of Broad Run, the Company will coordinate with appropriate jurisdictional agencies to determine if surveys are warranted prior to construction.

Impacts to open areas that may provide habitat for the Loggerhead shrike would be limited to potential structure placement. Outside of structures, open space lands would continue to function as they had prior to construction; therefore, no impact is anticipated for the Loggerhead shrike.

Natural Heritage Resources

On behalf of the Company, ERM submitted the Project to the DCR-DNH for review. The DCR completed its review on September 29, 2024, as discussed in detail below (see Attachment 2.G.1). DCR-DNH concluded that the Project will not affect any documented state-listed insects and does not cross any State Natural Area Preserves under DCR's jurisdiction. However, according to a DCR-DNH biologist, "several rare plants [and one state-listed plant species, Torrey's mountain-mint], which are typically associated with prairie vegetation and inhabit semi-open diabase glades in Virginia," may occur at this location if suitable habitat is present. "Diabase glades are characterized by historically fire-dominated grassland vegetation on relatively nutrient-rich soils underlain by Triassic bedrock. Diabase flatrock, a hard, dark-colored volcanic rock, is found primarily in northern Virginia counties and is located within the geologic formation known as the Triassic Basin. Where the bedrock is exposed, a distinctive community type of drought-tolerant plants occurs. Diabase flatrocks are extremely rare natural communities that are threatened by activities such as quarrying and road construction (Rawinski, 1995)." See Attachment 2.G.1.

Due to the potential for the study area to support populations of natural heritage resources, DCR-DNH recommends an inventory for rare plants associated with diabase glades. 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 documented resources.

Diabase Glades

With regard to DCR-DNH's recommendation for an inventory for rare plants associated with diabase glades, the Company notes, for context, that diabase refers to unique plant communities that form in certain circumstances in the presence of underlying igneous diabase rock. Most diabase associated plant species, whose occurrence in Virginia is often associated with diabase derived soils, are not formally listed as endangered or threatened. One plant species having the potential to occur is Torrey's mountain-mint, which is listed as threatened in Virginia. Most of these plants (with the exception of Torrey's mountain-mint) and associated habitat, while considered rare by DCR-DNH, are not protected by any regulations.

Impacts to Diabase Flatrocks are primarily associated with quarrying and road construction, which have a very direct permanent impact on the habitats within a defined

Project area. Electric transmission lines, as proposed in the Application for this Project, typically do not have a significant permanent impact outside of structure foundation locations. Habitat conversion is possible but limited to conversion of forested habitat emergent/shrub habitat within the transmission line corridor. Clearing activities are limited to utilizing equipment on mats to minimize land disturbance, stumps are cut to within three inches of the ground surface and left in place. Overall, land disturbance and impacts to vegetation are limited. Upon completion of the transmission line installation, the rights-of-ways will be maintained as a natural emergent/scrub shrub habitat that resembles successional conditions that would allow for natural communities to exist within this converted habitat regime. The successional conditions created and maintained within transmission rights-of-ways- resemble semi-open habitat that mirror a natural disturbance regime. The permanent impacts associated with the proposed Project are discrete and limited to the structure foundation locations only.

Diabase communities are most likely to occur in semi-open areas that have a disturbance regime similar to that of pre-settlement wildfires, and that also have not been heavily infested by invasive plants. Areas that do not receive this type of intermediate disturbance (including areas that are subject to intense disturbance) typically do not provide high quality habitat for the diabase associated species.

Dominion Energy Virginia strives to be in compliance with local, state, and federal regulations. Rare species are not classified as endangered or threatened, as such, do not have regulatory requirements to complete inventory surveys. A requirement to inventory these resources prior to construction would result in significant delay to the construction schedule and increased project costs.

Due to the low likelihood of diabase plants in the Project area, and the lack of any legal status via federal or state law for the majority of these species, the Company has considered the DCR-DNH recommendations and concludes that DCR-DNH's recommendation for an inventory for rare plants associated with diabase glades in the Project area is not regulatorily required and therefore unnecessary. In lieu of conducting an inventory of these resources prior to construction, Dominion Energy Virginia suggests that it provide the Company's construction team with information about the rare diabase plant species and coordinate with DCR-DNH if a species of concern is observed.

Conservation Sites

In the review of the Project, DCR-DNH indicated that one conservation site is present within the study area – Vulcan Gainesville Tract Conservation Site.

Vulcan Gainesville Tract Conservation Site

The Vulcan Gainesville Tract Conservation Site consists of 460 acres of land with a B3 ranking, indicating a site of high significance. There is one T&E plant species and three rare plant species associated with the Vulcan Gainesville Tract Conservation Site, which include: Torrey's mountain-mint (state-listed), Earleaf

false foxglove (*Agalinis auriculata*), Hairy nutrush (*Scleria ciliata var. ciliata*), and Stiff goldenrod (*Solidago rigida var. rigida*).

None of the solutions cross the Vulcan Gainesville Tract Conservation Site. The nearest Project component to the site is the Devlin - Pegasus Route 1 and 2 northern termini (MP 0.0), located approximately 0.2 mile east of the conservation site, which encompasses all solutions. Based on the distance, the Project would have no impact on the Vulcan Gainesville Tract Conservation Site.

Stream Conservation Sites

DCR-DNH indicated that one SCS is present within the study area – Broad Run-Cannon Branch SCS. SCSs are given a biodiversity ranking on a scale of 1 through 5, with 1 being the most significant. This ranking is based on the rarity, quality, or number of natural heritage resources.

Broad Run-Cannon Branch SCS

The Broad Run-Cannon Branch SCS consists of approximately 1,849 acres of land with a B4 ranking, indicating a site of moderate significance. DCR-DNH identified the Brook floater as a species associated with the Broad Run-Cannon Branch SCS. This mussel species is state-listed as endangered and not federally listed.

All Solutions would cross the Broad Run-Cannon Branch SCS. Pegasus - Hornbaker Route 1 would cross the SCS between MPs 1.1 and 1.3 and between MPs 1.7 and 1.8, and Hourglass-Hornbaker Route 1 (Hybrid) would cross the SCS between MPs 1.2 and 1.3. Solutions 1A and 1B would cross approximately 6.0 acres of the SCS, and Solutions 2A and 2B would cross approximately 7.0 acres of the SCS. Aerial imagery indicates that the areas of the SCS that are crossed by the routes have been cleared and developed prior to this Project; therefore, no new impacts on the SCS are anticipated from the construction or operation of the Project.

Ecological Cores

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). Smaller areas of continuous interior cover (i.e., 10 to 99 acres), called habitat fragments, support ecological cores and provide similar functions and values. As part of its official review, DCR-DNH found that all solutions would intersect one ecological core with a ranking of C5 (Core ID 36865) with Devlin - Pegasus Routes 1 and 2. DCR-DNH found that the Wellington-Pegasus Route 1, Pegasus - Hornbaker Route 1, and Hourglass - Hornbaker Route 1 (Hybrid) would not intersect ecological cores.

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.

Per the recommendation of DCR[6] (see Attachment 2.G.1), no formal impact analysis is provided for the core ranked C5 that is crossed. Devlin - Pegasus Routes 1 and 2 follow the same alignment through the crossing of Core ID 36865, which is sparsely forested and was cleared between 2016 and 2017[7]. Both routes intersect the northern portion of the core for approximately 0.1 mile (1.0 acre). Significant impacts on the core are not anticipated due to recent clearing, sparse forest regrowth and future development of the area.

The Company will work with the appropriate jurisdictional agencies to minimize any impacts on Conservation Sites, SCSs, ecological cores, and protected species during implementation of the Project.

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.

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.

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.[8]

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

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6 Nicki Gustafson, DCR e-mail message to ERM, May 23, 2024.

7 Google LLC 2024. Google Earth Pro 7.3.6.9696 (64-bit). Accessed October 2024.

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

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. The Company is in coordination with DEQ to ensure coverage is maintained and will continue to operate under Standards & Specifications.

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 Solutions 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 March 13, 2025, is included as Attachment 2.I.1. For each solution, 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 VCRIS, ERM collected information on battlefields surveyed and assessed by the National Park Service's American Battlefield Protection Program ("ABPP") as well as reviewing information from the Prince William Historic Preservation Foundation (2023), Prince William County Historical Commission (2024), Prince William's Historic Landmarks (2025) and African-American History Trail (2025) to find locally significant resources within a 1.0-mile radius of each centerline (NPS 2023).

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 Solutions 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 Solutions, inclusive of the proposed Hornbaker Switching Station footprint, 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 Solutions 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.

Because portions of the solutions use common alignments, impacts on some resources would be identical regardless of the solution selected for 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 Solution 1B

Two aboveground historic resources were identified within the VDHR study tiers for the Proposed Solution 1B (Table I-1). Construction and operation of the new facilities along this solution would have No Impact on one resource (076-5036) and a Moderate Impact on the other resource (076-5190).

The Manassas Station Operations Battlefield (076-5036) represents tracts of land associated with the battles and operations of Bristoe Station, Kettle Run, Bull Run Bridge, and Union Mills, which all took place from August 25-27, 1862. It is located approximately 0.9 miles south of Pegasus - Hornbaker Route 1, at MP 1.8. Due to intervening distance and vegetation, there will be no view of the route from this resource. Thus, ERM recommends the Proposed Solution 1B would have no impact on this resource.

The Second Battle of Manassas (076-5190) is a 17,000-acre resource representing the site of the 1862 battle and its ancillary actions, including the approach and withdrawal of the armies before and after the battle. This resource is intersected by Wellington-Pegasus Route 1 between MP 0.0 to 0.5 and by the Devlin-Pegasus Route 2 between MP 0 to 0.2, MP 0.4 to 2.5, and between MP 2.6 to 2.7. This resource is also located approximately 586 feet to the north of MP 0.0 for the Pegasus - Hornbaker Route 1. The new transmission line would add additional modern infrastructure to the viewshed. Although the resource has already been altered, Proposed Solution 1B would add more modern elements within the boundaries of the resource's southern portion. However, the new transmission line will not cause any further disruption to this expansive resource's 17,000 acres. Thus, ERM recommends the Proposed Solution 1B would have a moderate impact on this resource.

TABLE I-1
Hornbaker 230 kV Line Loop and Hornbaker Switching Station Project
Resources in VDHR Tiers for the Proposed Solution 1B

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/Historic Landscapes	076-5036	Manassas Station Operations Battlefield	No Impact
	Locally Significant	NA	NA	NA
0.0- 0.5	National Register—Eligible	NA	NA	NA
	Locally Significant	NA	NA	NA
0.0 (within right-of-way)	National Register—Eligible	NA	NA	NA
	Battlefields/Historic Landscapes	076-5190	Second Battle of Manassas	Moderate

The Stage I Analysis also considered the potential effects to archaeological resources. four previously recorded archaeological site are crossed by Proposed Solution 1B. Site 44PW1221, crossed by Pegasus - Hornbaker Route 1, is an unknown prehistoric lithic workshop site that is currently unevaluated. Review of aerial photography, however, indicates the site area was cleared for use as a contractor yard and for data center construction sometime between 2019 and 2021 and continues to be used as such. Due to the extensive disturbance to the site area as documented in aerial photography, it is likely the site has been destroyed.

Three previously recorded archaeological sites are crossed by Devlin - Pegasus Route 2 (44PW1454, 44PW1455, and 44PW1456). Site 44PW1454 is a multi-component site consisting of an unknown prehistoric lithic scatter and historic (late nineteenth to mid-twentieth century) trash scatter. The previous survey and observations of aerial photography suggest the site may be destroyed. Site 44PW1455 is a historic (twentieth

century) trash scatter. The previous survey and observations of aerial photography suggest may be destroyed. Site 44PW1456 is a historic (nineteenth and twentieth century) trash scatter. The previous survey and observations of aerial photography suggest may be destroyed. All three sites are currently unevaluated.

Alternative Solution 1A

Two aboveground historic resources were identified within the VDHR study tiers for Alternative Solution 1A (Table I-2). Construction and operation of the new facilities along this solution would have No Impact on one resource (076-5036) and a Moderate Impact on the other resource (076-5190).

The Manassas Station Operations Battlefield (076-5036) is located approximately 0.9 miles south of Pegasus - Hornbaker Route 1 at MP 1.8. See Proposed Solution 1B for resource description. Due to intervening distance and vegetation, there will be no view of the route from this resource. Thus, ERM recommends the Alternative Solution 1A would have no impact on this resource.

The Second Battle of Manassas (076-5190) is intersected by Wellington-Pegasus Route 1 between MP 0.0 to 0.5 and by Devlin-Pegasus Route 1 between MP 0 to 0.2 and MP 0.4 to 2.4. This resource is also located approximately 586 feet north of Pegasus Hornbaker Route 1, at MP 0.0. The new transmission line would add additional modern infrastructure to the viewshed. Although the resource has already been altered, Alternative Solution 1A would add more modern elements within the boundaries of the resource's southern portion. However, the new transmission line will not cause any further disruption to his expansive resource's 17,000 acres. Furthermore, the location of the route is not within an area of the battlefield in which major action took place. Thus, ERM recommends Alternative Solution 1A would have a moderate impact on this resource.

TABLE I-2
Hornbaker 230 kV Line Loop and Hornbaker Switching Station Project
Resources in VDHR Tiers for the Alternative Solution 1A

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/Historic Landscapes	076-5036	Manassas Station Operations Battlefield	No Impact
	Locally Significant	NA	NA	NA
0.0- 0.5	National Register—Eligible	NA	NA	NA
	Locally Significant	NA	NA	NA
0.0 (within	National Register—Eligible	NA	NA	NA

TABLE I-2 Hornbaker 230 kV Line Loop and Hornbaker Switching Station Project Resources in VDHR Tiers for the Alternative Solution 1A				
Buffer (miles)	**Considered Resources**	**VDHR #**	**Description**	**Impact**
right-of-way)	Battlefields/Historic Landscapes	076-5190	Second Battle of Manassas	Moderate

The Stage I Analysis also considered the potential effects to archaeological resources. One previously recorded archaeological site is crossed by Alternative Solution 1A, Pegasus - Hornbaker Route 1 (44PW1221). See Proposed Solution 1B for site description.

Alternative Solution 2A

Five aboveground historic resources were identified within the VDHR study tiers for the Alternative Solution 2A (Table I-3). Construction and operation of the new facilities along this solution would have no impact on four resources (076-0285, 076-5036, 076-5335, and 155-5020) and moderate impact on one resource (076-5190).

Thomasson Barn (076-0285) is a circa 1929 Dairy Barn which is the sole remaining structure on this historic 6-acre plot which was cleared for development in 2002. It is located approximately 0.3 mile to the south-southeast of Hourglass - Hornbaker Route 1 (Hybrid), at MP 0.8. Due to the change in elevation, intervening distance, existing development, and existing vegetation, there will be no view of the route from this resource. Thus, ERM recommends Alternative Solution 2A would have no impact on this resource.

The Manassas Station Operations Battlefield (076-5036) is located approximately 0.4 mile southeast of Hourglass - Hornbaker Route 1 (Hybrid), at MP 0.0, and approximately 0.9 mile south of Pegasus - Hornbaker Route 1, at MP 1.8. See Proposed Solution 1B for resource description. Due to intervening distance, existing development, and existing vegetation, there will be no view of the route from this resource. Thus, ERM recommends Alternative Solution 2A would have no impact on this resource.

The Second Battle of Manassas (076-5190) is located approximately 0.6 mile to the northeast of Hourglass - Hornbaker Route 1 (Hybrid), at MP 0.4, and approximately 586 feet to the north of Pegasus - Hornbaker Route 1, at MP 0.0. See Proposed Solution 1B for resource description. Due to the location of the route within an area already heavily altered by development, the new transmission line would not engender a significant change to the setting of this expansive resource's 17,000 acres. Furthermore, the location of the proposed route is not within an area of the battlefield in which major action took place. Thus, ERM recommends Alternative Solution 2A would have no impact on this resource.

The First Battle of Manassas (076-5335) consists of over 18,000 acres which encompasses land which was part of the first major engagement of the Civil War which was fought July 21, 1861. The closest boundary of the resource is located 0.9 mile to northeast of Hourglass - Hornbaker Route 1 (Hybrid), at MP 0.1. Due to intervening distance, existing development, and existing vegetation, there will be no view of the route from this resource. Thus, ERM recommends Alternative Solution 2A would have no impact on this resource.

Cannon Branch Fort (155-5020) is a Civil War-era fortification located adjacent to the former Alexandria and Orange Railroad between Manassas and Bristoe, south of the intersection of Route 234 (Prince William Parkway) and Route 28 (Nokesville Road). It occupies an 11-acre wooded parcel bounded by the railroad (now the Norfolk Southern) on the south, Gateway Boulevard on the north and east, and Route 234 on the west. It is situated 0.8 mile south-southeast of Hourglass - Hornbaker Route 1 (Hybrid), at MP 0.7. There would be no view to the proposed route due to the intervening distance and vegetation. Thus, ERM recommends Alternative Solution 2A would have no impact on this resource.

TABLE I-3
Hornbaker 230 kV Line Loop and Hornbaker Switching Station Project
Resources in VDHR Tiers for the Alternative Solution 2A

Buffer (miles)	Considered Resources	VDHR #	Description	Impact
1.0-1.5	National Historic Landmarks	NA	NA	NA
0.5-1.0	National Register—Listed	155-5020	Cannon Branch Fort	No Impact
	Battlefields/Historic Landscapes	076-5335	First Battle of Manassas	No Impact
	Locally Significant	NA	NA	NA
0.0- 0.5	National Register—Eligible	076-0285	Thomasson Barn	No Impact
	Battlefields/Historic Landscapes	076-5036	Manassas Station Operations Battlefield	No Impact
		076-5190	Second Battle of Manassas	Moderate
	Locally Significant	NA	NA	NA
0.0 (within right-of-way)	National Register—Eligible	NA	NA	NA

The Stage I Analysis also considered the potential effects to archaeological resources. Two previously recorded archaeological sites are crossed by Alternative Solution 2A (44PW1208 and 44PW1221). Site 44PW1208, crossed by Hourglass - Hornbaker Route 1 (Hybrid), is an unknown prehistoric lithic workshop site that is currently unevaluated. Based on review of aerial photography, the site is beneath and likely was destroyed by

construction of a data center facility. Site 44PW1221 is crossed by Pegasus - Hornbaker Route 1, see Proposed Solution 1B for site description.

Alternative Solution 2B

Five aboveground historic resources were identified within the VDHR study tiers for the Alternative Solution 2B (Table I-4). Construction and operation of the new facilities along this solution would have no impact on four resources (076-0285, 076-5036, 076-5335, and 155-5020) and moderate impact on the remaining resource (076-5190).

Thomasson Barn (076-0285) is located approximately 0.3 miles to the south-southeast of Hourglass - Hornbaker Route 1 (Hybrid), at MP 0.8. The First Battle of Manassas (076-5335) is located 0.9 mile northeast of Hourglass - Hornbaker Route 1 (Hybrid), at MP 0.1. Cannon Branch Fort (155-5020) is located 0.8 mile south-southeast of Hourglass - Hornbaker Route 1 (Hybrid), at MP 0.7. See Alternative Solution 2A for resource descriptions. Due to intervening distance and existing vegetation, there will be no view of the route from these resources. Thus, ERM recommends the Alternative Solution 2B would have no impact on these resources.

The Manassas Station Operations Battlefield (076-5036) is located approximately 0.4 miles southeast of Hourglass - Hornbaker Route 1 (Hybrid), at MP 0.0 and approximately 0.9 miles south of Pegasus - Hornbaker Route 1, at MP 1.8. See Proposed Solution 1B for resource description. Due to intervening distance and vegetation, there will be no view of the route from this resource. Thus, ERM recommends Alternative Solution 2B would have no impact on this resource.

The Second Battle of Manassas (076-5190) is located approximately 0.6 mile to the northeast of Hourglass - Hornbaker Route 1 (Hybrid), at MP 0.4, approximately 586 feet to the north of Pegasus - Hornbaker Route 1, at MP 0.0 and is intersected by Devlin - Pegasus Route 2 between MP 0 to 0.2, MP 0.4 to 2.5, and between MP 2.6 to 2.7. The new transmission line would add additional modern infrastructure to the viewshed. Although the resource has already been altered, Alternative Solution 2B would add more modern elements within the boundaries of the resource's southern portion. However, the new transmission line will not cause any further disruption to this expansive resource's 17,000 acres. Thus, ERM recommends Alternative Solution 2B would have a moderate impact on this resource.

TABLE I-4
Hornbaker 230 kV Line Loop and Hornbaker Switching Station Project
Resources in VDHR Tiers for the Alternative Solution 2B

Buffer (miles)	Considered Resources	VDHR #	Description	Impact
1.0-1.5	National Historic Landmarks	NA	NA	NA
0.5-1.0	National Register—Listed	155-5020	Cannon Branch Fort	No Impact

TABLE I-4 Hornbaker 230 kV Line Loop and Hornbaker Switching Station Project Resources in VDHR Tiers for the Alternative Solution 2B				
Buffer (miles)	**Considered Resources**	**VDHR #**	**Description**	**Impact**
	Battlefields/Historic Landscapes	076-5335	First Battle of Manassas	No Impact
	Locally Significant	NA	NA	NA
0.0- 0.5	National Register—Eligible	076-0285	Thomasson Barn	No Impact
	Battlefields/Historic Landscapes	076-5036	Manassas Station Operations Battlefield	No Impact
		076-5190	Second Battle of Manassas	Moderate
	Locally Significant	NA	NA	NA
0.0 (within right-of-way)	National Register—Eligible	NA	NA	NA

The Stage I Analysis also considered the potential effects to archaeological resources. Five previously recorded archaeological sites are crossed by Alternative Solution 2B. One previously recorded archaeological site (44PW1208) is crossed by Hourglass - Hornbaker Route 1 (Hybrid). See Alternative Solution 2A for site descriptions. One previously recorded archaeological site (44PW1221) is crossed by Pegasus-Hornbaker Route 1. See Proposed Solution 1B for site descriptions. Three previously recorded archaeological sites (44PW1454, 44PW1455, and 44PW1456) are crossed by Devlin - Pegasus Route 2. See Proposed Route 1A for site descriptions.

J. Chesapeake Bay Preservation Areas

Prince William County is a locality subject to the Chesapeake Bay Preservation Act ("CBPA"), which regulates development of lands that could impact water quality in the Chesapeake Bay and its tributaries. Prince William County has adopted the Chesapeake Bay Preservation Ordinance and has designated environmentally sensitive areas as Resource Protection Areas ("RPAs"), including tidal wetlands, tidal shores, perennially flowing streams, non-tidal wetlands connected by surface flow and contiguous to tidal wetlands or perennial waterbodies, and buffer areas that include land within a major floodplain, and a 100-foot buffer around any of these features. As such, Prince William County designated RPAs are located around perennial waterbodies and associated wetland areas (including Dawkins Branch and several unnamed, intermittent tributaries to Broad Run) along Pegasus - Hornbaker Route 1 and Devlin - Pegasus Routes 1 and 2. Solutions 1A and 2A would cross approximately 4.6 acres of RPA land, and Solutions 1B and 2B would cross approximately 5.6 acres of RPA land.

Construction, installation, operation, and maintenance of electric transmission lines are conditionally exempt from the CPBA 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 land, agricultural land, open space, wetlands, and open water features within the study area may provide wildlife habitat. Forested areas within the Proposed or Alternative Solutions rights-of-way would be cleared of trees and converted to maintained herbaceous vegetation, which would eliminate forest habitat and cover but may provide edge habitat or open space for other species. Waterbody habitat crossed by the Proposed and Alternative Solutions would be spanned by the transmission line, with impacts to aquatic species limited to any temporary construction impacts associated with forested 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 open space would be limited to structure placement if required and vegetation maintenance; the function of the land use would otherwise remain the same. No agricultural land would be crossed by the alternative routes. The VGIN statewide land cover dataset (2024) was utilized to quantify land cover classifications impacted by each route alternative. Desktop-delineated wetlands and waterbodies and the methodology for delineation are discussed further in Section D.

Proposed Solution 1B

The majority of the Proposed Solution 1B footprint would cross developed land (22.9 acres), with smaller amounts of forested land (21.9 acres), open space (20.6 acres), and no open water. Proposed Solution 1B would cross 6.4 acres of wetlands, 18 NHD-mapped waterbodies, and three non-NHD mapped waterbodies.

Alternative Solution 1A

The majority of the Alternative Solution 1A footprint would cross developed land (21.1 acres), with smaller amounts of forested land (19.4 acres), open space (19.7 acres), and open water (0.4 acre). Alternative Solution 1A would cross 7.4 acres of wetlands, 17 NHD-mapped waterbodies, and three non-NHD mapped waterbodies.

Alternative Solution 2A

The majority of the Alternative Solution 2A footprint would cross developed land (30.9 acres), with smaller amounts of forested land (19.1 acres), open space (19.9 acres), and open water (0.4 acre). Alternative Solution 2A would cross 8.0 acres of wetlands, 19 NHD-mapped waterbodies, and three non-NHD mapped waterbodies.

Alternative Solution 2B

The majority of the Alternative Solution 2B footprint would cross developed land (32.7 acres), with smaller amounts of forested land (21.6 acres), open space (20.8

acres), and no open water. Alternative Solution 2B would cross 7.1 acres of wetlands, 20 NHD-mapped waterbodies, and four non-NHD mapped waterbodies.

L. Recreation, Agricultural, and Forest Resources

The Project is expected to have minimal incremental impacts on recreational and forest resources and no impacts to agricultural resources. Opportunities for collocation with other rights-of-way, particularly existing highways and roads such Prince William Parkway, Hornbaker Road, Wellington Road, Sudley Manor Drive, University Boulevard, Godwin Drive, Hawkins Drive, and Nokesville Road were considered where possible as a means of avoiding or minimizing impacts on resources. Where the solutions cross open space, impacts would be limited to structure placement. 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 ("AFD") 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"), the Solutions do not cross AFD lands.

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. There are no designated Virginia Scenic Rivers within the Project study area.

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"), Pegasus - Hornbaker Route 1, which is a segment of each solution, is the only route segment that is less than 0.25 mile from an identified conservation easement. Pegasus - Hornbaker Route 1 would be north and west of the permanent conservation area identified by the deed of easement and vacation in Instrument Number 202012090118633 and Instrument Number 202012090118634. Pegasus - Hornbaker Route 1 does not cross the permanent conservation area; therefore, no impacts to existing vegetation or the intent of the conservation area are anticipated. No other route segments are within 0.25 mile of other identified conservation easements; therefore, there would be no direct or indirect impacts on any conservation easements. The Company understands that properties are placed under easements throughout the year, and that additional easements could be identified in the study area as the Project moves forward. The Company will continue to consult with the various land managing entities and conservation agencies for the study area regarding potential new easements along the routes.

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 solutions run parallel to or cross any Virginia Byways or Virginia Birding and Wildlife Trails. Forest resources and farmland soils identified within 0.25 mile of the Proposed and Alternative Solutions are discussed below. Table L-1 summarizes recreational resources within 0.25 mile of the Project components. An assessment of impacts on these resources is provided in the Environmental Routing Study.

Table L-1 Hornbaker 230 kV Line Loop and Hornbaker Switching Station Project Recreational Resources within 0.25 mile of the Project Component			
Recreational Resource	**Recreational Type and Description**	**Status**	**Distance to Project Facilities**
Broad Run Linear Park	Approximately 70-acre public park along Broad Run between Linton Hall Road and Hornbaker Road with six miles of natural surface trails. This park is part of the planned Broad Run Greenway.	Active	• Approximately 0.2 mile south of all Solutions (proposed Hornbaker Switching Station).
Broad Run Greenway	Planned 17-mile trail connecting several parks throughout the county, to provide scenic, protected routes for cyclists and pedestrians. Six miles of the 17-mile trail associated with Broad Run Linear Park are currently active.	Planned	• Approximately 0.2 mile south of all Solutions (proposed Hornbaker Switching Station).
Dawkins Branch Trail Linear Park	Planned 1.6-mile multi-surface trail from Wellington Road to just south of Sudley Manor Drive, terminating near Victory Elementary School.	Planned	• Crossed by Solutions 1A and 2A (Devlin-Pegasus Route 1 between MPs 1.1 and 1.2) • Crossed by Solutions 1B and 2B (Devlin-Pegasus Route 2 between MPs 1.1 and 1.2).
Devlin Road shared use path	A 1.1-mile mixed-use asphalt trail along Devlin Road south of Wellington Road to University Boulevard.	Active	• Crossed by Solutions 1A and 2A (Devlin-Pegasus Route 1 between MPs 0.2 and 0.3). • Crossed by Solutions 1B and 2B (Devlin-Pegasus Route 2 between MPs 0.2 and 0.3).
Hornbaker Road shared use path	Planned 2.1-mile asphalt mixed-use trail along Hornbaker Road from Wellington Road to Rt. 28. A portion of the path south of Discovery Boulevard is complete.	Active & Planned	• Adjacent to the western side of Solutions 1A and 1B (Wellington-Pegasus Route 1 between MPs 0.4 and 0.6). • Adjacent to the eastern side of all Solutions (Pegasus-Hornbaker Route 1 between MPs 1.5 and 1.7). • Crossed by Solutions 2A and 2B (Hourglass-Hornbaker Route 1 (Hybrid) between MPs 1.1 and 1.2).
Independence Community Center	Community Center with a pool, playground, and outdoor basketball court in the Independence planned community, for use by landowners.	Active	• Approximately 600 feet south of Solutions 1A and 2A (Devlin-Pegasus Route 1 at approximately MP 1.6).
Industrial Road paved shoulder	Paved shoulder for on-road cycling and other recreational use along 0.6 mile of Industrial Road, west of Hornbaker Road and east of Pump Station Way.	Planned	• Crossed by Solutions 1A, 1B, 2A, and 2B (Pegasus-Hornbaker Route 1 between MPs 1.0 and 1.1).

Table L-1 Hornbaker 230 kV Line Loop and Hornbaker Switching Station Project Recreational Resources within 0.25 mile of the Project Component			
Recreational Resource	**Recreational Type and Description**	**Status**	**Distance to Project Facilities**
Innovation Park Recreational Trail	Planned multi-surface trail network associated with the Innovation Park development (see Section 5.1.5) south of University Boulevard, west of Discovery Boulevard, and north of Rt. 28.	Planned	• Crossed by all Solutions (Pegasus-Hornbaker Route 1 between MPs 1.7 and 1.8). • Crossed by Solutions 2A and 2B (Hourglass-Hornbaker Route 1 (Hybrid) between MPs 0.9 and 1.0).
Katherine Johnson Avenue Bicycle Lanes	Planned 0.9 mile of on-road bicycle lanes through the center of Innovation Park.	Planned	• Less than 0.1 mile east of Solutions 1A and 1B (Wellington-Pegasus Route 1 at approximately MP 0.2).
Prince William Parkway shared use path	Planned mixed-use trail on the eastern side of Prince William Parkway from Balls Ford Road to 0.5 mile south of University Boulevard.	Planned	• Crossed by Solutions 1A and 1B (Wellington-Pegasus Route 1 at approximately MP 0.3).
Sudley Manor Drive shared use path	4.4-mile mixed-use trail along Sudley Manor Drive from Chatsworth Drive to Vint Hill Road.	Active	• Crossed by Solutions 1A and 2A (Devlin-Pegasus Route 1 at approximately MP 1.9). • Crossed by Solutions 1B and 2B (Devlin-Pegasus Route 2 at approximately MP 1.9). • Approximately 0.2 mile north of Solutions 1A and 1B (Wellington-Pegasus Route 1 at approximately MP 0.0).
The Regency Apartments Connector Park Recreational Trail	Planned recreational trail 0.3 mile west of Hornbaker Road and east of Broad Run Linear Park, providing access to the Broad Run Linear Park and Greenway network from the Regency Apartment Complex.	Planned	• Approximately 0.2 mile south of all Solutions (Pegasus-Hornbaker Route 1 between MPs 1.7 and the terminating point and the proposed Hornbaker Switching Station).
Thomasson Barn Road shared use path	Planned 0.3-mile mixed-use asphalt path along Discovery Boulevard.	Planned	• Approximately 0.1 mile south of Solutions 2A and 2B (Hourglass-Hornbaker Route 1 (Hybrid) at approximately MP 0.9).
University Boulevard shared use path	1.0-mile mixed-use path along University Boulevard between Sudley Manor Drive and Hornbaker Road.	Active	• Crossed by all Solutions (Pegasus-Hornbaker Route 1 between MPs 0.5 and 0.6).
Wellington Road shared use path	Planned asphalt mixed-use path along Wellington Road, including 3.1 miles through the study area.	Planned	• Adjacent to the western side of Solutions 1A and 1B (Wellington-Pegasus Route 1 between MP 0.2 and 0.4). • Crossed by Solutions 1B and 2B (Devlin-Pegasus Route 2 twice from MP 1.6 to MP 1.7 and from MP 2.1 to 2.2.).

Proposed Solution 1B

Proposed Solution 1B crosses approximately 21.9 acres of forested land (32% of the total right-of-way) and no agricultural land. NRCS soils data indicates approximately 21.2 acres within the right-of-way are classified as prime farmland and 7.8 acres are classified as farmland of statewide importance.

Alternative Solution 1A

Alternative Solution 1A crosses approximately 19.4 acres of forested land (30% of the total right-of-way) and no agricultural land. NRCS soils data indicates approximately 21.1 acres within the right-of-way are classified as prime farmland and 8.2 acres are classified as farmland of statewide importance.

Alternative Solution 2A

Alternative Solution 2A crosses approximately 19.1 acres of forested land (27% of the total right-of-way) and no agricultural land. NRCS soils data indicates approximately 31.7 acres within the right-of-way are classified as prime farmland and 8.2 acres are classified as farmland of statewide importance.

Alternative Solution 2B

Alternative Solution 2B crosses approximately 21.6 acres of forested land (29% of the total right-of-way) and no agricultural land. NRCS soils data indicates approximately 31.8 acres within the right-of-way are classified as prime farmland and 7.8 acres are classified as farmland of statewide importance.

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. DCR provided an initial response to the addendum in January 2024. The Company is in the process of ongoing coordination with DCR-DNH pertaining to the Company's IVMP with a meeting held on November 11, 2024. The Company is continuing to coordinate with DCR with the commitment to schedule additional meetings to discuss DCR's concern. 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.[9]

N. Geology and Mineral Resources

The study area is within the Piedmont geologic province, which lies between the mountainous Blue Ridge province to the west and the terraced slopes of the Coastal Plain province to the east. The Piedmont is characterized by rolling topography, thick soils, and heavily weathered bedrock primarily caused by the region's humid climate. The geologic terranes of the province are relatively complex where many of the rock units are separated by faults and contain various igneous and metamorphic histories. Based on review of the Geologic Map of Virginia, each of the Project Solutions encounter bedrock composed of interbedded shale and siltstone belonging to the Newark Supergroup and Jurassic-aged volcanics (diabase). The only route segment that does not transect both geologic units is Wellington - Pegasus Route 1, which is a part of Solutions 1A and 1B and only encounters the diabase bedrock unit[10].

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, one active mining site, the Manassas Quarry, was identified within 0.25 mile of the Project. The Manassas Quarry is located approximately 700 feet northeast of Wellington - Pegasus Route 1 at MP 0.0. While the Manassas Quarry is within 0.25 mile of the Project, it is not crossed by any

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[9] *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).*

[10] William and Mary Department of Geology. 2024. Geology of Virginia. Accessed December 2024. http://geology.blogs.wm.edu/.

of the solutions and is over 500 feet away from the nearest alignment; therefore, impacts on the mine are not anticipated.

O. Transportation Infrastructure

Road and Railroad Crossings

The road network in the Project study area includes a variety of road types, including principal arterials (Prince William Parkway), minor arterials (such as University Boulevard, Sudley Manor Drive, Linton Hall Road, and Wellington Road) and minor collectors (Hornbaker Road).

There is one Norfolk Southern Railroad that spans across the north and northeastern portions of the study area but is not crossed by any of the route segments. There are no planned railroads within the study area.

ERM reviewed the Transportation Plan section of the Prince William County Comprehensive Plan, the Prince William County Department of Transportation Current Mobility Projects website and webmap, and the VDOT Northern Virginia District project website for upcoming and active transportation projects within the study area. Based on Prince William County's 2022 Comprehensive Plan Roadway Plan Map, there are numerous planned road expansions within the study area. The Comprehensive Plan includes lane increases for the following roads: University Boulevard between Wellington Road and Sudley Manor, Sudley Manor Drive east of Prince William Parkway, Prince William Parkway between Balls Ford Road and Nokesville Road, Devlin Road near its intersection with University Boulevard, and Wellington Road between University Boulevard and Sudley Manor Drive.

According to the County's Current Mobility Projects mapper, the University Boulevard Extension project, that will construct two lanes between Edmonston Lane and Sudley Manor, is under construction as of fall 2024. The Devlin Road Widening Project, which will widen Devlin Road to four lanes from the relocated Balls Ford Road to University Boulevard is currently under construction, and construction is estimated to be complete by summer of 2025. Other road improvement projects include the Intersection Improvements at Prince William Parkway and University Boulevard, which is currently under construction. The Sudley Manor Drive Sidewalk project, which will construct a sidewalk between Linton Hall Road and Victory Lakes Loop to improve pedestrian safety and connectivity, is currently under design and coordination is ongoing.

There are no current VDOT projects active within the study area; however, there are three projects identified for future funding through VDOT's Six-Year Improvement Program. These include the Route 234 (Prince William Parkway) and Sudley Manor Drive Interchange project, the University Boulevard Extension Project (between Devlin Road to Wellington Road), and the Devlin Road Widening Project (Linton Hall Road to University Boulevard).

The Route 234 (Prince William Parkway) and Sudley Manor Drive Interchange project will construct improvements at the intersection of Prince William Parkway at Sudley

Manor Drive and includes modifications to the intersection of Prince William Parkway and Wellington Road. The project is not expected to be completed until 2032. The University Boulevard Extension Project will extend University Boulevard from Devlin Road to Wellington Road as a four-lane roadway with a sidewalk and shared use path. This project is estimated to be completed in 2027. The Devlin Road Widening will widen Devlin Road between Linton Hall Road and University Boulevard from two lanes to four lanes and includes a 10-foot shared use path. This project is estimated to be completed in 2028.

All solutions cross existing roads within the study area. Two route alternatives would cross planned road projects. The Company will coordinate with the County and VDOT to ensure there are no impacts to planned road projects crossed by the route alternatives.

Proposed Solution 1B and Alternative Solution 1A

Wellington - Pegasus Route 1

Wellington - Pegasus Route 1 has four existing road crossings. Roads crossed include Thong Pan Road, Wellington Road, Prince William Parkway, and Hornbaker Road. The route collocates for approximately 0.3 mile with Wellington Road and Hornbaker Road. The route would cross the planned Prince William Parkway Expansion between Balls Ford Road and Nokesville Road at Wellington Road, but would cross Prince William Parkway nearly perpendicular, so no impacts to the planned road expansion are anticipated as structures would not be located within the expanded road right-of-way. The route is also approximately 0.2 mile north of the Intersection Improvements at Prince William Parkway and University Boulevard; however, no impacts to the project design are anticipated given the distance from the route and the planned intersection improvement project.

Pegasus - Hornbaker Route 1

Pegasus - Hornbaker Route 1 has five existing road crossings. Roads crossed include Mike Garcia Drive, University Boulevard, Industrial Court, Industrial Road, and Hawkins Drive. The route collocates for approximately 0.5 mile with Industrial Court, Hawkins Drive, and Hornbaker Road. No active road projects are crossed by the route; however, the route would cross University Boulevard, which is planned to be widened to four lanes in the future. The route would cross nearly perpendicular to University Boulevard, so there likely would be no impacts to the future road widening as no structures would not be located within the proposed road right-of-way.

Devlin - Pegasus Route 1

Devlin - Pegasus Route 1, which is only applicable to Alternative Solutions 1A and 2A, has seven existing road crossings. Roads crossed include Hansen Farm Road, Balls Ford Road, Buckeye Timber Drive, Virginia Meadows Drive, Lexington Valley Drive, Sudley Manor Drive, and Zelkovia Drive. The route collocates for approximately 0.1 mile with Hornbaker Road. No active or planned road projects are crossed by the Devlin - Pegasus Route 1.

Devlin - Pegasus Route 2

Devlin - Pegasus Route 2, which is only applicable to Proposed Solutions 1B and Alternative Solution 2B, has eight existing road crossings. Roads crossed include Hansen Farm Road, Balls Ford Road, Buckeye Timber Drive, Virginia Meadows Drive, Lexington Valley Drive, Wellington Road, Hayden Road (which will eventually be abandoned), Sudley Manor Drive, and Zelkovia Drive. The route collocates for approximately 0.8 mile with Wellington Road, Sudley Manor Drive, and Hornbaker Road. Devlin-Pegasus Route 2 would cross a portion of the VDOT-planned Route 234 (Prince William Parkway) and Sudley Manor Drive Interchange project area but minimizes impacts to areas designated for future interchange improvements by avoiding directly crossing the intersections that will be improved. The route would also cross the planned Wellington Road Expansion Project; however, proposed structures would likely not be located within the expanded road right-of-way. The Company would continue coordination with VDOT and the County regarding any construction or operations and maintenance impacts to the planned projects.

Alternative Solutions 2A and 2B

Hourglass - Hornbaker Component

Hourglass - Hornbaker Route 1 (Hybrid) has four existing road crossings. Roads crossed include Innovation Drive, Prince William Parkway, Discovery Boulevard, and Hornbaker Road. Hornbaker Road will be crossed underground via the jack and bore method; therefore, a wider right-of-way (approximately 125 feet) is needed to accommodate construction and installation methods. Preliminary analysis of different underground transmission installation techniques include jack and bore and open cut trenching. The Company coordinated with VDOT on the installation method for all crossings. VDOT's preference is to not open cut any of their roads. The Company will continue to coordinate with VDOT regarding potential installation methods, workspace requirements, and VDOT standards that must be met to cross these roadways. The underground portion of the route would collocate with the southern side of Challenger Court for approximately 0.1 mile. No active or planned road projects are crossed by the route.

See Solutions 1A and 1B section above for descriptions of transportation infrastructure along Pegasus - Hornbaker Route 1, Devlin - Pegasus Route 1 (for Solution 2A), and Devlin - Pegasus Route 2 (for Solution 2B).

Temporary closures of roads and or traffic lanes would be required during construction of the Proposed or Alternative Routes for the Project. No long-term impacts to roads are anticipated as a result of the Project. The Company will comply with VDOT and Prince William 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.

P. 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 design of the proposed Project must prevent interference with pilots' safe ingress and egress at airports in the vicinity of the Project. Such hazards or impediments include interference with navigation and communication equipment and glare from materials and external lights.

The Company reviewed the FAA website to identify public use airports, airports operated by a federal agency or the U.S. Department of Defense, airports, or heliports with at least one FAA-approved instrument approach procedure, and public use or military airports under construction within 10.0 nautical miles of the Project's routes. Based on this review, the following FAA-restricted airports are located within 10.0 nautical miles of the Proposed and Alternative Solutions:

Table P-1
Hornbaker 230 kV Line Loop and Hornbaker Switching Station Project
Airports And Heliports Located Within 10.0 Nautical Miles (nm) of the Project

Airport/Heliport Name and FAA Identifier	Use Designation	Approximate distance and direction of nearest runway from the nearest project route/ feature
Building 250 Heliport	Private	0.8 nm northeast of Solutions 2A and 2B (Hourglass-Hornbaker Route 1 (Hybrid))
LM Building 110 Heliport	Private	0.9 nm northeast of Solutions 2A and 2B (Hourglass-Hornbaker Route 1 (Hybrid)).
Manassas Regional Airport (also referred to as Harry P Davis Field)	Public	1.1 nm south of Solutions 2A and 2B (Hourglass-Hornbaker Route 1 (Hybrid)). 1.3 nm south of Solutions 1A, 1B, 2A, and 2B (Pegasus-Hornbaker Route 1 and the proposed Hornbaker Switching Station).
Uva Health/ Prince William Medical Center Heliport	Private	1.7 nm northeast of Solutions 2A and 2B (Hourglass-Hornbaker Route 1 (Hybrid)).
Rychlk Heliport	Private	3.2 nm southeast of Solutions 1A, 2A (Devlin-Pegasus Route 1).
Skyview Airport	Private	4.8 nm southwest of Solutions 1A, 1B, 2A, and 2B (Pegasus-Hornbaker Route 1).
Breeden Airport	Private	8.3 nm south of Solutions 1A, 1B, 2A, and 2B (proposed Hornbaker Switching Station).
Maples Field Airport	Private	
Fairfax County Police Heliport	Private	8.9 nm northeast of Solutions 1A and 1B (Wellington-Pegasus Route 1).
Stonesprings Heliport	Private	9.6 nm south of Solutions 1A and 2A (Devlin-Pegasus Route 1).
Glascock Heliport	Private	9.8 nm south of Solutions 1A and 2A (Devlin-Pegasus Route 1).
Inova Fair Oaks Hospital Heliport	Private	9.9 nm northeast of Solutions 1A and 1B (Wellington-Pegasus Route 1).

The Company conducted an airport analysis to determine if any of FAA defined Civil Airport Imaginary Surface would be penetrated by structures associated with the Project. The Company hired ERM to conduct the review.

The regulations that govern objects that may affect navigable airspace are codified in the Code of Federal Regulations, Title 14, Part 77. In these regulations it states that restrictions to structure heights only apply to public use airports and do not apply to privately owned airports. Of the 12 airports identified within 10 nautical miles of the study area, one is a public use airport, three are private use airports, eight are private use heliports, and none are military airports. None of the private facilities listed in Table P-1 are anticipated to have a conflict with the route locations.

ERM reviewed the height limitations associated with FAA defined imaginary surveys for all runways associated with the Manassas Regional Airport to determine whether any of the towers planned to be installed for the Project would penetrate any of the relevant runway flight surfaces.

Due to the Project area being at a higher ground elevation than the Manassas Regional Airport, the Company and ERM identified early in the process that multiple structures associated with the route alternatives would likely penetrate the various imaginary surfaces (approach surface, horizontal surface and conical surface). The Company and ERM met with representatives from Manassas Regional Airport in July 2024 to discuss the Project. During the discussion, airport representatives recommended the Company coordinate structure locations and heights with the FAA, as the FAA is solely responsible for conducting obstruction analysis and determining if airport flight surface would require alteration due to the proposed Project. The Company then prepared and submitted a Form 7460-1 (notice of proposed construction or alteration) with the FAA, based on the structure locations and heights known at the time. C-2 Surveys were not conducted prior to the filing with the FAA.

Based on the determination letters received from the FAA, several structures along the routes were anticipated to penetrate imaginary surfaces and Terminal Instrument Procedures (TERPs) surfaces. The most restrictive TERPs surface is a horizontal plane located 200 feet above the established airport elevation and extends out 3.0 nautical miles from the established reference point at the airport. This surface is located at 392.2 AMSL and extends out to a point just south of the intersection of Wellington Road and Sudley Manor Drive. It is anticipated that all structures located within this surface would be constructed at or below this height. Due to the penetration of other imaginary surfaces referenced above, it is likely that some of the structures for the Project will require lighting and marker balls to receive a no effect to air navigation determination from the FAA. The Company will continue to coordinate with the FAA on required structure heights and lighting/marking requirements as the Project progresses to final engineering.

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. 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.

Q. 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.Q.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.

R. 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

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

DATE
14 March 2025

SUBJECT
Hornbaker 230 KV Line Loop and
Hornbaker Switching Station Project

REFERENCE
0577538

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 proposed Hornbaker 230 kilovolt (kV) Line Loop and Hornbaker Switching Station (Project) in Prince William County, Virginia. These transmission lines and the proposed Hornbaker Switching Station are collectively referred to as the Project. This delineation was done using desktop resources and methodology. A field delineation is required to verify the accuracy and extent of aquatic resource boundaries.

The purpose and need for the Project is to provide 300 MW of electrical service requested by the Northern Virginia Electric Cooperative (NOVEC) for a data center customer in Prince William County (the Customer), maintain reliable service for the overall load growth in the Hornbaker Load Area, and comply with mandatory North American Electric Reliability Corporation (NERC) Reliability Standards. Specifically, the Devlin Switching Station (a separate project) requires an additional 230 kV source to resolve the potential NERC reliability violation. To meet the Project purpose and need, Dominion proposes to construct and operate the following:

- A new 230-34.5 kV Switching Station in Prince William County on property to be obtained by the Company (Hornbaker Switching Station).
- One of two transmission solutions involving new, double circuit 230 kV transmission lines in new rights-of way. Dominion would construct either:
    - A series of overhead routes, including a segment from a cut in on Dominion's existing Lines #172/#2187 north of the existing Wellington Substation to the proposed Pegasus Switching Station; a segment from the Pegasus Switching Station to the proposed Hornbaker Switching Station; and a segment from the Pegasus Switching Station to the proposed Devlin Switching Station; OR

- A hybrid route that includes an overhead right-of-way from a cut in on Dominion's existing Line #2196, adjacent to the existing Hourglass Substation, to a transition station east of Prince William Parkway (where the route transitions to an underground route) then underground to the proposed Hornbaker Switching Station; as well as an overhead right-of-way from the proposed Hornbaker Switching Station to the Pegasus and Devlin Switching Stations (part of other projects).

ERM identified five route alternatives that can be combined to serve the two electrical solutions described above. A breakdown of the route alternatives that make up the two electrical solutions, each a grouping of three route alternatives, are included below in Table 1 and shown in Attachment 1.

TABLE 1 ROUTE ALTERNATIVES AND SOLUTIONS

Electrical Solution	Route Alternatives	Summary
Solution 1 (Overhead)	Wellington–Pegasus Route 1	Overhead double circuit route from a cut-in on existing Lines #172/#2187, north of the existing Wellington Substation, to the proposed Pegasus Switching Station. [a]
	Pegasus–Hornbaker Route 1	Overhead double circuit route between the proposed Hornbaker Switching Station and the proposed Pegasus Switching Station. [a]
	Devlin–Pegasus Route 1 OR Devlin–Pegasus Route 2	Overhead double circuit route between the proposed Pegasus Switching Station and the proposed Devlin Switching Station. [a]
Solution 2 (Hybrid)	Hourglass–Hornbaker Route 1 (Hybrid)	Hybrid underground and overhead double circuit route between a cut in on Dominion's existing Line #2196, adjacent to the existing Hourglass Substation, and the proposed Hornbaker Switching Station.
	Pegasus–Hornbaker Route 1	Overhead double circuit route between the proposed Hornbaker Switching Station and the proposed Pegasus Switching Station. [a]
	Devlin–Pegasus Route 1 OR Devlin–Pegasus Route 2	Overhead double circuit route between the proposed Pegasus Switching Station and the proposed Devlin Switching Station. [a]

[a] The Devlin and Pegasus Switching Stations have been proposed as part of other projects.

Detailed descriptions of each individual route and the proposed Hornbaker Switching Station are provided in the sections below.

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 State Corporation Commission's (SCC) 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, as defined in the U.S. Army Corps of Engineers Wetland Delineation Manual (Environmental Laboratory, 1987) and the 2012 Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Eastern Mountains and Piedmont Region (Version 2.0).

PROJECT STUDY AREA AND POTENTIAL ROUTES

A study area was developed encompassing an area containing 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:

- Dominion's existing 500 kV/230 kV transmission line corridor (Encompassing Lines #535, #2114, #569, and #2163) to the northwest;
- Prince Willliam Parkway and Dominion's existing transmission lines #2187/#172 to the northeast/east;
- The Norfolk Southern Railroad, and areas to its south, to the south; and
- Linton Hall Road to the west.

The study area encompasses approximately 11.9 square miles entirely within Prince William County. The southeast corner of the study area includes portions of the City of Manassas. The largest forested/undeveloped areas are associated with riparian areas along Dawkins Branch, Cannon Branch, and Broad Run waterways. The predominant land use/land cover in the study area is developed land. Developed land, such as industrial warehousing, data centers, and commercial buildings, are located in the northern and eastern portions of the study area along Prince William Parkway, Wellington Road, and University Boulevard. In the western part of the study area, developed lands include educational uses and medium-density residential areas. Forested land is dispersed throughout the developed areas. There are no agricultural lands within the study area. The study area is shown in Attachment 1.

ROUTE ALTERNATIVES

WELLINGTON-PEGASUS ROUTE

The Wellington–Pegasus Route 1 is an overhead route that taps Dominion existing Line #2187 approximately 0.2 mile north of the existing Wellington Substation. From the tap, the route extends southwest for approximately 0.2 mile, crossing an industrial yard, Thong Pan Road, and Wellington Road, as well as a forested parcel bounded by these roads. The route then turns west, paralleling the south side of Wellington Road for approximately 0.2 mile (including a crossing of Prince William Parkway). The route turns south paralleling the west side of Hornbaker Road for approximately 0.1 mile before crossing the road and terminating at the proposed Pegasus Switching Station.

Wellington-Pegasus Route 1 is approximately 0.6 mile long and requires approximately 7.2 acres of right-of-way. Existing land use along the route largely consists of a mix of forested and industrial lands and a small amount of residential development.

PEGASUS-HORNBAKER ROUTE 1

Pegasus–Hornbaker Route 1 is an overhead route that begins at the proposed Pegasus Switching Station, extending southeast for approximately 0.1 mile and then turning southwest for approximately 0.7 mile. This segment crosses through forested land adjacent to industrial and commercial development and crosses University Boulevard. East of Industrial Court, the route turns generally southeast and collocates with the east side of the road for about 0.2 mile, crossing an industrial storage yard/parking lot. The route then turns south for about 0.1 mile, crossing Industrial Court and Industrial Road and another industrial storage yard, before turning southeast and paralleling the west side of Hawkins Drive for about 0.2 mile. At this point, the route turns east, crosses the most southern part of Hawkins Drive and an industrial storage yard for 0.1 mile. The route then turns north and then back east for 0.2 mile, following parcel lines. The Route then turns to the south-southeast for about 0.3 mile (collocated with the west side of Hornbaker Road) before terminating at the proposed Hornbaker Switching Station.

Pegasus-Hornbaker Route 1 is approximately 1.9 miles long and requires approximately 24.8 acres, including approximately 22.5 acres for transmission right-of-way and 2.3 acres for the proposed Hornbaker Switching Station. The Hornbaker Switching Station acreage is included in Pegasus-Hornbaker Route 1 throughout this document. Existing land use along the route is primarily industrial development with some forested land.

HOURGLASS-HORNBAKER ROUTE 1 (HYBRID)

The Hourglass–Hornbaker Route 1 (Hybrid) is a combination of approximately 0.5 mile of overhead transmission with approximately 0.8 mile of underground transmission and includes an approximately 3.1-acre transition station. Hourglass-Hornbaker Route 1 (Hybrid) begins

as an overhead line that taps the Company's existing Line #2196 just outside the Hourglass Switching Station. The route then extends approximately 0.4-mile northwest adjacent to an existing data center development. The route turns southwest for approximately 0.2 mile and enters the proposed transition station (currently an existing parking lot and adjacent forested area), where it transitions from overhead to an underground route. The route then continues out of the station to the southwest, including a trenchless crossing of Prince William Parkway. On the west side of the Parkway, the route turns west for approximately 0.2 mile through county-owned property, parallel to and south of Challenger Court and across Discovery Boulevard. West of Discovery Boulevard, the route turns west for approximately 0.4 mile through forested lands and an industrial parcel and crosses Hornbaker Road before terminating at the proposed Hornbaker Switching Station.

Hourglass-Hornbaker Route 1 (Hybrid) is approximately 1.3 miles long (0.5 mile overhead and 0.8 mile underground) and requires approximately 17.1 acres of right-of-way, including 14.0 acres of transmission right-of-way and 3.1 acres for the proposed transition station. Existing land use along the route and transition station consists primarily of industrial development with a small amount of forested land.

DEVLIN-PEGASUS ROUTE 1

Starting at the proposed Devlin Switching Station, Devlin–Pegasus Route 1 is an overhead route that heads generally southeast for approximately 0.3 mile, crossing Hansen Farm Road and Balls Ford Road. The route turns east/southeast for 0.5 mile, following vegetated/forested parcel boundaries before angling slightly to the east to pass south of a data center building currently under construction. The route then turns northeast for 0.1 mile to cross Buckey Timber Drive and then heads southeast for 0.4 mile, passing between industrial buildings and crossing Virginia Meadows Drive and Dawkins Branch. The route then turns south, paralleling the east side of Dawkins Branch for approximately 0.2 mile before turning southeast for approximately 0.8 mile. This segment crosses Lexington Valley Drive and Sudley Manor Drive, passing between residential areas east of Lexington Valley Drive. After crossing an existing natural gas pipeline near MP 2.1, the route turns northeast for approximately 0.1 mile and then southeast for approximately 0.2 mile before terminating at the proposed Pegasus Switching Station.

Devlin-Pegasus Route 1 is approximately 2.4 miles long and requires approximately 28.6 acres of right-of-way. Existing land use along the route largely consists of a mix of forested and industrial lands and a small amount of residential development.

DEVLIN-PEGASUS ROUTE 2

Devlin–Pegasus Route 2 is an overhead route that begins at the proposed Devlin Switching Station and follows the same alignment as Devlin–Pegasus Route 1 for the first 1.2 miles, diverging just east of Dawkins Branch. At this point, Devlin–Pegasus Route 2 turns north-

northeast, passing through forested land and paralleling the west side of Dawkins Branch for approximately 0.2 mile before turning east for approximately 0.2 mile, collocating with the south side of Wellington Road. The route then crosses Lexington Valley Drive and continues southeast, paralleling the north side of Wellington Road for approximately 0.5 mile. Just before Sudley Manor Drive, the route turns southwest and crosses back over Wellington Road, paralleling the north side of Sudley Manor Drive for approximately 0.2 mile. At this point the route turns southeast and follows the same alignment as Devlin–Pegasus Route 1 for the remaining 0.6 mile to the proposed Pegasus Switching Station.

Devlin-Pegasus Route 2 is approximately 2.8 miles long and requires approximately 33.4 acres of right-of-way. Existing current land use along the route largely consists of a mix of forested and industrial lands and a small amount of residential development.

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:

- Recent aerial imagery, taken in October of 2023 (NAIP 2023);
- Color infrared imagery from 2010 through 2022 (NAIP 2024):
- Prince William County Geospatial Technology Services (Prince William County 2024);
- Google Earth Aerial Imagery (Google LLC 2024);
- Prince William County GIS Data Portal 2-Foot contour intervals (Prince William County, 2018)
- National Wetland Inventory (NWI) maps from the United States Fish and Wildlife Service (USFWS) online data mapping portal (USFWS 2024);
- The National Hydrography Dataset (NHD) Plus High Resolution (USGS 2024); and
- Soil Survey Geographic Database soils data from the U.S. Department of Agriculture-Natural Resources Conservation Service (USDA-NRCS 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 2024). 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 modified from the NWI classification.

USDA-NRCS SOILS DATA

Soils in the study area were identified and assessed using the Soil Survey Geographic Database (SSURGO), which is a digital version of the original county soil surveys (USDA-NRCS 2024). 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 2.

TABLE 2: 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 wetland and waterbody occurrence within each route, with wetlands 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 inches 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 in diameter) covering greater than 25% of the area, with plants covering less than 30% 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 Cowardin classification of aquatic resources displayed on color-based images. Attachment 3 depicts probability, and the type of interpreted wetlands displayed on color base map images.

RESULTS

Results of the probability analysis are presented in Table 3 below. Summaries are provided in the sections following the table.

TABLE 3: SUMMARY OF THE PROBABILITIES OF WETLAND AND WATERBODY OCCURRENCE ALONG THE ROUTE ALTERNATIVES

Probability	Total Within Right-of-way (acres)[b]	Wetland and Waterbody type (acres)				
		PEM (Emergent)	PFO (Forested)	PSS (Scrub-Shrub)	PUB (Freshwater pond)	Riverine (Stream)
Wellington-Pegasus Route 1						
High	NA	NA	NA	NA	NA	NA
Medium/High	<0.1	0.0	NA	NA	NA	NA
Medium	<0.1	0.0	NA	NA	NA	NA

Probability	Total Within Right-of-way (acres)[b]	Wetland and Waterbody type (acres)				
		PEM (Emergent)	PFO (Forested)	PSS (Scrub-Shrub)	PUB (Freshwater pond)	Riverine (Stream)
Medium/Low	<0.1	NA	<0.1	NA	NA	NA
Low	NA	NA	NA	NA	NA	NA
Very Low	NA	NA	NA	NA	NA	NA
Pegasus-Hornbaker Route 1 [a]						
High	0.0	NA	NA	NA	NA	0.0
Medium/High	0.7	<0.1	0.1	NA	0.5	0.1
Medium	0.4	0.1	0.3	NA	NA	0.1
Medium/Low	0.8	NA	<0.1	NA	0.3	0.4
Low	NA	NA	NA	NA	NA	NA
Very Low	NA	NA	NA	NA	NA	NA
Hourglass-Hornbaker Route 1 (Hybrid) [b]						
High	0.4	NA	0.4	NA	NA	NA
Medium/High	0.7	NA	0.6	NA	0.1	<0.1
Medium	NA	NA	NA	NA	NA	NA
Medium/Low	NA	NA	NA	NA	NA	NA
Low	NA	NA	NA	NA	NA	NA
Very Low	NA	NA	NA	NA	NA	NA
Devlin-Pegasus Route 1						
High	1.0	0.1	0.9	NA	NA	<0.1
Medium/High	3.0	0.3	2.4	NA	<0.1	0.3
Medium	2.4	0.2	1.4	NA	0.6	0.2
Medium/Low	1.0	0.1	0.5	NA	<0.1	0.3
Low	NA	NA	NA	NA	NA	NA
Very Low	NA	NA	NA	NA	NA	NA
Devlin-Pegasus Route 2						

Probability	Total Within Right-of-way (acres)[b]	Wetland and Waterbody type (acres)				
		PEM (Emergent)	PFO (Forested)	PSS (Scrub-Shrub)	PUB (Freshwater pond)	Riverine (Stream)
High	0.7	0.1	0.6	NA	NA	0.1
Medium/High	3.2	0.3	2.6	NA	<0.1	0.3
Medium	1.5	0.2	0.9	NA	0.3	0.1
Medium/Low	1.1	0.1	0.5	NA	0.1	0.4
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 The Pegasus Hornbaker is inclusive of the proposed 2.3-acre Hornbaker Switching Station.

b The Hourglass–Hornbaker includes the 3.1-acre transition station.

Wetland acreages have been rounded to the tenths place; as a result, the totals may not reflect the sum. A value of 0.0 indicates less than 0.05 acre of the wetland is present.

WETLAND CROSSINGS

Wetlands in the study area are predominantly forested associated with riverine features and flow to the south of the study area with a hydrologic connection to Dawkins Branch, Cannon Branch, and Broad Run. Riverine (stream) and PUB (open water features) are described in the Waterbody Crossings section below.

WELLINGTON-PEGASUS ROUTE 1

The length of the corridor for Wellington-Pegasus Route 1 is approximately 0.6 miles and encompasses a total of approximately 7.2 acres. Based on the methodology discussed above, the right-of-way footprint will encompass approximately 1.4 percent (less than 0.1 acres) of land with a medium or higher probability of containing wetlands and waterbodies, all of which are PEM wetlands.

PEGASUS-HORNBAKER ROUTE 1

The length of the corridor for Pegasus-Hornbaker Route 1 is approximately 1.9 miles and encompasses a total of approximately 24.8 acres, including approximately 22.5 acres for transmission right-of-way and 2.3 acres for the proposed Hornbaker Switching Station. Based on the methodology discussed above, the right-of-way footprint will encompass approximately 4.4 percent (1.1 acres) of land with a medium or higher probability of containing wetlands and waterbodies. The 1.1 acres consist of 0.4 acre of PFO wetlands, 0.1 acre of PEM wetlands, 0.5 acre of PUB open water features, and 0.2 acre of riverine features

HOURGLASS-HORNBAKER ROUTE 1 (HYBRID)

The length of the corridor for Hourglass-Hornbaker Hybrid Route 1 is approximately 1.3 miles (0.5 mile overhead and 0.8 mile underground) and encompasses a total of approximately 17.1 acres (including the 3.1-acre proposed transition station footprint). Based on the methodology discussed above, the right-of-way footprint will encompass approximately 4.1 percent (0.7 acre) of land with a medium or higher probability of containing wetlands and waterbodies. The 0.7-acre consists of 0.6 acre of PFO wetlands, 0.1 acre of PUB open water features, and less than 0.1 acre of riverine features.

DEVLIN-PEGASUS ROUTE 1

The length of the corridor for this Devlin-Pegasus Route 1 is approximately 2.4 miles and encompasses a total of approximately 28.6 acres. Based on the methodology discussed above, the right-of-way footprint will encompass approximately 22.0 percent (6.3 acres) of land with a medium or higher probability of containing wetlands and waterbodies. The 6.3 acres consists of 4.7 acres of PFO wetlands, 0.5 acre of PEM wetlands, 0.7 acre of PUB open water features, and 0.5 acre of riverine features.

DEVLIN-PEGASUS ROUTE 2

The length of the corridor for Devlin-Pegasus Route 2 is approximately 2.8 miles and encompasses a total of approximately 33.4 acres. Based on the methodology discussed above, the right-of-way footprint will encompass approximately 15.9 percent (5.3 acres) of land with a medium or higher probability of containing wetlands and waterbodies. The 5.3 acres consists of 4.1 acres of PFO wetlands, 0.5 acre of PEM wetlands, 0.3 acre of PUB open water features, and 0.5 acre of riverine features.

SOLUTIONS

As discussed in the introductory paragraphs, the routes can be combined into two electrical solutions, each of which would serve the Project need. Within each solution, the Company identified two options (each a grouping of three route alternatives) as follows:

- Solution 1A – Wellington–Pegasus Route 1, Pegasus–Hornbaker Route 1, and Devlin–Pegasus Route 1
- Solution 1B – Wellington–Pegasus Route 1, Pegasus–Hornbaker Route 1, and Devlin–Pegasus Route 2
- Solution 2A – Hourglass-Hornbaker Route 1 (Hybrid), Pegasus–Hornbaker Route 1, and Devlin–Pegasus Route 1
- Solution 2B – Hourglass-Hornbaker Route 1 (Hybrid), Pegasus–Hornbaker Route 1, and Devlin–Pegasus Route 2

As the Project will be submitted to the SCC and include the four solutions above, the total acreage of medium, medium-high, and high probability wetland and waterbody occurrence within footprints of the solutions are provided below.

TABLE 4: ACRES OF MEDIUM OR HIGHER PROBABILITY WETLAND AND WATERBODY OCCURRENCE ALONG THE SOLUTIONS

Wetland or Waterbody Type	Unit	Solution 1A	Solution 1B	Solution 2A	Solution 2B
Wetlands Affected (total)	acres miles	7.4 0.5	6.4 0.4	8.0 0.5	7.1 0.4
Palustrine Forested	acres	5.0	4.4	5.7	5.0
Palustrine Scrub-Shrub	acres	NA	NA	NA	NA
Palustrine Emergent	acres	0.6	0.6	0.6	0.6
Palustrine Unconsolidated Bottom	acres	1.1	0.8	1.1	0.8
Riverine (Streams)	acres	0.6	0.7	0.6	0.7

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. Devlin-Pegasus Routes 1 and 2 both cross perennial Dawkins Branch. All the route alternatives except the Wellington-Pegasus Route 1 cross unnamed perennial and intermittent tributaries associated with Dawkins Branch and Broad Run as well as open waterbody features that appear to be stormwater ponds. Hourglass-Hornbaker Route 1 (Hybrid) crosses an unnamed intermittent tributary associated with Cannon Branch.

TABLE 5: WATERBODIES CROSSED BY THE ROUTES AND ROUTE VARIATIONS

Waterbodies Crossed	Units	Wellington-Pegasus Route 1	Pegasus-Hornbaker [a] Route 1	Hourglass-Hornbaker [b] Route 1 (Hybrid)	Devlin-Pegasus	
					Route 1	Route 2
Total	Number	0	4	2	16	17
Perennial Streams	Number	0	0	0	3	3
Intermittent Streams	Number	0	2	1	8	9

Perennial Lakes/Ponds	Number	0	1	1	3	3
Non-NHD Mapped Intermittent Streams [c]	Number	0	1	0	2	2

Source: NHD (USGS 2024)
a The Pegasus Hornbaker is inclusive of the proposed 2.3-acre Hornbaker Switching Station.
b The Hourglass-Hornbaker includes the 3.1-acre transition station.
c The PUB open water features and non-NHD mapped intermittent streams listed in the table were identified via recent (2023) aerial imagery during desktop analysis rather than mapped by the NHD (NAIP 2023).

WELLINGTON-PEGASUS ROUTE 1

Based on ERM's desktop wetland and waterbody analysis, there are no waterbodies identified within the Wellington-Pegasus Route 1 right-of-way.

PEGASUS-HORNBAKER ROUTE 1

The Pegasus–Hornbaker Route 1 right-of-way, inclusive of the 2.3-acre proposed Hornbaker Switching Station, crosses four waterbodies. Three are NHD-mapped waterbodies: two unnamed intermittent streams and one unnamed open waterbody feature. Based on historic aerial imagery, the NHD-mapped intermittent stream near MP 1.1 appears to be eliminated or diverted underground, therefore there is no above-ground stream crossing in this location (Google LLC 2024). Based on recent (2023) aerial imagery, the NHD-mapped intermittent stream and open waterbody feature within the footprint of the proposed Hornbaker Switching Station have been diverted around the switching station underground. There is no longer a PUB open waterbody feature, and the stream crossing within the rout right-of-way near MP 1.8 is now below-ground. As a result, no waterbodies are within the proposed switching station footprint (NAIP 2023). Additionally, one unnamed, unclassified stream associated with Broad Run was identified using recent (2023) aerial imagery near approximate MP 0.7 (NAIP 2023). Based on ERM's wetland desktop methodology, the Pegasus–Hornbaker Route 1 right-of-way would encompass approximately 0.2 acre of riverine streams and 0.5 acre of PUB open water features, however, as described above, the PUB feature has been eliminated.

HOURGLASS-HORNBAKER ROUTE 1 (HYBRID)

Hourglass-Hornbaker Route 1 (Hybrid) right-of-way would cross one NHD-mapped unnamed, intermittent stream between MPs 0.9 and 1.0. Based on ERM's desktop wetland and waterbody analysis, the right-of-way for Hourglass-Hornbaker Route 1 (Hybrid) would encompass approximately less than 0.1 acre of riverine streams. A 0.3-acre open waterbody feature is mapped by the NHD between MPs 1.2 and the proposed Hornbaker Switching Station, however, based on recent (2023) aerial imagery, the area has been developed, and the feature is no longer present.

DEVLIN-PEGASUS ROUTE 1

Devlin-Pegasus Route 1 would cross 16 waterbodies, of which 14 are NHD-mapped, including three perennial waterbodies (Dawkins Branch and two unnamed perennial streams), eight unnamed intermittent streams, and three lake/ponds. Two unnamed, unclassified streams were identified within the right-of-way using recent aerial imagery (NAIP 2023). Based on ERM's desktop wetland and waterbody analysis, the right-of-way for Route 1 would encompass approximately 0.5 acre of riverine streams and 0.7 acre of PUB open water features.

DEVLIN-PEGASUS ROUTE 2

Devlin-Pegasus Route 2 would cross 17 waterbodies, of which 15 are NHD-mapped, including three perennial waterbodies (Dawkins Branch and two unnamed perennial streams), nine unnamed intermittent streams, and three lake/ponds. Two unmapped, unclassified streams were identified within the right-of-way using recent aerial imagery (NAIP 2023). Based on ERM's desktop wetland and waterbody analysis, the right-of-way for Route 2 would encompass approximately 0.5 acre of riverine streams and 0.3 acre of PUB open water features.

SOLUTIONS

As discussed above in the Wetland Crossings section, the Company identified two electrical solutions with two options (each a grouping of three route alternatives) for each. The probabilities of waterbody crossings by solution are provided below.

TABLE 6: WATERBODIES CROSSED BY THE SOLUTIONS

Waterbodies Crossed	Units	Solution 1A	Solution 1B	Solution 2A	Solution 2B
Total	Number	20	21	22	23
Perennial Streams	Number	3	3	3	3
Intermittent Streams	Number	10	11	11	12
Perennial Lakes/Ponds	Number	4	4	5	5
Non-NHD Mapped Intermittent Streams [a]	Number	3	3	3	3

Source: NHD (USGS 2024)
a Non-NHD mapped intermittent streams listed in the table were identified via recent (2023) aerial imagery during desktop analysis rather than mapped by the NHD (NAIP 2023).

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 lines have been designed to span or avoid wetlands and waterbodies where possible, keeping transmission structures outside of aquatic resources to the extent practicable. All route alternatives cross tributaries associated with Broad Run. Devlin-Pegasus Routes 1 and 2 cross Dawkins Branch and associated tributaries. Waterbodies crossed by the route alternatives would be spanned to the extent practicable, with permanent impacts to waterbodies limited to riparian buffer transition from tree cover to herbaceous vegetation within the maintained right-of-way.

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.

Permanent direct impacts to wetlands would be limited to placement of structures within wetlands, if unavoidable, and, due to the necessity of removing trees and shrubby vegetation from the right-of-way, the permanent conversion of PSS/PFO wetlands to PEM type wetlands.

No change in contours of wetlands and waterbodies, or redirection of the flow of water, is anticipated and the amount of spoil from foundation and structure placement would be minimal. Excess spoil in wetlands generated through foundation construction would be controlled through construction best management practices (e.g., the implementation erosion and sediment controls).

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, habitat diversity, and water temperature modification from shading. 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. Within the stream buffers (100 feet), trees and vegetation will be hand felled and 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. Vegetation within the right-of-way would be allowed to return to maintained grasses and shrubs after

DATE
14 March 2025

REFERENCE
0577538

construction, which would provide some filtration stabilization to help protect waterbodies from pollutants.

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.

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/projects-and-facilities/electric-projects/power-line-projects/hornbakerdevlin.

If you have any questions regarding this wetland assessment, please contact me at 857-302-6502 or by email at jake.bartha@erm.com.

Sincerely,

Jake Bartha
Environmental Resources Management

cc: James Young, Dominion Energy Virginia

Enclosures: Attachments 1, 2, and 3

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DATE
14 March 2025

REFERENCE
0577538

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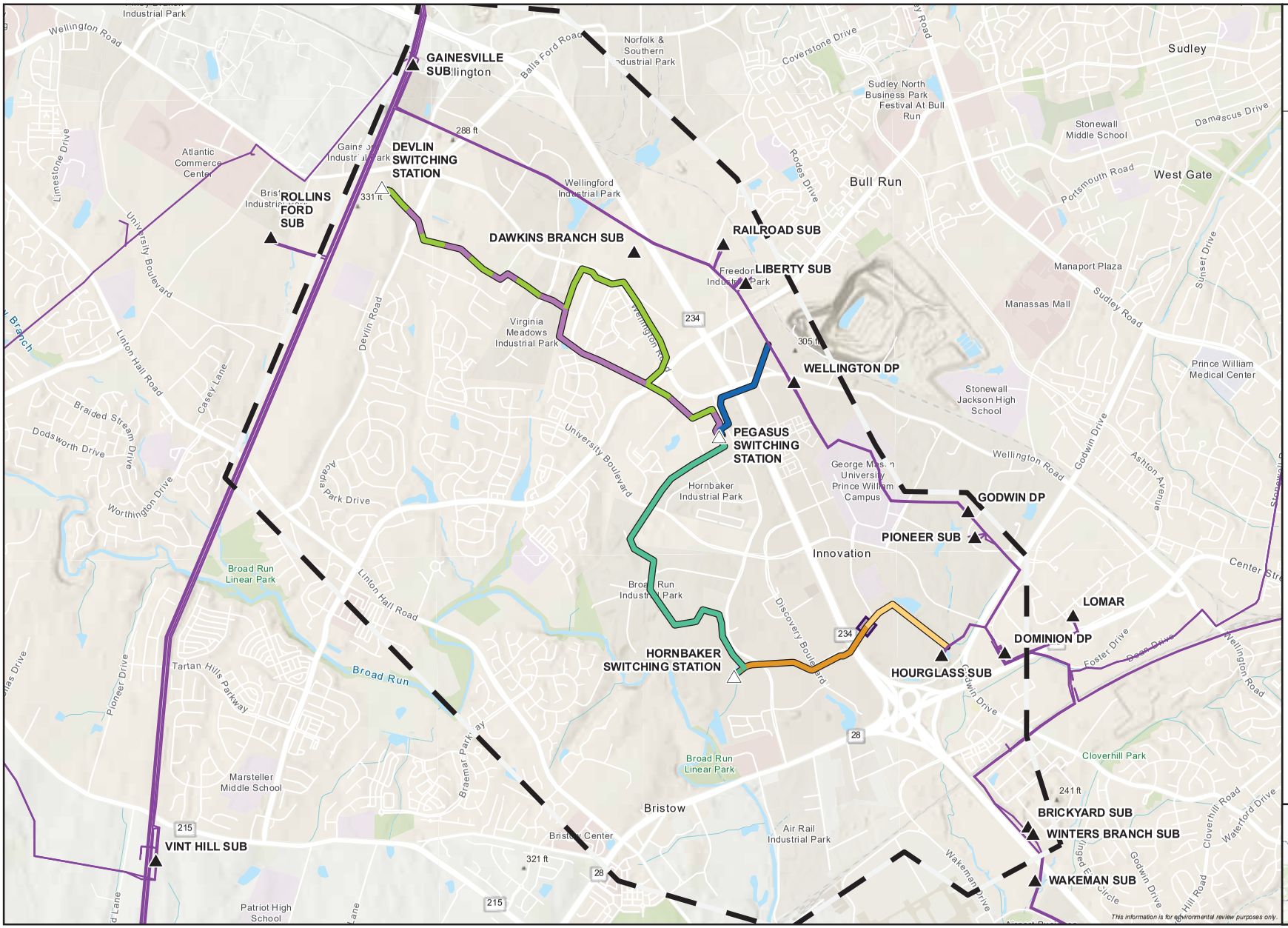

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Attachment 1
Project Overview Map

Hornbaker 230 kV Line Loop Project
Dominion Energy
Prince William County, Virginia

- Existing Substation
- Proposed Switching Station
- Existing Dominion Transmission Line
- Wellington – Pegasus Route 1
- Pegasus – Hornbaker Route 1
- Hourglass – Hornbaker Route 1 (Overhead)
- Hourglass – Hornbaker Route 1 (Underground)
- Proposed Transition Station
- Devlin – Pegasus Route 1
- Devlin – Pegasus Route 2
- Study Area

0 1,250 2,500
Feet

1:30,000

ERM

N W E S

Project Location

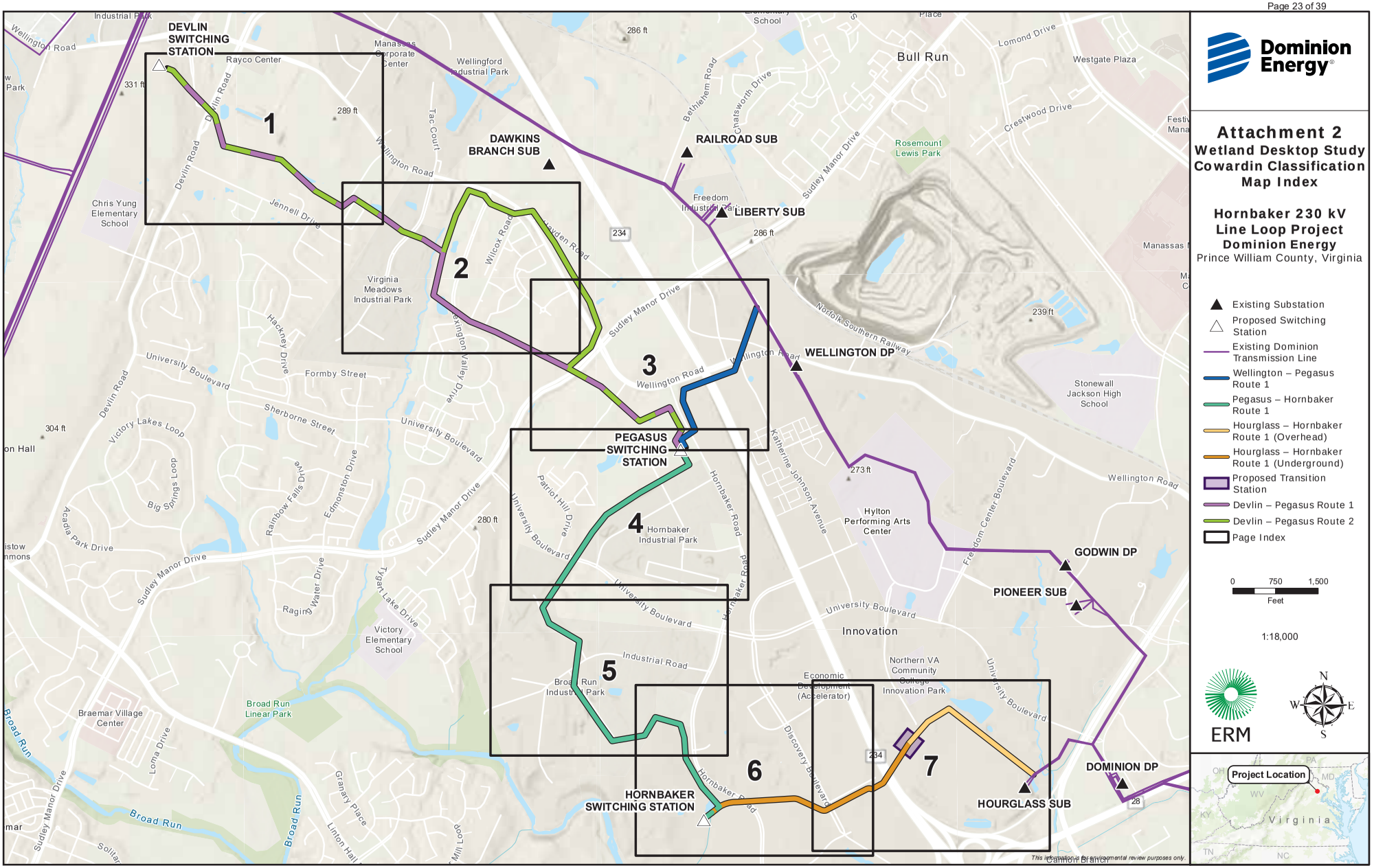
This information is for environmental review purposes only.

222 South 9th Street
Suite 2900
Minneapolis, Minnesota 55402

T +0 804 253 1090
F +0 804 253 1091

erm.com

ATTACHMENT 2



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Attachment 2
Wetland Desktop Study Cowardin Classification Map Index

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- Devlin – Pegasus Route 2
- Page Index

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Project Location

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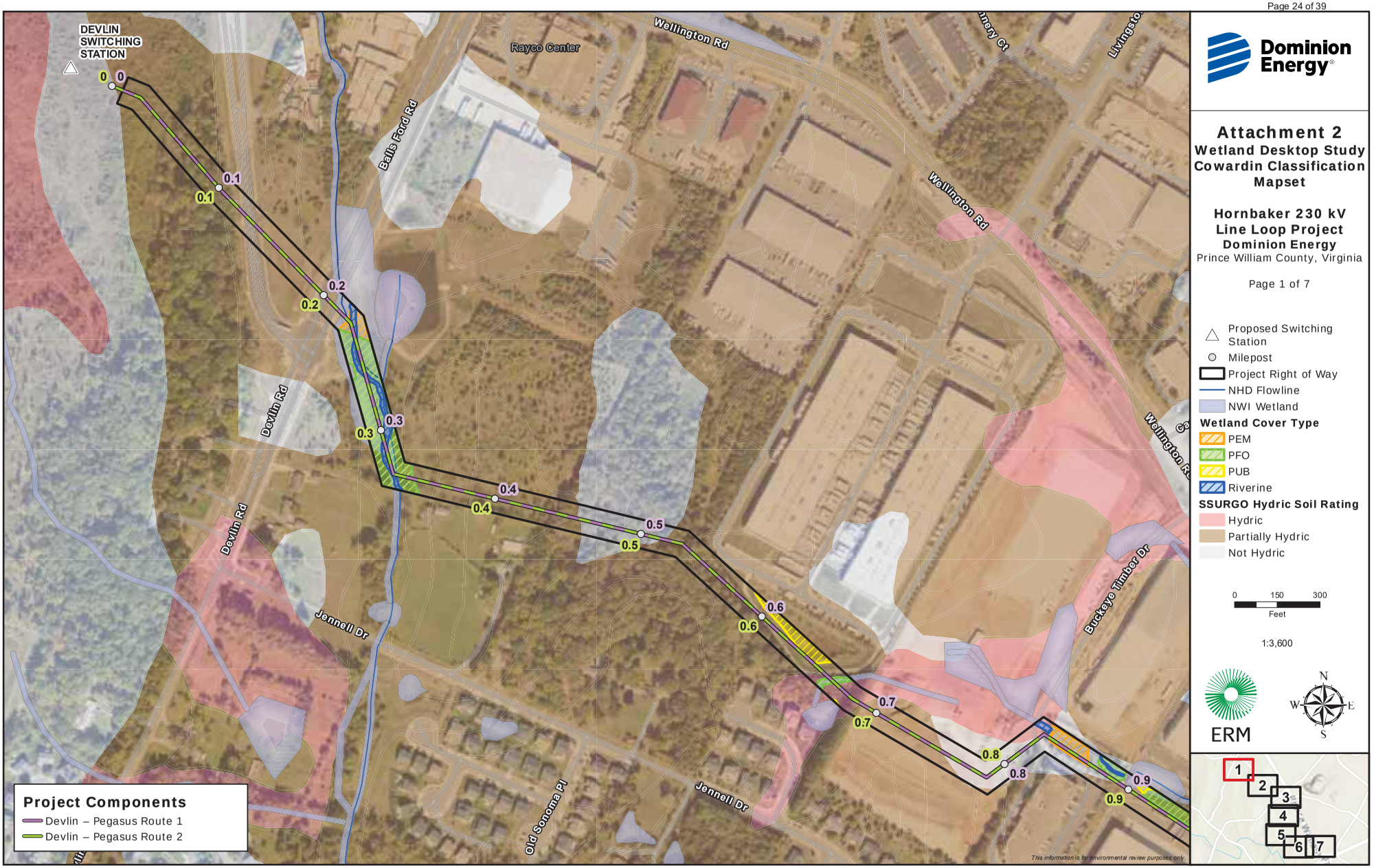

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Attachment 2
Wetland Desktop Study Cowardin Classification Mapset

Hornbaker 230 kV Line Loop Project
Dominion Energy
Prince William County, Virginia

Page 1 of 7

- Proposed Switching Station
- Milepost
- Project Right of Way
- NHD Flowline
- NWI Wetland

Wetland Cover Type
- PEM
- PFO
- PUB
- Riverine

SSURGO Hydric Soil Rating
- Hydric
- Partially Hydric
- Not Hydric

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Feet

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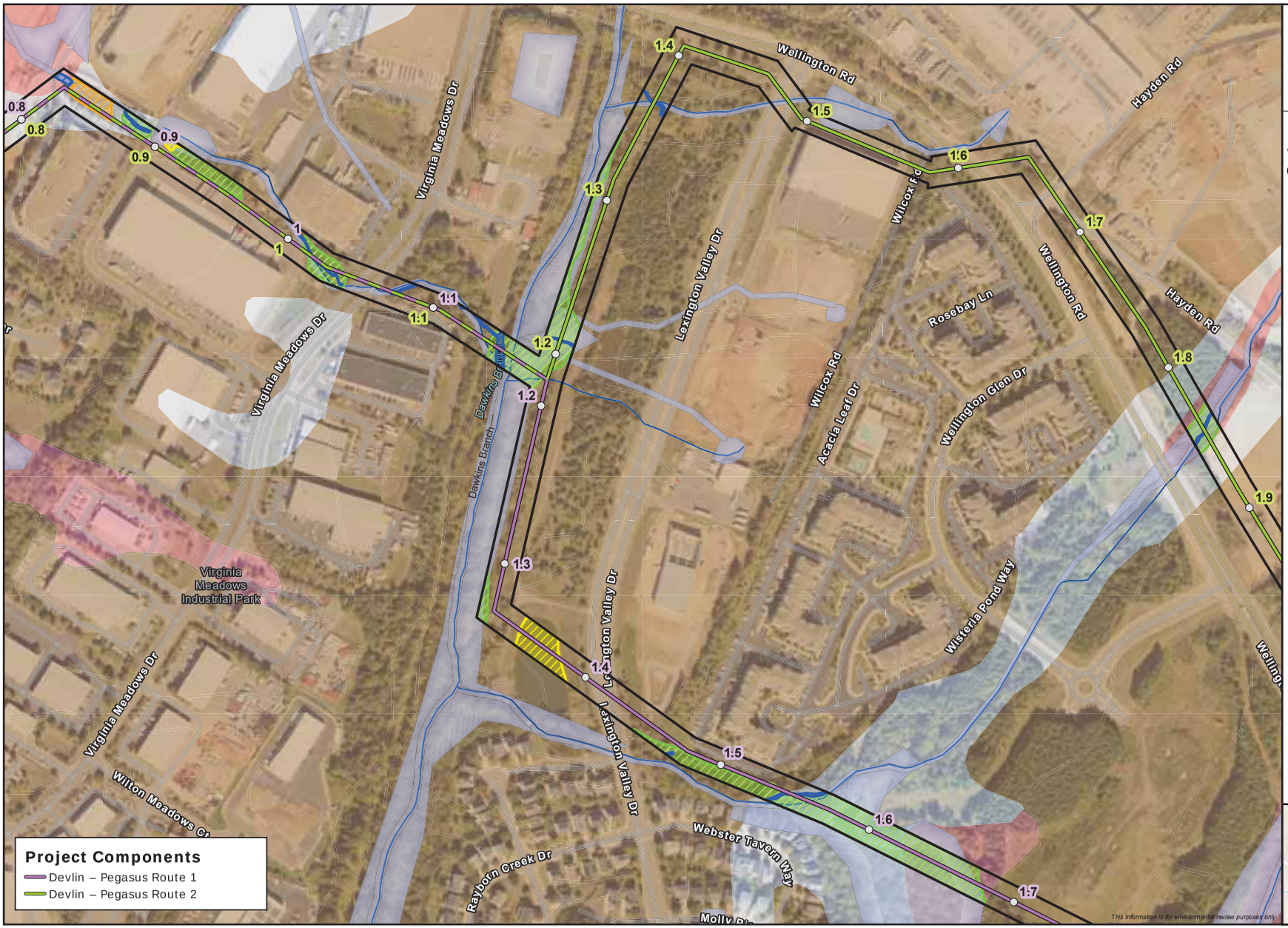

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Hornbaker 230 kV Line Loop Project
Dominion Energy
Prince William County, Virginia

Page 2 of 7

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- Partially Hydric
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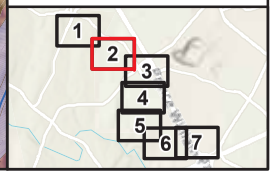

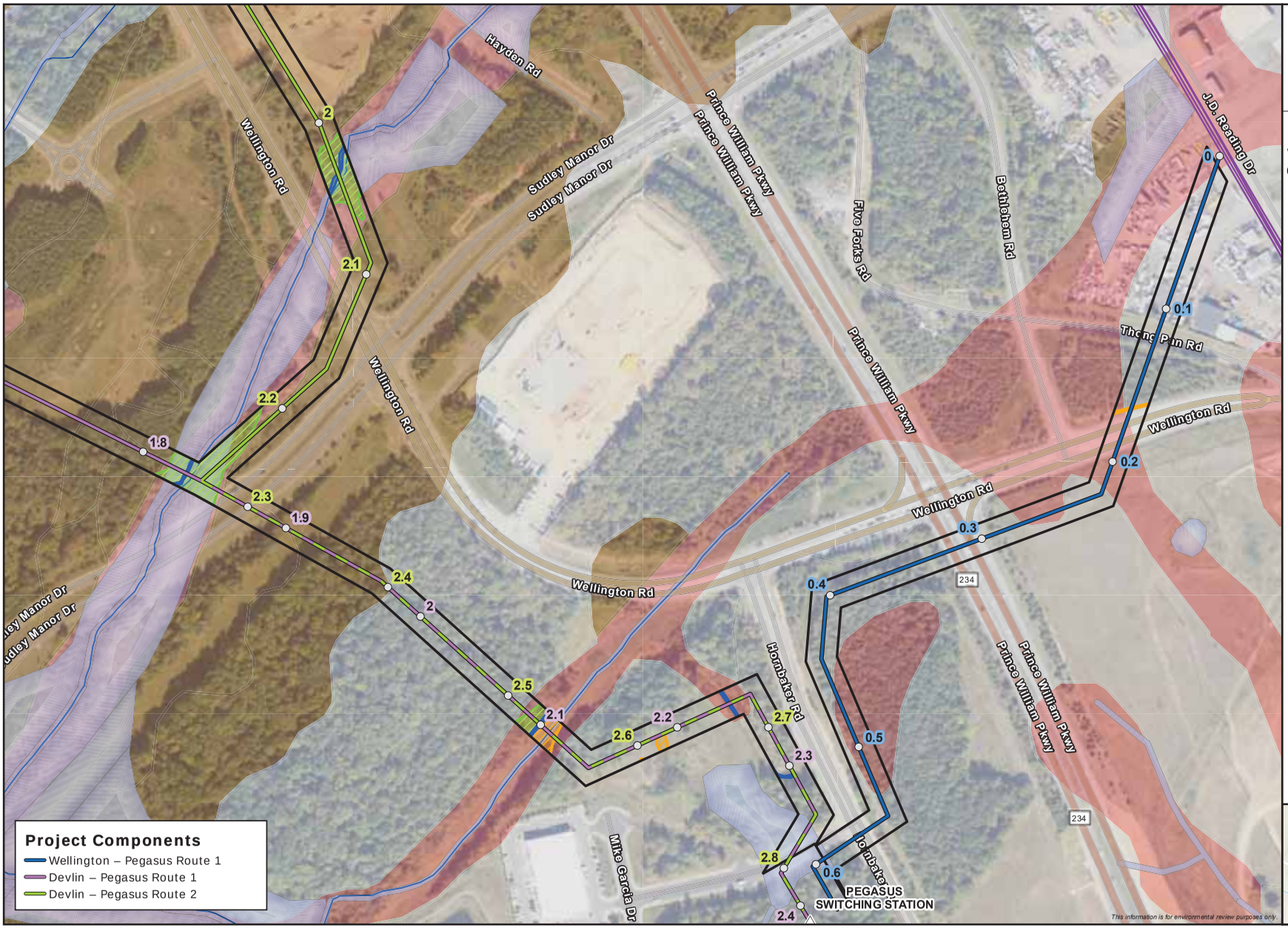

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Wetland Desktop Study
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Hornbaker 230 kV Line Loop Project
Dominion Energy
Prince William County, Virginia

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SSURGO Hydric Soil Rating
- Hydric
- Partially Hydric
- Not Hydric

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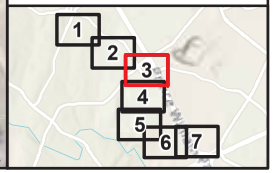

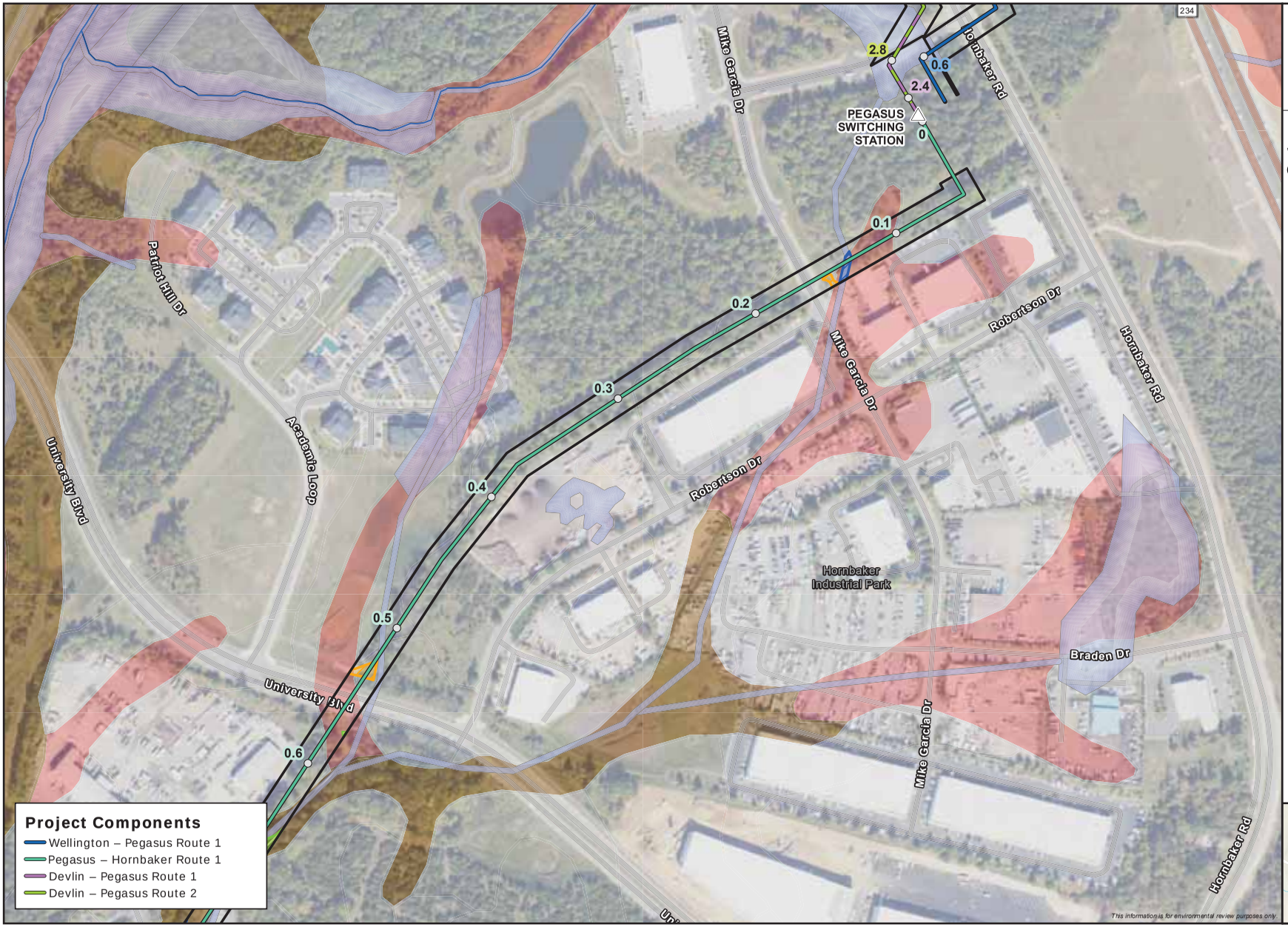

Project Components
- Wellington – Pegasus Route 1
- Pegasus – Hornbaker Route 1
- Devlin – Pegasus Route 1
- Devlin – Pegasus Route 2

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Attachment 2
Wetland Desktop Study Cowardin Classification Mapset

Hornbaker 230 kV Line Loop Project
Dominion Energy
Prince William County, Virginia

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- Proposed Switching Station
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SSURGO Hydric Soil Rating
- Hydric
- Partially Hydric
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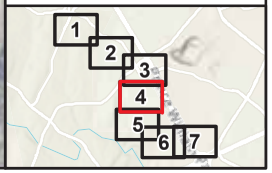

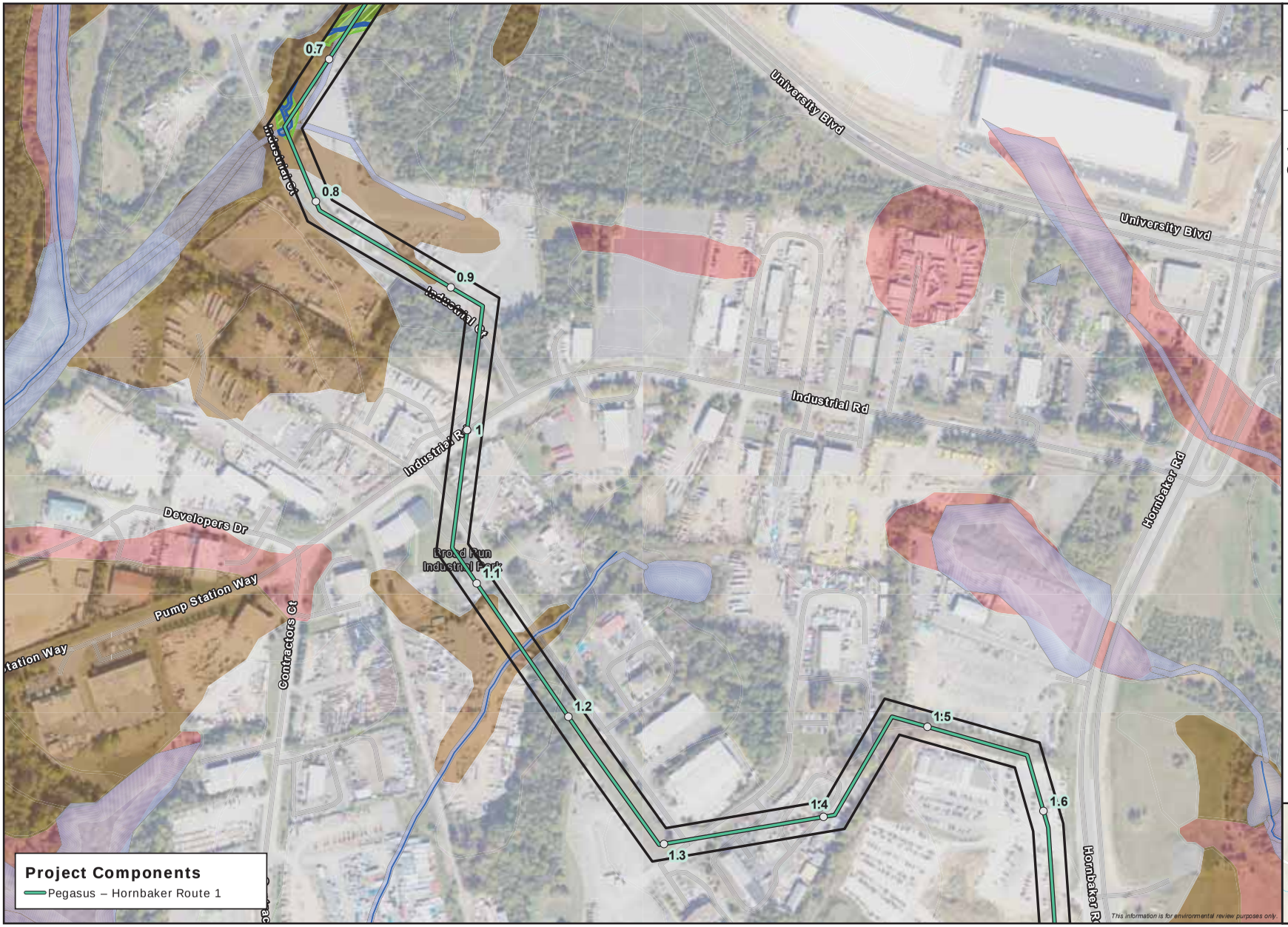

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Wetland Desktop Study
Cowardin Classification Mapset

Hornbaker 230 kV Line Loop Project
Dominion Energy
Prince William County, Virginia

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- Milepost
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Wetland Cover Type
- PEM
- PFO
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- Riverine

SSURGO Hydric Soil Rating
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- Partially Hydric
- Not Hydric

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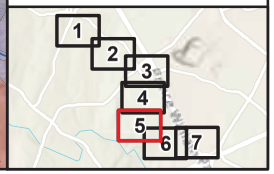

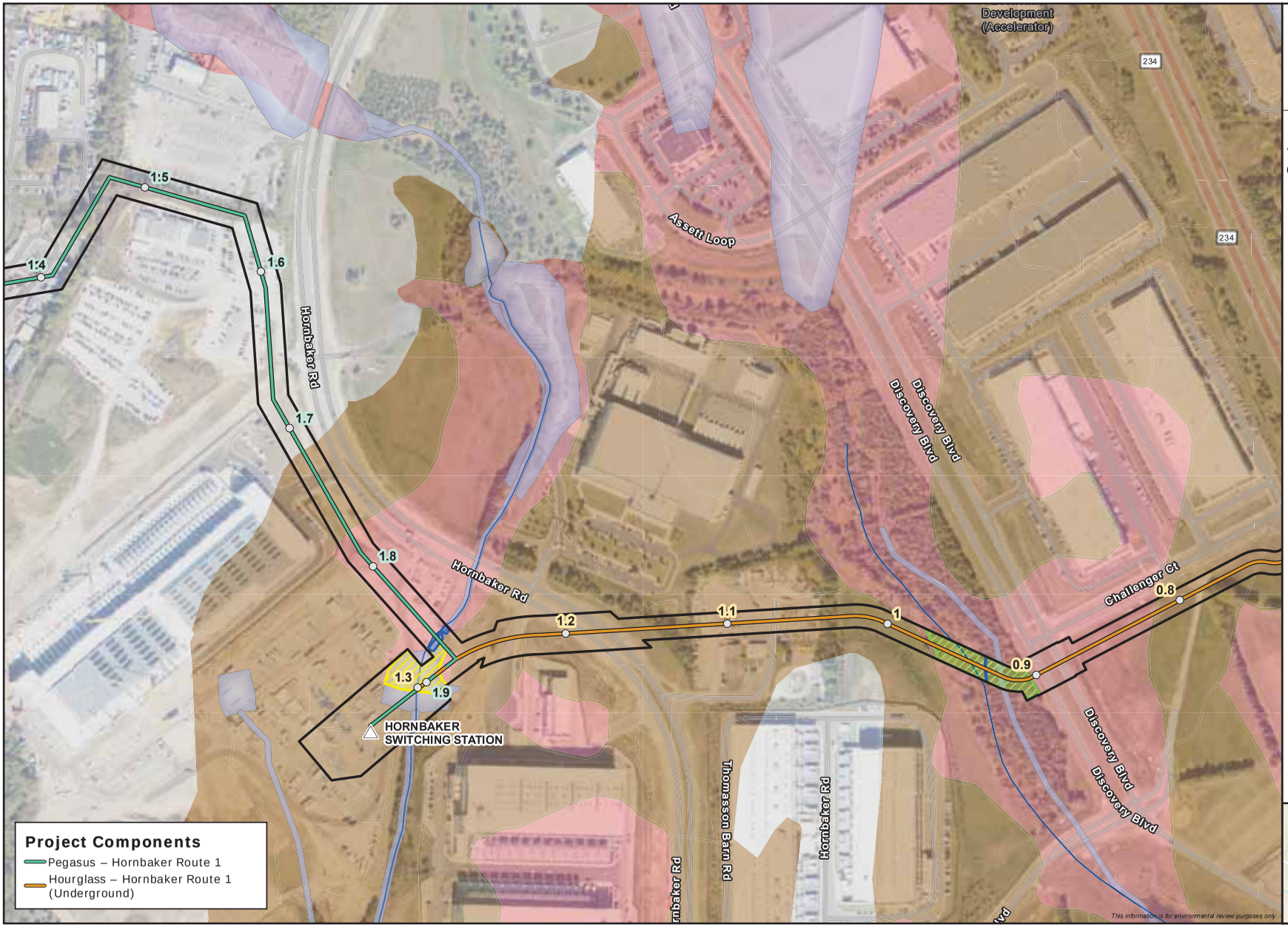

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Dominion Energy
Prince William County, Virginia

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Wetland Cover Type
- PEM
- PFO
- PUB
- Riverine

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- Not Hydric

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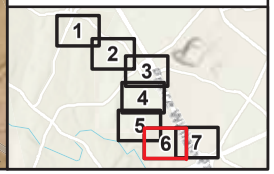

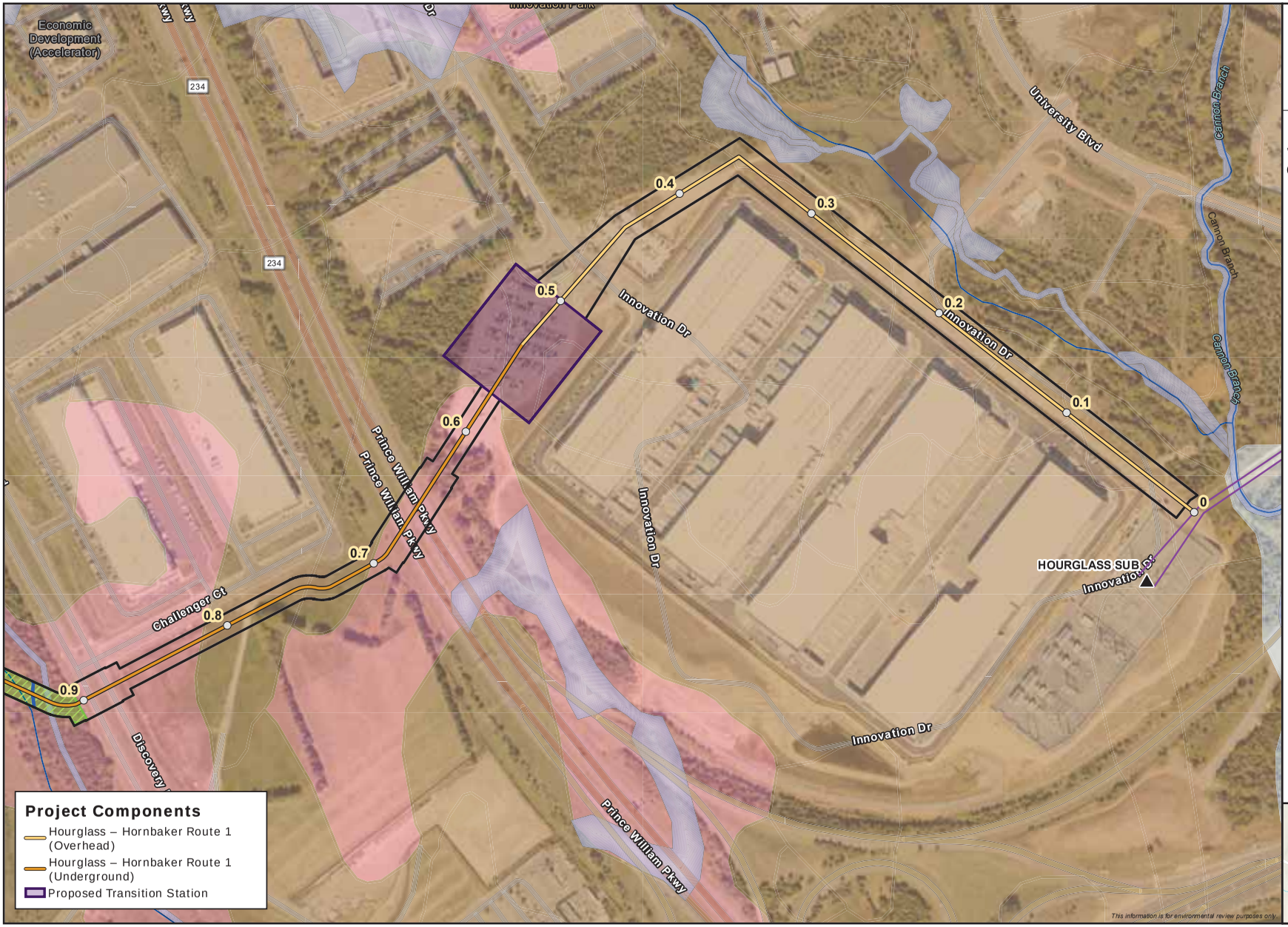

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Wetland Desktop Study
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Hornbaker 230 kV Line Loop Project
Dominion Energy
Prince William County, Virginia

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- Existing Substation
- Existing Dominion Transmission Line
- Milepost
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- NHD Flowline
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Wetland Cover Type
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- PFO
- PUB
- Riverine

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- Not Hydric

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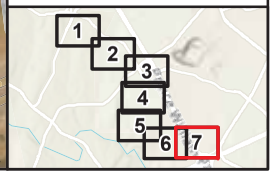

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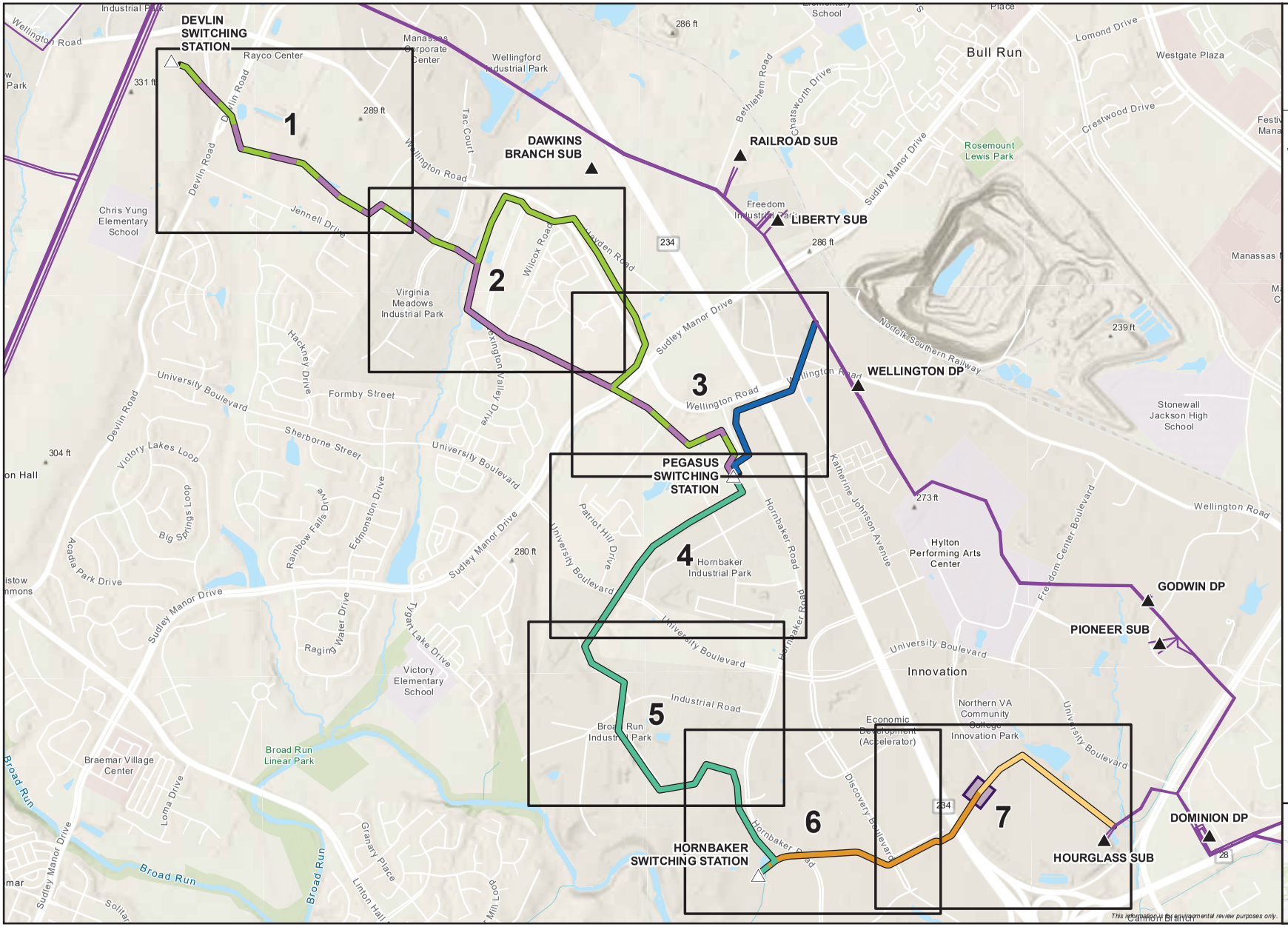

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Attachment 3
Wetland Desktop Study Probability Map Index

Hornbaker 230 kV Line Loop Project
Dominion Energy
Prince William County, Virginia

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- Devlin – Pegasus Route 2
- Page Index

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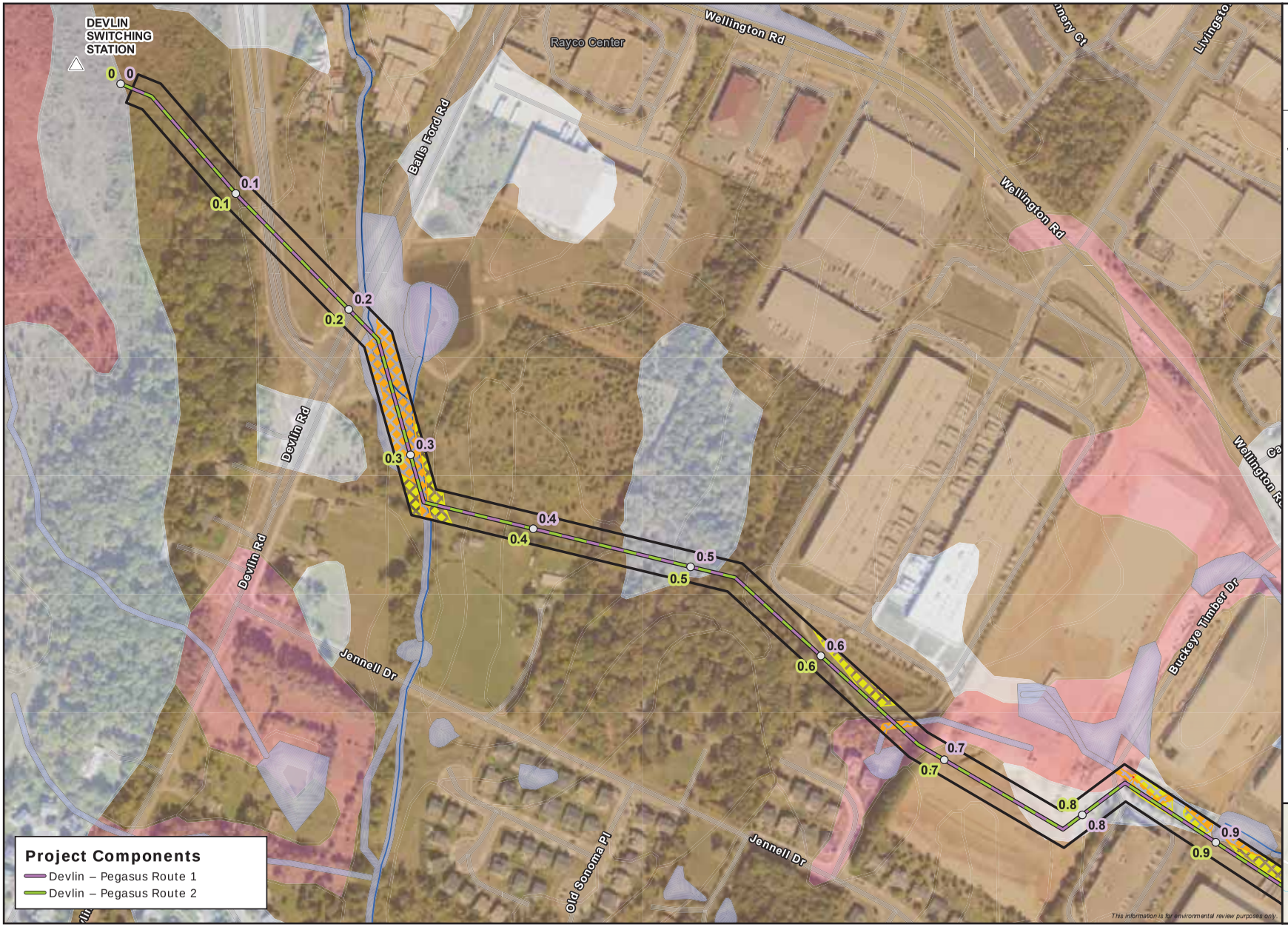

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Attachment 3
Wetland Desktop Study Probability Mapset

Hornbaker 230 kV Line Loop Project
Dominion Energy
Prince William County, Virginia

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- Proposed Substation/ Switching Station
- Milepost
- Project Right of Way
- NHD Flowline
- NWI Wetland

Wetland Probability
- High
- Medium/High
- Medium

SSURGO Hydric Soil Rating
- Hydric
- Partially Hydric
- Not Hydric

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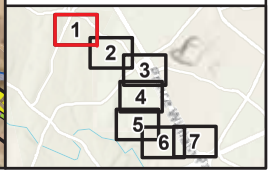

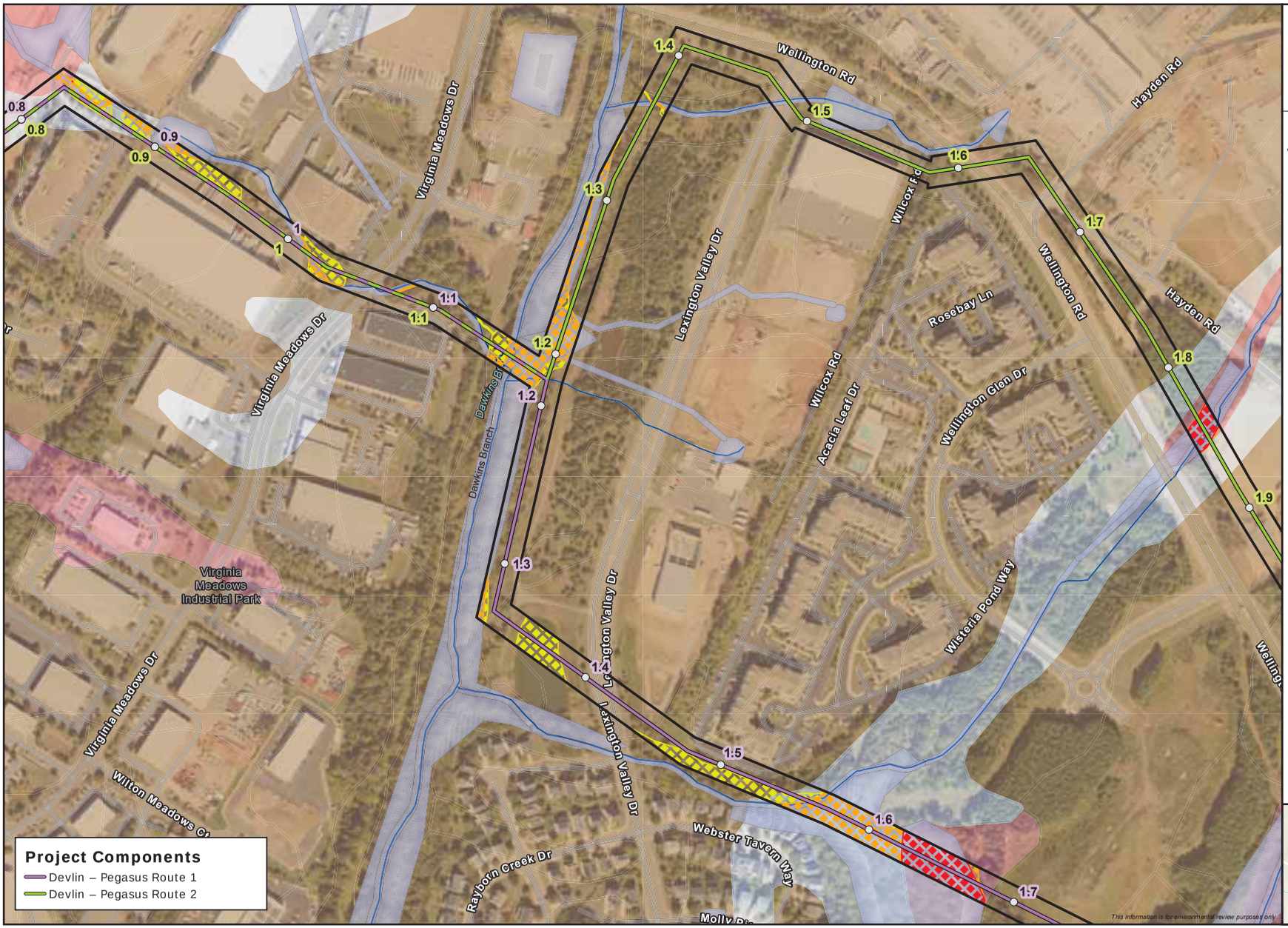

Dominion Energy

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Wetland Desktop Study Probability Mapset

Hornbaker 230 kV Line Loop Project
Dominion Energy
Prince William County, Virginia

Page 2 of 7

- Milepost
- Project Right of Way
- NHD Flowline
- NWI Wetland

Wetland Probability
- High
- Medium/High
- Medium

SSURGO Hydric Soil Rating
- Hydric
- Partially Hydric
- Not Hydric

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Feet

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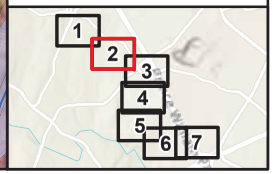

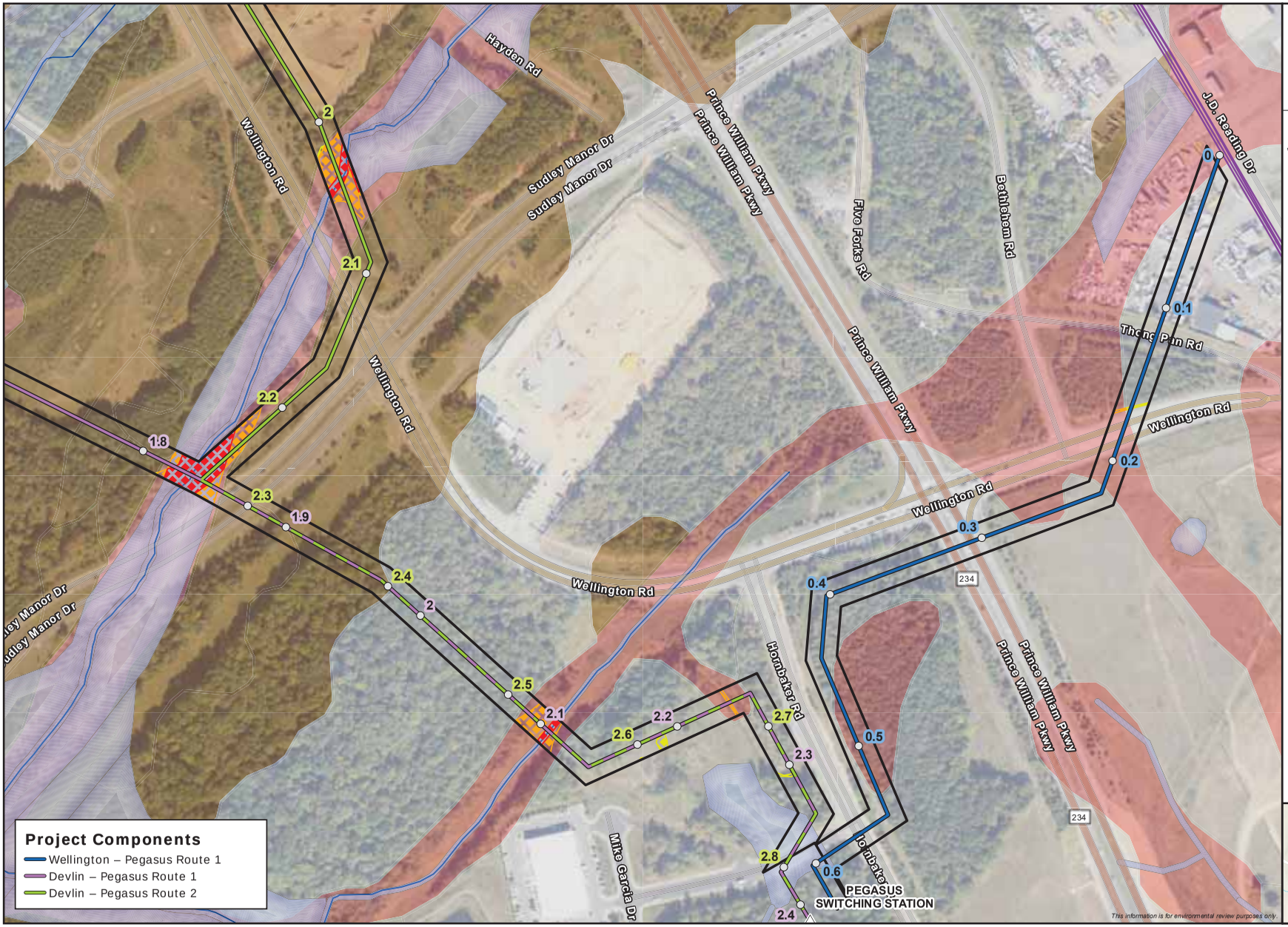

Dominion Energy

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Wetland Desktop Study Probability Mapset

Hornbaker 230 kV Line Loop Project
Dominion Energy
Prince William County, Virginia

Page 3 of 7

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SSURGO Hydric Soil Rating
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0 150 300
Feet

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ERM

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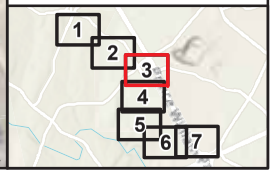
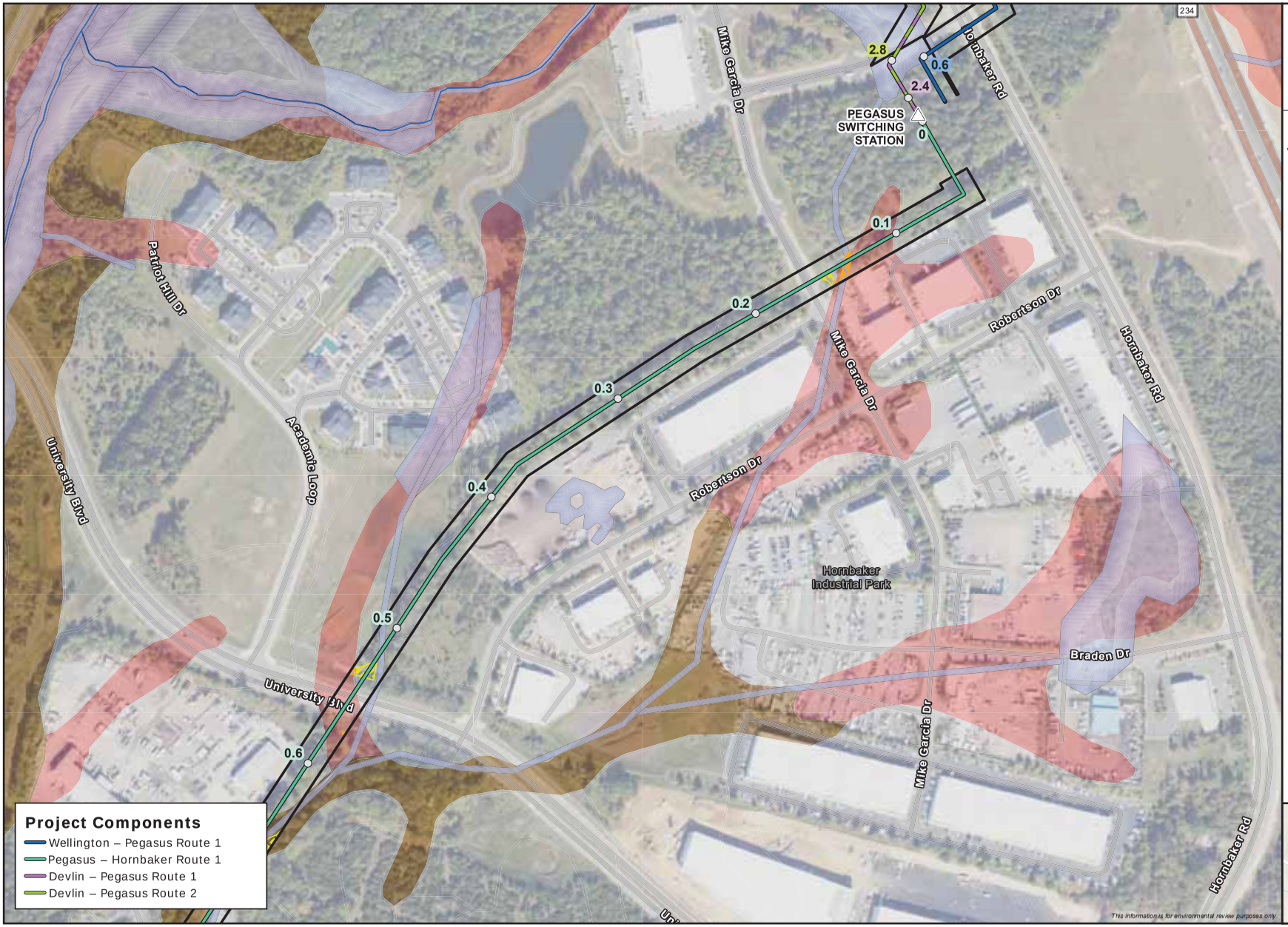




Dominion Energy

Attachment 3
Wetland Desktop Study Probability Mapset

Hornbaker 230 kV Line Loop Project
Dominion Energy
Prince William County, Virginia

Page 4 of 7

- Proposed Substation/ Switching Station
- Milepost
- Project Right of Way
- NHD Flowline
- NWI Wetland

Wetland Probability
- High
- Medium/High
- Medium

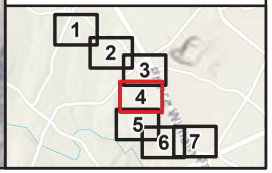
SSURGO Hydric Soil Rating
- Hydric
- Partially Hydric
- Not Hydric

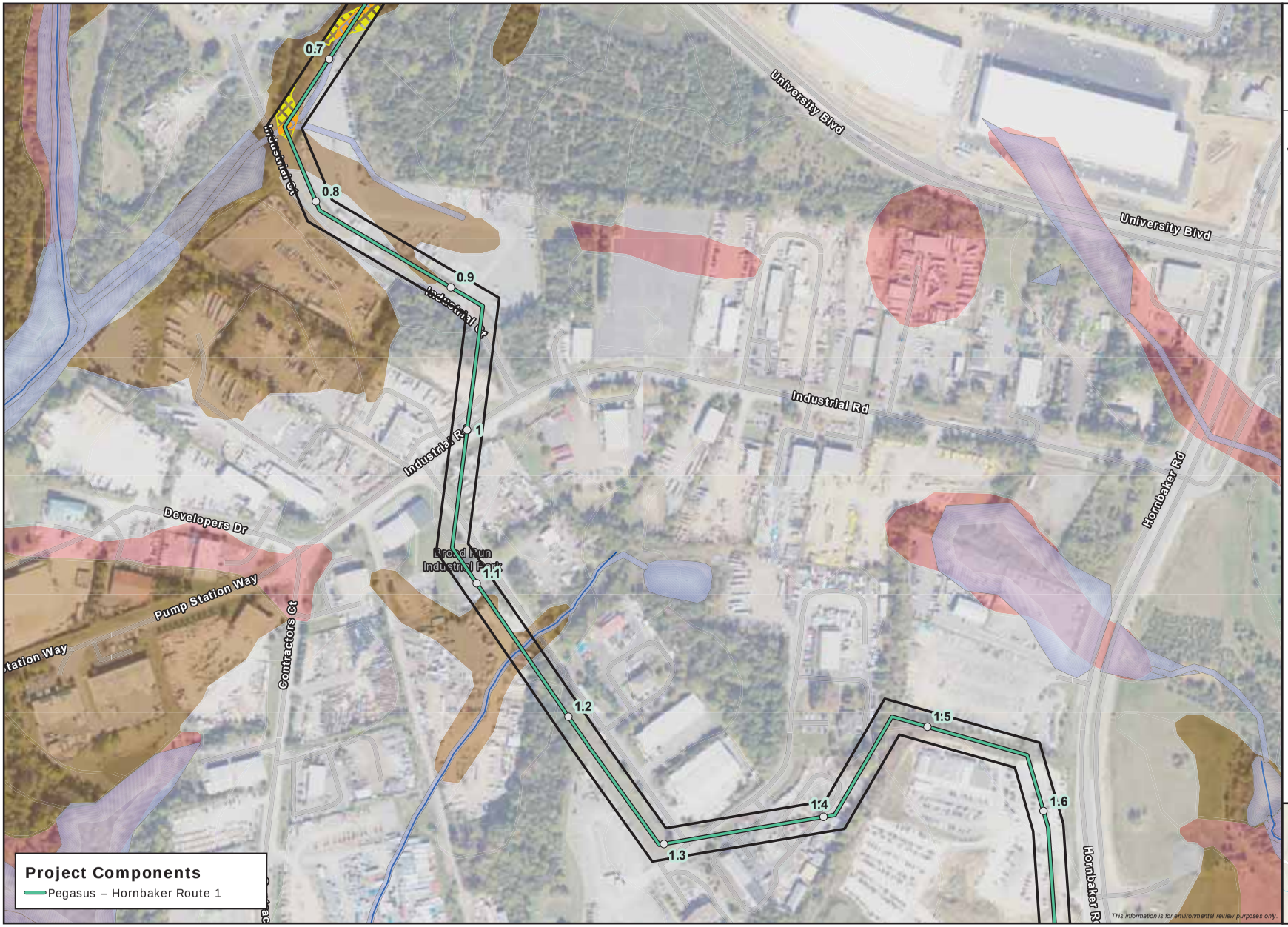
0 150 300
Feet

1:3,600

ERM

N
W E
S





Dominion Energy

Attachment 3
Wetland Desktop Study Probability Mapset

Hornbaker 230 kV Line Loop Project
Dominion Energy
Prince William County, Virginia

Page 5 of 7

- Milepost
- Project Right of Way
- NHD Flowline
- NWI Wetland

Wetland Probability
- High
- Medium/High
- Medium

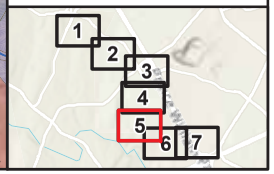
SSURGO Hydric Soil Rating
- Hydric
- Partially Hydric
- Not Hydric

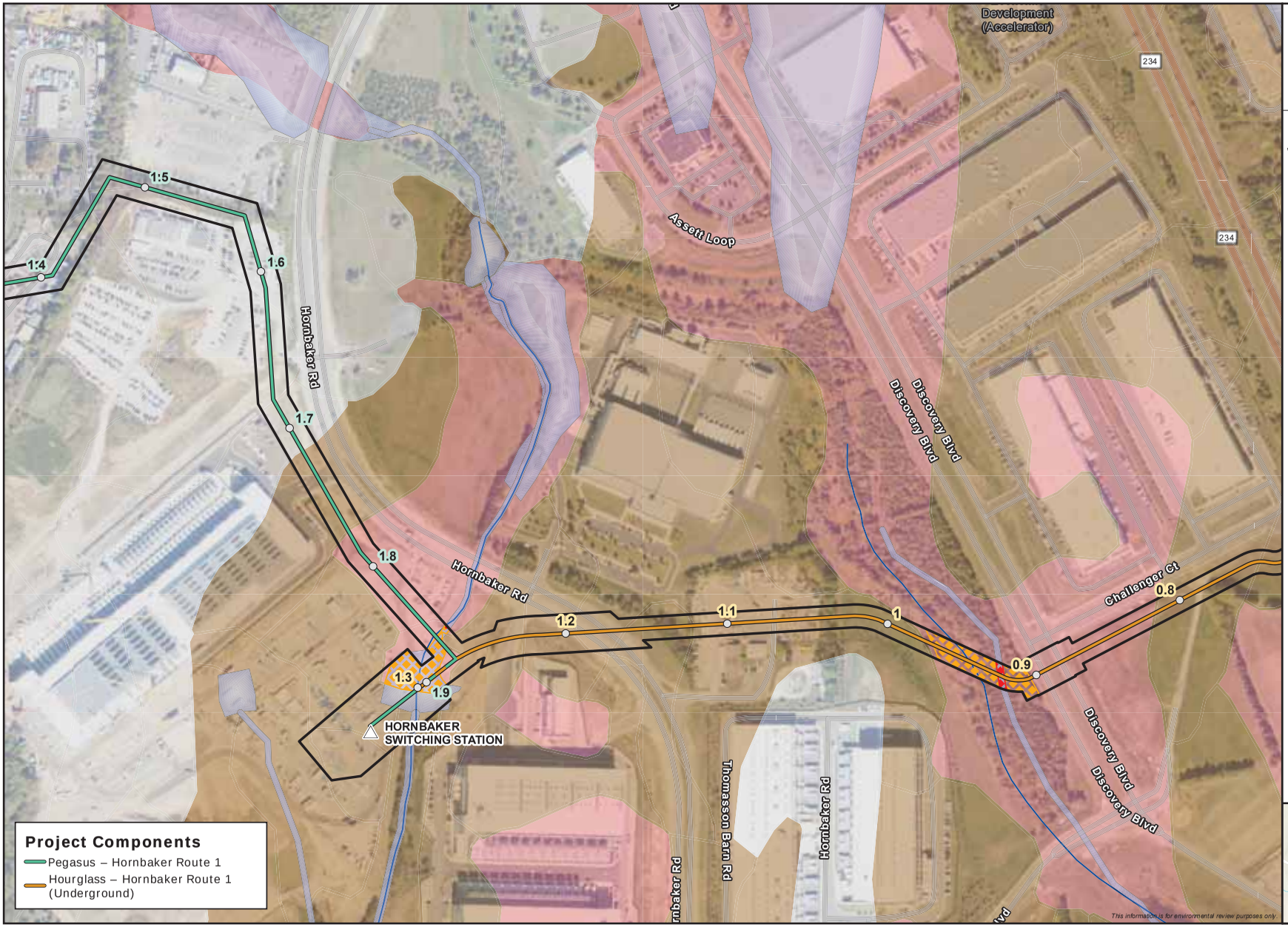
0 150 300
Feet

1:3,600

ERM

N W E S





Dominion Energy

Attachment 3
Wetland Desktop Study Probability Mapset

Hornbaker 230 kV Line Loop Project
Dominion Energy
Prince William County, Virginia

Page 6 of 7

- Proposed Substation/ Switching Station
- Milepost
- Project Right of Way
- NHD Flowline
- NWI Wetland

Wetland Probability
- High
- Medium/High
- Medium

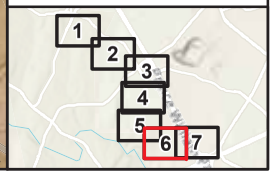
SSURGO Hydric Soil Rating
- Hydric
- Partially Hydric
- Not Hydric

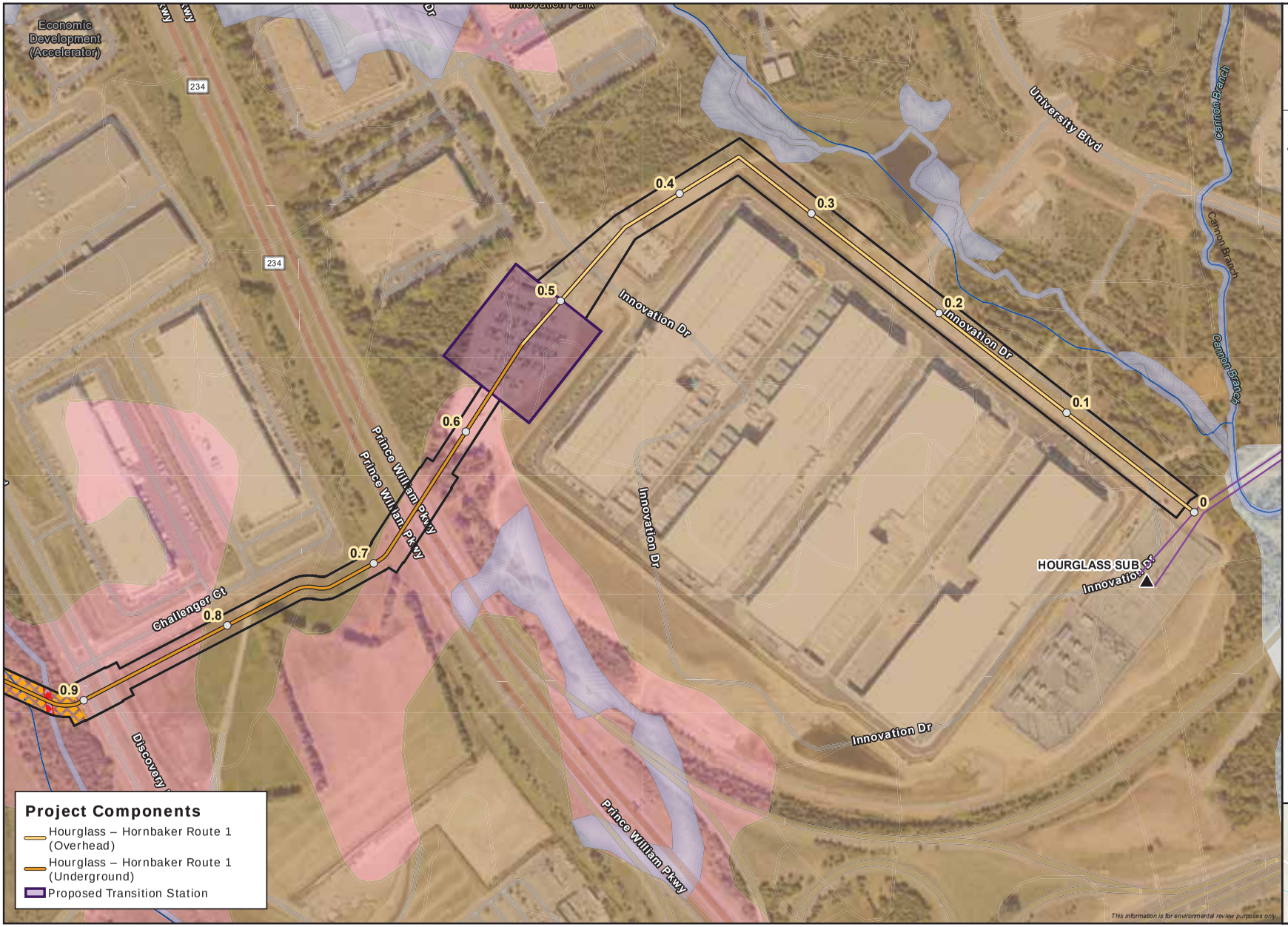
0 150 300
Feet

1:3,600

ERM

N W E S





Dominion Energy

Attachment 3
Wetland Desktop Study Probability Mapset

Hornbaker 230 kV Line Loop Project
Dominion Energy
Prince William County, Virginia

Page 7 of 7

- Existing Substation/ Switching Station
- Existing Dominion Transmission Line
- Milepost
- Project Right of Way
- NHD Flowline
- NWI Wetland

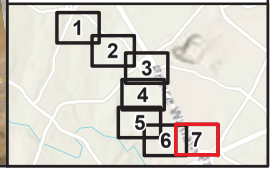
Wetland Probability
- High
- Medium/High
- Medium

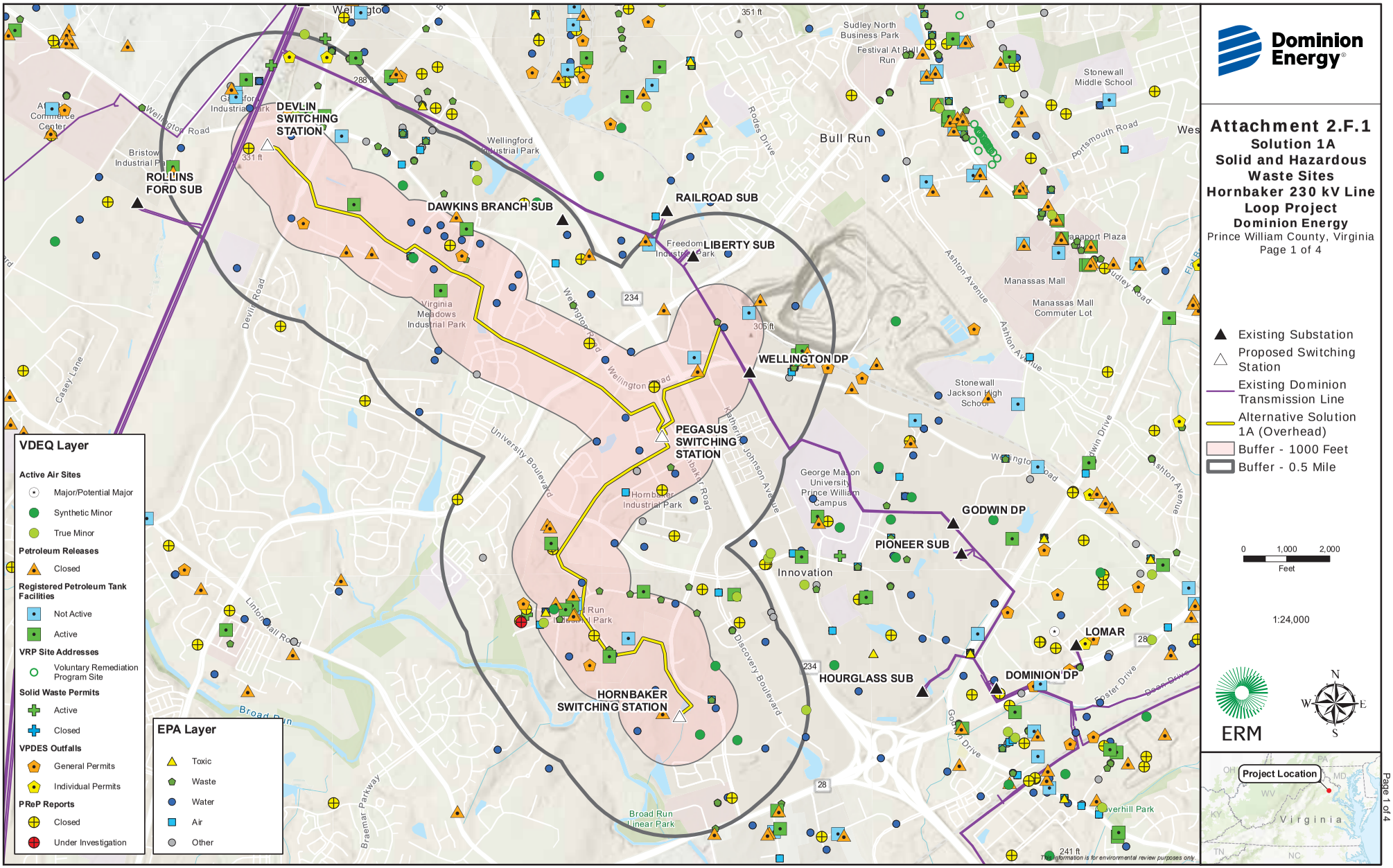
SSURGO Hydric Soil Rating
- Hydric
- Partially Hydric
- Not Hydric

0 150 300
Feet

1:3,600

ERM





Dominion Energy

Attachment 2.F.1
Solution 1A
Solid and Hazardous Waste Sites
Hornbaker 230 kV Line Loop Project
Dominion Energy

Prince William County, Virginia

- Existing Substation
- Proposed Switching Station
- Existing Dominion Transmission Line
- Alternative Solution 1A (Overhead)
- Buffer - 1000 Feet
- Buffer - 0.5 Mile

0 1,000 2,000
Feet

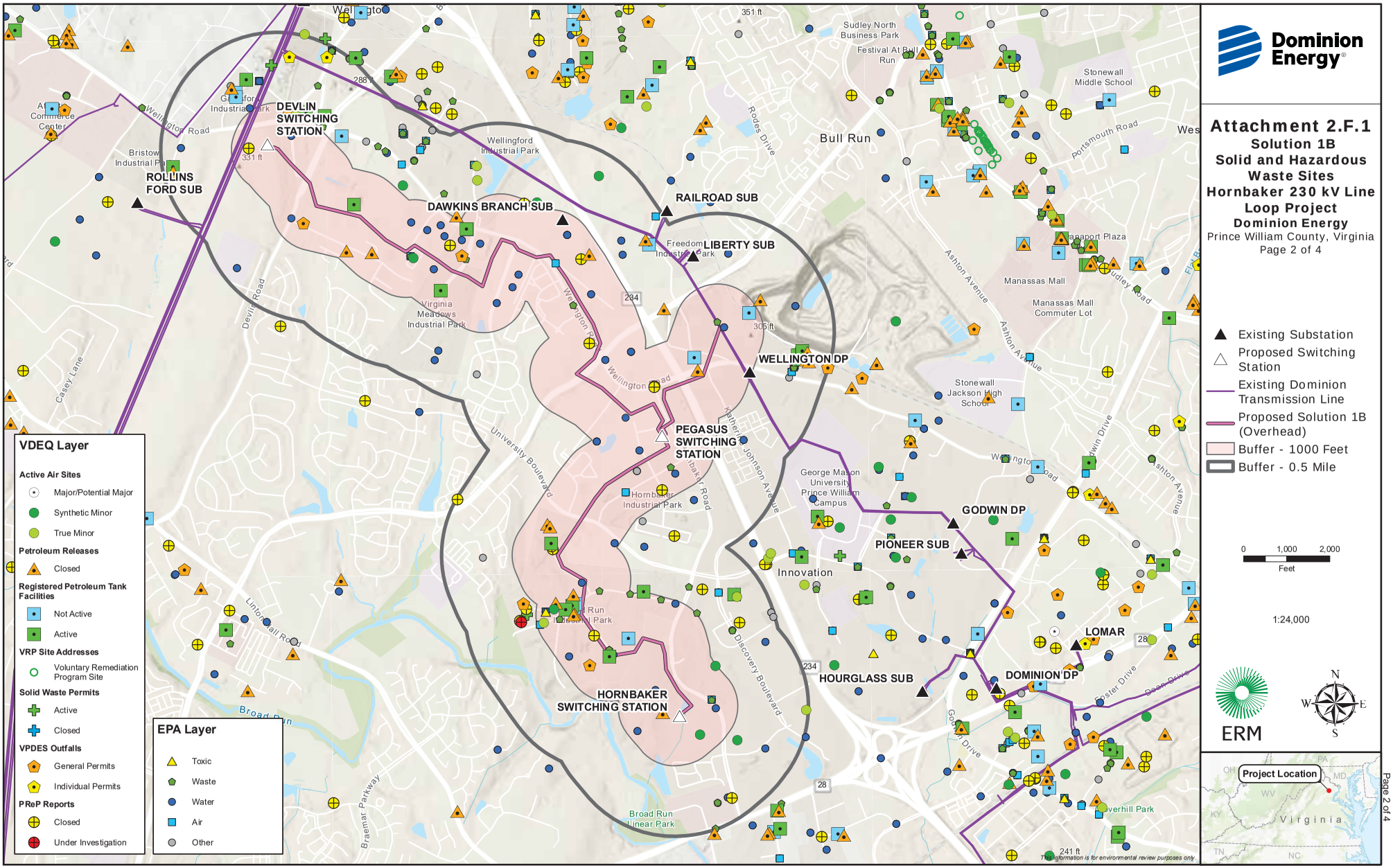
1:24,000

ERM

N W E S

Project Location

PA OH MD WV KY Virginia TN NC



Dominion Energy

Attachment 2.F.1
Solution 1B
Solid and Hazardous Waste Sites
Hornbaker 230 kV Line Loop Project
Dominion Energy

Prince William County, Virginia

- Existing Substation
- Proposed Switching Station
- Existing Dominion Transmission Line
- Proposed Solution 1B (Overhead)
- Buffer - 1000 Feet
- Buffer - 0.5 Mile

0 1,000 2,000
Feet

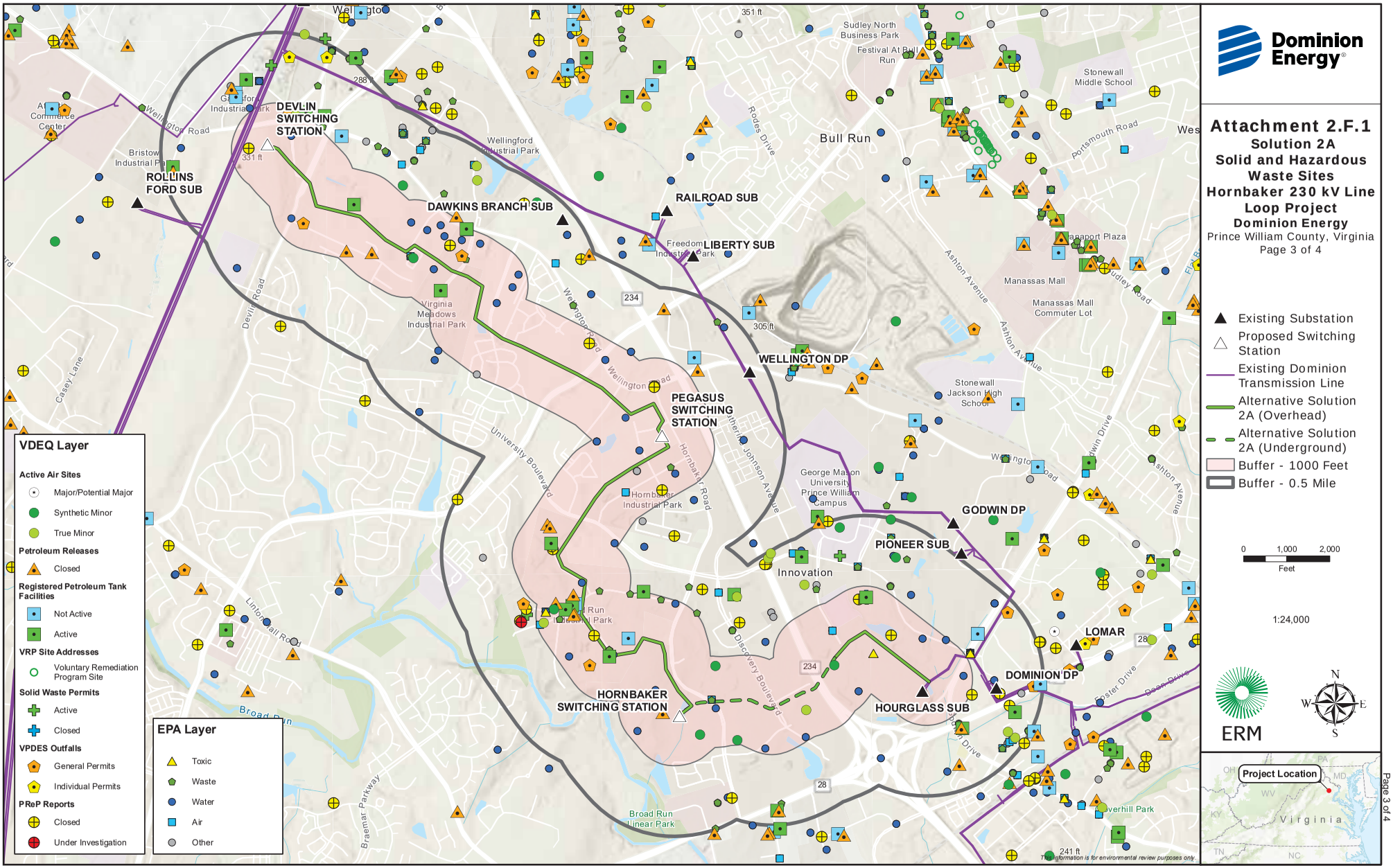
1:24,000

ERM

N W E S

Project Location

Virginia



Dominion Energy

Attachment 2.F.1

Solution 2A
Solid and Hazardous Waste Sites
Hornbaker 230 kV Line Loop Project
Dominion Energy
Prince William County, Virginia

- Existing Substation
- Proposed Switching Station
- Existing Dominion Transmission Line
- Alternative Solution 2A (Overhead)
- Alternative Solution 2A (Underground)
- Buffer - 1000 Feet
- Buffer - 0.5 Mile

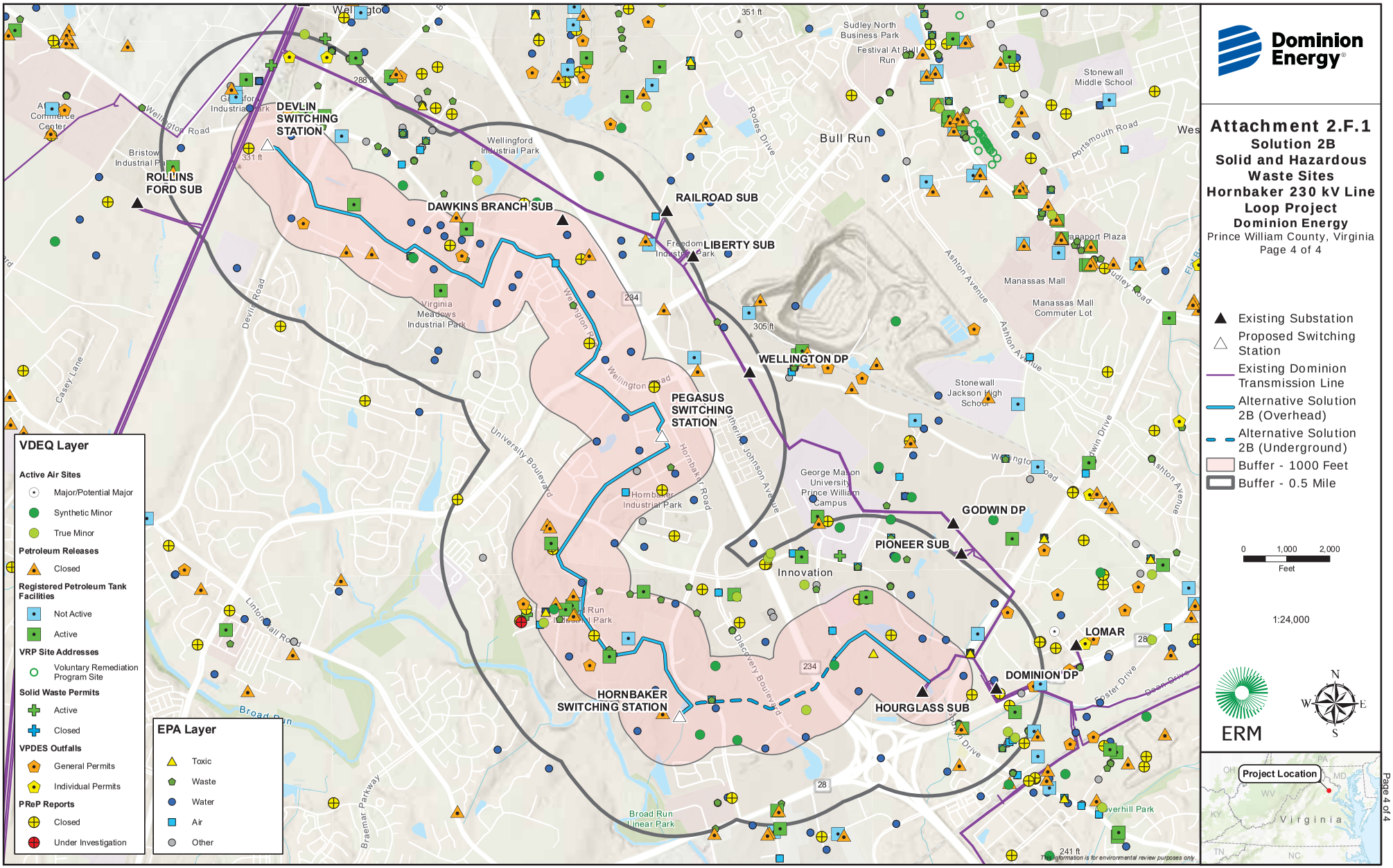
0 1,000 2,000
Feet

1:24,000

ERM

N W E S

Attachment 2.F.1
Page 3 of 4



VDEQ Layer

- **Active Air Sites**
  - Major/Potential Major
  - Synthetic Minor
  - True Minor
- **Petroleum Releases**
  - Closed
- **Registered Petroleum Tank Facilities**
  - Not Active
  - Active
- **VRP Site Addresses**
  - Voluntary Remediation Program Site
- **Solid Waste Permits**
  - Active
  - Closed
- **VPDES Outfalls**
  - General Permits
  - Individual Permits
- **PReP Reports**
  - Closed
  - Under Investigation

EPA Layer

- Toxic
- Waste
- Water
- Air
- Other

Dominion Energy®

Attachment 2.F.1
Solution 2B
Solid and Hazardous Waste Sites
Hornbaker 230 kV Line Loop Project
Dominion Energy

Prince William County, Virginia

- Existing Substation
- Proposed Switching Station
- Existing Dominion Transmission Line
- Alternative Solution 2B (Overhead)
- Alternative Solution 2B (Underground)
- Buffer - 1000 Feet
- Buffer - 0.5 Mile

0 1,000 2,000
Feet

1:24,000

ERM

N W E S

Project Location

COMMONWEALTH of VIRGINIA
DEPARTMENT OF CONSERVATION AND RECREATION

September 26, 2024

Briana Cooney
Environmental Resources Management, Inc.
222 South 9th Street, South 2900
Minneapolis, MN 55402

Re: 0577538, Devlin-Hornbaker

Dear Ms. Cooney:

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

According to the information in our files, the Vulcan Gainesville Tract Conservation Site is located within the project area, including a 100 foot buffer. Conservation sites are tools for representing key areas of the landscape that warrant further review for possible conservation action because of the natural heritage resources and habitat they support. Conservation sites are polygons built around one or more rare plant, animal, or natural community designed to include the element and, where possible, its associated habitat, and buffer or other adjacent land thought necessary for the element's conservation. Conservation sites are given a biodiversity significance ranking (B-rank) based on the rarity, quality, and number of element occurrences they contain; on a scale of 1-5, 1 being most significant. The Vulcan Gainesville Tract Conservation Site has been assigned a B-rank of B3, which represents a site of high significance. The natural heritage resources associated with this site are:

Agalinis auriculata	Earleaf false foxglove	G3/S1/NL/NL
Pycnanthemum torreyi	Torrey's Mountain-mint	G2/S2/SOC/LT
Scleria ciliata var. ciliata	Hairy nutrush	G5TNR/S1/NL/NL
Solidago rigida var. rigida	Stiff goldenrod	G5T5/S2/NL/NL

To minimize adverse impacts to the documented natural heritage resources as a result of the proposed activities, DCR recommends avoidance of the conservation site. In addition, according to a DCR biologist and a predicted suitable habitat layer, there is a potential for additional populations of several rare plants, which are typically associated with prairie vegetation and inhabit semi open diabase glades in Virginia, to occur in the project area if suitable habitat exists on site. Diabase glades are characterized by historically fire dominated grassland vegetation on relatively nutrient rich soils underlain by Triassic bedrock. Diabase flatrock, a hard, dark-colored volcanic rock, is found primarily in northern Virginia counties and is located within the geologic formation known as the Triassic Basin. Where the bedrock is exposed, a distinctive community type of drought-tolerant plants occurs. Diabase flatrocks are extremely rare natural communities that are threatened by activities such as quarrying and

road construction (Rawinski, 1995).

In Northern Virginia, diabase supports occurrences of several global and state rare plant species: Earleaf False foxglove (Agalinis auriculata, G3/S1/NL/NL), American bluehearts (Buchnera americana, G5?/S1S2/NL/NL), Downy phlox (Phlox pilosa, G5/S1/NL/NL), Torrey's Mountain-mint (Pycnanthemum torreyi, G2/S2/SOC/LT), Stiff goldenrod (Solidago rigida var. rigida, G5T5/S2/NL/NL), and Hairy hedgenettle (Stachys arenicola, G5T4?/S1/NL/NL).

Please note that Torrey's Mountain-mint is currently classified as a species of concern by the United States Fish and Wildlife Service (USFWS) and listed as threatened by the Virginia Department of Agriculture and Consumer Services (VDACS).

Due to the potential for this site to support additional populations of diabase plants, DCR recommends an inventory for the resources 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 and available 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.

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. Upon review of the results, if it is determined the species is present, and there is a likelihood of a negative impact on the species, DCR-DNH will recommend coordination with VDACS to ensure compliance with Virginia's Endangered Plant and Insect Species Act.

Furthermore, the Broad Run - Cannon Branch Stream Conservation Site (SCS) is located within the project area. SCSs encompass stream/river reaches, waterbodies, and terrestrial contributing areas containing or associated with aquatic or semi-aquatic resources, including upstream and downstream reaches and tributaries up to 3-km stream distance from the aquatic resources. The size and dimensions of a SCS are based on the hydrology of the waterway and surrounding landscape, taking into consideration dam locations and whether the waterway is tidal. SCSs are given a biodiversity significance ranking (B-rank) based on the rarity, quality, and number of element occurrences they contain. The Broad Run - Cannon Branch SCS has been given a B-rank of B4, which represents a site of moderate significance. The natural heritage resource associated with this SCS is:

Alasmidonta varicosa	Brook floater	G2G4/S1/NL/LE

The Brook floater is a small freshwater mussel species that is known from the northeastern United States primarily in the Atlantic Slope drainages (NatureServe, 2009). In Virginia, it is recorded from the Potomac River basin with a possible record from the James River. Of 14 documented records in Virginia, only two are thought to be viable. Population declines have been documented throughout its range (NatureServe, 2009). The Brook floater typically inhabits flowing-water habitats in and near riffles and rapids of smaller creeks with rocky or gravelly substrates (Nedeau et al., 2000 per NatureServe, 2009). Many facets of its life history are unknown including its fish host. Please note that this species is currently listed as endangered by the Virginia Department of Wildlife Resources (VDWR).

Considered good indicators of the health of aquatic ecosystems, freshwater mussels are dependent on good water quality, good physical habitat conditions, and an environment that will support populations of host fish species (Williams et al., 1993). Because mussels are sedentary organisms, they are sensitive to water quality degradation related to increased sedimentation and pollution. They are also sensitive to habitat destruction through dam construction, channelization, and dredging, and the invasion of exotic mollusk species. Threats for the Brook floater in particular include poor water quality as this species does not tolerate silt or nutrient pollution well (Stevenson and Bruenderman, 1995). Due to the legal status of the Brook floater, DCR recommends coordination with Virginia's regulatory authority for the management and protection of this species, the VDWR, to ensure compliance with the Virginia Endangered Species Act (VA ST §§ 29.1-563 – 570).

In addition, Broad Run has been designated by the VDWR as a "Threatened and Endangered Species Water" for the Brook floater.

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 $1000.00 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 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 at https://services.dwr.virginia.gov/fwis/ or contact Hannah Schul at Hannah.Schul@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

CC: Hannah Schul, VDWR

Literature Cited

NatureServe. 2009. NatureServe Explorer: An online encyclopedia of life [web application]. Version 7.1. NatureServe, Arlington, Virginia. Available http://www.natureserve.org/explorer. (Accessed: March 16, 2010).

Nedeau, E.J., M.A. McCollough, and B.I. Swartz. 2000. The freshwater mussels of Maine. Maine Department of Inland Fisheries and Wildlife, Augusta, Maine. 118 pp.

Rawinski, T.J. 1995. Natural communities and ecosystems: Conservation priorities for the future. Unpublished report for DCR-DNH.

Stevenson, Phillip H. and Sue A. Bruenderman 1995. A Guide to Endangered and Threatened Species of Virginia. K. Terwilliger ed. The McDonald and Woodward Publishing Company, Blacksburg, Virginia. p. 74.

Williams, J.D., M.L. Warren, Jr., K.S. Cummings, J.L. Harris, and R.J. Neves. 1993. Conservation status of freshwater mussels of the United States and Canada. Fisheries 18: 6 9.

VaFWIS Search Report Compiled on 9/19/2024, 3:36:04 PM

Help

Known or likely to occur within a **2 mile buffer around polygon; center 38.7601400 -77.5834899** in **153 Prince William County, 683 Manassas City, VA**

View Map of Site Location

566 Known or Likely Species ordered by Status Concern for Conservation (displaying first 30) (30 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
010032	FESE	Ib	Sturgeon, Atlantic	Acipenser oxyrinchus		BOVA
060029	FTST	IIa	Lance, yellow	Elliptio lanceolata	Yes	BOVA,SppObs,HU6
050020	SE	Ia	Bat, little brown	Myotis lucifugus		BOVA
050027	FPSE	Ia	Bat, tri-colored	Perimyotis subflavus		BOVA
060006	SE	Ib	Floater, brook	Alasmidonta varicosa	Yes	BOVA,TEWaters,Habitat,SppObs,HU6
030062	ST	Ia	Turtle, wood	Glyptemys insculpta	Potential	Habitat,HU6
040096	ST	Ia	Falcon, peregrine	Falco peregrinus		BOVA
040293	ST	Ia	Shrike, loggerhead	Lanius ludovicianus	Potential	BOVA,BBA
040379	ST	Ia	Sparrow, Henslow's	Centronyx henslowii		BOVA,HU6
100155	ST	Ia	Skipper, Appalachian grizzled	Pyrgus wyandot		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
030012	CC	IVa	Rattlesnake, timber	Crotalus horridus		BOVA,HU6
010077		Ia	Shiner, bridle	Notropis bifrenatus		BOVA

040040		Ia	Ibis, glossy	Plegadis falcinellus		HU6
040306		Ia	Warbler, golden-winged	Vermivora chrysoptera		BOVA
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	Potential	BOVA,BBA,HU6
040203		IIb	Cuckoo, black-billed	Coccyzus erythropthalmus	Potential	BOVA,BBA
040105		IIb	Rail, king	Rallus elegans		BOVA
040304		IIc	Warbler, Swainson's	Limnothlypis swainsonii		HU6
100154		IIc	Butterfly, Persius duskywing	Erynnis persius persius		HU6
100166		IIc	Skipper, Dotted	Hesperia attalus slossonae		HU6

To view **All 566 species** View 566

*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

N/A

Impediments to Fish Passage (1 records)

View Map of All Fish Impediments

ID	Name	River	View Map
1259	LAKE VIEW ESTATES DAM	TR-ROCKY BRANCH	Yes

Colonial Water Bird Survey

N/A

Threatened and Endangered Waters (46 Reaches - displaying first 20)

View Map of All Threatened and Endangered Waters

Stream Name	T&E Waters Species						View Map
	Highest TE*	BOVA Code, Status*, Tier**, Common & Scientific Name					
(013393)	SE	060006	SE	Ib	Floater, brook	Alasmidonta varicosa	Yes
(020380)	SE	060006	SE	Ib	Floater, brook	Alasmidonta varicosa	Yes
(020411)	SE	060006	SE	Ib	Floater, brook	Alasmidonta varicosa	Yes
Broad Run (013301)	SE	060006	SE	Ib	Floater, brook	Alasmidonta varicosa	Yes
Broad Run (014025)	SE	060006	SE	Ib	Floater, brook	Alasmidonta varicosa	Yes
Broad Run (014993)	SE	060006	SE	Ib	Floater, brook	Alasmidonta varicosa	Yes
Broad Run (015607)	SE	060006	SE	Ib	Floater, brook	Alasmidonta varicosa	Yes
Broad Run (015608)	SE	060006	SE	Ib	Floater, brook	Alasmidonta varicosa	Yes
Broad Run (016525)	SE	060006	SE	Ib	Floater, brook	Alasmidonta varicosa	Yes
Broad Run (017701)	SE	060006	SE	Ib	Floater, brook	Alasmidonta varicosa	Yes

Broad Run (017774)	SE	060006	SE	Ib	Floater, brook	Alasmidonta varicosa	Yes
Broad Run (017812)	SE	060006	SE	Ib	Floater, brook	Alasmidonta varicosa	Yes
Broad Run (017869)	SE	060006	SE	Ib	Floater, brook	Alasmidonta varicosa	Yes
Broad Run (018444)	SE	060006	SE	Ib	Floater, brook	Alasmidonta varicosa	Yes
Broad Run (019062)	SE	060006	SE	Ib	Floater, brook	Alasmidonta varicosa	Yes
Broad Run (019463)	SE	060006	SE	Ib	Floater, brook	Alasmidonta varicosa	Yes
Broad Run (019494)	SE	060006	SE	Ib	Floater, brook	Alasmidonta varicosa	Yes
Broad Run (019519)	SE	060006	SE	Ib	Floater, brook	Alasmidonta varicosa	Yes
Broad Run (019594)	SE	060006	SE	Ib	Floater, brook	Alasmidonta varicosa	Yes
Broad Run (019611)	SE	060006	SE	Ib	Floater, brook	Alasmidonta varicosa	Yes
Broad Run (020191)	SE	060006	SE	Ib	Floater, brook	Alasmidonta varicosa	Yes
Broad Run (020238)	SE	060006	SE	Ib	Floater, brook	Alasmidonta varicosa	Yes
Broad Run (021076)	SE	060006	SE	Ib	Floater, brook	Alasmidonta varicosa	Yes

To view **All 46 Threatened and Endangered Waters records** View 46

Managed Trout Streams

N/A

Bald Eagle Concentration Areas and Roosts

N/A

Bald Eagle Nests

N/A

Species Observations (199 records - displaying first 20 , 13 Observations with Threatened or Endangered species)

View Map of All Query Results
Species Observations

obsID	class	Date Observed	Observer	N Species			View Map
				Different Species	Highest TE*	Highest Tier**	
55402	SppObs	Aug 21 1998	BEATY, WINTERRINGER, ZIMMERMAN, MAIR, JONES, DORSEY, CHEN, , AND GILBERT, VIRGINIA COOPERATIVE FISH AND WILDLIFE RESEARCH UNIT	6	FTSE	I	Yes
55694	SppObs	Aug 21 1998	Braven B. Beaty and Richard J. Neves, Virginia Cooperative Fish and Wildlife Unit, VA Tech	6	FTSE	I	Yes
3602	SppObs	Sep 24 1991	Div. Natural Heritage	4	FTSE	I	Yes
315311	SppObs	Sep 16 2005	D. Neves, J. Jones, A. Liberty, H. Dan, J. Schmerfeld, T. Bolton	2	FTST	II	Yes
306561	SppObs	Mar 27 2004	NEVES, WINSTON, WATSON, AND KRAVITZ, VIRGINIA COOPERATIVE FISH AND WILDLIFE RESEARCH UNIT, VA TECH	5	FTST	II	Yes
306560	SppObs	Mar 27 2004	NEVES, WINSTON, WATSON, AND KRAVITZ, VIRGINIA COOPERATIVE FISH AND WILDLIFE RESEARCH UNIT, VA TECH	5	FTST	II	Yes
56232	SppObs	Apr 10 1999	JESS JONES AND MATT PATERSON, VIRGINIA COOPERATIVE FISH AND WILDLIFE RESEARCH UNIT	3	FTST	II	Yes
55523	SppObs	Jul 8 1998	BEATY, PATTERSON, PRINGLE, AND ZEYTOONIAN, VIRGINIA COOPERATIVE FISH AND WILDLIFE RESEARCH UNIT.	4	FTST	II	Yes
55532	SppObs	Sep 4 1997	BEATY, AND JONES, VIRGINIA COOPERATIVE FISH AND WILDLIFE RESEARCH UNIT.	3	FTST	II	Yes
55533	SppObs	Sep 4 1997	BEATY, AND JONES, VIRGINIA COOPERATIVE FISH AND WILDLIFE RESEARCH UNIT.	4	FTST	II	Yes
648647	SppObs	Aug 15 2023	Caitlin Carey; Brian Watson; Brittany Bajo-Walker; Ki	5	SE	I	Yes
5952	SppObs	Aug 24 1993	Stevenson, P. H.	8	SE	I	Yes

5949	SppObs	Aug 23 1993	Stevenson, P. H.	9	SE	I	Yes
608015	SppObs	Jul 12 2009	Mark; Causey	1		III	Yes
607558	SppObs	Jun 6 2009	Mark; Causey	1		III	Yes
602319	SppObs	May 29 2009	Mark; Causey	1		III	Yes
603467	SppObs	May 29 2009	Mark; Causey	1		III	Yes
605908	SppObs	May 28 2009	Mark; Causey	1		III	Yes
607095	SppObs	Jul 12 2008	Mark; Causey	1		III	Yes
320587	SppObs	Jun 23 2007	Mark Causey	1		III	Yes

Displayed 20 Species Observations

Selected 199 Observations View all 199 Species Observations

Habitat Predicted for Aquatic WAP Tier I & II Species (9 Reaches)

View Map Combined Reaches from Below of Habitat Predicted for WAP Tier I & II Aquatic Species

Stream Name	Tier Species						View Map
	Highest TE*	BOVA Code, Status*, Tier**, Common & Scientific Name					
Broad Run (20700102)	SE	060006	SE	Ib	Floater, brook	Alasmidonta varicosa	Yes
Chinn Branch (20700102)	ST	030062	ST	Ia	Turtle, wood	Glyptemys insculpta	Yes
Dawkins Branch (20700102)	SE	060006	SE	Ib	Floater, brook	Alasmidonta varicosa	Yes
Flat Branch (20700102)	SE	060006	SE	Ib	Floater, brook	Alasmidonta varicosa	Yes
Holkums Branch (20700102)	ST	030062	ST	Ia	Turtle, wood	Glyptemys insculpta	Yes
Kettle Run (20700102)	SE	060006	SE	Ib	Floater, brook	Alasmidonta varicosa	Yes
tributary (20700102)	ST	030062	ST	Ia	Turtle, wood	Glyptemys insculpta	Yes
tributary (20700102)	SE	060006	SE	Ib	Floater, brook	Alasmidonta varicosa	Yes

Youngs Branch (20700102)	ST	030062	ST	Ia	Turtle, wood	Glyptemys insculpta	Yes
Youngs Branch (20700102)	ST	030062	ST	Ia	Turtle, wood	Glyptemys insculpta	Yes

Habitat Predicted for Terrestrial WAP Tier I & II Species

N/A

Virginia Breeding Bird Atlas Blocks (11 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**	
50194	Gainesville, CE	38		III	Yes
50193	Gainesville, CW	48		III	Yes
50196	Gainesville, SE	74		III	Yes
50195	Gainesville, SW	45		III	Yes
51181	Independent Hill, NW	1			Yes
51193	Manassas, CW	76		II	Yes
51195	Manassas, SW	1			Yes
50184	Nokesville, CE	94	ST	I	Yes
50183	Nokesville, CW	69		III	Yes
50182	Nokesville, NE	84		II	Yes
50181	Nokesville, NW	84		II	Yes

Public Holdings: (2 names)

Name	Agency	Level
Manassas National Battlefield Park	National Park Service	Federal
Conway Robinson Memorial State Forest	VA Dept. of Forestry	State

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
153	Prince William	483	FESE	I
683	Manassas City	372	FESE	I

USGS 7.5' Quadrangles:
Nokesville
Gainesville
Independent Hill
Manassas

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
PL32	Broad Run-Catletts Branch	58	SE	I
PL33	Kettle Run	59	FTSE	I
PL34	Broad Run-Rocky Branch	59	FTSE	I
PL43	Little Bull Run	58	SE	I
PL44	Middle Bull Run	72	FTSE	I

Compiled on 9/19/2024, 3:36:04 PM I2410851.0 report=all searchType= P dist= 3218 poi= 38.7601400 -77.5834899 siteDD= 38.7601480 -77.5834938;38.7930580 -77.5652118;38.7820430 -77.5343738;38.7673220 -77.5184948;38.7413510 -77.5131738;38.7297690 -77.5463908;38.7601480 -77.5834938

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Site Location

38,45,36.5 -77,35,00.5
is **the Search Point**

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

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

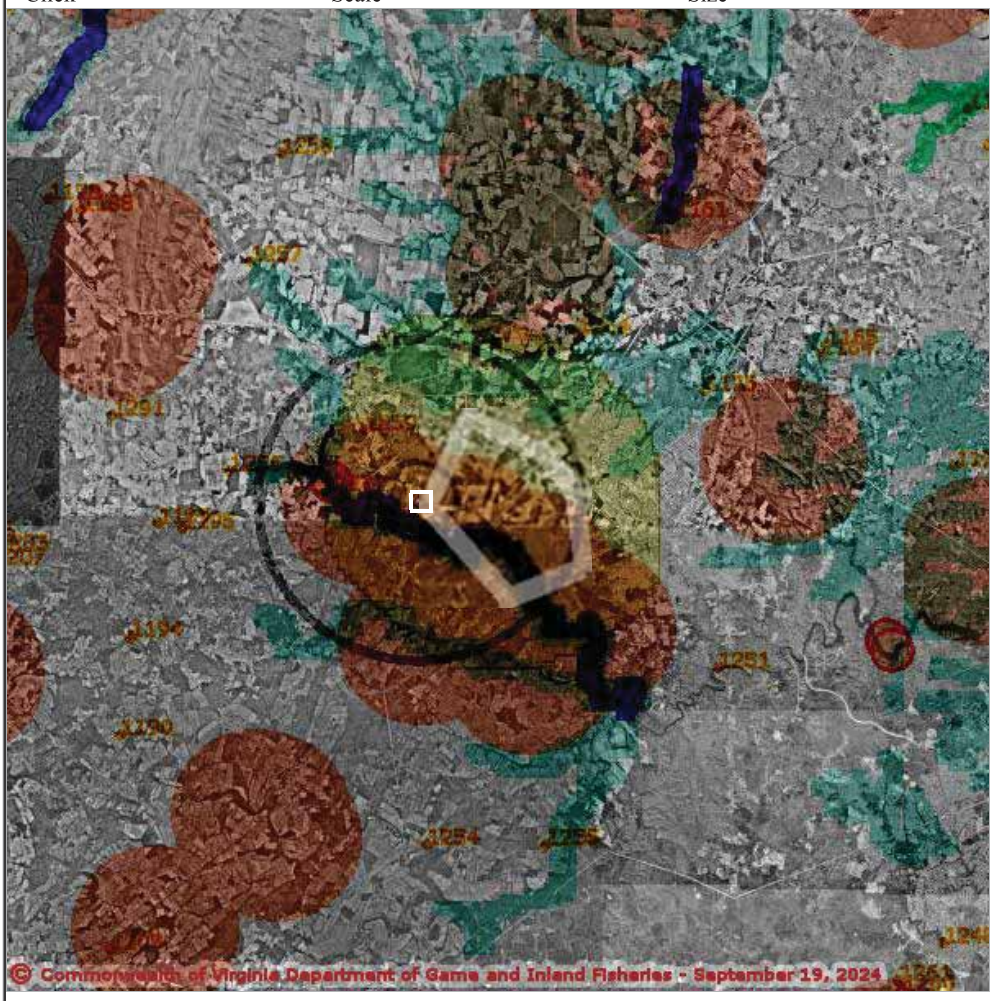
Display at center | **Search Point** is not at map center

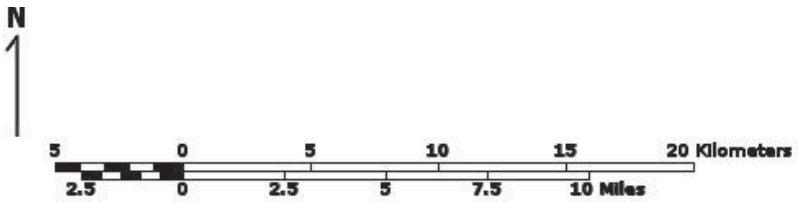
Base Map Choices
BW Aerial Photography

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

back | Refresh Browser Page

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





Point of Search 38,45,36.5 -77,35,00.5
Map Location 38,45,40.2 -77,32,52.1

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: Black & White USGS Aerial Photography (see Microsoft terraserver-usa.com for details)

Map projection is UTM Zone 18 NAD 1983 with left 259426 and top 4312557. Pixel size is 64 meters . 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 38400 meters east to west by 38400 meters north to south for a total of 1474.5 square kilometers.

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

123 Impediment

Position Rings 4 miles and 1 mile at the Search Point

2 mile radius Search Area

Bald Eagle Concentration Areas and Roosts

The map display represents 126005 feet east to west by 126005 feet north to south for a total of 569.5 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 2024-09-19 15:37:48 (qa/qc March 21, 2016 12:20 - tn=2410851.0 dist=3218 I)
$poi=38.7601400 -77.5834899

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: 2024-0146765
Project Name: Hornbaker

09/19/2024 18:52:03 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.*). Any activity proposed on National Wildlife Refuge lands must undergo a 'Compatibility Determination' conducted by the Refuge. Please contact the individual Refuges to discuss any questions or concerns.

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 the IPaC system by completing the same process used to receive the enclosed list.

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

A Biological Assessment is required for construction projects (or other undertakings having similar physical impacts) that are major Federal actions significantly affecting the quality of the human environment as defined in the National Environmental Policy Act (42 U.S.C. 4332(2)(c)). For projects other than major construction activities, the Service suggests that a biological evaluation similar to a Biological Assessment be prepared to determine whether the project may affect listed or proposed species and/or designated or proposed critical habitat. Recommended contents of a Biological Assessment are described at 50 CFR 402.12.

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

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 https://www.fws.gov/program/migratory-bird-permit/what-we-do.

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 Project 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
- USFWS National Wildlife Refuges and Fish Hatcheries
- Bald & Golden Eagles
- Migratory Birds

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: 2024-0146765
Project Name: Hornbaker
Project Type: Transmission Line - New Constr - Above Ground
Project Description: New electric transmission line and substation
Project Location:

The approximate location of the project can be viewed in Google Maps: https://www.google.com/maps/@38.7614057,-77.55003549885285,14z

Counties: Manassas and Prince William counties, Virginia

ENDANGERED SPECIES ACT SPECIES

There is a total of 4 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
Northern Long-eared Bat *Myotis septentrionalis* No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/9045	Endangered
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

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

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.

USFWS NATIONAL WILDLIFE REFUGE LANDS AND FISH HATCHERIES

Any activity proposed on lands managed by the National Wildlife Refuge system must undergo a 'Compatibility Determination' conducted by the Refuge. Please contact the individual Refuges to discuss any questions or concerns.

THERE ARE NO REFUGE LANDS OR FISH HATCHERIES WITHIN YOUR PROJECT AREA.

BALD & GOLDEN EAGLES

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

Any person or organization who plans or conducts activities that may result in impacts to bald or golden eagles, or 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 Bald and Golden Eagle Protection Act of 1940.
2. The Migratory Birds Treaty Act of 1918.
3. 50 C.F.R. Sec. 10.12 and 16 U.S.C. Sec. 668(a)

There are likely bald eagles present in your project area. For additional information on bald eagles, refer to Bald Eagle Nesting and Sensitivity to Human Activity

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

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 (■)

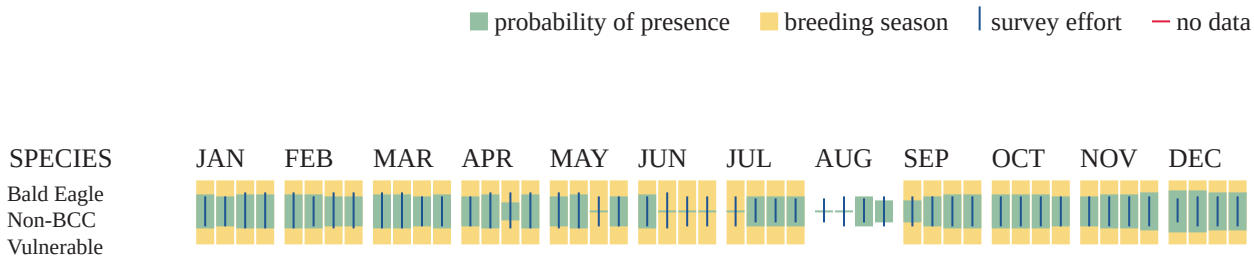
Yellow bars; liberal estimate of the timeframe inside which the bird breeds across its entire range.

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

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
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
Cerulean Warbler *Setophaga cerulea* This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/2974	Breeds Apr 28 to Jul 20
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
Grasshopper Sparrow *Ammodramus savannarum perpallidus* 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/8329	Breeds Jun 1 to Aug 20
Kentucky Warbler *Geothlypis formosa* 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 *Setophaga 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

NAME	BREEDING SEASON
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 (■)

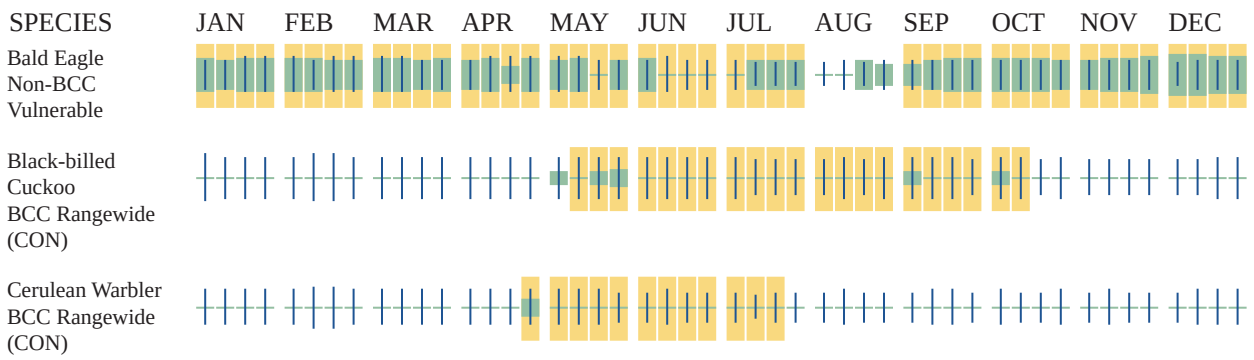
Yellow bars; liberal estimate of the timeframe inside which the bird breeds across its entire range.

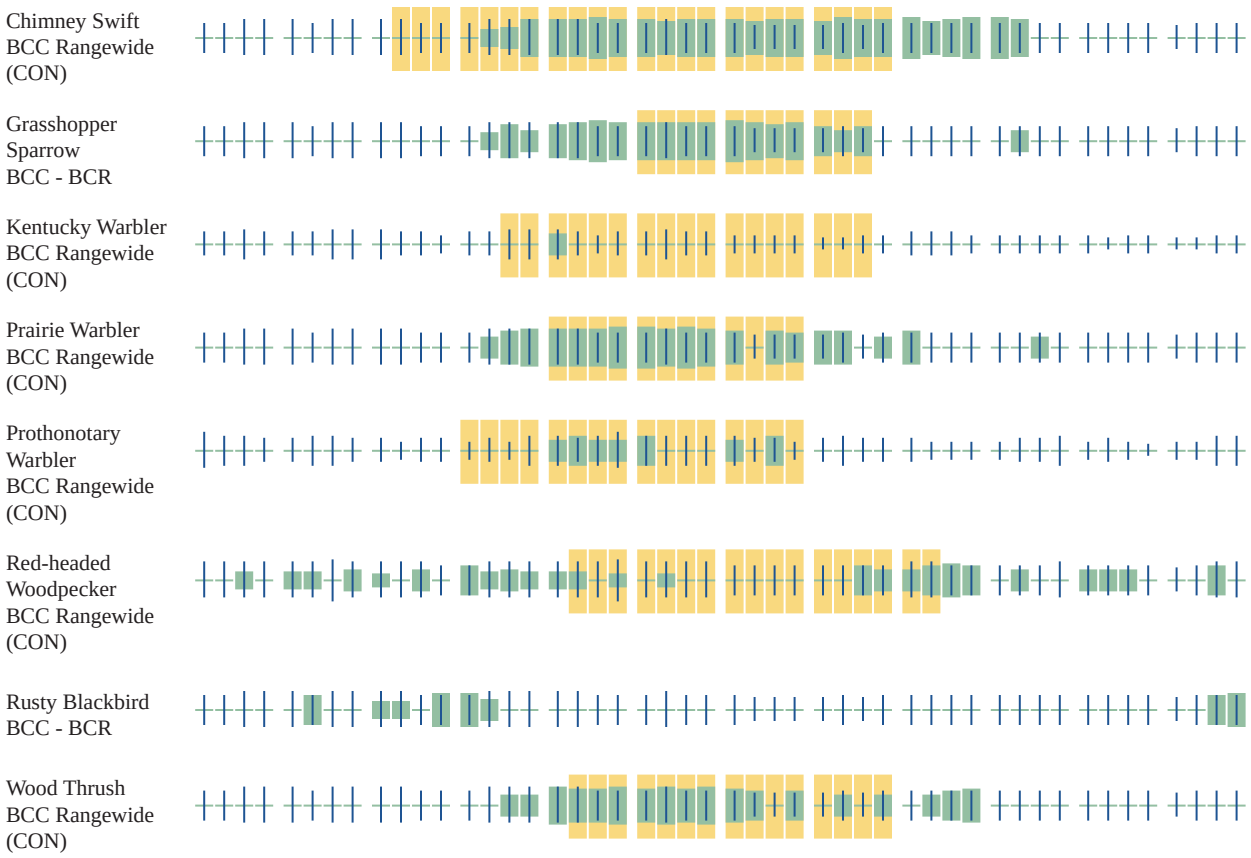
Survey Effort (|)

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.





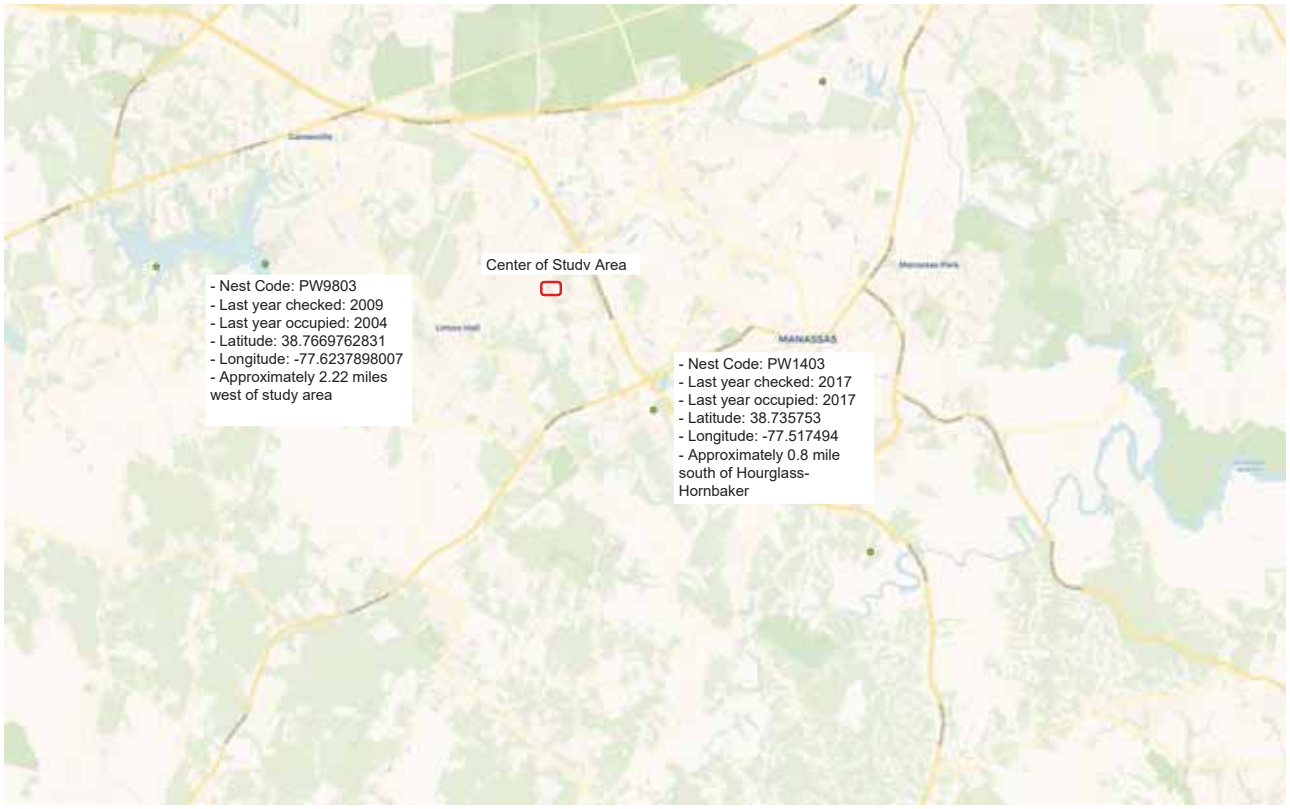
Additional information can be found using the following links:

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

CCB Mapping Portal



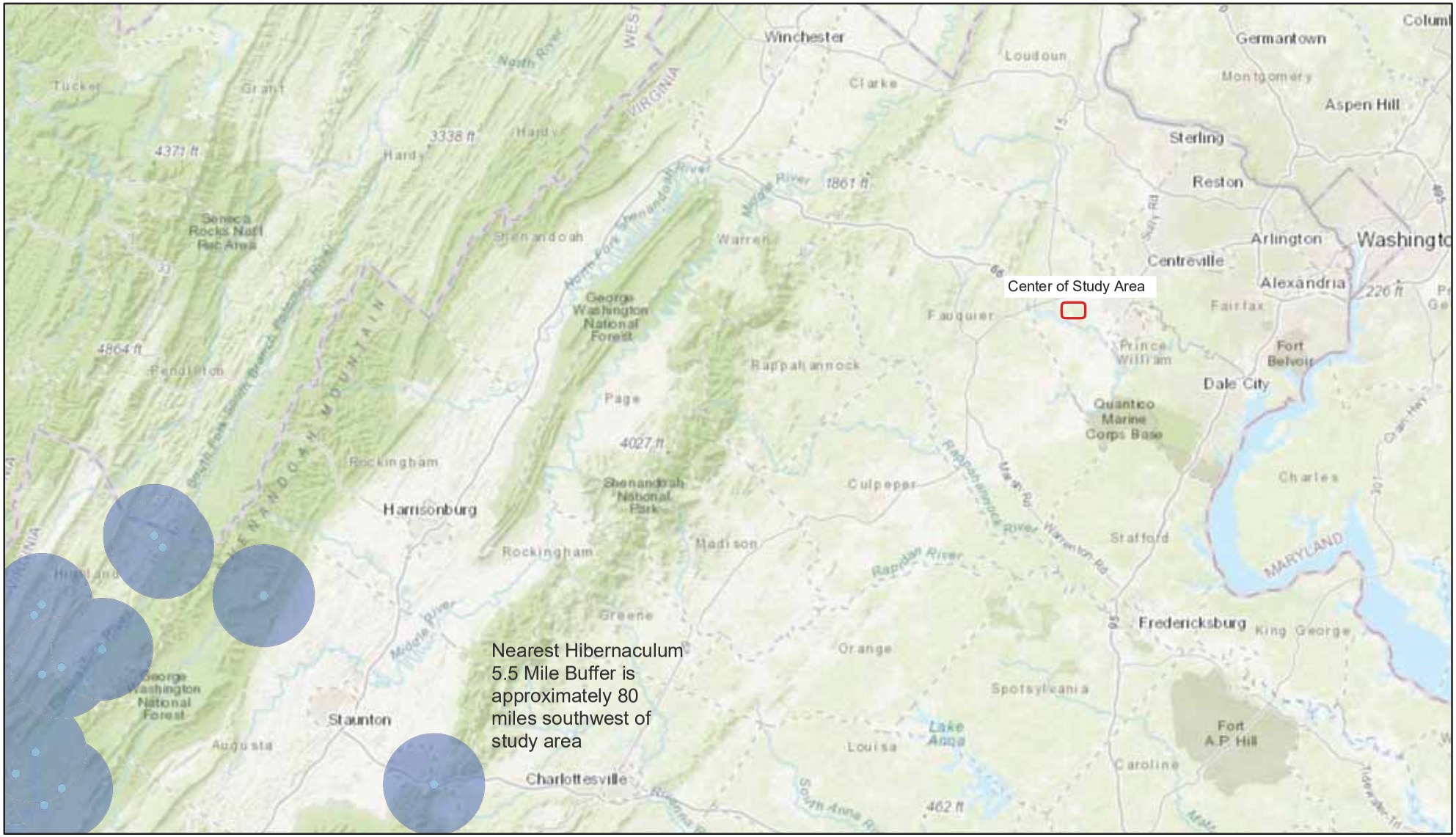
Layers: VA Eagle Nest Locator

Map Center [longitude, latitude]: [-77.52399444580078, 38.76378807396476]

Map Link:
https://ccbbirds.org/maps/#layer=VA+Eagle+Nest+Locator&zoom=13&lat=38.76378807396476&lng=-77.52399444580078&base=Street+Map+%28OSM%2FCarto%29

Report Generated On: 11/05/2024

Nearest MYLU Hibernacula - Devlin Hornbaker



11/6/2024, 1:13:30 PM

Tri-colored and Little Brown Hibernaculum Half Mile Buffer

Tri-colored and Little Brown Hibernaculum 5.5 Mile Buffer

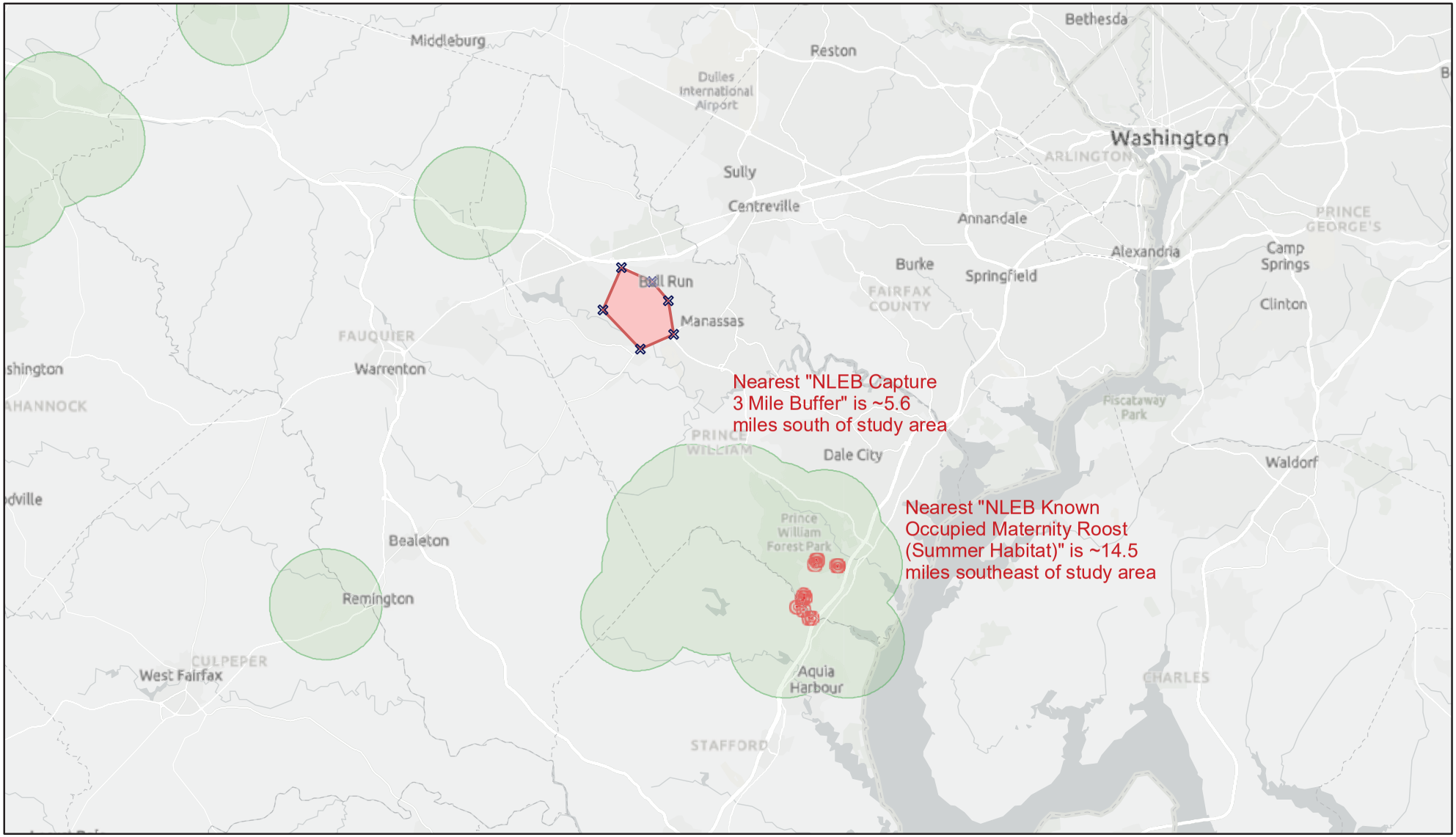
1:1,155,581

0 5 10 20 mi

0 12.5 25 50 km

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

NLEB Locations and Roost Trees - Devlin Hornbaker



11/5/2024, 4:33:40 PM

1:577,791

0 3.75 7.5 15 mi

0 5 10 20 km

NLEB Known Occupied Maternity Roost (Summer Habitat)

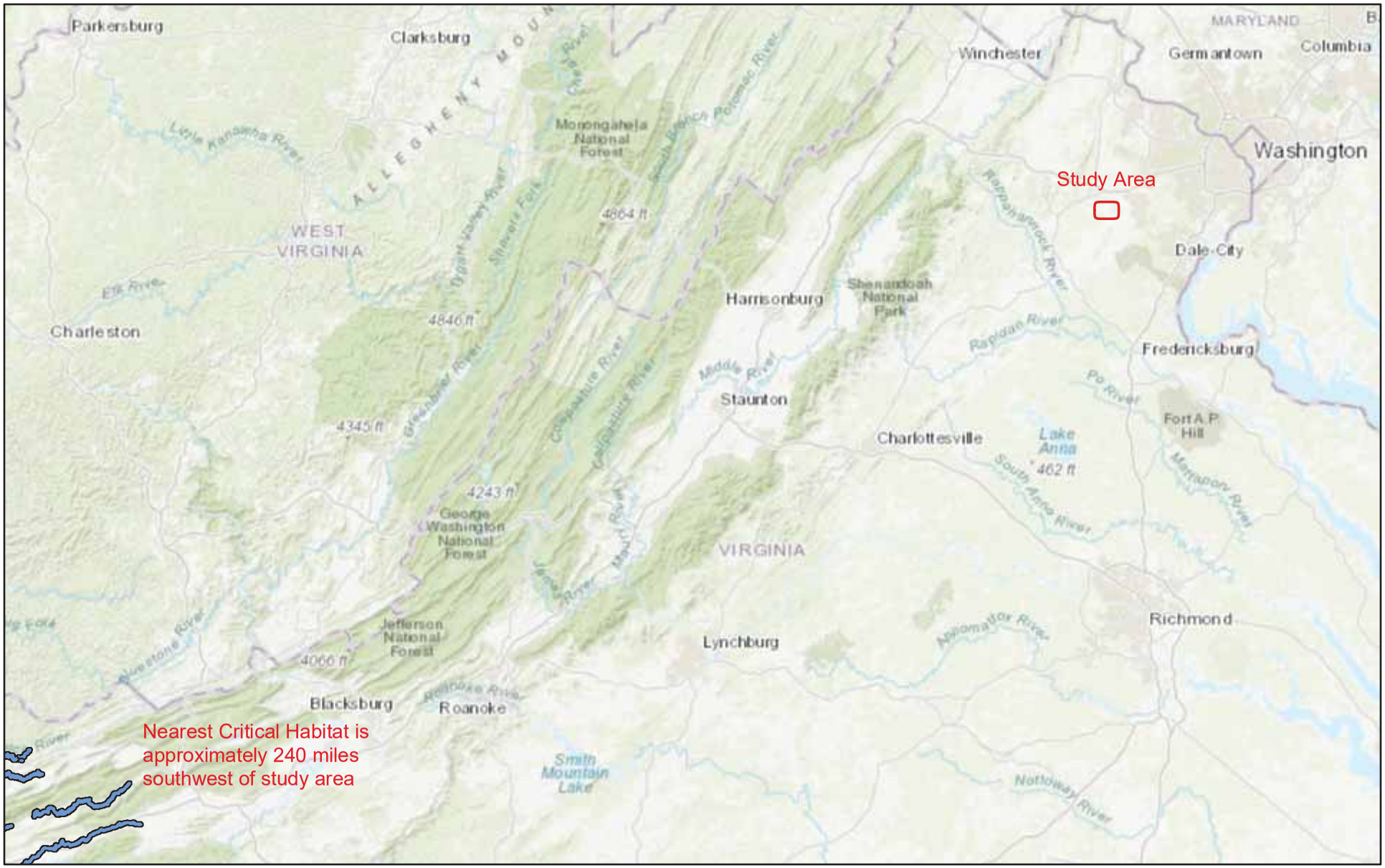
NLEB Roost Tree 150-Foot Buffer

NLEB Capture 3 Mile Buffer

County of Prince William, Fairfax County, VA, VGIN, Esri, TomTom, Garmin, SafeGraph, FAO, METI/NASA, USGS, EPA, NPS, USFWS

VA Dept. Game & Inland Fisheries

Nearest Critical Habitat to Study Area



November 6, 2024

Virginia Critical Habitat (published)

1:2,311,162

0 15 30 60 mi

0 20 40 80 km

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

From: nhreview (DCR)
To: Briana Cooney
Cc: Hypes, Rene (DCR); Weber, Joseph (DCR)
Subject: Re: 0642267, Golden-Mars
Date: Thursday, May 23, 2024 9:58:13 AM
Attachments: image002.png
image003.png
image.png
image.png

EXTERNAL MESSAGE

Briana,

Thanks for your patience with this. I've reiterated your questions in blue, with answers below.

I was reviewing the SCS shapefile you all sent, and I noticed that there are pieces of the SCS that are now developed. Have there been any studies of this area recently? Are you able to tell me when this SCS area was created or last modified?

- Our **Chief of Biodiversity Information and Conservation Tools** said that there does seem to be areas of the SCS that were developed since it was created. Much of the SCS is still intact, however, and perhaps even more important for maintaining water quality for NHR.
- It looks like the SCS was last modified 7/6/2023. Stream Conservation Sites do not represent protected areas, but waterways and terrestrial areas that contribute to the habitat quality of the documented resource. These areas will affect the water quality of the Yellow lampmussel habitat regardless of their current land use.

I also noticed that the natural heritage resource associated with this SCS is the Yellow lampmussel; however, in my database searches, I haven't seen a documented occurrence of this species within the SCS or study area. Do you have additional information on the presence of this species?

- Generally we do not share the location of our documented resources, only the associated SCS or Conservation Site. Looking at my data, the Yellow lampmussel **is documented within the SCS**. The documented locations are in Broad Run, the main branch of the SCS in the northern portion. The other stream areas included in the SCS are upstream of documented occurrences and changes to the water quality within the SCS will impact the documented resource.
- I can't really comment on the lack of the Yellow lampmussel in the databases without knowing which ones you used. It would not be found in DWR or USFWS databases as it is not a listed species. NHDE (*Natural Heritage Database Explorer*) only shows documented occurrences to Tier 3 users, which is only available to our conservation partners.

I've also noticed in this project and previous projects that some ecological cores identified are less than 100 acres, and the VDCR letter states: "Ecological Cores are areas of at least 100 acres of continuous interior…" Should we continue to study cores that are under 100 acres?

- The cores are found in Virginia Natural Landscape Assessment Ecological Cores and Habitat Fragments data layer. It looks like the feature in question is a habitat fragment, the link above can give you some more information about Cores and Habitat Fragments.
- From our Chief of Biodiversity Information and Conservation Tools: "**Smaller areas of continuous interior cover (i.e., 10 to 99 acres) called Habitat Fragments support Ecological**

Cores and provide similar functions and values. Both feature types are discussed on the website.

- Ecological Cores and Habitat Fragments are ranked by Ecological Integrity based on variables including rare species habitats, habitat diversity, resilience, and water quality, to reflect the wide range of important benefits and ecosystem services they provide. Brief descriptions of Ecological Integrity rankings are:
- C1 – Outstanding: These cores tend to be large in area, of deepest interior, of greatest water quality protections, highest in habitat diversity and rich in rare species, including species listed as threatened or endangered. Of all Ecological Cores in the Commonwealth 1% are ranked as C1.
- C2 – Very High: These cores have all or many of the same characteristics and values as C1 cores, though to a lesser extent. About 2.5% of all cores in the Commonwealth are ranked C2.
- C3 – High, C4 – Moderate, and C5 – General: These cores, as well as **habitat fragments**, have some of the same quantifiable values and characteristics as higher-ranked cores, though much reduced due to their having substantially less interior area and smaller area overall.
-
- There are no Habitat Fragments ranked above C3. "

- Due to Habitat Fragments ability to provide important ecological functions and values, we do still recommend avoiding impacts and when impacts can not be avoided to keep them to the edge of the fragment/core. We only recommend a formal impact analysis for C1 and C2 Cores, which never include fragments.

Hopefully this information is helpful. I have Cc'd Joe Weber our Chief of Biodiversity Information and Conservation Tools and Rene' Hypes our Project Review Coordinator. Let me know if you have anymore questions or if any of the information here needs clarification.

Thank you,

Nicki Gustafson *(she/her)*
Project Review Assistant
Division of Natural Heritage
Virginia Department of Conservation and Recreation
600 E. Main Street, 24th Floor
Richmond, VA 23219
804-625-3979 | nicki.gustafson@dcr.virginia.gov

Commonwealth of Virginia

VIRGINIA DEPARTMENT OF ENVIRONMENTAL QUALITY

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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

Hornbaker 230 kV Line Loop and Hornbaker Switching Station Project

Pre-Application Analysis Report

PREPARED FOR

Dominion Energy Virginia

DATE
27 February 2025

REFERENCE
0577538

SIGNATURE PAGE

Hornbaker 230 kV Line Loop and Hornbaker Switching Station Project

Pre-Application Analysis Report

0577538

Megan Wiginton
Senior Architectural Historian

MacKenzie Carroll
Architectural Historian

Jeffrey L. Holland
Senior Historian

Kara Wallace
Archaeologist

Jeremy Mastroianni
Data Analytics and Visualization Specialist

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

ERM
3300 Breckinridge Boulevard
Suite 300
Duluth, GA 30096

CONTENTS

LIST OF TABLES

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ACRONYMS AND ABBREVIATIONS

3D	Three dimensional
ABPP	American Battlefield Protection Program
ABT	American Battlefield Trust
APE	Area of Potential Effects
CMOA	Complementary Metal Oxide Semiconductor
ERM	Environmental Resources Management
ESRI	Environmental Systems Research Institute
GNSS	Global Navigation Satellite System
ISO	International Organization for Standardization
JPEG	Joint Photographic Experts Group format
KOP	Key Observation Point
kV	Kilovolt
MP	Milepost
NERC	North American Electric Reliability Corporation
NHL	National Historic Landmark
NOVEC	Northern Virginia Electrical Cooperative
NPS	National Park Service
NRHP	National Register of Historic Places
PBR	Physically Based Rendering
PDF	Portable Document Format
PotNR	Potential National Register Area
Project	Devlin/Hornbaker 230kV Line Project
RAW	an unprocessed image
REC	Rappahannock Electric Company
ROW	Right-Of-Way
SCC	State Corporation Commission
SLR	Single-Lens Reflex
USGS	U.S. Geological Survey
UTM	Universal Transverse Mercator
VCRIS	Virginia Cultural Resource Information System
VDHR	Virginia Department of Historic Resources
VLR	Virginia Landmarks Register

EXECUTIVE SUMMARY

This report presents the findings of the pre-application analysis for Virginia Electric and Power Company's (Dominion Energy Virginia, Dominion, or the Company) proposed Hornbaker 230 kilovolt (kV) Line Loop and Hornbaker Switching Station Project (the Project) in Prince William County, Virginia. The purpose and need for the Project is to provide 300 MW of electrical service requested by the Northern Virginia Electrical Cooperative (NOVEC) for a data center customer in Prince William County, maintain reliable service for the overall load growth in the Hornbaker Load Area, and comply with mandatory North American Electric Reliability Corporation (NERC) Reliability Standards. Specifically, the Devlin Switching Station (proposed as part of a separate project) requires an additional 230 kV source to resolve a potential NERC reliability violation.

To meet the Project purpose and need, Dominion proposes to construct and operate the following:

- A new 230-34.5 kV Switching Station in Prince William County on property to be obtained by the Company (Hornbaker Switching Station).
- One of two transmission solutions involving new, double circuit 230 kV transmission lines in new rights-of way. Dominion would construct EITHER:
    - A series of overhead routes, including a segment from a cut in on Dominion's existing Lines #172/#2187 north of the existing Wellington Substation to the proposed Pegasus Switching Station; a segment from the Pegasus Switching Station to the proposed Hornbaker Switching Station; and a segment from the Pegasus Switching Station to the proposed Devlin Switching Station; OR
    - A hybrid route that includes an overhead right-of-way from a cut in on Dominion's existing Line #2196, adjacent to the existing Hourglass Switching Station, to a transition station east of Prince William Parkway (where the route transitions to an underground route) then underground to the proposed Hornbaker Switching Station. This option would also include an overhead right-of-way from the proposed Hornbaker Switching Station to the Pegasus and Devlin Switching Stations (proposed as part of other projects).

ERM identified five route alternatives that can be combined into two electrical solutions each with two options, consisting of a grouping of three route alternatives, to serve the Project need. These groupings are as follows:

- Solution 1A is comprised of Wellington–Pegasus Route 1, Pegasus–Hornbaker Route 1, and Devlin–Pegasus Route 1.
- Solution 1B is comprised of Wellington–Pegasus Route 1, Pegasus–Hornbaker Route 1, and Devlin–Pegasus Route 2.
- Solution 2A is comprised of Hourglass–Hornbaker Route 1 (Hybrid), Pegasus–Hornbaker Route 1, and Devlin–Pegasus Route 1
- Solution 2B is comprised of Hourglass–Hornbaker Route 1 (Hybrid), Pegasus–Hornbaker Route 1, and Devlin–Pegasus Route 2.

The routes and solutions are discussed in the Environmental Routing Study to be attached to the Company's application to the Virginia State Corporation Commission (SCC) for the Project.

This pre-application analysis assesses and compares potential impacts on previously recorded historic and archaeological resources in relation to each route and solution. Impacts from the proposed Hornbaker Switching Station were also considered. Environmental Resources Management, Inc. (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 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).

ERM identified five previously recorded archaeological sites within the rights-of-way of the various routes/solutions for the Project (Table 1). Of these five sites, none have been evaluated to determine their eligibility for listing in the National Register of Historic Places (NRHP). One site each is within the right-of-way for Pegasus-Hornbaker Route 1 and the Hourglass-Hornbaker Route 1 (Hybrid). Three sites are within the right-of-way for Devlin-Pegasus Route 2. No previously recorded archaeological sites were identified with the right-of-way for Wellington-Pegasus Route 1 and Devlin-Pegasus Route 1.

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

Considered Resource	Route Alternatives				
	Wellington-Pegasus Route 1	Hourglass-Hornbaker Route 1 (Hybrid)	Devlin-Pegasus Route 1	Devlin-Pegasus Route 2	Pegasus-Hornbaker Route 1
44PW1208	-	Unevaluated	-	-	-
44PW1221	-	-	-	-	Unevaluated
44PW1454	-	-	-	Unevaluated	
44PW1455	-	-	-	Unevaluated	
44PW1456	-	-	-	Unevaluated	

Five previously recorded aboveground historic resources meeting criteria specified in the Guidelines fall within study tiers defined by the VDHR for identifying such sites along and near transmission line routes. The likely impacts on individual historic resources associated with each route are presented in Table 2.

Wellington-Pegasus Route 1 and Devlin-Pegasus Routes 1 and 2 pass near the fewest number of considered resources (one), while the Hourglass-Hornbaker Route 1 (Hybrid) passes near the greatest number (five). Pegasus-Hornbaker Route 1 passes near two considered resources. Installation of transmission infrastructure along Wellington-Pegasus Route 1 and Devlin-Pegasus

Routes 1 and 2 would have a moderate impact on the same resource. While the Hourglass-Hornbaker Route 1 (Hybrid) has the greatest number of considered resources in its vicinity, the Project would have no impact on those resources. Pegasus-Hornbaker Route 1 would have a moderate impact on one resource and no impact on another.

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

Considered Resource	Route Alternatives				
	Wellington-Pegasus Route 1	**Hourglass-Hornbaker Route 1 (Hybrid)**	**Devlin-Pegasus Component, Route 1**	**Devlin-Pegasus Component, Route 2**	**Pegasus-Hornbaker Route 1**
076-0285	None	No Impact	None	None	None
076-5036	None	No Impact	None	None	No Impact
076-5190	Moderate	No Impact	Moderate	Moderate	Moderate
076-5335	None	No Impact	None	None	None
155-5020	None	No Impact	None	None	None

VCRIS 2024

1. INTRODUCTION

This report presents the findings of a pre-application analysis conducted for Virginia Electric and Power Company's (Dominion Energy Virginia, Dominion, or the Company) for Dominion's proposed Hornbaker 230 kilovolt (kV) Line Loop and Hornbaker Switching Station Project (the Project). For this Project, the Company is proposing to construct and operate:

- A new 230-34.5 kV switching station in Prince William County on property to be obtained by the Company (Hornbaker Switching Station).
- One of two transmission solutions involving new, double circuit 230 kV transmission lines in new rights-of way. Dominion would construct EITHER:
  - A series of overhead routes, including a segment from a cut in on Dominion's existing Lines #172/#2187 north of the existing Wellington Substation to the proposed Pegasus Switching Station; a segment from the Pegasus Switching Station to the proposed Hornbaker Switching Station; and a segment from the Pegasus Switching Station to the proposed Devlin Switching Station; OR
  - A hybrid route that includes an overhead right-of-way from a cut in on Dominion's existing Line #2196, adjacent to the existing Hourglass Switching Station, to a transition station east of Prince William Parkway (where the route transitions to an underground configuration) then underground to the proposed Hornbaker Switching Station. This option would also include an overhead right-of-way from the proposed Hornbaker Switching Station to the Pegasus and Devlin Switching Stations (proposed as part of other projects).

ERM identified five route alternatives that can be combined into two electrical solutions, each with two options, consisting of a grouping of three route alternatives, to serve the Project need. A breakdown of the routes that make up the two electrical solutions are included below in Table 3.

TABLE 3 ROUTE ALTERNATIVES AND SOLUTIONS

Electrical Solution	Route Alternative	Summary
Solution 1 (Overhead)	Wellington–Pegasus Route 1	Overhead double circuit route from a cut-in on existing Lines #172/#2187, north of the existing Wellington Substation, to the proposed Pegasus Switching Station. [a]
	Pegasus–Hornbaker Route 1	Overhead double circuit route between the proposed Hornbaker Switching Station and the proposed Pegasus Switching Station. [a]
	Devlin–Pegasus Route 1 OR Devlin–Pegasus Route 2	Overhead double circuit route between the proposed Pegasus Switching Station and the proposed Devlin Switching Station. [a]
Solution 2 (Hybrid)	Hourglass–Hornbaker Route 1 (Hybrid)	Hybrid underground and overhead double circuit route between a cut in on Dominion's existing Line #2196, adjacent to the existing Hourglass Substation, and the proposed Hornbaker Switching Station.

	Pegasus–Hornbaker Route 1	Overhead double circuit route between the proposed Hornbaker Switching Station and the proposed Pegasus Switching Station. [a]
	Devlin–Pegasus Route 1 OR Devlin–Pegasus Route 2	Overhead double circuit route between the proposed Pegasus Switching Station and the proposed Devlin Switching Station. [a]

[a] The Devlin and Pegasus Switching Stations have been proposed as part of other projects.

The five route alternatives that have been grouped into four possible solutions to serve the Project need, are as follows:

- Solution 1A is comprised of Wellington–Pegasus Route 1, Pegasus–Hornbaker Route 1, and Devlin–Pegasus Route 1.
- Solution 1B is comprised of Wellington–Pegasus Route 1, Pegasus–Hornbaker Route 1, and Devlin–Pegasus Route 2.
- Solution 2A is comprised of Hourglass–Hornbaker Route 1 (Hybrid), Pegasus–Hornbaker Route 1, and Devlin–Pegasus Route 1
- Solution 2B is comprised of Hourglass–Hornbaker Route 1 (Hybrid), Pegasus–Hornbaker Route 1, and Devlin–Pegasus Route 2.

The pre-application analysis assesses potential impacts on previously recorded historic and archaeological resources relative to each route alternative. Environmental Resources Management, Inc. (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 OVERVIEW

In identifying potential routes for the proposed transmission lines, ERM considered the facilities required to construct and operate the new feeds, the length and width of new right-of-way that would be needed, the locations of existing and proposed substations and switching stations, the extent of existing development in the area, the potential for impacts on environmental and human resources, and cost. A map depicting the Project is provided as Figure 1. Descriptions of the routes comprising the various solutions are provided below.

1.1.1 WELLINGTON-PEGASUS ROUTE 1

The Wellington–Pegasus Route 1 is an overhead route that taps Dominion existing Line #2187 approximately 0.2 mile north of the existing Wellington Substation. From the tap, the route extends southwest for approximately 0.2 mile, crossing an industrial yard, Thong Pan Road, and Wellington Road, as well as a forested parcel bounded by these roads. The route then turns west, paralleling the south side of Wellington Road for approximately 0.2 mile (including a crossing of Prince William Parkway). The route turns south paralleling the west side of Hornbaker Road for

approximately 0.1 mile before crossing the road and terminating at the proposed Pegasus Switching Station.

Wellington-Pegasus Route 1 is approximately 0.6 mile long and requires approximately 7.2 acres of right-of-way.

1.1.2 PEGASUS-HORNBAKER ROUTE 1

Pegasus–Hornbaker Route 1 is an overhead route that begins at the proposed Pegasus Switching Station, extending southeast for approximately 0.1 mile and then turning southwest for approximately 0.7 mile. This segment crosses through forested land adjacent to industrial and commercial development and crosses University Boulevard. East of Industrial Court, the route turns generally southeast and collocates with the east side of the road for about 0.2 mile, crossing an industrial storage yard/parking lot. The route then turns south for about 0.1 mile, crossing Industrial Court and Industrial Road and another industrial storage yard, before turning southeast and paralleling the west side of Hawkins Drive for about 0.2 mile. At this point, the route turns east, crosses the most southern part of Hawkins Drive and an industrial storage yard for 0.1 mile. The route then turns north and then back east for 0.2 mile, following parcel lines. The Route then turns to the south-southeast for about 0.3 mile (collocated with the west side of Hornbaker Road) before terminating at the proposed Hornbaker Switching Station.

Pegasus-Hornbaker Route 1 is approximately 1.9 miles long and requires approximately 28.2 acres, including approximately 22.5 acres for transmission right-of-way and 5.7 acres for the proposed Hornbaker Switching Station.

1.1.3 HOURGLASS-HORNBAKER ROUTE 1 (HYBRID)

The Hourglass–Hornbaker Route 1 (Hybrid) is a combination of approximately 0.5 mile of overhead transmission with approximately 0.8 mile of underground transmission and includes an approximately 6.2-acre transition station. Hourglass–Hornbaker Route 1 (Hybrid) begins as an overhead line that taps the Company's existing Line #2196 just outside the Hourglass Switching Station. The route then extends approximately 0.4-mile northwest adjacent to an existing data center development. The route turns southwest for approximately 0.2 mile and enters the proposed transition station (currently an existing parking lot and adjacent forested area), where it transitions from overhead to an underground route. The route then continues out of the station to the southwest, including a trenchless crossing of Prince William Parkway. On the west side of the Parkway, the route turns west for approximately 0.2 mile through county-owned property, parallel to and south of Challenger Court and across Discovery Boulevard. West of Discovery Boulevard, the route turns west for approximately 0.4 mile through forested lands and an industrial parcel and crosses Hornbaker Road before terminating at the proposed Hornbaker Switching Station.

The Hourglass-Hornbaker Route is approximately 1.3 miles long and encompasses approximately 19.7 acres, including 13.5 acres of transmission right-of-way and 6.2 acres for the proposed transition station.

1.1.4 DEVLIN-PEGASUS ROUTE 1

Starting at the proposed Devlin Switching Station, Devlin–Pegasus Route 1 is an overhead route that heads generally southeast for approximately 0.3 mile, crossing Hansen Farm Road and Balls Ford Road. The route turns east/southeast for 0.5 mile, following vegetated/forested parcel boundaries before angling slightly to the east to pass south of a data center building currently under construction. The route then turns northeast for 0.1 mile to cross Buckey Timber Drive and then heads southeast for 0.4 mile, passing between industrial buildings and crossing Virginia Meadows Drive and Dawkins Branch. The route then turns south, paralleling the east side of Dawkins Branch for approximately 0.2 mile before turning southeast for approximately 0.8 mile. This segment crosses Lexington Valley Drive and Sudley Manor Drive, passing between residential areas east of Lexington Valley Drive. After crossing an existing natural gas pipeline near MP 2.1, the route turns northeast for approximately 0.1 mile and then southeast for approximately 0.2 mile before terminating at the proposed Pegasus Switching Station.

Devlin-Pegasus Route 1 is approximately 2.4 miles long and requires approximately 28.6 acres of right-of-way.

1.1.5 DEVLIN-PEGASUS ROUTE 2

Devlin–Pegasus Route 2 is an overhead route that begins at the proposed Devlin Switching Station and follows the same alignment as Devlin–Pegasus Route 1 for the first 1.2 miles, diverging just east of Dawkins Branch. At this point, Devlin–Pegasus Route 2 turns north-northeast, passing through forested land and paralleling the west side of Dawkins Branch for approximately 0.2 mile before turning east for approximately 0.2 mile, collocating with the south side of Wellington Road. The route then crosses Lexington Valley Drive and continues southeast, paralleling the north side of Wellington Road for approximately 0.5 mile. Just before Sudley Manor Drive, the route turns southwest and crosses back over Wellington Road, paralleling the north side of Sudley Manor Drive for approximately 0.2 mile. At this point the route turns southeast and follows the same alignment as Devlin–Pegasus Route 1 for the remaining 0.6 mile to the proposed Pegasus Switching Station.

Devlin-Pegasus Route 2 is approximately 2.8 miles long and requires approximately 33.4 acres of right-of-way.

1.2 MANAGEMENT RECOMMENDATIONS

ERM identified five previously recorded archaeological sites within the rights-of-way of the various routes/solutions for the Project. None of the five sites have been evaluated to determine their eligibility for listing in the National Register of Historic Places (NRHP). One site is within the right-of-way for Pegasus-Hornbaker Route 1, one site is within the right-of-way for the Hourglass-Hornbaker Route 1 (Hybrid), and the remaining three are within the right-of-way for Devlin-Pegasus Route 2. No previously recorded archaeological sites are within the rights-of-way for either Wellington-Pegasus Route 1 or Devlin-Pegasus Route 1. The sites could be impacted by equipment traffic, clearing, or structure installation during construction. While this report provides information on site integrity based on previous investigations and review of aerial photography, a

confident evaluation of the nature of each site's archaeological deposits would require a field survey.

ERM identified five previously recorded aboveground historic resources meeting criteria specified in the Guidelines within study tiers defined by the VDHR for identifying such sites along and near transmission line routes. Of the five resources, the Hourglass-Hornbaker Route 1 (Hybrid) passes near five; Pegasus-Hornbaker Route 1 passes near two; and Wellington-Pegasus Route 1 and Devlin-Pegasus Routes 1 and 2 each pass near one.

As discussed in more detail below, ERM recommends that installation of transmission infrastructure along Devlin-Pegasus Routes 1 and 2 and Wellington-Pegasus Route 1 would have a moderate impact on the same resource; that infrastructure installed along the Hourglass-Hornbaker Route 1 (Hybrid) would have no impact on five resources; and that Pegasus-Hornbaker Route 1 would have no impact on one resource and a moderate impact on the same resource affected by Devlin-Pegasus Routes 1 and 2 and Wellington-Pegasus Route 1.

More information about each resource and the nature of potential impacts associated with the various routes and solutions are provided in the sections that follow.

FIGURE 1 PROJECT OVERVIEW, TOPOGRAPHIC VIEW

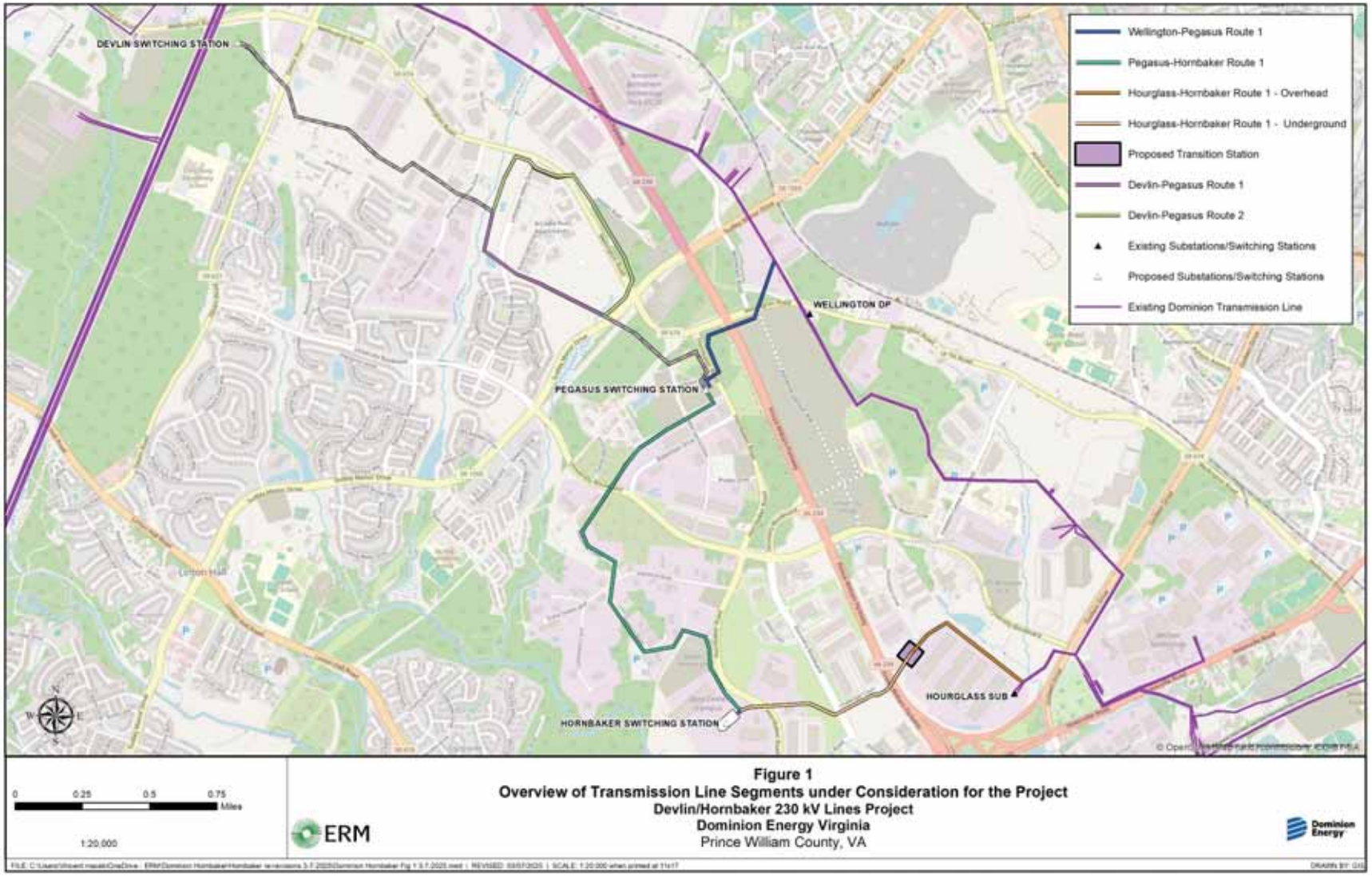

Figure 1
Overview of Transmission Line Segments under Consideration for the Project
Devlin/Hornbaker 230 kV Lines Project
Dominion Energy Virginia
Prince William County, VA

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

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 the following sources to check for locally significant resources within a 1.0-mile radius of each route centerline: Prince William Historic Preservation Foundation (2023), Prince William County Historical Commission (2024), Prince William's Historic Landmarks (2025a), and African-American History Trail (2025b).

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

2.2 ARCHAEOLOGICAL RESOURCES

Crossings of archaeological sites are considered a constraint when routing electric transmission lines due to the potential for a 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 route is summarized in Table 3, and site locations are depicted on Figure 2. Individual route maps are provided in Attachment 1. As noted above, none of the five previously recorded sites within the rights-of-way for the routes have been evaluated to determine their NRHP eligibility.

Once a route is certified by the SCC, that route would be subject to an identification-phase survey in which additional (as of yet, unrecorded) sites could be identified and Project impacts assessed.

FIGURE 2 LOCATIONS OF ARCHAEOLOGICAL RESOURCES IN THE RIGHT OF WAY FOR EACH ROUTE ALTERNATIVE (REDACTED)

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

Route Alternative	Greenfield or Existing / Expanded ROW	Site Number	Description	NRHP Status
Pegasus-Hornbaker Route 1	Greenfield	44PW1221	Prehistoric/Unknown (15000 B.C. - 1606 A.D.), Lithic workshop	Unevaluated
Hourglass-Hornbaker Route 1 (Hybrid)	Greenfield	44PW1208	Prehistoric/Unknown (15000 B.C. - 1606 A.D.), Lithic workshop	Unevaluated
Devlin-Pegasus Route 2	Greenfield	44PW1454	Prehistoric/Unknown (15000 B.C. - 1606 A.D.), Lithic scatter, 19th Century: 2nd half (1850 - 1899), 20th Century (1900 - 1999), Trash scatter	Unevaluated
	Greenfield	44PW1455	20th Century (1900 - 1999); Trash scatter	Unevaluated
	Greenfield	44PW1456	19th Century (1800 - 1899), 20th Century (1900 - 1999), Trash scatter	Unevaluated

ROW = right-of-way

2.3 HISTORIC RESOURCES

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

Resources located within what 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 distances over 0.5 mile and over 1.0 mile, it becomes progressively less likely that a resource would be within line-of-sight of the proposed transmission line.

FIGURE 3 LOCATIONS OF CONSIDERED HISTORIC RESOURCES ALONG AND NEAR ROUTES

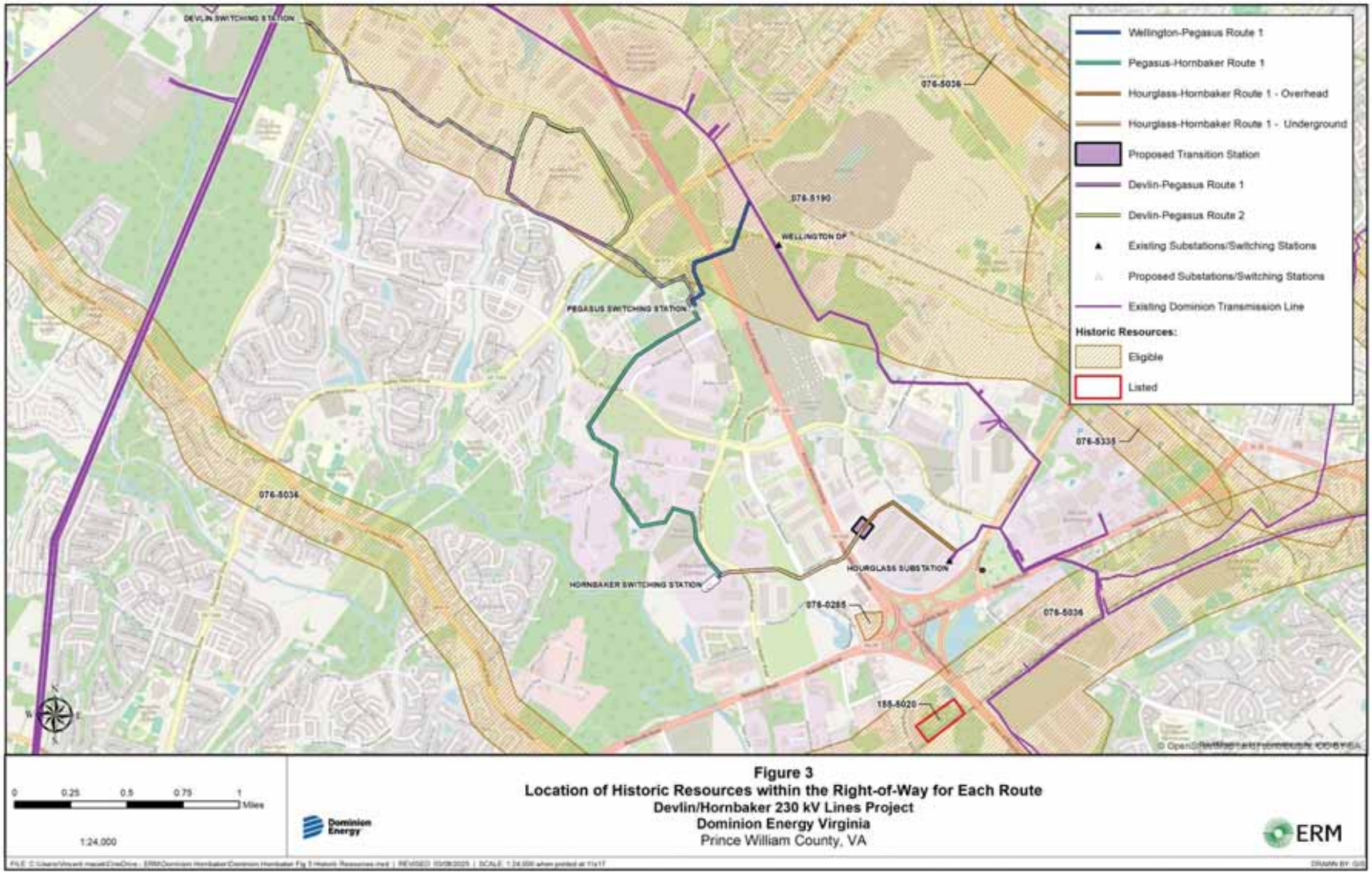

Figure 3
Location of Historic Resources within the Right-of-Way for Each Route
Devlin/Hornbaker 230 kV Lines Project
Dominion Energy Virginia
Prince William County, VA

The nature of the impacts on aboveground resources, 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 solution.

Once a route is certified 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 historic resources to the selected route.

2.3.1 WELLINGTON-PEGASUS ROUTE 1

The considered resource within the VDHR tiers for Wellington-Pegasus Route 1 is presented in Table 4 and its location depicted in Attachment 1, Sheet 1. This resource was subjected to field reconnaissance and a preliminary assessment of impacts for the Project, discussed in the next chapter.

TABLE 4 HISTORIC RESOURCES IN THE VDHR TIERS FOR WELLINGTON-PEGASUS ROUTE 1

Buffer (Miles)	Resource Category	Resource Number	Description
0.0 (within ROW)	National Register – Potentially Eligible (Battlefields/Historic Landscape)	076-5190	Second Battle of Manassas

ROW = right-of-way

2.3.2 PEGASUS-HORNBAKER ROUTE 1

The considered resources that lie within the VDHR tiers for Pegasus-Hornbaker Route 1 are presented in Table 8 and their locations depicted in Attachment 1, Sheet 2. There are two historic resources identified within the VDHR tiers for this route. They were subjected to field reconnaissance and a preliminary assessment of Project impacts, discussed in the next chapter.

TABLE 8 HISTORIC RESOURCES IN THE VDHR TIERS FOR PEGASUS-HORNBAKER ROUTE 1

Buffer (Miles)	Resource Category	Resource Number	Description
0.5 to 1.0	National Register – Potentially Eligible (Battlefields/Historic Landscape)	076-5036[a]	Manassas Station Operations Battlefield
0.0 to 0.5	National Register – Potentially Eligible (Battlefields/Historic Landscape)	076-5190[a]	Second Battle of Manassas

[a] *Resource is within the designated tiers for the proposed Hornbaker Switching Station*

2.3.3 HOURGLASS-HORNBAKER ROUTE 1 (HYBRID)

The considered resources that lie within the VDHR tiers for the Hourglass-Hornbaker Route 1 (Hybrid) are presented in Table 5 and their locations depicted in Attachment 1, Sheet 3. There are five historic resources identified within the VDHR tiers for this route. The considered resources

were subjected to field reconnaissance and a preliminary assessment of Project impacts, discussed in the next chapter.

TABLE 5 HISTORIC RESOURCES IN THE VDHR TIERS FOR THE HOURGLASS-HORNBAKER ROUTE 1 (HYBRID)

Buffer (Miles)	Resource Category	Resource Number	Description
0.5 to 1.0	National Register – Potentially Eligible (Battlefields/Historic Landscape)	076-5190[a]	Second Battle of Manassas
		076-5335	First Battle of Manassas
	National Register Properties (Listed)	155-5020	Cannon Branch Fort
0.0 to 0.5	National Register – Eligible	076-0285[a]	Thomasson Barn
	National Register – Potentially Eligible (Battlefields/Historic Landscape)	076-5036	Manassas Station Operations Battlefield

[a] *Resource is within the designated tiers for the proposed Hornbaker Switching Station*

2.3.4 DEVLIN-PEGASUS ROUTE 1

The considered resource within the VDHR tiers for Devlin-Pegasus Route 1 is presented in Table 6 and its location depicted in Attachment 1, Sheet 4. The resource was subjected to field reconnaissance and a preliminary assessment of Project impacts, discussed in the next chapter.

TABLE 6 HISTORIC RESOURCES IN THE VDHR TIERS FOR DEVLIN-PEGASUS ROUTE 1

Buffer (Miles)	Resource Category	Resource Number	Description
0.0 (within ROW)	National Register – Potentially Eligible (Battlefields/Historic Landscape)	076-5190	Second Battle of Manassas

ROW = right-of-way

2.3.5 DEVLIN-PEGASUS ROUTE 2

The considered resource within the VDHR tiers for Devlin-Pegasus Route 2 is presented in Table 7 and its location depicted in Attachment 1, Sheet 4. It was subjected to field reconnaissance and a preliminary assessment of impacts, discussed in the next chapter.

TABLE 7 HISTORIC RESOURCES IN THE VDHR TIERS FOR DEVLIN-PEGASUS ROUTE 2

Buffer (Miles)	Resource Category	Resource Number	Description
0.0 (within ROW)	National Register – Potentially Eligible (Battlefields/Historic Landscape)	076-5190	Second Battle of Manassas

ROW = right-of-way

2.4 PREVIOUS SURVEYS

Large portions of the various routes have previously been surveyed for cultural resources, providing information about known resources in the area, although some of the surveys focused

exclusively on archaeological sites. Ten previous cultural resource surveys intersect at least one of the routes under consideration. Information on these previous surveys—including VDHR survey number, report title, report authors, and report date—is provided in Table 9. The extent of the previous survey coverage is depicted on maps provided in Attachment 2.

TABLE 9 CULTURAL RESOURCE SURVEYS COVERING PORTIONS OF THE ROUTE ALTERNATIVES

VDHR Survey #	Title	Authors	Date
PW-041	Phase I Cultural Resources Survey of the Proposed Manassas Bypass, Route 234, Prince William County, Virginia	Douglas C. McLearen, Katharine E. Harbury	1988
PW-067	Supplemental Phase I Archaeological Survey of Design Changes in Ramps and Cloverleaf in Four Locations Along Rt. 234 in Manassas	Robin L. Ryder, F.T. Barker	1992
PW-158	Prince William Innovation: Phase I Archaeological Survey and Architectural History Reconnaissance Survey of the Proposed PWC Innovation Business Park, Prince William County, Virginia	Heather Crowl, David Rotenstein, Susan Travis, Richard Vidutis	2002
PW-228	Phase I Archaeological Survey for the Proposed Sudley Manor Drive Public-Private Transportation Act (PPTA) Project, Prince William County, Virginia	Michael B. Hornum, Martha Williams	2005
PW-303	Phase I Archeological Investigations of the Circa 9 Acre Ziegler Property, Prince William County, Virginia	Curt Breckenridge	2006
PW-380	Cultural Resources Survey for the Proposed University Boulevard Extension Project, Prince William County, Virginia	Joe B. Jones, Jerrell Blake, Jr.	2011
PW-442	Archaeological Survey of the 22.9 Acre Buckeye Timber, LLC Property, Prince William County, Virginia	Kerry Schamel-González	2008
PW-560	Independence Parcels A and B, Prince William County, Virginia, Phase I Cultural Resources Investigation	Jeremy Smith, Thomas Cuthbertson, Vincent Gallacci	2018
PW-561	Phase I Cultural Resources Survey of the ±42.8-Hectare (106-Acre) Wellington Road (Innovation Town Center) Property, Prince William County, Virginia	Arthur Striker, Cara Metz, Dara Friedberg	2016
PW-613	11951 Sudley Manor Drive, Prince William County, Virginia: Phase I Cultural Resources Investigation	Jeremy Smith, Rebekah Yousaf, Edward McMullen	2019

3. STAGE 1 PRE-APPLICATION ANALYSIS FINDINGS

3.1 METHODS FOR ANALYSIS

Fieldwork for the pre-application analysis was conducted by Haley Hoffman and Emma Jennings under the supervision of Secretary of the Interior Qualified architectural historian Megan Wiginton between September 24 and 25, 2024. The fieldwork involved photographing five resources requiring visual assessment according to the Guidelines and examining potential line-of-sight views from each resource toward the applicable routes. 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 (KOPs). 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 were 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 f1.8 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 KOP 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.

3.2 ASSESSMENT OF POENTIAL IMPACTS

The assessment of potential Project impacts on individual 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.
- **Minima**l–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.

3.3 HISTORIC RESOURCE DESCRIPTIONS

3.3.1 076-0285, THOMASSON BARN

076-0285, Thomasson Barn, is located at 9935 Discovery Boulevard on the outskirts of the city of Manassas in an area characterized by industrial and commercial development. The resource is situated on the northwest corner at the intersection of Prince William Parkway (Route 234) and Nokesville Road (Route 28) (Attachment 4, Figure 1).

Thomasson Barn consists of circa 1929 dairy barn situated on a 6-acre plot of land (Flower 2016). Historically the barn was part of a larger dairy operation that contained additional associated buildings in its immediate vicinity. According to historic aerial imagery, the dairy barn was the sole remaining building on the property from 2002 until development began between 2016 and 2017. Thomasson Barn now serves as an anchoring business within an entertainment venue.

First surveyed in June of 1987 by Bill Polhill for Frazier Associates, the resource was recommended eligible for the NRHP under Criterion C for its architectural significance. The resource was surveyed again in March of 1992 by Mary Ellen Bushey. The resource was determined not eligible for the NRHP by VDHR in January of 1998, pursuant to a survey by David H. Dutton, and the same finding was made again in July of 2004 by Marc Holma. In June of 2016, Brigette Flower from VDHR completed an additional survey, recommending the barn as eligible for the NRHP under Criterion C. In July of that same year, the VDHR Evaluation Committee determined it to be eligible under Criterion C, noting it as a “fine example of the standardized designs of the era.” It stands as an example of the hollow tile barn type popular from the 1920s to 1940s, and a lasting example of the county’s agricultural history.

The Thomasson Barn was determined eligible in September of 2016 by the State Review Board under Criterion C, with specific note made of the resource’s rare building material: hollow tile. 076-0285 is located within the half-mile study tier for Hourglass-Hornbaker Route 1 (Hybrid).

3.3.2 076-5036, MANASSAS STATION OPERATIONS BATTLEFIELD

076-5036 represents tracts of land associated with the battles and operations at Bristoe Station, Kettle Run, Bull Run Bridge, and Union Mills, all of which took place from August 25–27, 1862. The battlefield is primarily in northern Prince William County, with portions extending into Loudoun County on the east and Fauquier County on the west. The boundaries of the resource are defined by the American Battlefield Protection Program (ABPP) Study Area and encompass approximately 11,280 acres. The Core Areas of the battlefield, defined by the ABPP as the areas of the most significant military action, are located along the former Orange and Alexandria Railroad to the south and east of the Project area (Attachment 4, Figure 2).

In the days prior to the Second Battle of Manassas, General Stonewall Jackson marched from the Rappahannock River west and north to Manassas Gap, then followed the Manassas Gap Railroad southeast to Bristoe Station to get in the rear of Union General John Pope's Army of Virginia and attack its supply line. Jackson overran the small Union garrison at Bristoe Station at the junction of the Orange and Alexandria Railroad on August 26, overturning railcars and destroying the railroad before heading northeast along the Orange and Alexandria to Manassas Junction. A small force of Union troops advanced on Manassas Junction but were turned away by Jackson at Union Mills. A Confederate detachment at Bristoe Station held off a Union force at Kettle Run long enough to join Jackson. After raiding the Union supply depot at Manassas Junction, Jackson's forces retired to a strong defensive position on the north side of the unfinished Independent Line of the Manassas Gap Railroad. It was from that point that Jackson surprised Pope's forces returning from its position on the Rappahannock to meet Jackson's army, initiating the action of the Second Battle of Manassas (Neville et al. 1995).

The Project is located about 300 feet north of the Bristoe Station Study Area and 600 feet north of the Bristoe Station Core Area. It is within 0.5 mile of the Manassas Station Operations Core Area and the Bristoe Station Potential National Register Area (PotNR), as defined by the ABPP in 2007 (National Park Service [NPS] 2009). 076-5036 was determined potentially eligible for the NRHP in 2018. It is within the half-mile study tier for the Hourglass-Hornbaker Route 1 (Hybrid) and within the 1-mile study tier for Pegasus-Hornbaker Route 1.

3.3.3 076-5190, SECOND BATTLE OF MANASSAS

076-5190, the Second Battle of Manassas, encompasses over 17,000 acres in Prince William, Fairfax, and Loudoun counties (Attachment 4, Figure 3). The Second Battle of Manassas was fought August 28–30, 1862 and marked the end of what is referred to as the Northern Virginia Campaign of Confederate General Robert E. Lee. Lee's victory allowed the Confederate Army of Northern Virginia to cross the Potomac into Maryland, beginning the first invasion of the northern states that ended at the Battle of Antietam.

076-5190 represents the site of the battle and its ancillary actions, including the approach and withdrawal of the armies before and after the battle, as defined by the ABPP Study Area (NPS 2009). The ABPP Core Area of the battlefield within which the primary action took place is north of Balls Ford Road and Cushing Road, but extends south on Balls Ferry Road to its junction with the former Manassas Gap Railroad at Wellington. The most significant and well-preserved portions of

the battlefield are listed in the NRHP as the Manassas Battlefield Historic District (076-0271), which includes Manassas National Battlefield Park.

The Union forces defending Washington were organized as the Army of Virginia under General John Pope in June 1862. Lee, defending Richmond against McClellan's Army of the Potomac, sent General Stonewall Jackson to counter Pope, and after a clash at the Rapidan River with Jackson's forces, Pope withdrew to a strong position north of the Rappahannock River. Suspecting that Lee was shifting his army northward, McClellan began a withdrawal to reinforce Pope. Lee realized that if he could get to Pope before McClellan, he might have a chance to destroy his army. In order to lure Pope out of his defenses, Lee ordered Jackson to march over 50 miles to the north to strike in Pope's rear. Jackson successfully seized the Union depot at Manassas Junction on August 27, where his troops feasted on the rations there before burning the remaining supplies. Jackson then withdrew northward and took up a position on the north side of the Warrenton Turnpike near the First Manassas battlefield. Meanwhile, Lee was proceeding with Longstreet's Corps to join Jackson and reunite his army (NPS 2024b).

With his supply line cut and a threat in his rear, Pope withdrew from the Rappahannock and returned toward Manassas. As he made his way to Centerville just north of Manassas, Pope's First Division was attacked by Jackson on the Warrenton Turnpike (U.S. 29) at the Brawner Farm on August 28. A fierce fight took place there that lasted until nightfall, kicking off the action at Second Manassas. The next day, convinced that Jackson was isolated and vulnerable, Pope began a series of uncoordinated attacks of Jackson's line, which was situated behind the grade of the unfinished Independent Line of the Manassas Gap Railroad. On several occasions, Pope's forces broke through portions of the line, but the gaps were filled and the Union repulsed. Major General Fitz John Porter was sent on a movement to flank the Confederate right but was met by Longstreet's men arriving on the scene. Lee called for Longstreet to attack the Union left, but Longstreet argued that the time was not right (American Battlefield Trust [ABT] 2024b; NPS 2024b).

After the morning of August 30 passed quietly, Pope believed that Lee was retreating back to Thoroughfare Gap and ordered his army to pursue. To his surprise he found that the Confederate army had not moved from its position. Pope nevertheless continued the assault. Porter and Brigadier General John Hatch were sent into the "Deep Cut," a gap in the railroad grade, but were rebuffed by artillery fire. Lee and Longstreet took advantage of the confusion and ordered a counterattack on the Union left. With nearly 30,000 troops, one of the largest single assaults of the war, Longstreet drove the Union forces back toward Henry Hill, where the Confederates under Jackson and others had put up a ferocious defense just over a year earlier. Lee hoped to cut off Pope's escape, but the Union forces made a strong stand at Chinn Ridge and Henry Hill, holding back the surge long enough for Pope to cross Bull Run and begin his retreat back to Washington (ABT 2024b; NPS 2024b).

Second Manassas was a decisive Confederate victory against a larger Union force. The Union armies totaled approximately 70,000 men to the Confederates' 55,000. However, the Confederates suffered significant losses. Over 8,000 were killed, wounded, or missing, with nearly half of those occurring from Longstreet's massive charge on the 30th. The Union armies, however, lost an even greater percentage of its men. Nearly 14,000 men, 20 percent of the total forces

engaged, were killed, wounded, or missing. The loss destroyed Pope's career. He was relieved of command less than two weeks after the battle and was sent west to battle the Sioux. Although he was court-martialed and forever barred from holding office, he eventually was exonerated (Encyclopaedia Britannica 2024b).

The major action of the Second Battle of Manassas took place primarily to the north of the proposed Project; however, troop movements and supporting actions of the Union army did take place within the Project vicinity. On the 29th, Major General Fitz John Porter was sent around the Union left along the Manassas-Gainesville Road (current Route 674, Wellington Road), where he was met by Longstreet's forces just arriving on the scene from the Manassas Gap Railroad, blocking his progress. Wellington Road is crossed by Wellington-Pegasus Route 1 and is paralleled by Devlin-Pegasus Route 2. After skirmishing in the afternoon around Dawson's Branch, Porter shifted to his right to reinforce the main body of Pope's army on the south side of the Warrenton Turnpike (Eastern National Park and Monument Association [ENPMA] 1985). The area along Wellington Road has been heavily impacted by commercial development and major road projects.

076-5190 was determined potentially eligible for the NRHP in January of 2007 by the ABPP and again by Adrienna Birge-Wilson of VDHR under Criterion A in September of 2018. Roger Kirchen of VDHR determined the resource eligible in July of 2019; however, it was then reclassified as potentially eligible in November of 2020 by Adrienna Birge-Wilson of VDHR. The resource is located within the right-of-way of Devlin-Pegasus Routes 1 and 2. It is also located within the half-mile study tier for Wellington-Pegasus Route 1 and Pegasus-Hornbaker Route 1 and within the one-mile study tier for Hourglass-Hornbaker Route 1 (Hybrid).

3.3.4 076-5335, FIRST BATTLE OF MANASSAS

076-5335, First Battle of Manassas, encompasses over 18,000 acres in Prince William, Fairfax, and Loudoun counties (Attachment 4, Figure 4). The battle was fought July 21, 1861, and was the first major engagement of the Civil War. The Confederate victory embarrassed the U.S. military and demonstrated that the war would be longer and costlier than had been previously imagined. 076-5335 represents the site of the battle and its ancillary actions, including the approach and withdrawal of the armies before and after the battle, as defined by the ABPP study area (NPS 2009). The ABPP core area of the battlefield within which the primary action took place is located around the intersection of U.S. 29 and Sudley Road on the north side of Interstate 66. The most significant and well-preserved portions of the battlefield are listed in the NRHP as the Manassas Battlefield Historic District (076-0271), which includes the Manassas National Battlefield Park.

Following the bombardment of Fort Sumter in April 1861, President Lincoln had called for 75,000 volunteers from the state militias for a 90-day deployment as proscribed by laws dating to the eighteenth century. This was four times the size of the standing U.S. Army, but much less than was needed to effectively end the rebellion. After receiving training, 35,000 of these volunteers under General Irvin McDowell marched out of Washington on July 16 to capture the Confederate capital of Richmond. The first objective was to secure Manassas Junction, where the Manassas Gap and the Orange and Alexandria Railroad met. The Orange and Alexandria Railroad was an important line of communication between Washington and the Union Army and was the most direct rail line between the capitals. McDowell arrived at Centerville, on the Warrenton Turnpike

(now Lee Highway/U.S. 29) on July 18. Between him and Manassas Junction ran a small stream called Bull Run. On the opposite side of the stream, Confederate General P. G. T. Beauregard had deployed his 22,000 troops to protect all the fords from the railroad north to the stone bridge of the Warrenton Turnpike over Bull Run (ABT 2024a; NPS 2024a).

After driving into the Confederate right at Blackburn's Ford and failing to break the line, McDowell spent the next two days probing the left side of the line around the Stone Bridge. Meanwhile, Beauregard had requested reinforcements, and General Joseph E. Johnston was ordered to leave his position in the Shenandoah Valley to support Beauregard. Traveling by the Manassas Gap Railroad, Johnston arrived on the 20th and 21st, just as the action was commencing (NPS 2024a).

On July 21, McDowell sent a force north to Sudley Spring to flank the Confederate left. To protect this movement, he launched an attack at Stone Bridge early in the morning of the 21st that marked the beginning of the battle. Confederate Colonel Nathan Evans was defending the bridge and soon recognized that the push at the bridge was a feint. He left a small force at the bridge and moved his brigade to the northwest to meet McDowell's force that had crossed Bull Run and was moving south on the Manassas-Sudley road. Evans was soon reinforced by Brigadier General Barnard Bee and Colonel Francis Bartow, and the two sides faced off in an intense fire fight at Matthew's Hill. The Federals were able to continue adding more regiments and artillery to the fight, however, and the Confederate line was forced back to Henry Hill, on the south side of Warrenton Turnpike, where Bee sought to rally his men. It was during this stand that Bee bestowed on Confederate General Thomas J. Jackson his nickname "Stonewall" for his steadfast position. At Henry Hill, the Confederates were joined by Johnston's men, some of them marching directly into battle from the Manassas Gap Railroad station at Thoroughfare. Beauregard also arrived on the scene as the battle had shifted entirely to this front. After a short pause as the two sides reordered their lines at midday, the fight was resumed. With the two sides at roughly equal strength, the battle at Henry Hill became a series of attacks and counter attacks, with no side gaining an advantage. Around 4 p.m., more Confederate troops arrived and attacked the Union right at Chinn Ridge. The federal forces, exhausted and discouraged, retreated, and the remaining forces soon followed. The rebels were too disorganized to pursue, advancing only as far as Centerville. By the next morning McDowell's army had returned to the safety of Washington's defenses (NPS 2024a; ABT 2024a).

Of McDowell's roughly 30,000 men, 460 were killed, including Bee and Barstow, and 1,124 were wounded. Another 1,300 were missing or captured. Beauregard and Johnston's combined forces of some 32,000 men suffered 387 killed and 1,582 wounded, with just 13 missing or captured. The loss was an embarrassment to the Union Army and made clear the need for a larger, better trained and equipped force. The battlefield became an immediate shrine as the first major battle of the Civil War and to the men who fell there. Veterans of the fight returned to the site frequently, and in 1940, Manassas National Battlefield was established to protect the historic landscape for future generations (Encyclopaedia Britannica 2024a).

The major action of the First Battle of Manassas took place primarily to the northeast of the Project, although troop movements and peripheral actions did take place within the area. The portion of the ABPP study area that falls within a mile of the resource is an approach or withdrawal route along Wellington Road and Rixlew Lane that is located 0.9 miles northeast of the Hourglass-

Hornbaker Route 1 (Hybrid). The area has been heavily impacted by commercial and residential development and infrastructure.

076-5335 was determined potentially eligible for the NRHP in January of 2007 by the ABPP. In August of 2018, Marc Holma of VDHR determined the resource eligible; however, it was reclassified as potentially eligible by Adrienne Birge-Wilson in September of the same year. The First Battle of Manassas is located within the one-mile study tier for Hourglass-Hornbaker Route 1 (Hybrid).

3.3.5 155-5020, CANNON BRANCH FORT SITE

The Cannon Branch Fort Site, 155-5020, is a Civil War-era fortification located adjacent to the former Alexandria and Orange Railroad between Manassas and Bristoe, south of the intersection of Route 234 (Prince William Parkway) and Route 28 (Nokesville Road). It occupies an 11-acre wooded parcel bounded by the railroad (now the Norfolk Southern) on the south, Gateway Boulevard on the north and east, and Route 234 on the west (Attachment 4, Figure 5). The fort was constructed during the Union occupation of the area to protect the railroad, which was an important supply line for the Union army's operations in northern Virginia during its efforts to capture the Confederate capital of Richmond (Lipford 2023). The resource was listed on the NRHP in 1999.

The fort has not been documented in written records of the Civil War but was likely constructed late in the conflict to defend the supply line. The earthen works are rectangular in shape, approximately 145 feet by 105 feet, with 2- to 3-foot walls and a 1- to 2-foot-deep ditch on the exterior side. There are openings in the east and west walls near the northern end of the fort. Its orientation suggests that it protected the railroad bridge over Cannon Branch.

The Cannon Branch Fort Site was listed on the Virginia Landmarks Register (VLR) in March of 1996 by VDHR staff, and it was listed on the NRHP in August of 1999. 155-5020 is within the one-mile study tier for Hourglass-Hornbaker Route 1 (Hybrid).

3.4 HISTORIC RESOURCE FINDINGS FOR WELLINGTON-PEGASUS ROUTE 1

3.4.1 076-5190, SECOND BATTLE OF MANASSAS

The Second Battle of Manassas is transected by Wellington-Pegasus Route 1 on the resource's southern boundary (Attachment 5, Figure 1). The area crossed consists of a highway and other roads, small stands of woods, and cleared land. The wooded parcels would be altered with a tree cut to accommodate the new transmission line.

One simulation, KOP 004H, was prepared for this resource just within the resource's southern boundary. This location was chosen as the point where infrastructure installed along the route would have the greatest visual impact. As illustrated in the simulation from KOP 004H, the new transmission structures would be highly visible from this vantage point since the transmission line corridor would cut through wooded land and the transmission line structures would be near a public thoroughfare (Attachment 5, Figure 2).

A few existing transmission lines intersect the resource, the nearest one to the Project being just north of the route, which would facilitate a tie into that existing transmission line. The route

extends a short distance to the south of the resource to tie in to the proposed Pegasus Switching Station, traversing wooded land, necessitating a tree cut that would create additional viewshed effects for a small area of the battlefield. The setting of the resource in the vicinity of the route has already been compromised by the existing transmission line, in addition to modern development, which has altered the landscape.

As shown in the simulations, transmission infrastructure installed along Wellington-Pegasus Route 1 would be visible from the KOP and would potentially be visible from locations immediately adjacent to the route both within the boundary of the resource and immediately to the south. The new transmission line would add additional modern infrastructure to the viewshed. Although the resource has already been altered, Wellington-Pegasus Route 1 would add more modern elements within the boundaries of the resource's southern portion. However, the new transmission line would be a minor change within this expansive resource's 17,000 acres. Furthermore, the location of the route is not within an area of the battlefield in which major action took place. Therefore, for all these reasons, ERM recommends that there would be a **Moderate Impact** on this resource from the transmission line installed Wellington-Pegasus Route 1.

3.5 PEGASUS-HORNBAKER ROUTE 1

3.5.1 076-5036, MANASSAS STATION OPERATIONS BATTLEFIELD

The Manassas Station Operations Battlefield is approximately 0.8 mile south of Pegasus-Hornbaker Route 1 at its closest point (Appendix 5, Figure 3). The resource boundaries create a U-shape moving from the west side of the route, dipping to a low point to its south before moving northeast. Two simulations were prepared for this resource, KOP 009H and KOP 010H. KOP 009H is approximately 0.90 mile west of the proposed route within a residential community with tree cover and winding roads lined with closely sited dwellings (Appendix 5, Figure 4). KOP 010H is approximately 0.99 mile southeast of the route within an area predominantly cleared of vegetation and containing commercial and industrial buildings (Appendix 5, Figure 5). As shown in the simulations, there would be no view of transmission infrastructure installed along the route due to the change in elevation, intervening distance, development, and vegetation. Therefore, there would be **No Impact** on this resource from use of Pegasus-Hornbaker Route 1 for the Project.

3.5.2 076-5190, SECOND BATTLE OF MANASSAS

The Second Battle of Manassas is approximately 738 feet to the north of Pegasus-Hornbaker Route 1 and approximately 581 feet north of the proposed Pegasus Switching Station (Attachment 5, Figure 6). The area containing the route is forested but abuts industrial development to the south. Vegetation would be removed to accommodate the new transmission line.

One simulation was prepared for this resource, KOP 004H, located at the southern edge of the resource's boundary. This location was chosen due to the proximity of the KOP to the route and switching station where the greatest visual impact would occur. From this viewpoint, as illustrated in the simulation from KOP 004H, transmission line structures would likely only be visible during leaf off seasons, except right along the south side of the switching station, would be highly visible from this location year-round (Attachment 5, Figure 7).

While the southern viewshed already contains other modern development, such as divided highways and industrial and commercial buildings, Pegasus-Hornbaker Route 1 would introduce new modern infrastructure, which would be prominent within the landscape from a vantage point along a major public thoroughfare. Additionally, this route would tie into the Wellington-Pegasus Route 1, which would also add additional modern infrastructure to this viewshed. Thus, ERM recommends that there would be a **Moderate Impact** to this resource from the use of Pegasus-Hornbaker Route 1 for the Project.

3.6 HISTORIC RESOURCE FINDINGS FOR HOURGLASS-HORNBAKER ROUTE 1 (HYBRID)

3.6.1 076-0285, THOMASSON BARN

Thomasson Barn is approximately 0.24 mile south-southwest of the Hourglass-Hornbaker Route 1 (Hybrid) (Attachment 5, Figure 8). The area between the resource and the proposed line consists of a parking lot, commercial development, cleared land, and a zig-zagging tree break. One simulation was prepared, KOP 007H, which is located on the northwestern corner of the resource looking north (Attachment 5, Figure 9). As shown in the simulation, there would be no view of transmission infrastructure installed along the route due to the change in elevation, intervening distance, development, and vegetation. Therefore, there would be **No Impact** on this resource from use of the Hourglass-Hornbaker Route 1 (Hybrid) for the Project.

3.6.2 076-5036, MANASSAS STATION OPERATIONS BATTLEFIELD

Manassas Station Operations Battlefield is, at its closest distance, approximately 0.37 mile southeast of the Hourglass-Hornbaker Route 1 (Hybrid) (Attachment 5, Figure 10). The portion of this expansive resource in the vicinity of the Project contains extensive commercial development. The intervening land between the resource and route also contains recent construction, open land, and scattered small stands of trees. One simulation was prepared, KOP 010H, at the point in closest proximity to the Hourglass-Hornbaker Route 1 (Hybrid) (Attachment 5, Figure 11). As shown in the simulation, there would be no view of transmission infrastructure installed along the route due to the intervening distance, change in elevation, development, and screening vegetation. Therefore, there would be **No Impact** on this resource from use of the Hourglass-Hornbaker Route 1 (Hybrid) for the Project.

3.6.3 076-5190, SECOND BATTLE OF MANASSAS

The Second Battle of Manassas is approximately 0.63 mile north and east of the Hourglass-Hornbaker Route 1 (Hybrid) (Attachment 5, Figure 12). The area between the resource and the route consists of dense commercial and residential development. Additionally, a network of existing transmission lines spans the area moving in all directions. One simulation was prepared, KOP 013H, from the southern end of the resource looking west (Attachment 5, Figure 13). As shown in the simulation, there would be no view of transmission infrastructure installed along the route due to the intervening distance, development, and vegetation. Therefore, there would be **No Impact** on this resource from use of the Hourglass-Hornbaker Route 1 (Hybrid) for the Project.

3.6.4 076-5335, FIRST BATTLE OF MANASSAS

The First Battle of Manassas, which partially overlaps 076-5036, is approximately 0.94 mile northeast of the Hourglass-Hornbaker Route 1 (Hybrid) (Attachment 5, Figure 14). The area between the resource and the proposed route consists of dense commercial and residential development. Additionally, a network of existing transmission lines spans the area moving in all directions. One simulation was prepared, KOP 013H, which is located on the southern end of the resource (Attachment 5, Figure 15). As shown in the simulation, there would be no view of transmission infrastructure installed along this route due to the intervening distance, development, and vegetation. Therefore, there would be **No Impact** on this resource from use of the Hourglass-Hornbaker Route 1 (Hybrid) for the Project.

3.6.5 155-5020, CANNON BRANCH FORT SITE

Cannon Branch Fort Site is approximately 0.79 mile southeast of the Hourglass-Hornbaker Route 1 (Hybrid) (Attachment 5, Figure 16). The area between the resource and the route consists of cleared land and commercial development. One simulation was prepared, KOP 014H, which is on the northwestern edge of the resource's boundary looking northwest (Attachment 5, Figure 17). As shown in the simulation, there would be no view to the transmission infrastructure installed along the route due to the intervening distance and vegetation. Therefore, there would be **No Impact** on this resource from use of the Hourglass-Hornbaker Route 1 (Hybrid) for the Project.

3.7 DEVLIN-PEGASUS ROUTE 1

3.7.1 076-5190, SECOND BATTLE OF MANASSAS

The southernmost extent of the Second Battle of Manassas is transected by the alignment of Devlin-Pegasus Route 1, which would weave in and out of the resource's southern boundary (Attachment 5, Figure 18). The areas transected are surrounded by commercial and residential development and dense vegetation. While heavily developed, there are also small, wooded parcels where the vegetation would be removed to accommodate the new transmission line.

Three simulations were prepared for this resource: KOP 001H, KOP 002H, and KOP 004H. KOP 001H is at the northern end of the route at the edge of the resource boundary, looking towards the proposed Devlin Switching Station (Attachment 5, Figure 19). This location was chosen to capture the view where the route overlaps the resource boundary. As shown in the simulation, this location would have an expansive and obtrusive view of the transmission infrastructure installed along the route, which would entail noticeable tree clearing, different types of transmission structures, and conductors. At this location however, there is already modern development in the form of electrical distribution lines and utility poles and a four-lane, divided thoroughfare, with commercial development immediately to the north. The introduction of a transmission line along the route would add additional modern elements to a landscape setting already cluttered with modern infrastructure.

KOP 002H is along Lexington Valley Drive within the southern boundary of the resource (Attachment 5, Figure 20). This location was chosen to capture the view where the route would traverse the battlefield in an area whose viewshed is not currently obstructed by existing

transmission lines. This simulation shows that transmission infrastructure installed along the route would be visible at certain locations where sight lines are unobstructed by vegetation and intervening development. The area is already inundated with commercial development, however, and dense vegetation will remain surrounding a portion of this segment, which would screen the view of the route from many vantage points.

Finally, KOP 004H is at the southernmost end of the route facing southwest towards the route's nexus with the proposed Pegasus Switching Station. This location was chosen based on the potential high visibility of the new infrastructure, which is demonstrated in the simulation (Attachment 5, Figure 21). The viewshed would be dominated by transmission infrastructure installed along the route and switching station, whose construction would necessitate prominent tree clearing.

The viewshed of the Second Battle of Manassas is transected to the north of the route by an existing transmission line running northwest to southeast. Additionally, the area contains heavy commercial and residential development, highways, and dense vegetation that would obstruct the view of transmission infrastructure installed along Devlin-Pegasus Route 1 in various locations along its alignment within the resource. However, as shown in the three simulations, there would be obtrusive views at locations near the route and in areas where tree coverage is limited. Overall, due to the location of the route within an area already heavily altered by development, the new transmission line would not engender a significant change to the setting of this expansive resource's 17,000 acres. Furthermore, the location of the route is not within an area of the battlefield in which major action took place. Therefore, it is recommended that there would be a **Moderate Impact** on this resource from use of Devlin-Pegasus Route 1 for the Project.

3.8 DEVLIN-PEGASUS ROUTE 2

3.8.1 076-5190, SECOND BATTLE OF MANASSAS

The southern portion of the Second Battle of Manassas is intersected in three segments by the alignment of Devlin-Pegasus Route 2 (Attachment 5, Figure 22). The areas transected consist of commercial development and dense vegetation, which would be removed to accommodate the new transmission line.

Three simulations were prepared for this resource: KOP 001H, KOP 002H, and KOP 003H. KOP 001H is at the northern end of the route at the edge of the resource boundary, looking towards the proposed Devlin Switching Station (Attachment 5, Figure 23). This location was chosen to capture the view where the route overlaps the resource boundary. As shown in the simulation, this location would have an expansive and obtrusive view of transmission infrastructure installed along the route, which would entail noticeable tree clearing, different types of transmission line structures, and conductors. At this location however, there is already modern development in the form of electrical distribution lines and utility poles and a four-lane, divided thoroughfare, with commercial development immediately to the north. The introduction of a transmission line along the route would add additional modern elements to a landscape setting already cluttered with modern infrastructure.

KOP 002H is located along Lexington Valley Drive within the boundaries of the resource's southern end (Attachment 5, Figure 24). This location was chosen due to its proximity to the route within an area with uninterrupted sight lines that does not contain existing transmission lines. This simulation shows that transmission infrastructure installed the route would be visible at certain locations unobstructed by vegetation and intervening development. The presence of existing commercial development and stands of dense vegetation would constrain sight lines to a large degree, but there are no existing transmission lines in the immediate viewshed. The proposed transmission line would represent a new element within the setting.

Finally, KOP 004H is near the southern end of the route facing southwest. This location was chosen based on the potential high visibility of the proposed transmission line within an otherwise relatively undeveloped area (Attachment 5, Figure 25). As demonstrated in this simulation, infrastructure installed along Devlin-Pegasus Route 2 would traverse the southern extent of the battlefield, where conductors, transmission line structures, and cleared right-of-way would be clearly visible along a public thoroughfare.

The viewshed of the Second Battle of Manassas is transected to the north of the route by an existing transmission line running northwest to southeast. Additionally, the area contains heavy commercial and residential development, highways, and dense vegetation that would obstruct the view of transmission infrastructure installed along Devlin-Pegasus Route 2 in various locations along its alignment within the resource. As shown in the three KOP simulations, however, there would be obtrusive views at locations in close proximity to the route and in areas where tree coverage is limited. Overall, due to the location of the route within an area already heavily altered by development, the new transmission line would not engender a significant change to the setting of this expansive resource's 17,000 acres. Furthermore, the location of the route is not within an area of the battlefield in which major action took place. Therefore, for all these reasons, ERM recommends that there would be a **Moderate Impact** on this resource from use of Devlin-Pegasus Route 2 for the Project.

3.9 ARCHAEOLOGY FINDINGS

Five known archaeological sites are located in the right-of-way of the transmission line routes (see Figure 2; Table 10): one within the right-of-way of Pegasus-Hornbaker Route 1 (44PW1221); one within the right-of-way of Hourglass-Hornbaker Route 1 (Hybrid) (44PW1208); and three within the right-of-way of Devlin-Pegasus Route 2 (44PW1454, 44PW1455, and 44PW1456). No previously recorded sites were identified within the right-of-way for Wellington-Pegasus Route 1 or Devlin-Pegasus Route 1.

The sites along each route alternative are described below. The descriptions include information on the NRHP eligibility status of each site 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.

TABLE 10 ARCHAEOLOGICAL RESOURCES WITHIN THE RIGHT-OF-WAY FOR THE ROUTE ALTERNATIVES

Considered Resource	Route Alternatives				
	Wellington-Pegasus Route 1	Pegasus-Hornbaker Route 1	Hourglass-Hornbaker Route 1 (Hybrid)	Devlin-Pegasus Component, Route 1	Devlin-Pegasus Component, Route 2
44PW1208	-	-	X	-	-
44PW1221	-	X	-	-	-
44PW1454	-	-	-	-	X
44PW1455	-	-	-	-	X
44PW1456	-	-	-	-	X
Total Resources	**0**	**1**	**1**	**0**	**3**

3.9.1 WELLINGTON-PEGASUS ROUTE 1

No known archaeological sites are located within the right-of-way of this route alternative.

3.9.2 PEGASUS-HORNBAKER ROUTE 1

One previously recorded archaeological site, a prehistoric lithic workshop, overlaps Pegasus-Hornbaker Route 1: 44PW1221. A previous Phase I survey performed in 2001 described the site as a non-diagnostic lithic scatter with some subsurface integrity (Crowl 2001), however, the site area has since been developed and the site most likely destroyed.

3.9.3 HOURGLASS-HORNBAKER ROUTE 1 (HYBRID)

One previously recorded archaeological site overlaps the Hourglass-Hornbaker Route 1 (Hybrid): 44PW1208. This site is identified as a prehistoric lithic workshop with an unidentified temporal affiliation which has not been evaluated to determine its eligibility for listing in the NRHP (VDHR 2024b). A previous Phase I survey performed in 2001 described the site as a non-diagnostic lithic scatter with some subsurface integrity (Crowl 2001). The site area is now completely covered by a business park. [redacted] As the entirety of the recorded site boundary has been previously disturbed by commercial development, it is unlikely that any intact cultural remains would be encountered at the site.

3.9.4 DEVLIN-PEGASUS COMPONENT ROUTE 1

No known archaeological sites are located within the right-of-way of this route alternative.

3.9.5 DEVLIN-PEGASUS COMPONENT ROUTE 2

There are three previously recorded sites that overlap Devlin-Pegasus Route 2: 44PW1454, 44PW1455, and 44PW1456. The first, 44PW1454, is a multi-component site consisting of an prehistoric lithic scatter with an unidentified temporal affiliation and historic (late nineteenth to mid-twentieth century) trash scatter which has not been evaluated to determine its eligibility for listing in the NRHP (VDHR 2024c). A previous Phase I survey performed by Thunderbird Archeological Associates in 2003 indicated that the historic component of the site was a secondary dump and that the site was largely destroyed (Bryant 2003). The site area was plowed from at least 1937 to sometime between 2004 and 2006 based on aerial photography. Thereafter, the site was planted in, maintained as, and remains pine forest. [redacted]

Site 44PW1455 is a historic (twentieth century) trash scatter which has not been evaluated to determine its eligibility for listing in the NRHP (VDHR 2024d). A previous Phase I survey performed by Thunderbird Archeological Associates in 2003 indicated that the trash scatter was associated with a twentieth century house and that the site had been largely destroyed (Bryant 2003). Review of aerial photography found that the site contained an apparent residential structure from at least 1937 to sometime between 2004 and 2006. After removal of the structure, the area was planted in, maintained as, and remains pine forest. [redacted]

Site 44PW1456 is a historic (nineteenth and twentieth century) trash scatter which has not been evaluated to determine its eligibility for listing in the NRHP (VDHR 2024e). A previous Phase I survey performed by Thunderbird Archeological Associates in 2003 indicated that the trash scatter was defined by a light surface scatter in a sod field and that the site had been largely destroyed (Bryant 2003). The site area was plowed from at least 1937 to sometime between 2004 and 2006 based on aerial photography. Thereafter, the site was planted in, maintained as, and remains pine forest. [redacted]

4. CONCLUSIONS AND RECOMMENDATIONS

The pre-application analysis gathered information on archaeological and historic architectural resources that qualify for consideration according to the Guidelines.

Five known archaeological sites are 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.

Five aboveground historic resources fall within the VDHR study tiers for the route alternatives under consideration. A comparison of the number of resources impacted and the degree of impact from each route is presented in Table 11. The specific resources affected by each alternative are discussed in the subsections that follow. A discussion of results by solution is provided in Section 4.2.

TABLE 11 COMPARISON OF PROJECT IMPACTS ON HISTORIC RESOURCES IN THE STUDY AREAS OF THE ROUTE ALTERNATIVES

Route Alternative	Number of Considered Resources in Each Impact Category				
	None	Minimal	Moderate	Severe	Total
Wellington-Pegasus Route 1	0	0	1	0	1
Pegasus-Hornbaker Route 1	1	0	1	0	2
Hourglass-Hornbaker Route 1 (Hybrid)	5	0	0	0	5
Devlin-Pegasus Component, Route 1	0	0	1	0	1
Devlin-Pegasus Component, Route 2	0	0	1	0	1

Final assessments of Project impacts will be dependent on the completion of identification-phase archaeological and historic structure surveys along the routes selected by the SCC and 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 aboveground historic 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.

4.1 ROUTES

4.1.1 WELLINGTON-PEGASUS ROUTE 1

One previously recorded historic resource (076-5190) within the VDHR study tiers for Wellington-Pegasus Route 1 meets the criteria specified in the Guidelines for inclusion in the study (Table 12). Installation of transmission infrastructure along this route would have a moderate impact on the resource.

TABLE 12 IMPACTS TO HISTORIC RESOURCES IN THE VDHR STUDY TIERS FOR WELLINGTON-PEGASUS 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 Landscapes)	-	-	-
	Locally Significant	-	-	-
0.0 to 0.5	National Register – Eligible	-	-	-
0.0 (within ROW)	National Historic Landmarks, National Register Properties (Listed and Eligible)	-	-	-
	National Register – Potentially Eligible (Battlefields/Historic Landscapes)	076-5190	Second Battle of Manassas	Moderate

Source: VDHR 2024
ROW = right-of-way

4.1.2 PEGASUS-HORNBAKER ROUTE 1

Two previously recorded historic resources within the VDHR study tiers for Pegasus-Hornbaker Route 1 meet the criteria specified in the Guidelines for inclusion in the study (Table 16). Of these, the route would have no impact on one (076-5036) and a moderate impact on the other (076-5190).

TABLE 16 IMPACTS TO HISTORIC RESOURCES IN THE VDHR STUDY TIERS FOR PEGASUS-HORNBAKER 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 – Potentially Eligible (Battlefields/Historic Landscapes)	076-5036[a]	Manassas Station Operations Battlefield	No Impact

	Locally Significant	-	-	-
0.0 to 0.5	National Register – Potentially Eligible (Battlefields/Historic Landscapes)	076-5190	Second Battle of Manassas	Moderate
0.0 (within ROW)	National Historic Landmarks, National Register Properties (Listed and Eligible)	-	-	-

Source: VDHR 2024

[a] *Resource is within the designated tiers for the proposed Hornbaker Switching Station*

4.1.3 HOURGLASS-HORNBAKER ROUTE 1 (HYBRID)

Five previously recorded historic resources (076-0285, 076-5036, 076-5190, 076-5335, and 155-5020) within the VDHR study tiers for the Hourglass-Hornbaker Route 1 (Hybrid) meet the criteria specified in the Guidelines for inclusion in the study (Table 13). The route would have no impact on all five resources.

TABLE 13 IMPACTS TO HISTORIC RESOURCES IN THE VDHR STUDY TIERS FOR HOURGLASS-HORNBAKER ROUTE 1 (HYBRID)

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)	155-5020	Cannon Branch Fort	No Impact
	National Register – Potentially Eligible (Battlefields/Historic Landscapes)	076-5190[a]	Second Battle of Manassas	No Impact
		076-5335	First Battle of Manassas	No Impact
	Locally Significant	-	-	-
0.0 to 0.5	National Register – Eligible	076-0285[a]	Thomasson Barn	No Impact
	National Register – Potentially Eligible (Battlefields/Historic Landscapes)	076-5036	Manassas Station Operations Battlefield	No Impact
0.0 (within ROW)	National Historic Landmarks, National Register Properties (Listed and Eligible)	-	-	-

Source: VDHR 2024

[a] *Resource is within the designated tiers for the proposed Hornbaker Switching Station*

4.1.4 DEVLIN-PEGASUS ROUTE 1

One previously recorded (076-5190) historic resource within the VDHR study tiers for Devlin-Pegasus Route 1 meets the criteria specified in the Guidelines for inclusion in the study (Table 14). The route would have a moderate impact on this resource.

TABLE 14 IMPACTS TO HISTORIC RESOURCES IN THE VDHR STUDY TIERS FOR DEVLIN-PEGASUS COMPONENT 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 Landscapes)	-	-	-
	Locally Significant	-	-	-
0.0 to 0.5	National Register – Eligible	-	-	-
0.0 (within ROW)	National Historic Landmarks, National Register Properties (Listed)	-	-	-
	National Register – Potentially Eligible (Battlefields/Historic Landscapes)	076-5190	Second Battle of Manassas	Moderate

Source: VDHR 2024
ROW = right-of-way

4.1.5 DEVLIN-PEGASUS ROUTE 2

One previously recorded historic resource (076-5190) within the VDHR study tiers for Devlin-Pegasus Route 2 meets the criteria specified in the Guidelines for inclusion in the study (Table 15). The route would have a moderate impact on this resource.

TABLE 15 IMPACTS TO HISTORIC RESOURCES IN THE VDHR STUDY TIERS FOR DEVLIN-PEGASUS COMPONENT 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 Landscapes)	-	-	-
	Locally Significant	-	-	-
0.0 to 0.5	National Register – Eligible	-	-	-
0.0 (within ROW)	National Historic Landmarks, National Register Properties (Listed)	-	-	-
	National Register – Potentially Eligible (Battlefields/Historic Landscapes)	076-5190	Second Battle of Manassas	Moderate

Source: VDHR 2024
ROW = right-of-way

4.2 SOLUTIONS

The routes can be combined into two electrical solutions each with two options, consisting of a grouping of three route alternatives as follows:

- Solution 1A: Wellington–Pegasus Route 1, Pegasus–Hornbaker Route 1, and Devlin–Pegasus Route 1
- Solution 1B: Wellington–Pegasus Route 1, Pegasus–Hornbaker Route 1, and Devlin–Pegasus Route 2
- Solution 2A: Hourglass-Hornbaker Route 1 (Hybrid), Pegasus–Hornbaker Route 1, and Devlin–Pegasus Route 1
- Solution 2B: Hourglass-Hornbaker Route 1 (Hybrid), Pegasus–Hornbaker Route 1, and Devlin–Pegasus Route 2

Based on the desktop analysis and visual simulations described above, ERM found that transmission infrastructure installed along:

- Wellington–Pegasus Route 1 (Solutions 1A and 1B) would result in a moderate impact on 076-5190.
- Pegasus-Hornbaker Route 1 (all Solutions) would result in no impact on 076-5036 and a moderate impact on 076-5190.
- Hourglass-Hornbaker Route 1 (Hybrid) (Solution 2A and 2B) would result in a no impact on 076-0285, 076-5036, 076-5190, 076-5335, and 155-5020.
- Devlin–Pegasus Route 1 (Solution 1A and 2A) would result in a moderate impact on 076-5190.
- Devlin–Pegasus Route 2 (Solution 1B and 2B) would result in a moderate impact on 076-5190.

Given the above, and excluding resources that would not be affected, ERM concludes that each solution would have a moderate impact on the same resource, 076-5190, and Solutions 2A and 2B would have moderate impacts on the remaining four resources. Therefore, Solutions 1A and 1B would impact fewer aboveground cultural resources. These impacts would all be due to the addition of electrical transmission infrastructure to the views from these resources. The entire study area has already been heavily altered by industrial, commercial, and some residential development. In addition, the major action during the two Battles of Manassas occurred more than 2 miles away (and separated by major highways) from the solutions. As a result, while Solutions 1A and 2A would have smaller overall impacts, these differences do not meaningfully differentiate the solutions.

5. REFERENCES

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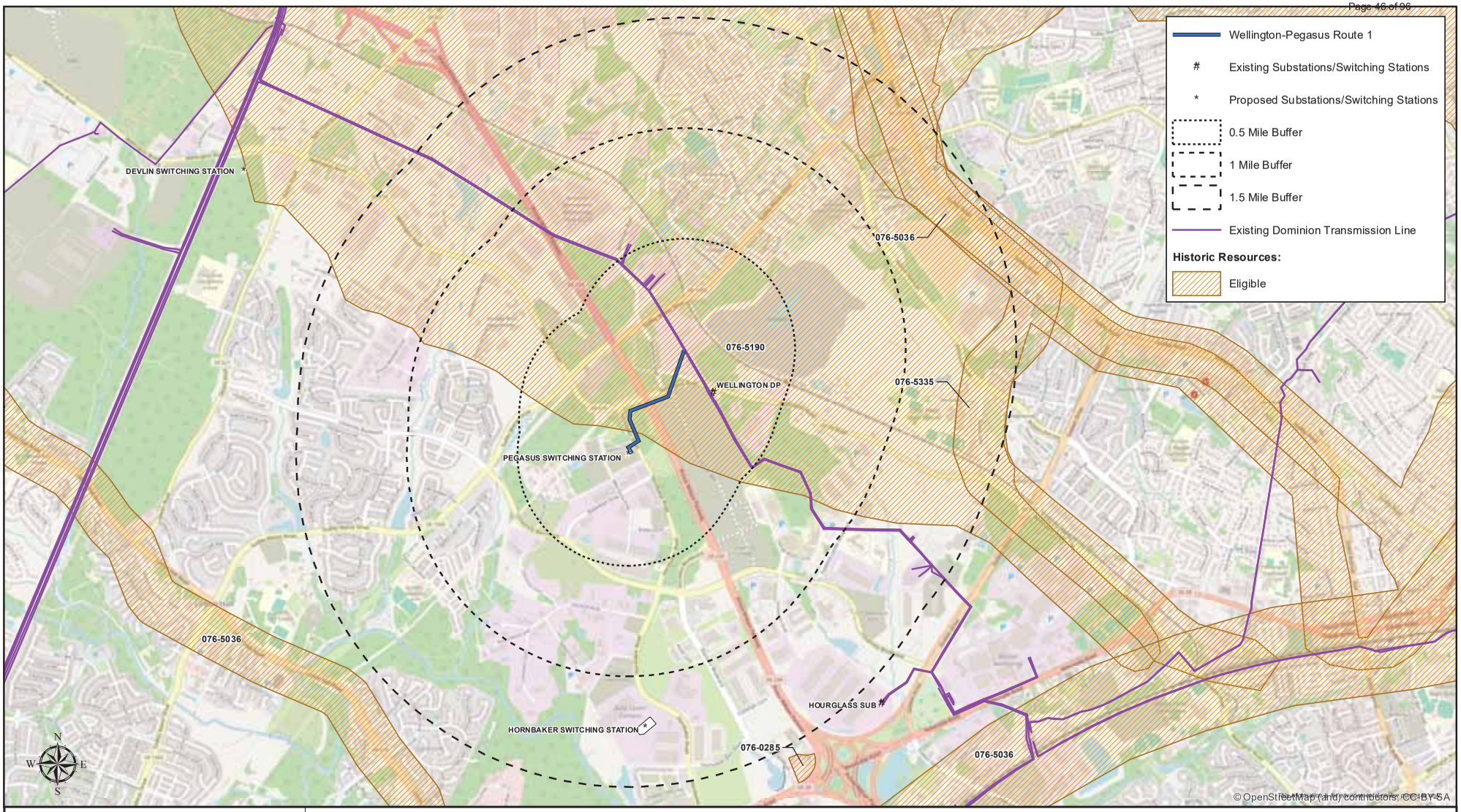
2024d VCRIS Archaeology Form, 44PW1455. On file, Virginia Department of Historic Resources.

2024e VCRIS Archaeology Form, 44PW1456. On file, Virginia Department of Historic Resources.

ATTACHMENT 1 LOCATIONS OF CONSIDERED ARCHITECTURAL RESOURCES ASSOCIATED WITH PROPOSED PROJECT



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Attachment 1, Sheet 1
Locations of Considered Resources Associated with Proposed Project Alternatives - Wellington-Pegasus Route 1
Devlin/Hornbaker 230 kV Lines Project
Dominion Energy Virginia
Prince William County, VA

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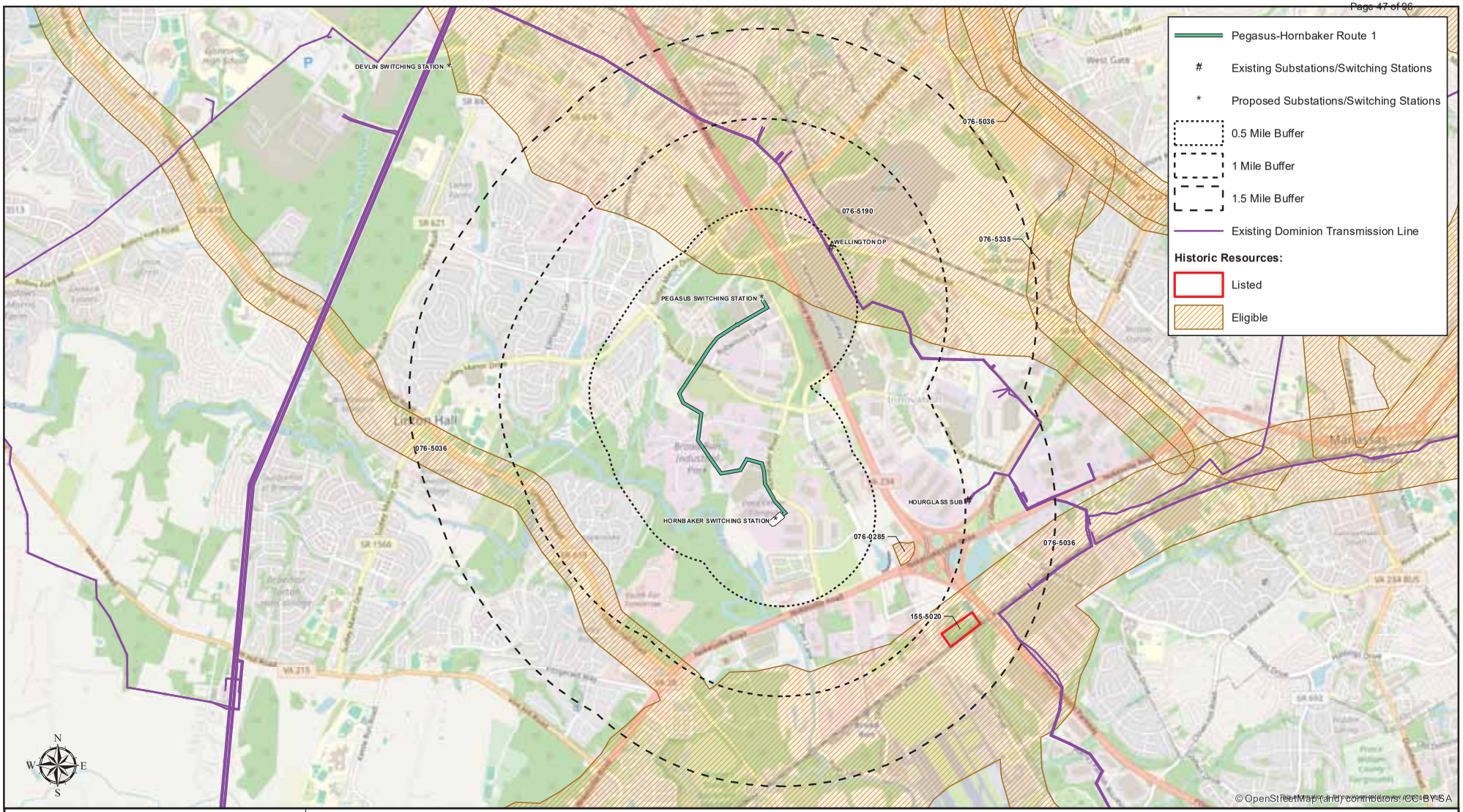

Attachment 1, Sheet 2
Locations of Considered Resources Associated with Proposed Project Alternatives - Pegasus-Hornbaker Route 1
Devlin/Hornbaker 230 kV Lines Project
Dominion Energy Virginia
Prince William County, VA

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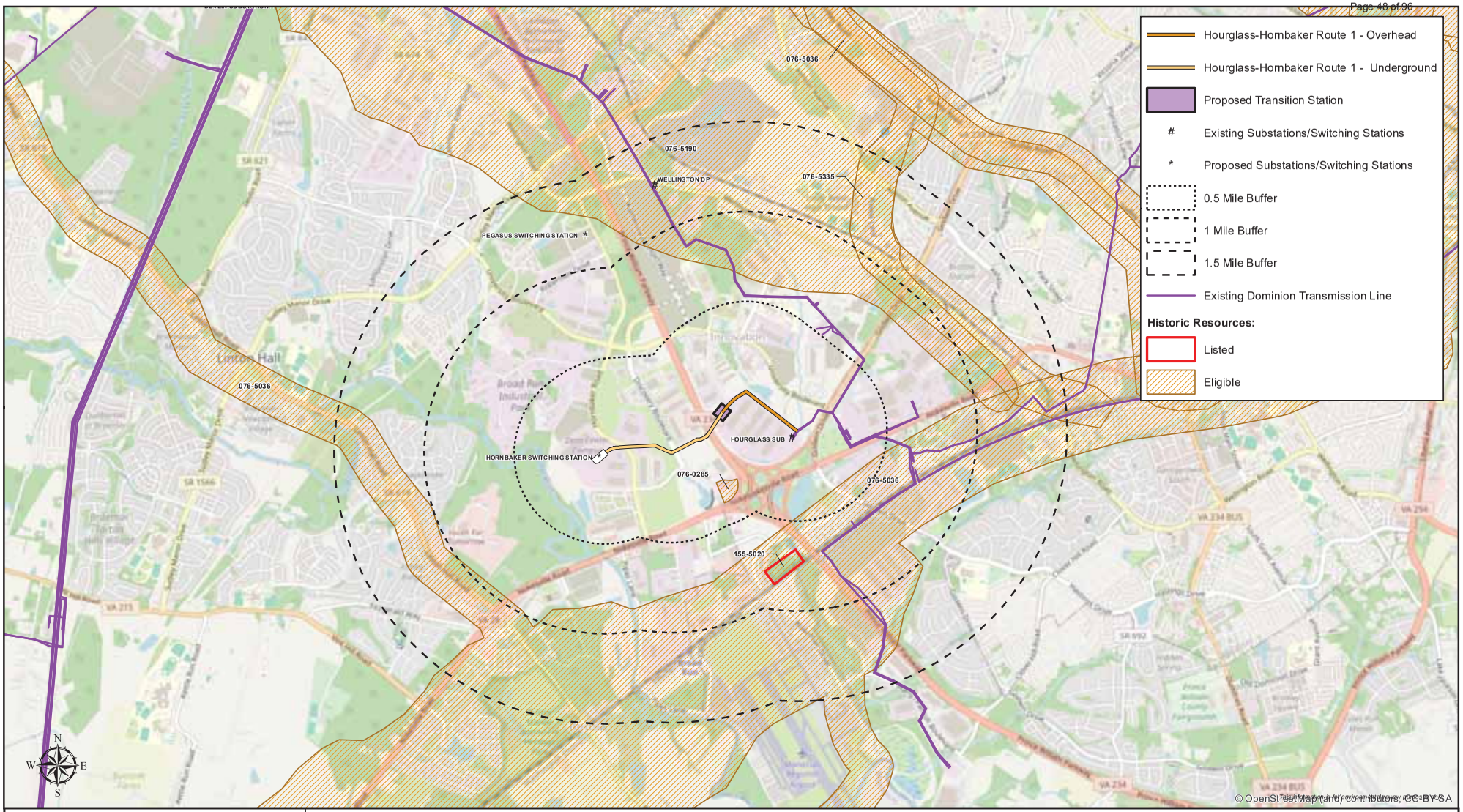

Attachment 1, Sheet 3
Locations of Considered Resources Associated with Proposed Project Alternatives - Hourglass-Hornbaker Hybrid Route
Devlin/Hornbaker 230 kV Lines Project
Dominion Energy Virginia
Prince William County, VA

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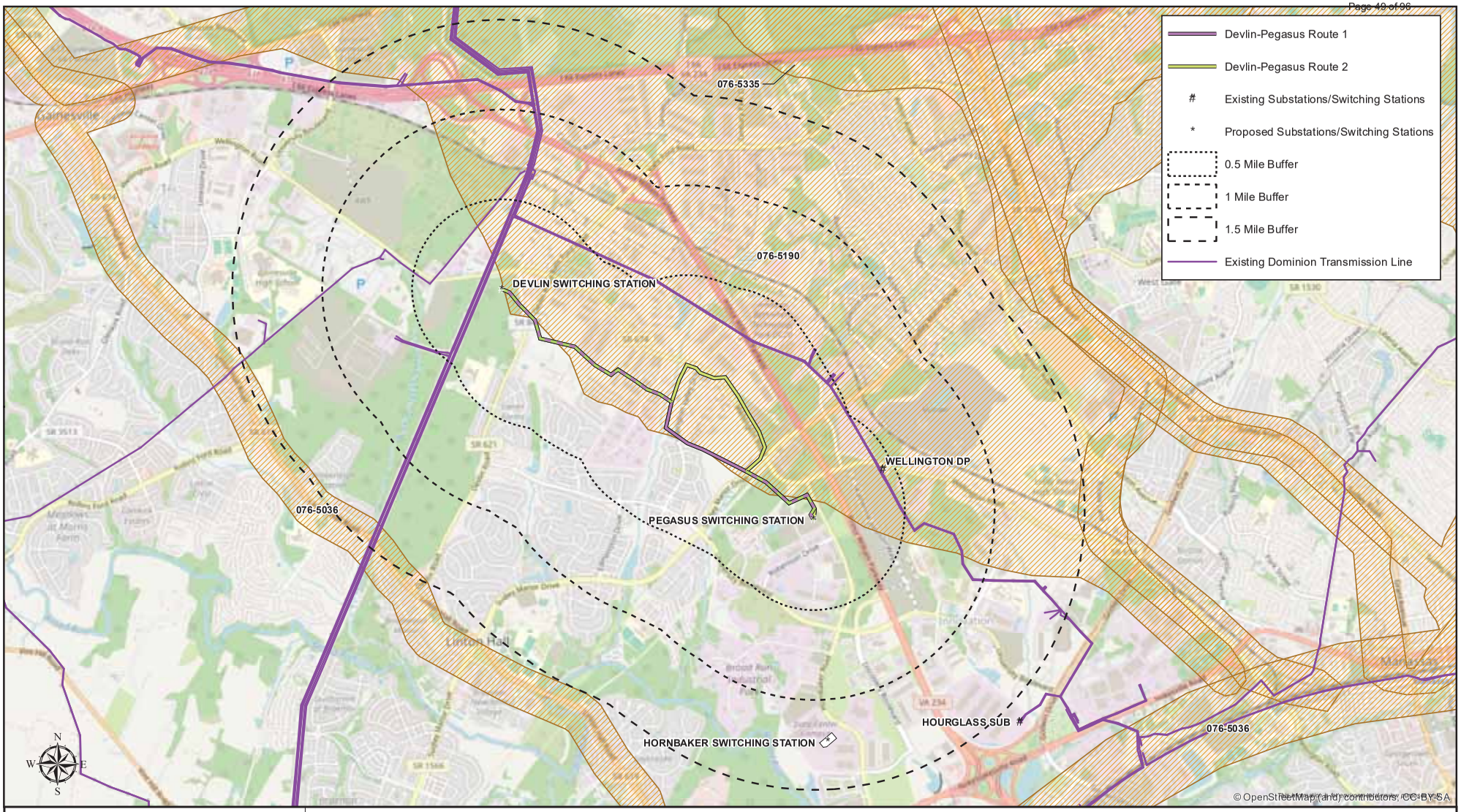

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1:32,000

Attachment 1, Sheet 4
Locations of Considered Resources Associated with Proposed Project Alternatives - Devlin-Pegasus Component
Devlin/Hornbaker 230 kV Lines Project
Dominion Energy Virginia
Prince William County, VA

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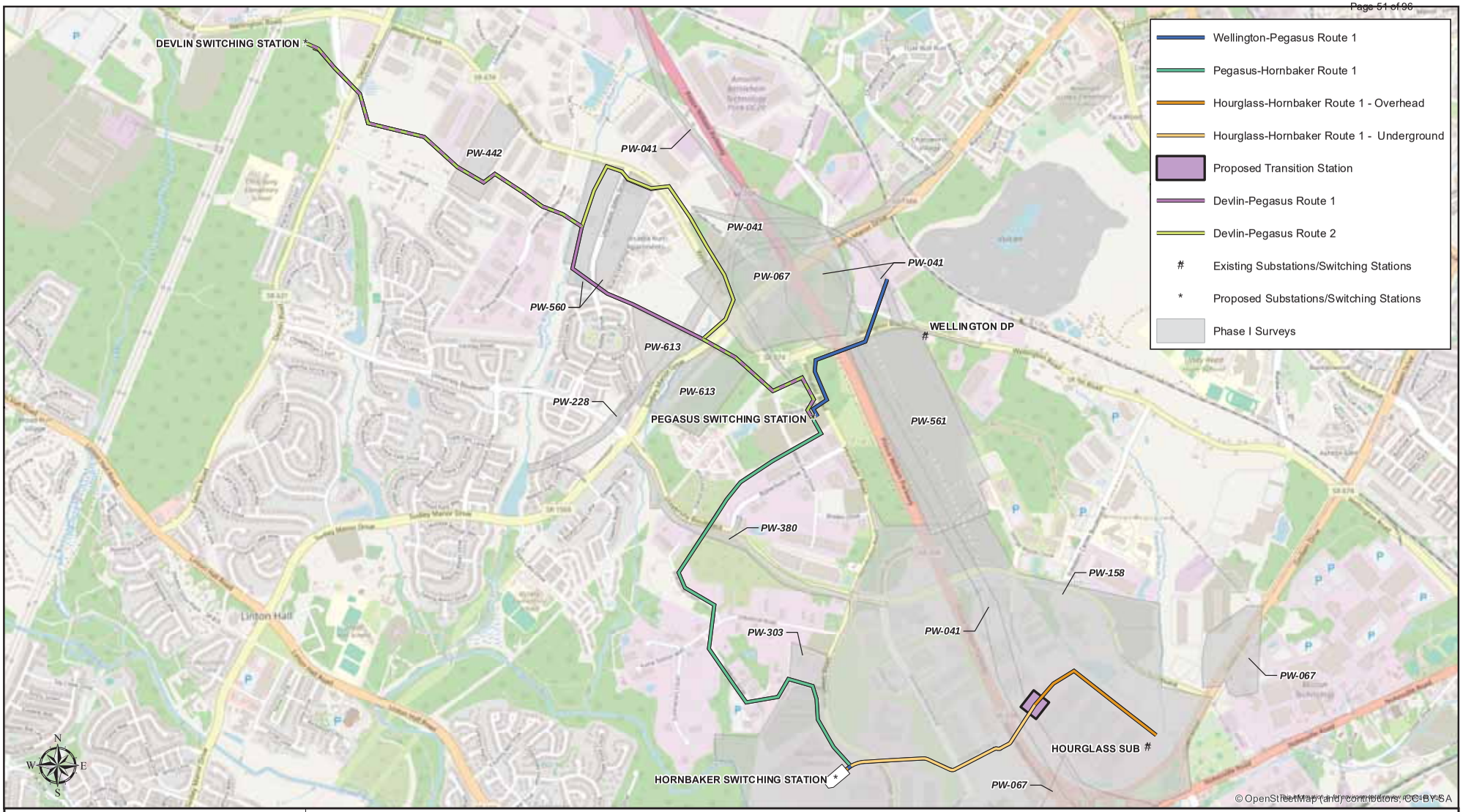
ATTACHMENT 2 CULTURAL RESOURCES SURVEYS COVERING PORTIONS OF ROUTES



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Attachment 2
Location of Phase I Surveys Associated with Proposed Project Alternatives
Hornbaker 230 kV ElectricTransmission Project
Dominion Energy Virginia
Prince William County, VA

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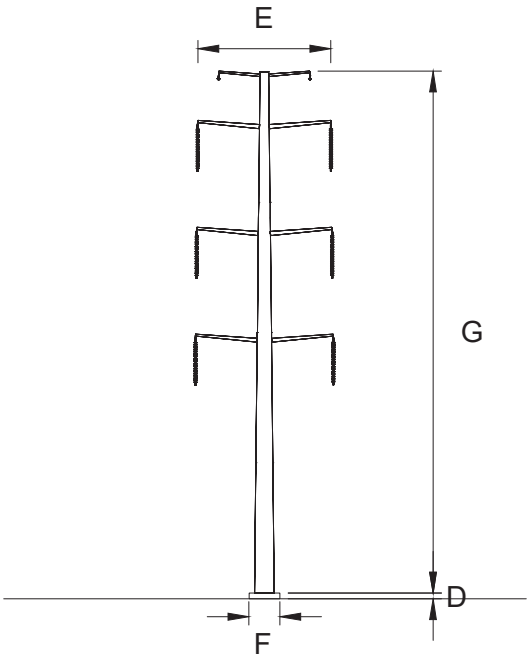
ATTACHMENT 3 TYPICAL DESIGN AND LAYOUT

WELLINGTON TO PEGASUS ROUTE 1

SECTION 1
SOLUTION 1B



DOUBLE CIRCUIT DEADEND STEEL MONOPOLE STRUCTURE

A. RATIONALE FOR STRUCTURE TYPE:	STRUCTURES ARE TO ACCOMMODATE TWO CIRCUITS
B. LENGTH OF R/W (STRUCTURE QUANTITY):	0.64 MILES (5 STRUCTURES)
C. STRUCTURE MATERIAL:	GALVANIZED STEEL
RATIONALE FOR STRUCTURE MATERIAL:	GALVANIZED STEEL WAS SELECTED TO MATCH NEARBY EXISTING STRUCTURES.
D. FOUNDATION MATERIAL:	CONCRETE
AVERAGE FOUNDATION REVEAL:	SEE NOTE 4
E. AVERAGE WIDTH AT CROSSARM:	27.5'
F. AVERAGE WIDTH AT BASE:	7.5' - 10' DIAMETER FOUNDATION (SEE NOTE 1)
G. MINIMUM STRUCTURE HEIGHT:	100'
MAXIMUM STRUCTURE HEIGHT:	120'
AVERAGE STRUCTURE HEIGHT:	108'
H. AVERAGE SPAN LENGTH:	500'
I. MINIMUM CONDUCTOR-TO-GROUND:	25.5' (AT MAXIMUM OPERATING TEMPERATURE)

NOTES
1. INFORMATION ON DRAWING IS PRELIMINARY AND SUBJECT TO CHANGE DURING FINAL ENGINEERING
2. INDIVIDUAL POLE HEIGHTS ABOVE GROUND MAY VARY SUBJECT TO FINAL LOCATION AND TERRAIN
3. STRUCTURE HEIGHTS ARE MEASURED FROM STRUCTURE CENTERLINE
4. MINIMUM FOUNDATION REVEAL SHALL BE 1.5', MAX REVEAL SUBJECT TO FINAL LOCATION AND TERRAIN
5. THE AVERAGE SPAN LENGTH LISTED IS BASED ON THE ENTIRE ROW LISTED IN LINE (B)

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SECTION 1 - SOLUTION 1B
DOUBLE CIRCUIT DEADEND STEEL MONOPOLE STRUCTURES

ATTACHMENT NO.

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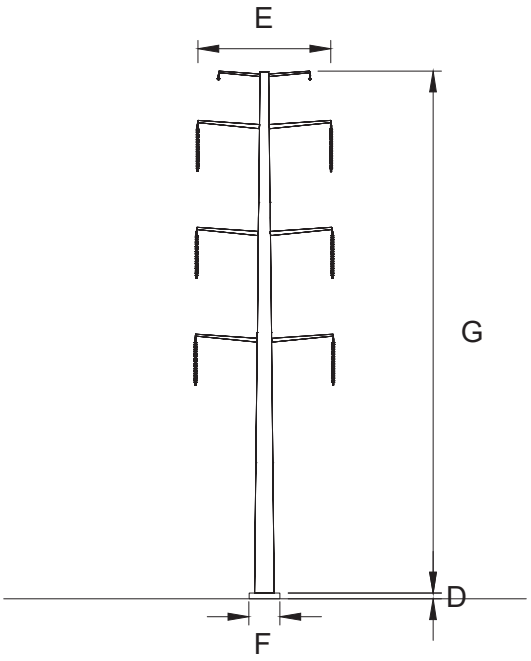
WELLINGTON TO PEGASUS ROUTE 1

SECTION 2
SOLUTION 1B



DOUBLE CIRCUIT SUSPENSION STEEL MONOPOLE STRUCTURE

A. RATIONALE FOR STRUCTURE TYPE:	STRUCTURES ARE TO ACCOMMODATE TWO CIRCUITS
B. LENGTH OF R/W (STRUCTURE QUANTITY):	0.64 MILES (1 STRUCTURES)
C. STRUCTURE MATERIAL:	GALVANIZED STEEL
RATIONALE FOR STRUCTURE MATERIAL:	GALVANIZED STEEL WAS SELECTED TO MATCH NEARBY EXISTING STRUCTURES.
D. FOUNDATION MATERIAL:	CONCRETE
AVERAGE FOUNDATION REVEAL:	SEE NOTE 4
E. AVERAGE WIDTH AT CROSSARM:	27.5'
F. AVERAGE WIDTH AT BASE:	6' DIAMETER FOUNDATION (SEE NOTE 1)
G. MINIMUM STRUCTURE HEIGHT:	135'
MAXIMUM STRUCTURE HEIGHT:	135'
AVERAGE STRUCTURE HEIGHT:	135'
H. AVERAGE SPAN LENGTH:	500'
I. MINIMUM CONDUCTOR-TO-GROUND:	25.5' (AT MAXIMUM OPERATING TEMPERATURE)

NOTES
1. INFORMATION ON DRAWING IS PRELIMINARY AND SUBJECT TO CHANGE DURING FINAL ENGINEERING
2. INDIVIDUAL POLE HEIGHTS ABOVE GROUND MAY VARY SUBJECT TO FINAL LOCATION AND TERRAIN
3. STRUCTURE HEIGHTS ARE MEASURED FROM STRUCTURE CENTERLINE
4. MINIMUM FOUNDATION REVEAL SHALL BE 1.5', MAX REVEAL SUBJECT TO FINAL LOCATION AND TERRAIN
5. THE AVERAGE SPAN LENGTH LISTED IS BASED ON THE ENTIRE ROW LISTED IN LINE (B)

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SECTION 2 - SOLUTION 1B
DOUBLE CIRCUIT SUSPENSION
STEEL MONOPOLE STRUCTURES

ATTACHMENT NO.

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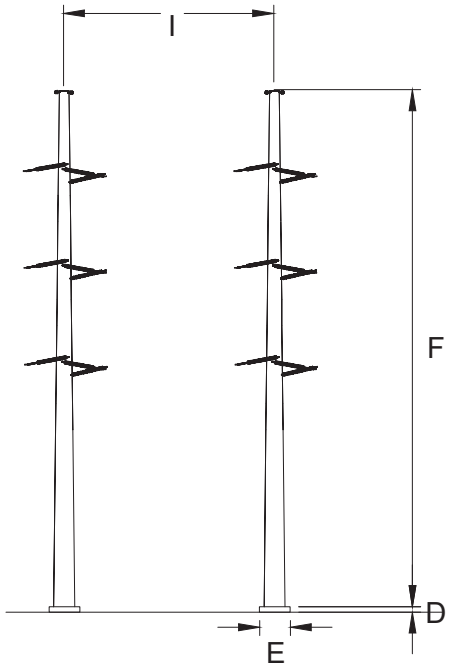
WELLINGTON TO PEGASUS ROUTE 1

SECTION 3
SOLUTION 1B



DOUBLE CIRCUIT DEADEND STEEL 2-POLE

A. RATIONALE FOR STRUCTURE TYPE:	STRUCTURES ARE TO ACCOMMODATE TWO CIRCUITS
B. LENGTH OF R/W (STRUCTURE QUANTITY):	0.64 MILES (1 STRUCTURES)
C. STRUCTURE MATERIAL:	GALVANIZED STEEL
RATIONALE FOR STRUCTURE MATERIAL:	GALVANIZED STEEL WAS SELECTED TO MATCH NEARBY EXISTING STRUCTURES.
D. FOUNDATION MATERIAL:	CONCRETE
AVERAGE FOUNDATION REVEAL:	SEE NOTE 4
E. AVERAGE WIDTH AT BASE:	9.5' DIAMETER FOUNDATION (SEE NOTE 1)
F. MINIMUM STRUCTURE HEIGHT:	115'
MAXIMUM STRUCTURE HEIGHT:	115'
AVERAGE STRUCTURE HEIGHT:	115'
G. AVERAGE SPAN LENGTH:	500'
H. MINIMUM CONDUCTOR-TO-GROUND:	25.5' (AT MAXIMUM OPERATING TEMPERATURE)
I. AVERAGE DISTANCE BETWEEN POLES:	34'

NOTES
1. INFORMATION ON DRAWING IS PRELIMINARY AND SUBJECT TO CHANGE DURING FINAL ENGINEERING
2. INDIVIDUAL POLE HEIGHTS ABOVE GROUND MAY VARY SUBJECT TO FINAL LOCATION AND TERRAIN
3. STRUCTURE HEIGHTS ARE MEASURED FROM STRUCTURE CENTERLINE
4. MINIMUM FOUNDATION REVEAL SHALL BE 1.5', MAX REVEAL SUBJECT TO FINAL LOCATION AND TERRAIN
5. THE AVERAGE SPAN LENGTH LISTED IS BASED ON THE ENTIRE ROW LISTED IN LINE (B)

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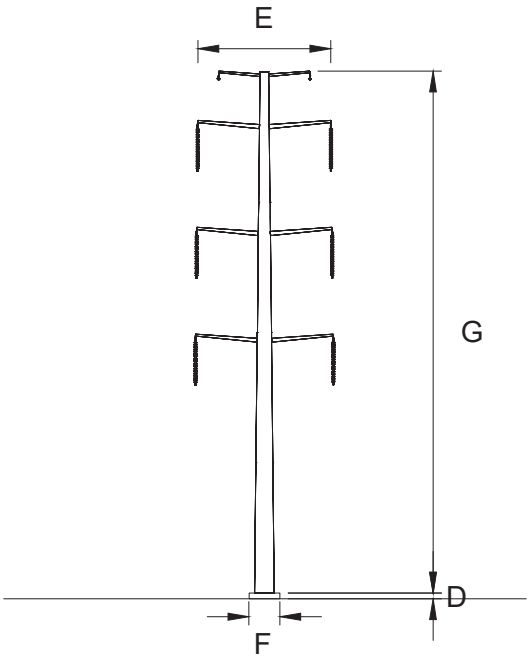
SECTION 3 - SOLUTION 1B
DOUBLE CIRCUIT DEADEND STEEL
2-POLE STRUCTURE

ATTACHMENT NO.

DRAWN BY: CBW

PEGASUS TO HORNBAKER ROUTE 1

SECTION 4
SOLUTION 1B



DOUBLE CIRCUIT DEADEND STEEL MONOPOLE STRUCTURE

A. RATIONALE FOR STRUCTURE TYPE:	STRUCTURES ARE TO ACCOMMODATE TWO CIRCUITS
B. LENGTH OF R/W (STRUCTURE QUANTITY):	1.90 MILES (14 STRUCTURES)
C. STRUCTURE MATERIAL:	GALVANIZED STEEL
RATIONALE FOR STRUCTURE MATERIAL:	GALVANIZED STEEL WAS SELECTED TO MATCH NEARBY EXISTING STRUCTURES.
D. FOUNDATION MATERIAL:	CONCRETE
AVERAGE FOUNDATION REVEAL:	SEE NOTE 4
E. AVERAGE WIDTH AT CROSSARM:	27.5'
F. AVERAGE WIDTH AT BASE:	7.5' - 10' DIAMETER FOUNDATION (SEE NOTE 1)
G. MINIMUM STRUCTURE HEIGHT:	95'
MAXIMUM STRUCTURE HEIGHT:	115'
AVERAGE STRUCTURE HEIGHT:	108'
H. AVERAGE SPAN LENGTH:	475'
I. MINIMUM CONDUCTOR-TO-GROUND:	25.5' (AT MAXIMUM OPERATING TEMPERATURE)

NOTES
1. INFORMATION ON DRAWING IS PRELIMINARY AND SUBJECT TO CHANGE DURING FINAL ENGINEERING
2. INDIVIDUAL POLE HEIGHTS ABOVE GROUND MAY VARY SUBJECT TO FINAL LOCATION AND TERRAIN
3. STRUCTURE HEIGHTS ARE MEASURED FROM STRUCTURE CENTERLINE
4. MINIMUM FOUNDATION REVEAL SHALL BE 1.5', MAX REVEAL SUBJECT TO FINAL LOCATION AND TERRAIN
5. THE AVERAGE SPAN LENGTH LISTED IS BASED ON THE ENTIRE ROW LISTED IN LINE (B)

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SECTION 4 - SOLUTION 1B
DOUBLE CIRCUIT DEADEND STEEL MONOPOLE STRUCTURES

ATTACHMENT NO.

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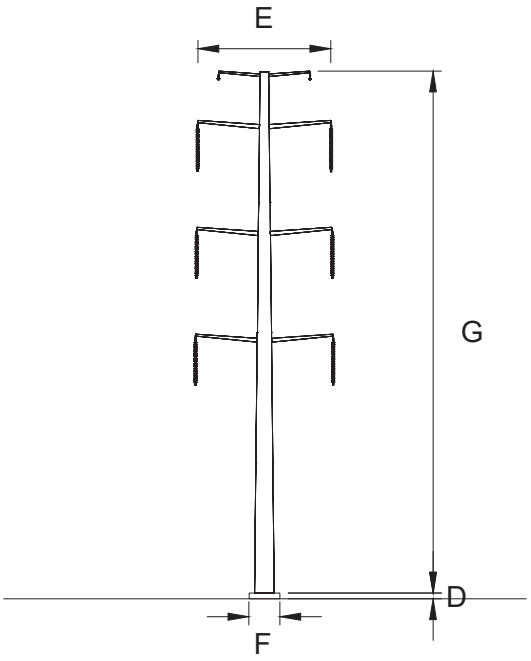
PEGASUS TO HORNBAKER ROUTE 1

SECTION 5
SOLUTION 1B



DOUBLE CIRCUIT SUSPENSION STEEL MONOPOLE STRUCTURE

A. RATIONALE FOR STRUCTURE TYPE:	STRUCTURES ARE TO ACCOMMODATE TWO CIRCUITS
B. LENGTH OF R/W (STRUCTURE QUANTITY):	1.90 MILES (6 STRUCTURES)
C. STRUCTURE MATERIAL:	GALVANIZED STEEL
RATIONALE FOR STRUCTURE MATERIAL:	GALVANIZED STEEL WAS SELECTED TO MATCH NEARBY EXISTING STRUCTURES.
D. FOUNDATION MATERIAL:	CONCRETE
AVERAGE FOUNDATION REVEAL:	SEE NOTE 4
E. AVERAGE WIDTH AT CROSSARM:	27.5'
F. AVERAGE WIDTH AT BASE:	5.5' - 6' DIAMETER FOUNDATION (SEE NOTE 1)
G. MINIMUM STRUCTURE HEIGHT:	100'
MAXIMUM STRUCTURE HEIGHT:	125'
AVERAGE STRUCTURE HEIGHT:	117'
H. AVERAGE SPAN LENGTH:	475'
I. MINIMUM CONDUCTOR-TO-GROUND:	25.5' (AT MAXIMUM OPERATING TEMPERATURE)

NOTES
1. INFORMATION ON DRAWING IS PRELIMINARY AND SUBJECT TO CHANGE DURING FINAL ENGINEERING
2. INDIVIDUAL POLE HEIGHTS ABOVE GROUND MAY VARY SUBJECT TO FINAL LOCATION AND TERRAIN
3. STRUCTURE HEIGHTS ARE MEASURED FROM STRUCTURE CENTERLINE
4. MINIMUM FOUNDATION REVEAL SHALL BE 1.5', MAX REVEAL SUBJECT TO FINAL LOCATION AND TERRAIN
5. THE AVERAGE SPAN LENGTH LISTED IS BASED ON THE ENTIRE ROW LISTED IN LINE (B)

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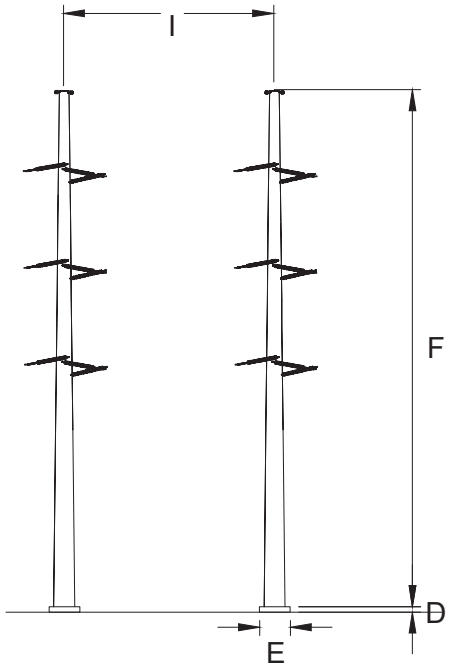
SECTION 5 - SOLUTION 1B
DOUBLE CIRCUIT SUSPENSION
STEEL MONOPOLE STRUCTURES

ATTACHMENT NO.

DRAWN BY: CBW

PEGASUS TO HORNBAKER SOLUTION 1

SECTION 6
SOLUTION 1B



DOUBLE CIRCUIT DEADEND STEEL 2-POLE

A. RATIONALE FOR STRUCTURE TYPE:	STRUCTURES ARE TO ACCOMMODATE TWO CIRCUITS
B. LENGTH OF R/W (STRUCTURE QUANTITY):	1.90 MILES (1 STRUCTURE)
C. STRUCTURE MATERIAL:	GALVANIZED STEEL
RATIONALE FOR STRUCTURE MATERIAL:	GALVANIZED STEEL WAS SELECTED TO MATCH NEARBY EXISTING STRUCTURES.
D. FOUNDATION MATERIAL:	CONCRETE
AVERAGE FOUNDATION REVEAL:	SEE NOTE 4
E. AVERAGE WIDTH AT BASE:	8.5' DIAMETER FOUNDATION (SEE NOTE 1)
F. MINIMUM STRUCTURE HEIGHT:	115'
MAXIMUM STRUCTURE HEIGHT:	115'
AVERAGE STRUCTURE HEIGHT:	115'
G. AVERAGE SPAN LENGTH:	475'
H. MINIMUM CONDUCTOR-TO-GROUND:	25.5' (AT MAXIMUM OPERATING TEMPERATURE)
I. AVERAGE DISTANCE BETWEEN POLES:	34'

NOTES
1. INFORMATION ON DRAWING IS PRELIMINARY AND SUBJECT TO CHANGE DURING FINAL ENGINEERING
2. INDIVIDUAL POLE HEIGHTS ABOVE GROUND MAY VARY SUBJECT TO FINAL LOCATION AND TERRAIN
3. STRUCTURE HEIGHTS ARE MEASURED FROM STRUCTURE CENTERLINE
4. MINIMUM FOUNDATION REVEAL SHALL BE 1.5', MAX REVEAL SUBJECT TO FINAL LOCATION AND TERRAIN
5. THE AVERAGE SPAN LENGTH LISTED IS BASED ON THE ENTIRE ROW LISTED IN LINE (B)

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Glen Allen, VA 23060

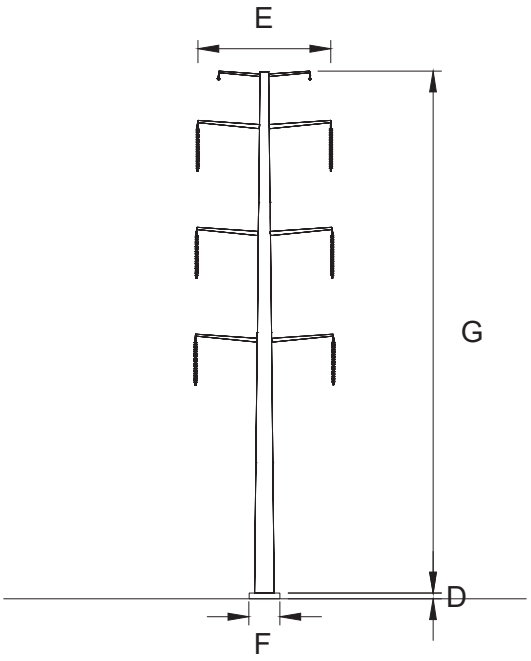
SECTION 6 - SOLUTION 1B
DOUBLE CIRCUIT DEADEND STEEL
2-POLE STRUCTURE

ATTACHMENT NO.

DRAWN BY: CBW

DEVLIN TO PEGASUS ROUTE 2

SECTION 7
SOLUTION 1B



DOUBLE CIRCUIT DEADEND STEEL MONOPOLE STRUCTURE

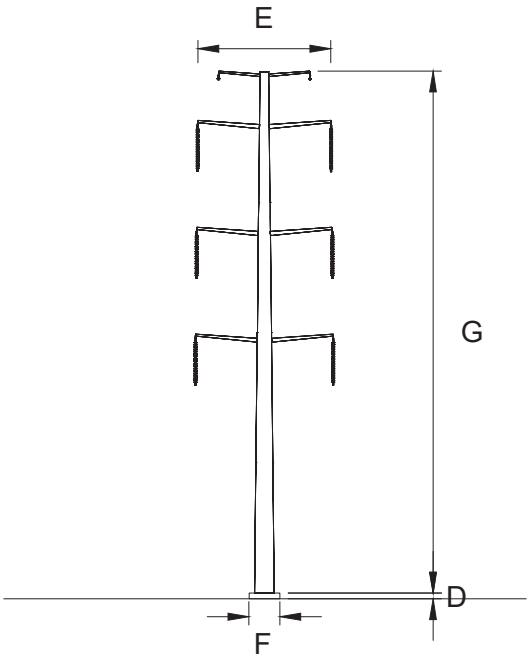
A. RATIONALE FOR STRUCTURE TYPE:	STRUCTURES ARE TO ACCOMMODATE TWO CIRCUITS
B. LENGTH OF R/W (STRUCTURE QUANTITY):	2.84 MILES (22 STRUCTURES)
C. STRUCTURE MATERIAL:	GALVANIZED STEEL
RATIONALE FOR STRUCTURE MATERIAL:	GALVANIZED STEEL WAS SELECTED TO MATCH NEARBY EXISTING STRUCTURES.
D. FOUNDATION MATERIAL:	CONCRETE
AVERAGE FOUNDATION REVEAL:	SEE NOTE 4
E. AVERAGE WIDTH AT CROSSARM:	27.5'
F. AVERAGE WIDTH AT BASE:	7' - 9.5' DIAMETER FOUNDATION (SEE NOTE 1)
G. MINIMUM STRUCTURE HEIGHT:	90'
MAXIMUM STRUCTURE HEIGHT:	130'
AVERAGE STRUCTURE HEIGHT:	105'
H. AVERAGE SPAN LENGTH:	500'
I. MINIMUM CONDUCTOR-TO-GROUND:	25.5' (AT MAXIMUM OPERATING TEMPERATURE)

NOTES
1. INFORMATION ON DRAWING IS PRELIMINARY AND SUBJECT TO CHANGE DURING FINAL ENGINEERING
2. INDIVIDUAL POLE HEIGHTS ABOVE GROUND MAY VARY SUBJECT TO FINAL LOCATION AND TERRAIN
3. STRUCTURE HEIGHTS ARE MEASURED FROM STRUCTURE CENTERLINE
4. MINIMUM FOUNDATION REVEAL SHALL BE 1.5', MAX REVEAL SUBJECT TO FINAL LOCATION AND TERRAIN
5. THE AVERAGE SPAN LENGTH LISTED IS BASED ON THE ENTIRE ROW LISTED IN LINE (B)

Electric Transmission	SECTION 7 - SOLUTION 1B DOUBLE CIRCUIT DEADEND STEEL MONOPOLE STRUCTURES	ATTACHMENT NO.
Dominion Energy 5000 Dominion Blvd Glen Allen, VA 23060		DRAWN BY: CBW

DEVLIN TO PEGASUS ROUTE 2

SECTION 8
SOLUTION 1B



DOUBLE CIRCUIT SUSPENSION STEEL MONOPOLE STRUCTURE

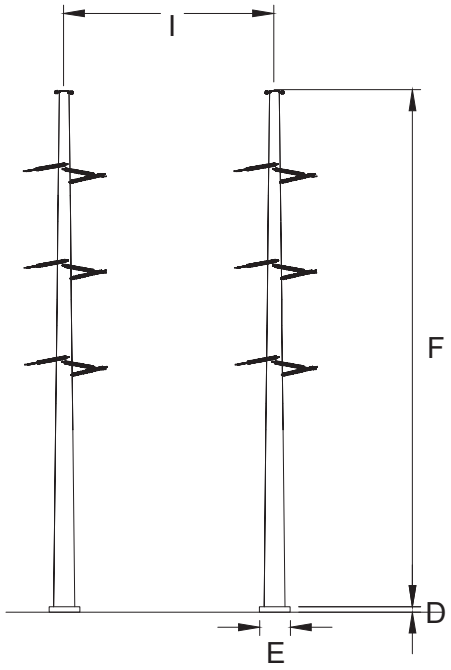
A. RATIONALE FOR STRUCTURE TYPE:	STRUCTURES ARE TO ACCOMMODATE TWO CIRCUITS
B. LENGTH OF R/W (STRUCTURE QUANTITY):	2.84 MILES (4 STRUCTURES)
C. STRUCTURE MATERIAL:	GALVANIZED STEEL
RATIONALE FOR STRUCTURE MATERIAL:	GALVANIZED STEEL WAS SELECTED TO MATCH NEARBY EXISTING STRUCTURES.
D. FOUNDATION MATERIAL:	CONCRETE
AVERAGE FOUNDATION REVEAL:	SEE NOTE 4
E. AVERAGE WIDTH AT CROSSARM:	27.5'
F. AVERAGE WIDTH AT BASE:	5.5' - 6' DIAMETER FOUNDATION (SEE NOTE 1)
G. MINIMUM STRUCTURE HEIGHT:	110'
MAXIMUM STRUCTURE HEIGHT:	130'
AVERAGE STRUCTURE HEIGHT:	118'
H. AVERAGE SPAN LENGTH:	500'
I. MINIMUM CONDUCTOR-TO-GROUND:	25.5' (AT MAXIMUM OPERATING TEMPERATURE)

NOTES
1. INFORMATION ON DRAWING IS PRELIMINARY AND SUBJECT TO CHANGE DURING FINAL ENGINEERING
2. INDIVIDUAL POLE HEIGHTS ABOVE GROUND MAY VARY SUBJECT TO FINAL LOCATION AND TERRAIN
3. STRUCTURE HEIGHTS ARE MEASURED FROM STRUCTURE CENTERLINE
4. MINIMUM FOUNDATION REVEAL SHALL BE 1.5', MAX REVEAL SUBJECT TO FINAL LOCATION AND TERRAIN
5. THE AVERAGE SPAN LENGTH LISTED IS BASED ON THE ENTIRE ROW LISTED IN LINE (B)

Electric Transmission	SECTION 8 - SOLUTION 1B DOUBLE CIRCUIT SUSPENSION STEEL MONOPOLE STRUCTURES	ATTACHMENT NO.
Dominion Energy 5000 Dominion Blvd Glen Allen, VA 23060		DRAWN BY: CBW

DEVLIN TO PEGASUS ROUTE 2

SECTION 9
SOLUTION 1B



DOUBLE CIRCUIT DEADEND STEEL 2-POLE

A. RATIONALE FOR STRUCTURE TYPE:	STRUCTURES ARE TO ACCOMMODATE TWO CIRCUITS
B. LENGTH OF R/W (STRUCTURE QUANTITY):	2.84 MILES (4 STRUCTURES)
C. STRUCTURE MATERIAL:	GALVANIZED STEEL
RATIONALE FOR STRUCTURE MATERIAL:	GALVANIZED STEEL WAS SELECTED TO MATCH NEARBY EXISTING STRUCTURES.
D. FOUNDATION MATERIAL:	CONCRETE
AVERAGE FOUNDATION REVEAL:	SEE NOTE 4
E. AVERAGE WIDTH AT BASE:	7.5' - 9.5' DIAMETER FOUNDATION (SEE NOTE 1)
F. MINIMUM STRUCTURE HEIGHT:	95'
MAXIMUM STRUCTURE HEIGHT:	120'
AVERAGE STRUCTURE HEIGHT:	108'
G. AVERAGE SPAN LENGTH:	500'
H. MINIMUM CONDUCTOR-TO-GROUND:	25.5' (AT MAXIMUM OPERATING TEMPERATURE)
I. AVERAGE DISTANCE BETWEEN POLES:	34'

NOTES
1. INFORMATION ON DRAWING IS PRELIMINARY AND SUBJECT TO CHANGE DURING FINAL ENGINEERING
2. INDIVIDUAL POLE HEIGHTS ABOVE GROUND MAY VARY SUBJECT TO FINAL LOCATION AND TERRAIN
3. STRUCTURE HEIGHTS ARE MEASURED FROM STRUCTURE CENTERLINE
4. MINIMUM FOUNDATION REVEAL SHALL BE 1.5', MAX REVEAL SUBJECT TO FINAL LOCATION AND TERRAIN
5. THE AVERAGE SPAN LENGTH LISTED IS BASED ON THE ENTIRE ROW LISTED IN LINE (B)

Electric Transmission

Dominion Energy
5000 Dominion Blvd
Glen Allen, VA 23060

SECTION 9 - SOLUTION 1B
DOUBLE CIRCUIT DEADEND STEEL
2-POLE STRUCTURE

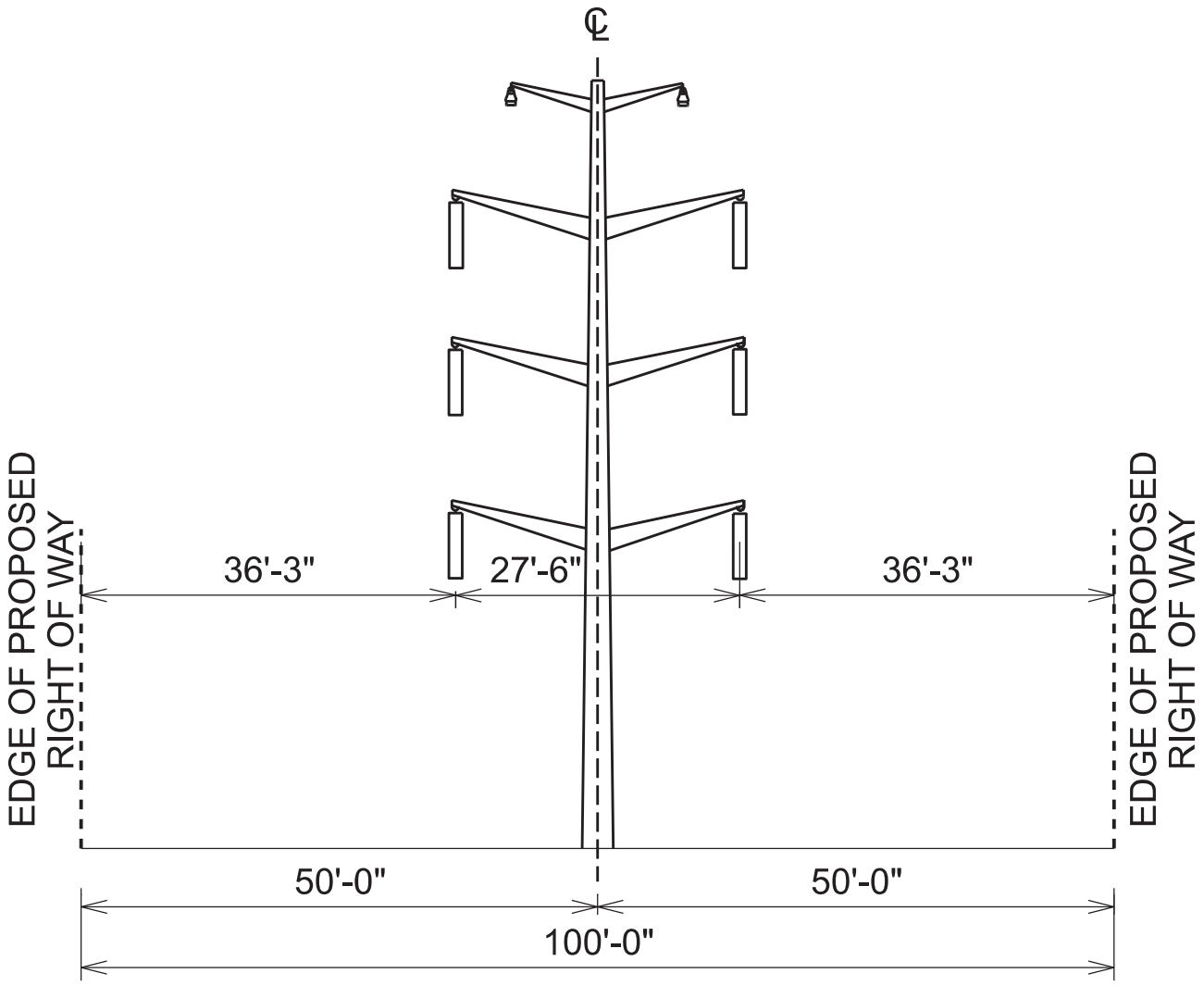
ATTACHMENT NO.

DRAWN BY: CBW

SECTION 1 - SOLUTION 1B

LOOKING TOWARDS HORNBAKER SUB

	230kV CIRCUIT	230kV CIRCUIT
WELLINGTON - PEGASUS ROUTE 1	LINE #2325	LINE #2423
PEGASUS - HORNBAKER ROUTE 1	LINE #2424	LINE #2187
DEVLIN - PEGASUS ROUTE 2 (NOTE 3)	LINE #2419	LINE #2420



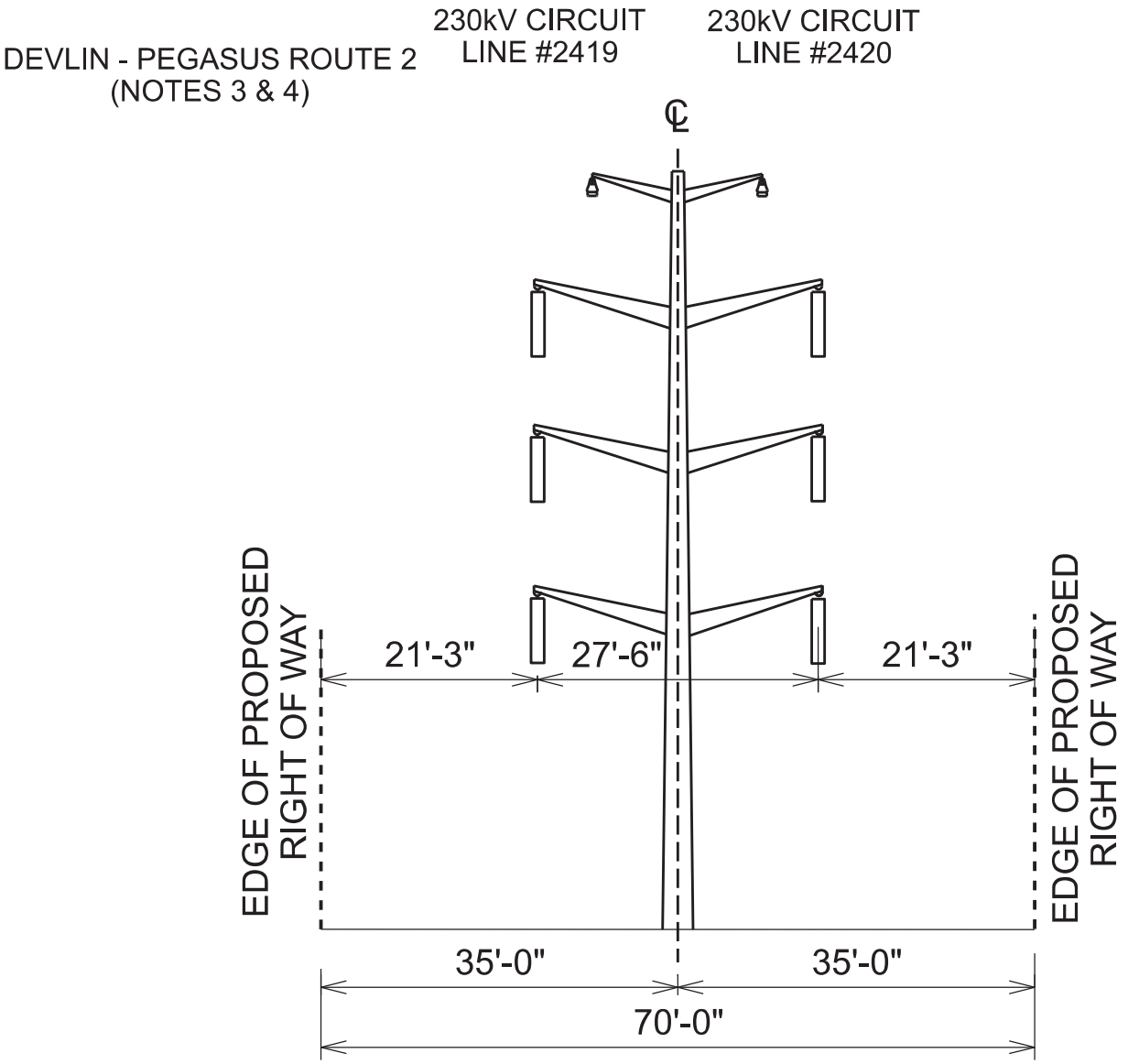
NOTES:

1. INFORMATION CONTAINED ON DRAWINGS IS CONSIDERED PRELIMINARY IN NATURE AND SUBJECT TO CHANGE BASED ON FINAL DESIGN.
2. DRAWING NOT TO SCALE.
3. SEE ATTACHMENT II.A.5.b FOR REDUCED ROW FROM STR. 2419/18 TO STR. 2419/19.

Transmission Construction	PROPOSED ROW CONFIGURATION (230KV/230KV) MONOPOLE AREAS - 100-FT WIDE ROW					
Dominion Energy 5000 Dominion Blvd Glen Allen, VA 23060		DRAWN	CHECKED	APPROVED	DATE	ATTACHMENT NO.
	STANDARD	CBW	TCG		12/30/24	II.A.5.a
	REVISION					CAD NO.

SECTION 2 - SOLUTION 1B

LOOKING TOWARDS HORNBAKER SUB



NOTES:

1. INFORMATION CONTAINED ON DRAWINGS IS CONSIDERED PRELIMINARY IN NATURE AND SUBJECT TO CHANGE BASED ON FINAL DESIGN.
2. DRAWING NOT TO SCALE.
3. CROSS-SECTION ONLY APPLIES TO THE SECTION OF ROW BETWEEN STR. 2419/18 AND STR. 2419/19.
4. FOR ALL ADDITIONAL ROW EXTENTS SEE ATTACHMENT II.A.5.a.

Transmission Construction	PROPOSED ROW CONFIGURATION (230KV/230KV) MONOPOLE AREAS - 70-FT WIDE ROW					
Dominion Energy Dominion Energy 5000 Dominion Blvd Glen Allen, VA 23060		DRAWN	CHECKED	APPROVED	DATE	ATTACHMENT NO.
	STANDARD	CBW	TCG		12/30/24	II.A.5.b
	REVISION					CAD NO.

ATTACHMENT 4 HISTORIC RESOURCE PHOTOS

Figure 1. 076-0285, Thomasson Barn, View to the Northeast

Figure 2. 076-5036, Manassas Station Operations Battlefield, Taken from Chapel Springs Rd and New Life Way, View to the Southeast

Figure 3. 076-5190, Second Battle of Manassas, Taken from Wellington Rd, View to the North

Figure 4. 076-5335, First Battle of Manassas, Taken from Rixlew Ln and Wellington Rd, View to the Southeast

Figure 5. 155-5020, Cannon Branch Fort Site, View to the Southeast

ATTACHMENT 5 PHOTO SIMULATIONS

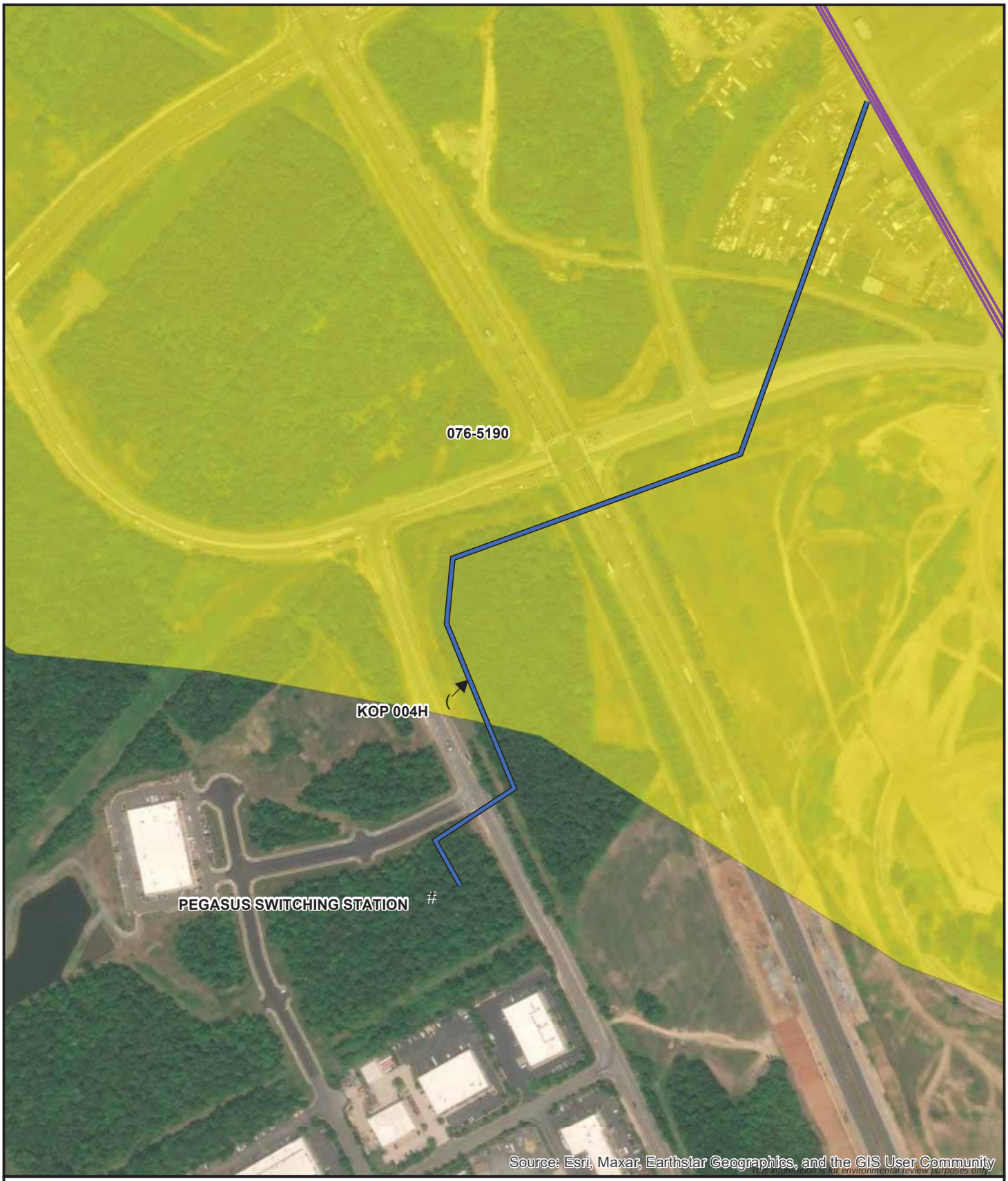


Figure 1. Aerial photograph depicting land use and photo view for 076-5190.

WELLINGTON-PEGASUS

230 kV Electric Transmission Project
Dominion Energy Virginia
Prince William County, Virginia

Dominion Energy

KOP 004H

Hornbaker Rd

Figure 2
Date:09/25/2024
Time: 1:53 pm
Viewing Direction: North
Distance to closest feature: 0.02 miles

EXISTING CONDITIONS

PROPOSED CONDITIONS

Legend

Note: Project components illustrated are based on proposed preliminary designs
The images contained on this page show the proposed project within a wider landscape context and are not representative of scale and distance when viewed from the actual view point.

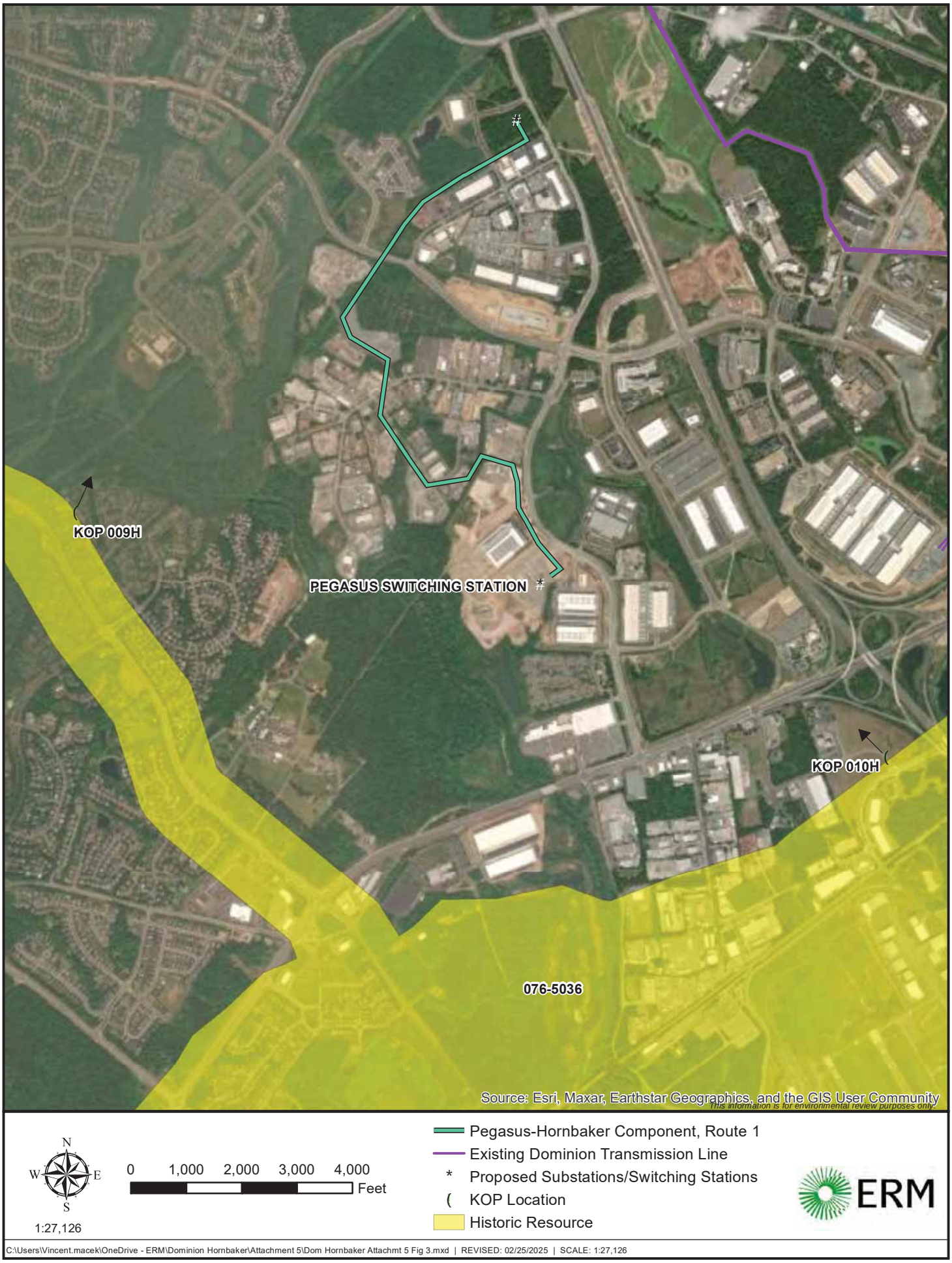


Figure 3. Aerial photograph depicting land use and photo view for 076-5036.

PEGASUS-HORNBAKER

230 kV Electric Transmission Project
Dominion Energy Virginia
Prince William County, Virginia

Dominion Energy

EXISTING CONDITIONS

PROPOSED CONDITIONS

KOP 009H

Granary Pl

Figure 4
Date:09/25/2024
Time: 2:36 pm
Viewing Direction: West
Distance to closest feature: 0.85 miles

Note: Project components illustrated are based on proposed preliminary designs
The images contained on this page show the proposed project within a wider landscape context and are not representative of scale and distance when viewed from the actual view point.

PEGASUS-HORNBAKER

230 kV Electric Transmission Project
Dominion Energy Virginia
Prince William County, Virginia

Dominion Energy

KOP 010H

Carolina Dr

Figure 5
Date:09/24/2024
Time: 1:38 pm
Viewing Direction: Northwest
Distance to closest feature: 1.00 miles

Legend

- Pegasus-Hornbaker Route 1
- Bristow Switching Station
- Hornbaker Substation
- KOP View Direction

Note: Project components illustrated are based on proposed preliminary designs
The images contained on this page show the proposed project within a wider landscape context and are not representative of scale and distance when viewed from the actual view point.

Figure 6. Aerial photograph depicting land use and photo view for 076-5190.

PEGASUS-HORNBAKER

230 kV Electric Transmission Project
Dominion Energy Virginia
Prince William County, Virginia

Dominion Energy

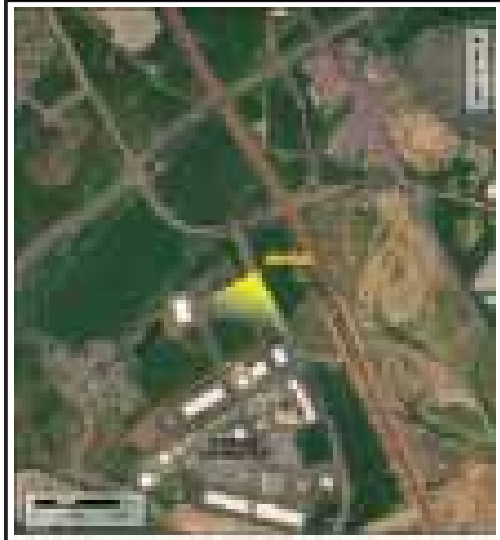
EXISTING CONDITIONS

PROPOSED CONDITIONS

KOP 004H

Hornbaker Rd

Figure 7
Date:09/25/2024
Time: 1:53 pm
Viewing Direction: Southwest
Distance to closest feature: 0.12 miles



Note: Project components illustrated are based on proposed preliminary designs
The images contained on this page show the proposed project within a wider landscape context and are not representative of scale and distance when viewed from the actual view point.

Figure 8. Aerial photograph depicting land use and photo view for 076-0285.

HOURGLASS-HORNBAKER

230 kV Electric Transmission Project
Dominion Energy Virginia
Prince William County, Virginia

Dominion Energy

EXISTING CONDITIONS

PROPOSED CONDITIONS

KOP 007H

Discovery Blvd

Figure 9
Date:09/25/2024
Time: 10:03 am
Viewing Direction: Northwest
Distance to closest feature: 0.25 miles

Legend

- Existing Dominion Transmission Lines
- Hourglass-Hornbaker Route 1
- Proposed Transition Station
- KOP View Direction

Note: Project components illustrated are based on proposed preliminary designs
The images contained on this page show the proposed project within a wider landscape context and are not representative of scale and distance when viewed from the actual view point.

Figure 10. Aerial photograph depicting land use and photo view for 076-5036.

HOURGLASS-HORNBAKER

230 kV Electric Transmission Project
Dominion Energy Virginia
Prince William County, Virginia

Dominion Energy

KOP 010H

Carolina Dr

Figure 11
Date:09/24/2024
Time: 1:38 pm
Viewing Direction: Northwest
Distance to closest feature: 0.66 miles

Note: Project components illustrated are based on proposed preliminary designs
The images contained on this page show the proposed project within a wider landscape context and are not representative of scale and distance when viewed from the actual view point.

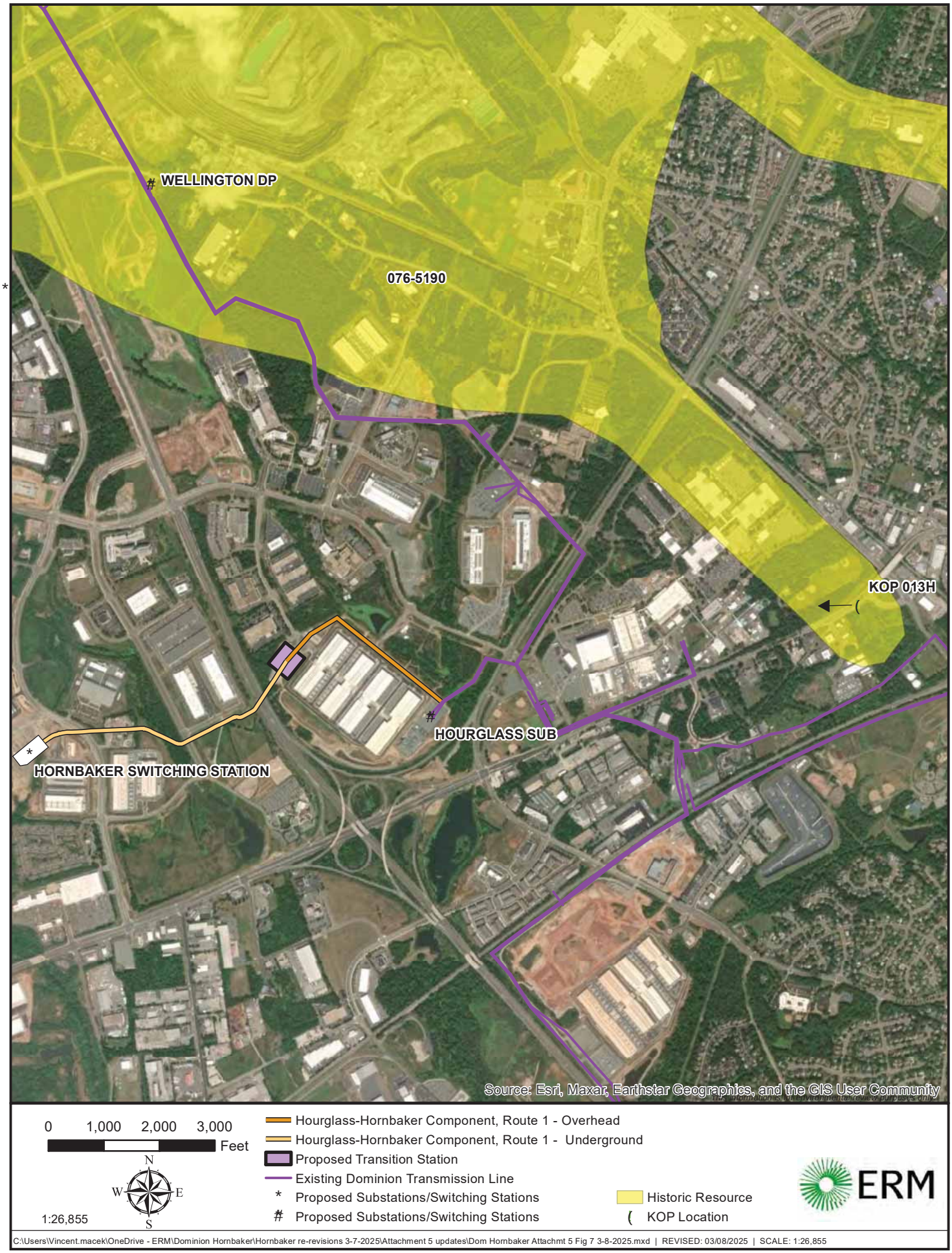


Figure 12. Aerial photograph depicting land use and photo view for 076-5190.

HOURG ASS-HORNBAKER

230 kV Electric Transmission Project
Dominion Energy Virginia
Prince William County, Virginia

Dominion Energy

KOP 013H

Nokesville Rd

Figure 13
Date:09/24/2024
Time: 12:50 pm
Viewing Direction: est
Distance to closest feature: 1.14 miles

Legend

Note: Project components illustrated are based on proposed preliminary designs
The images contained on this page show the proposed project within a wider landscape context and are not representative of scale and distance when viewed from the actual view point.

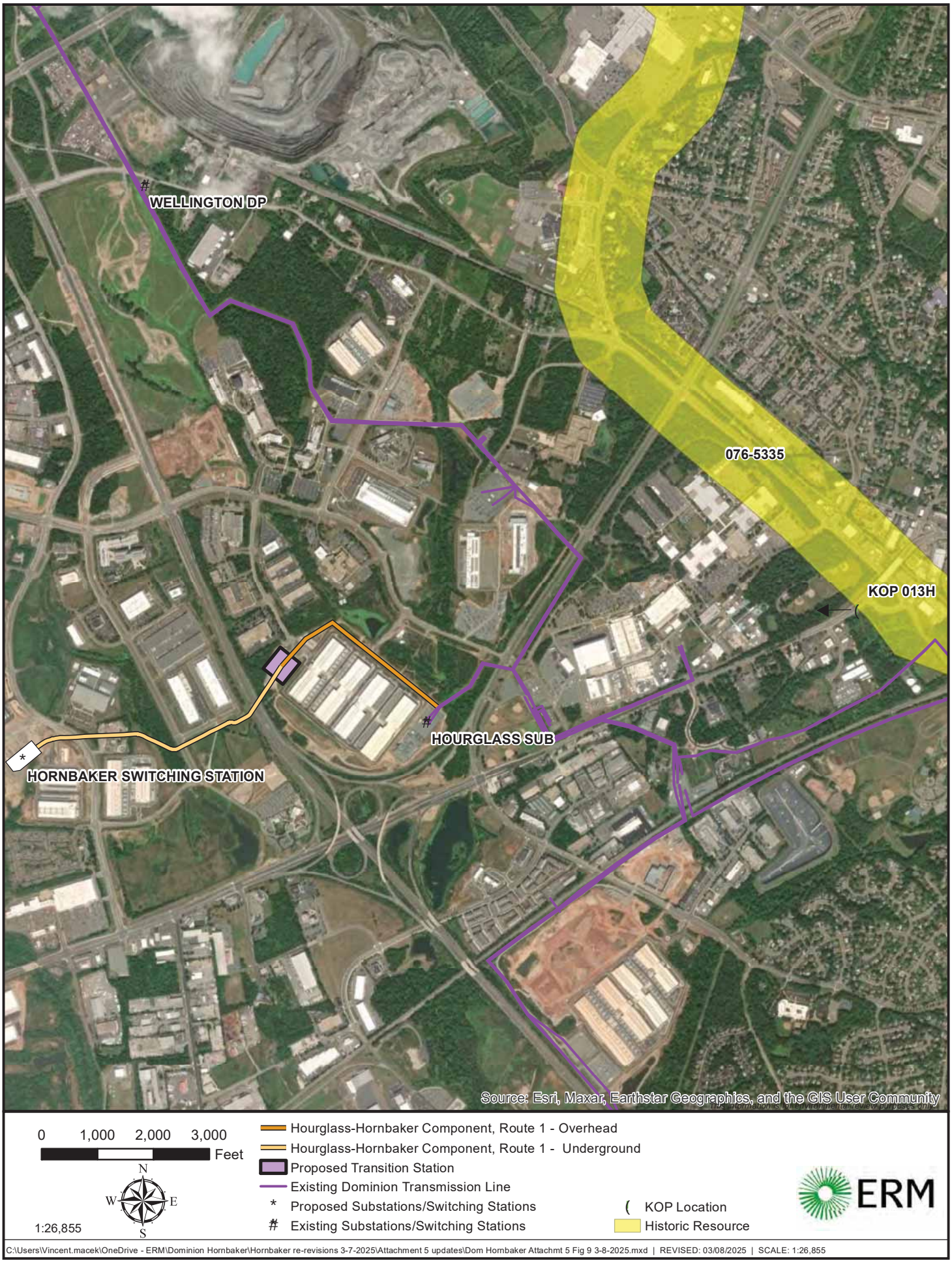


Figure 14. Aerial photograph depicting land use and photo view for 076-5335.

HOURG ASS-HORNBAKER

230 kV Electric Transmission Project
Dominion Energy Virginia
Prince William County, Virginia

Dominion Energy

KOP 013H

Nokesville Rd

Figure 15
Date:09/24/2024
Time: 12:50 pm
Viewing Direction: est
Distance to closest feature: 1.14 miles

Legend

Note: Project components illustrated are based on proposed preliminary designs
The images contained on this page show the proposed project within a wider landscape context and are not representative of scale and distance when viewed from the actual view point.

Figure 16. Aerial photograph depicting land use and photo view for 155-5020.

HOURGLASS-HORNBAKER

230 kV Electric Transmission Project
Dominion Energy Virginia
Prince William County, Virginia

Dominion Energy

EXISTING CONDITIONS

PROPOSED CONDITIONS

KOP 014H

Gateway Blvd

Figure 17
Date:09/24/2024
Time: 1:13 pm
Viewing Direction: Northwest
Distance to closest feature: 0.78 miles

Note: Project components illustrated are based on proposed preliminary designs
The images contained on this page show the proposed project within a wider landscape context and are not representative of scale and distance when viewed from the actual view point.

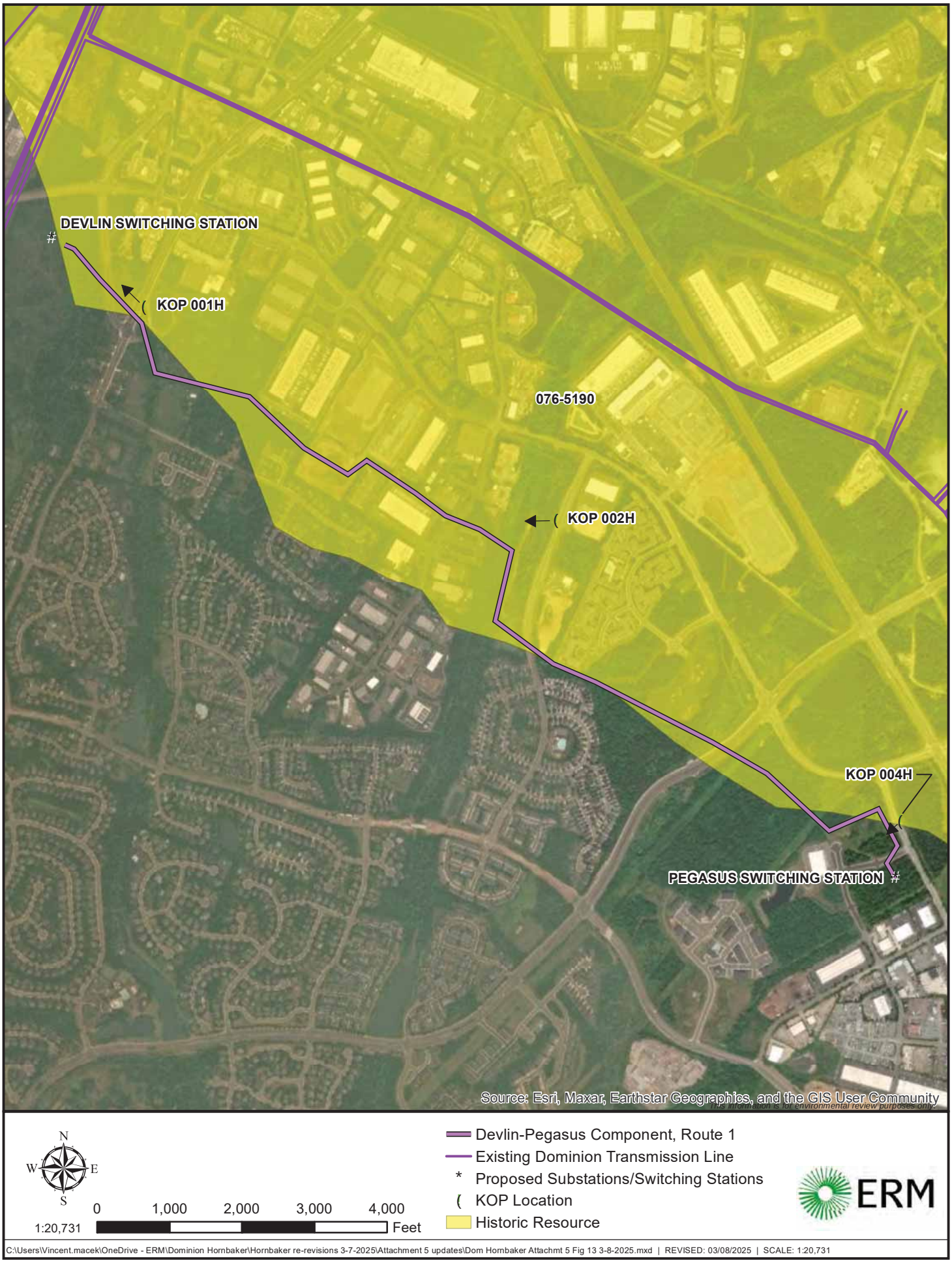


Figure 18. Aerial photograph depicting land use and photo views for 076-5190.

E N-HORNBAKER

230 kV Electric Transmission Project
Dominion Energy Virginia
Prince William County, Virginia

Dominion Energy

KOP 001H

Balls Ford Rd

Figure 19
Route 1
Date:09/25/2024
Time: 9:03 am
Viewing Direction: Northwest
Distance to closest feature: 0.03 miles

EXISTING CONDITIONS

PROPOSED CONDITIONS

Legend

Note: Project components illustrated are based on proposed preliminary designs
The images contained on this page show the proposed project within a wider landscape context and are not representative of scale and distance when viewed from the actual view point.

E N-HORNBAKER

230 kV Electric Transmission Project
Dominion Energy Virginia
Prince William County, Virginia

Dominion Energy

KOP 002H

Lexington Valley Dr

Figure 20
Route 1
Date:09/25/2024
Time: 9:1 am
Viewing Direction: Southwest
Distance to closest feature: 0.11 miles

Legend

Note: Project components illustrated are based on proposed preliminary designs
The images contained on this page show the proposed project within a wider landscape context and are not representative of scale and distance when viewed from the actual view point.

E N-PEGASUS

230 kV Electric Transmission Project
Dominion Energy Virginia
Prince William County, Virginia

Dominion Energy

EXISTING CONDITIONS

PROPOSED CONDITIONS

KOP 004H

Hornbaker Rd

Figure 21
Route 1
Date:09/25/2024
Time: 1:53 pm
Viewing Direction: Southwest
Distance to closest feature: 0.03 miles

Note: Project components illustrated are based on proposed preliminary designs
The images contained on this page show the proposed project within a wider landscape context and are not representative of scale and distance when viewed from the actual view point.

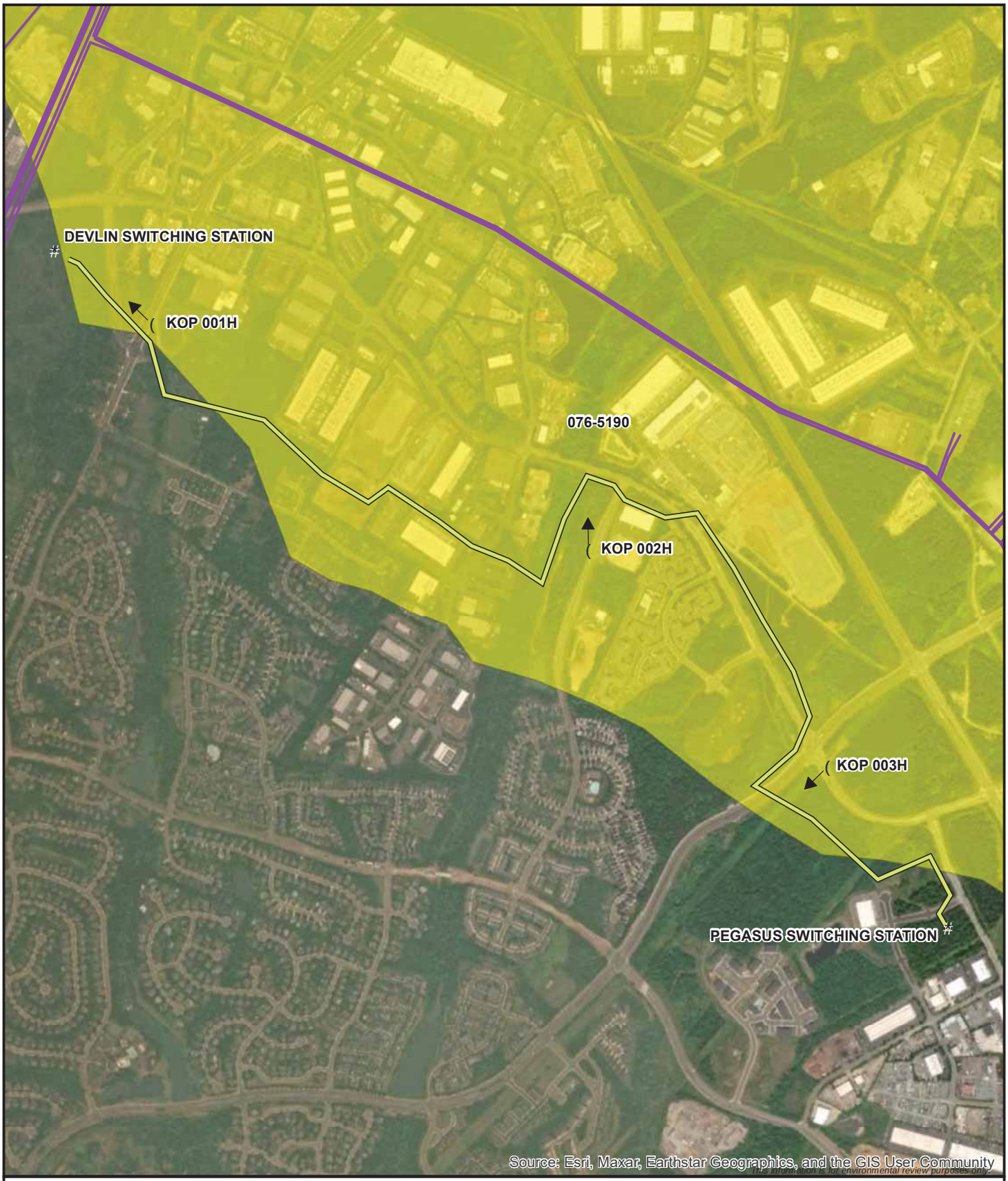


Figure 22. Aerial photograph depicting land use and photo views for 076-5190.

E N-HORNBAKER

230 kV Electric Transmission Project
Dominion Energy Virginia
Prince William County, Virginia

Dominion Energy

KOP 001H

Balls Ford Rd

Figure 23
Route: 2
Date:09/25/2024
Time: 9:03 am
Viewing Direction: Northwest
Distance to closest feature: 0.03 miles

Legend

Note: Project components illustrated are based on proposed preliminary designs
The images contained on this page show the proposed project within a wider landscape context and are not representative of scale and distance when viewed from the actual view point.

E N-HORNBAKER

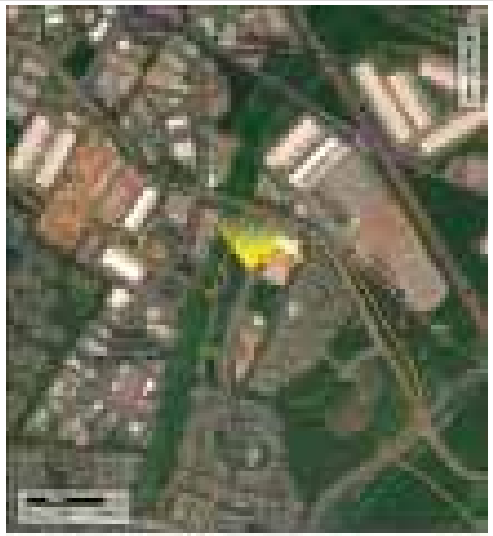
230 kV Electric Transmission Project
Dominion Energy Virginia
Prince William County, Virginia

Dominion Energy

KOP 002H

Lexington Valley Dr

Figure 24
Route: 2
Date:09/25/2024
Time: 9:1 am
Viewing Direction: North
Distance to closest feature: 0.11 miles



Note: Project components illustrated are based on proposed preliminary designs
The images contained on this page show the proposed project within a wider landscape context and are not representative of scale and distance when viewed from the actual view point.

E N-**HORNBAKER**

230 kV Electric Transmission Project
Dominion Energy Virginia
Prince William County, Virginia

Dominion Energy

KOP 003H

Wellington Rd

Figure 25
Route: 2
Date:09/25/2024
Time: 9:39 am
Viewing Direction: Southeast
Distance to closest feature: 0.10 miles

Legend

Note: Project components illustrated are based on proposed preliminary designs
The images contained on this page show the proposed project within a wider landscape context and are not representative of scale and distance when viewed from the actual view point.

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ERM's Duluth Office
3300 Breckinridge Boulevard
Suite 300
Duluth, GA 30096

T: 1 (678) 781-1370
F: 1 (678) 781-4470

www.erm.com

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

Office: (804) 273-4086

Cell: (804) 217-1847

#