

August 3, 2022

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Mr. Bernard Logan, Clerk
c/o Document Control Center
State Corporation Commission
1300 East Main Street
Tyler Building – 1st Floor
Richmond, Virginia 23219

Application of Virginia Electric and Power Company for approval and certification of electric transmission facilities: Line #183 Partial Rebuild Project

Case No. PUR-2022-00123

Dear Mr. Logan:

Please find enclosed for electronic filing in the above-captioned proceeding the application for approval of electric facilities on behalf of Virginia Electric and Power Company (the “Company”). This filing contains the Application, Appendix, Direct Testimony, and DEQ Supplement, including attachments.

As indicated in Section II.A.12.b of the Appendix, electronic copies of the maps of the Virginia Department of Transportation “General Highway Map” for Fauquier County and Prince William County, as well as the digital geographic information system (“GIS”) map required by § 56-46.1 of the Code of Virginia, which is Attachment II.A.2 to the Appendix, were provided via an e-room to the Commission’s Division of Energy Regulation on August 1, 2022.

Please do not hesitate to call if you have any questions in regard to the enclosed.

Very truly yours,



Vishwa B. Link

Enclosures

cc: William H. Chambliss, Esq.
Mr. David Essah (without enclosures)
Mr. Neil Joshipura (without enclosures)

Mr. Bernard Logan, Clerk

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**Dominion
Energy®**

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

**Before the State Corporation
Commission of Virginia**

Line #183 Partial Rebuild Project

Application No. 315

Case No. PUR-2022-00123

Filed: August 3, 2022

Volume 1 of 2

COMMONWEALTH OF VIRGINIA
BEFORE THE
STATE CORPORATION COMMISSION

APPLICATION OF
VIRGINIA ELECTRIC AND POWER COMPANY
FOR APPROVAL AND CERTIFICATION
OF ELECTRIC TRANSMISSION FACILITIES

Line #183 Partial Rebuild Project

Application No. 315

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COMMONWEALTH OF VIRGINIA
STATE CORPORATION COMMISSION

APPLICATION OF	)	
	)	
VIRGINIA ELECTRIC AND POWER COMPANY	)	Case No. PUR-2022-00123
	)	
For approval and certification of electric	)	
transmission facilities: Line #183	)	
Partial Rebuild Project	)	

**APPLICATION OF VIRGINIA ELECTRIC AND POWER COMPANY
FOR APPROVAL AND CERTIFICATION OF
ELECTRIC TRANSMISSION FACILITIES:
LINE #183 PARTIAL REBUILD PROJECT**

Pursuant to § 56-46.1 of the Code of Virginia (“Va. Code”) and the Utility Facilities Act, Va. Code § 56-265.1 *et seq.*, Virginia Electric and Power Company (“Dominion Energy Virginia” or the “Company”), by counsel, files with the State Corporation Commission of Virginia (the “Commission”) this application for approval and certification of electric transmission facilities (the “Application”). In support of its Application, Dominion Energy Virginia respectfully shows as follows:

1. Dominion Energy Virginia is a public service corporation organized under the laws of the Commonwealth of Virginia furnishing electric service to the public within its Virginia service territory. The Company also furnishes electric service to the public in portions of North Carolina. Dominion Energy Virginia’s electric system—consisting of facilities for the generation, transmission, and distribution of electric energy—is interconnected with the electric systems of neighboring utilities and is a part of the interconnected network of electric systems serving the continental United States. By reason of its operation in two states and its interconnections with other utilities, the Company is engaged in interstate commerce.

2. In order to perform its legal duty to furnish adequate and reliable electric service, Dominion Energy Virginia must, from time to time, replace existing transmission facilities or construct new transmission facilities in its system.

3. In this Application, in order to replace aging infrastructure that is at the end of its service life, to comply with mandatory North American Electric Reliability Corporation (“NERC”) Reliability Standards and the Company’s mandatory electric transmission planning criteria (“Planning Criteria”), and to maintain reliable service for the overall growth in the area, Dominion Energy Virginia proposes the following partial rebuild project located within existing right-of-way or on Company-owned property in Fauquier and Prince William Counties, Virginia (the “Rebuild Project”):

- Rebuild an approximately 15.2-mile segment of the Company’s existing 23.6-mile 115 kV Bristers-Ox Line #183 between Structure #183/12 and Structure #183/134. Specifically, remove existing Structures #183/13 through #183/133, of which, existing Structures #183/13 through #183/100 are predominantly single circuit 115 kV wood H-frame structures, and existing Structures #183/101 through #183/133 are predominately 115 kV weathering steel (COR-TEN^{®1}) lattice towers. The existing weathering steel (COR-TEN[®]) lattice towers are framed for double circuit construction; however, the davit arms for one of the circuits are currently vacant. The Company proposes to replace Structures #183/13 through #183/23 with 230 kV single circuit weathering steel H-frames, and to replace Structures #183/24 through #183/133 primarily with 230 kV double circuit weathering steel monopoles, which will have a set of three vacant davit arms available to allow for future load growth. This rebuild of the 15.2-mile segment of the Company’s 115 kV Line #183 is inclusive of an approximately 0.11-mile single circuit 115 kV tap circuit, which feeds the Sowego Delivery Point (“DP”) owned by Northern Virginia Electric Cooperative (“NOVEC”) and will be rebuilt with two 230 kV single circuit weathering steel 3-pole structures. In addition to the structure replacements, the existing 3-phase twin-bundled 636 ACSR, single 636 ACSR, 4/0 ACSR and 740.8 AAAC conductors and existing shield wire on Line #183 between Structures #183/2 and #183/12 and between Structures #183/12 and #183/134 will be replaced with 3-phase twin-bundled 768.2 ACSS conductors and new optical ground wire (“OPGW”) fiber optic shield wires.² The Company proposes to

¹ Registered trademark of United States Steel Corporation.

² For the approximately 1.5-mile segment of existing Line #183 between Structure #183/2 and Structure #183/12, the Company is proposing to replace the existing 115 kV conductor and fiber optic shield wire with 230 kV conductor and new OPGW fiber optic shield wire, as described herein. The Company is not proposing to rebuild Structures #183/2-12 as part of the Rebuild Project, as this 1.5-mile segment of Line #183 was previously rebuilt on double circuit 230 kV structures to support future 230 kV capability. Line #183 is collocated on Structures #183/2-12 with

operate the rebuilt Line #183 at 115 kV until such time as 230 kV operation of the line is required.³

- Upgrade line terminal equipment at the Company's existing Bristers Substation to support the new line rating of rebuilt Line #183.

4. The Company has developed a proactive plan to rebuild transmission lines that are comprised of wood pole structures that are experiencing maintenance and reliability issues, including cracked and decaying wood, ground line rot, and woodpecker damage, as well as weathering steel towers (COR-TEN[®] towers).

5. The proposed Rebuild Project will replace aging infrastructure that is at the end of its service life along a 15.2-mile segment of the Company's existing 23.6-mile 115 kV Bristers-Ox Line #183 between Structure #183/12 and #183/134 in Fauquier and Prince William Counties, Virginia, based on the Company's assessment in accordance with Dominion Energy Virginia's Planning Criteria and consistent with sound engineering judgment. The 15.2-mile segment is inclusive of the Company's existing 0.11-mile 115 kV Line #183 tap circuit, which feeds the Sowego DP owned by NOVEC.

the Company's existing Bristers-Vint Hill Line #2101, which will not be impacted by the reconductoring of Line #183 along this segment. The Company considers this 1.5-mile reconductor of Line #183 to qualify as an "ordinary extension[] or improvement[] in the usual course of business" 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 State Corporation Commission (the "Commission"). This is consistent with the Commission Staff's July 6, 2017 guidance, which provides that any transmission project that only requires reconductoring, maintenance or station work does not require a CPCN, except as noted therein. The Company plans to operate this 1.5-mile segment of Line #183 at 115 kV until such time as 230 kV operation is needed, at which time the Company will seek an amendment to any CPCN issued in this proceeding prior to converting the line to 230 kV operation. As the Company considers the reconductoring of this approximately 1.5-mile segment of Line #183 between Structures #183/2-12 to be ordinary course, detailed supporting documentation has not been provided in this Appendix. However, costs associated with the reconductoring of this 1.5-mile segment of Line #183 have been included in the total costs of the Rebuild Project described in this Appendix for the Commission's consideration. Should the Commission determine that a CPCN is required for this 1.5-mile reconductoring of Line #183 as described herein, the Company requests that the Commission grant such CPCN as part of its final order in this proceeding.

³ The Company plans to operate this 15.2-mile rebuilt segment of Line #183 at 115 kV until such time as 230 kV operation is required, at which time the Company will seek an amendment to any CPCN issued in this proceeding prior to converting the rebuilt line to 230 kV operation.

6. Specifically, approximately 10.1 miles of Line #183 proposed for rebuild are supported by wood pole structures dating back to the late 1940s. Industry experience indicates that life for wood pole structures is approximately 35 to 55 years, for conductors and connectors is approximately 40 to 60 years, and for porcelain insulators is approximately 50 years. The majority of these structures are at least 60 years old, and the Company believes it is most cost-effective to rebuild this 10.1-mile section rather than replace individual components.

7. Approximately 5.1 miles of Line #183 proposed for rebuild are supported by COR-TEN[®] lattice towers that were erected in the mid-1960s. These COR-TEN[®] towers have been identified for replacement. COR-TEN[®] steel is now known to be problematic when used for lattice-type structures. The Company determined based on sound engineering judgment that it is prudent to take all required outages for Line #183 at one time and rebuild the aging infrastructure on the entire 15.2-mile segment of Line #183, including the 0.11-mile tap circuit, as part of this scheduled active Rebuild Project.

8. While the Rebuild Project is not capacity driven, it is consistent with “prudent utility practice”⁴ as well as prudent planning and engineering design to build new overhead facilities with a 60+ year life expectancy to the maximum level of capacity and flexibility that can be obtained at a reasonable cost for long-term growth. This is especially true in the Northern Virginia Load Area, where the Company has made consistent efforts since at least 2009 to move load off the 115 kV system and convert to 230 kV where appropriate because of the dynamic

⁴ FERC identifies “prudent utility practices” as including standards, practices, and methods that are currently and commonly used by electric utilities to plan, engineer, select, operate, schedule and maintain electric power facilities and equipment reliably, safely, and efficiently. See, e.g., https://elibrary.ferc.gov/eLibrary/filelist?accession_number=20130806-3007.

nature of the load growth in the area, particularly block load additions.⁵

9. The Rebuild Project area is located within load areas projected to have high load growth in the 10-year planning horizon. The Northern Virginia Load Area consists of Arlington, Fairfax, Prince William, Loudoun, Fauquier, and Stafford Counties of Virginia and is divided into three load zones identified as Alex-Arlington (Zone 181), Fairfax (Zone 182), and Woodbridge (Zone 183). These three zones have the heaviest concentration of load of the entire Dominion Energy Virginia service area, with approximately 36% of the Company's total summer load attributed to demand in these three zones. NOVEC has already indicated to the Company that it anticipates large block load additions within the immediate area served by Line #183 in the next 10 years due to the beginning of increased data center activity. Further, other load drivers are projected to impact the Rebuild Project load area in the 10-year planning horizon. For example, PJM Interconnection, LLC ("PJM") has approved upgrades at Bristers and Ox Substations that the Company will perform by 2026 in order to address thermal violations caused by overall data center growth in Northern Virginia. As such, it is prudent for the Company to rebuild this segment of Line #183 with 230 kV construction. Operating the 230 kV equipment at 115 kV solves all violations for the PJM Regional Transmission Expansion Plan model with the ability to convert to 230 kV providing capability for future growth. This also will allow NOVEC the time it needs to convert its four DPs to 230 kV operability.

10. In summary, the proposed Rebuild Project will replace aging infrastructure at the end of its service life and address criteria violations in compliance with the Company's mandatory Planning Criteria, NERC Reliability Standards and annual FERC Form No. 715 reporting

⁵ This approach has been identified and established over multiple approved Company electric transmission projects, including in Case Nos. PUE-2009-00134, PUE-2011-00011, PUE-2012-00065, PUE-2014-00025, and PUR-2017-00078.

requirements, and consistent with sound engineering judgment, thereby enabling the Company to maintain the overall long-term reliability of its transmission system, as well as to provide important system reliability benefits to the Company's entire network.

11. The desired in-service date for the Rebuild Project is December 31, 2025. The Company estimates it will take approximately 29 months for detailed engineering, materials procurement, permitting, and construction after a final order from the Commission. Accordingly, to support this estimated pre-construction activity timeline and construction plan, the Company respectfully requests a final order by July 30, 2023. Should the Commission issue a final order by July 30, 2023, the Company estimates that construction should begin in August 2024, and be completed in December 2025. This construction timeline will enable the Company to meet the targeted in-service date for the Rebuild Project. This schedule is contingent upon obtaining the necessary permits and scheduling outages. Dates may need to be adjusted based on permitting delays or design modifications in order to comply with additional agency requirements identified during the permitting application process, as well as ability to schedule outages or unpredictable delays due to the COVID-19 pandemic, labor shortages, or materials/supply issues.

12. The estimated conceptual cost of the proposed Rebuild Project is approximately \$38.2 million, which includes approximately \$38.0 million for transmission-related work and approximately \$0.2 million for substation-related work (2022 dollars). The description of the proposed Rebuild Project is described in detail in Sections I and II of the Appendix attached to this Application.

13. The length of the existing right-of-way and Company-owned property to be used for the Rebuild Project is approximately 15.2 miles. Because the existing right-of-way and Company-owned property are adequate for the proposed Rebuild Project, no new right-of-way is

required. Given the availability of existing right-of-way and the statutory preference given to use of existing rights-of-way, and because additional costs and environmental impacts would be associated with the acquisition and construction of new right-of-way, the Company did not consider any alternate routes requiring new right-of-way for this Rebuild Project.

14. Based on consultations with the Virginia Department of Environmental Quality (“DEQ”), the Company has developed a supplement (“DEQ Supplement”) containing information designed to facilitate review and analysis of the proposed facilities by the DEQ and other relevant agencies. The DEQ Supplement is attached to this Application.

15. Based on the Company’s experience, the advice of consultants, and a review of published studies by experts in the field, the Company believes that there is no causal link to harmful health or safety effects from electric and magnetic fields generated by the Company’s existing or proposed facilities. Section IV of the Appendix provides further details on Dominion Energy Virginia’s consideration of the health aspects of electric and magnetic fields.

16. Section V of the Appendix provides a proposed route description for public notice purposes and a list of federal, state, and local agencies and officials that the Company has or will notify about the Application.

17. In addition to the information provided in the Appendix and the DEQ Supplement, this Application is supported by the pre-filed direct testimony of Company Witnesses Steven Schweiger, Darren E. Campbell, Santosh Bhattarai, and Nancy R. Reid filed with this Application.

18. As this Application seeks approval to rebuild an existing line entirely within existing right-of-way, the Company respectfully requests that the Commission issue an Order for Notice and Comment setting forth a procedural schedule in this proceeding without an evidentiary hearing, but with an opportunity for interested persons to request an evidentiary hearing if the

issues raised cannot be addressed adequately without a hearing. The Company asserts that such a procedural schedule will allow for the development of a full and complete record, without prejudicing any party.

WHEREFORE, Dominion Energy Virginia respectfully requests that the Commission:

(a) direct that notice of this Application be given as required by § 56-46.1 of the Code of Virginia;

(b) approve pursuant to § 56-46.1 of the Code of Virginia the construction of the Rebuild Project; and,

(c) grant a certificate of public convenience and necessity for the Rebuild Project under the Utility Facilities Act, § 56-265.1 *et seq.* of the Code of Virginia.

VIRGINIA ELECTRIC AND POWER COMPANY

By: /s/ Vishwa B. Link
Counsel for Applicant

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August 3, 2022

COMMONWEALTH OF VIRGINIA
BEFORE THE
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APPLICATION OF
VIRGINIA ELECTRIC AND POWER COMPANY
FOR APPROVAL AND CERTIFICATION
OF ELECTRIC TRANSMISSION FACILITIES

Line #183 Partial Rebuild Project

Application No. 315

Appendix

Containing Information in Response to
“Guidelines for Transmission Line Applications Filed Under Title 56 of the Code of Virginia”

Case No. PUR-2022-00123

Filed: August 3, 2022

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EXECUTIVE SUMMARY

In order to replace aging infrastructure that is at the end of its service life, to comply with mandatory North American Electric Reliability Corporation (“NERC”) Reliability Standards and the Company’s mandatory electric transmission planning criteria (“Planning Criteria”), and to maintain reliable service for the overall growth in the area, Virginia Electric and Power Company (“Dominion Energy Virginia” or the “Company”) proposes the following in Fauquier and Prince William Counties, Virginia (collectively, the “Rebuild Project”):

- (i) Rebuild an approximately 15.2-mile segment of the Company’s existing 23.6-mile 115 kV Bristers-Ox Line #183 between Structure #183/12 and Structure #183/134. Specifically, remove existing Structures #183/13 through #183/133, of which, existing Structures #183/13 through #183/100 are predominantly single circuit 115 kV wood H-frame structures, and existing Structures #183/101 through #183/133 are predominately 115 kV weathering steel (COR-TEN^{®1}) lattice towers. The existing weathering steel (COR-TEN[®]) lattice towers are framed for double circuit construction; however, the davit arms for one of the circuits are currently vacant. The Company proposes to replace Structures #183/13 through #183/23 with 230 kV single circuit weathering steel H-frames, and to replace Structures #183/24 through #183/133 primarily with 230 kV double circuit weathering steel monopoles, which will have a set of three vacant davit arms available to allow for future load growth. This rebuild of the 15.2-mile segment of the Company’s 115 kV Line #183 is inclusive of an approximately 0.11-mile single circuit 115 kV tap circuit, which feeds the Sowego Delivery Point (“DP”) owned by Northern Virginia Electric Cooperative (“NOVEC”) and will be rebuilt with two 230 kV single circuit weathering steel 3-pole structures. In addition to the structure replacements, the existing 3-phase twin-bundled 636 ACSR, single 636 ACSR, 4/0 ACSR and 740.8 AAAC conductors and existing shield wire on Line #183 between Structures #183/2 and #183/12 and between Structures #183/12 and #183/134 will be replaced with 3-phase twin-bundled 768.2 ACSS conductors and new optical ground wire (“OPGW”) fiber optic shield wires.² The Company proposes to

¹ Registered trademark of United States Steel Corporation.

² For the approximately 1.5-mile segment of existing Line #183 between Structure #183/2 and Structure #183/12, the Company is proposing to replace the existing 115 kV conductor and fiber optic shield wire with 230 kV conductor and new OPGW fiber optic shield wire, as described herein. The Company is not proposing to rebuild Structures #183/2-12 as part of the Rebuild Project, as this 1.5-mile segment of Line #183 was previously rebuilt on double circuit 230 kV structures to support future 230 kV capability. Line #183 is collocated on Structures #183/2-12 with the Company’s existing Bristers-Vint Hill Line #2101, which will not be impacted by the reconductoring of Line #183 along this segment. The Company considers this 1.5-mile reconductor of Line #183 to qualify as an “ordinary extension[] or improvement[] in the usual course of business” 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 State Corporation Commission (the “Commission”). This is consistent with the Commission Staff’s July 6, 2017 guidance, which provides that any transmission project that only requires reconductoring, maintenance or station work does not require a CPCN, except as noted therein. The Company plans to operate this 1.5-mile segment of Line #183 at 115 kV until such time as 230 kV operation is needed, at which time the Company will seek an amendment to any CPCN issued in this proceeding prior to converting the line to 230 kV operation. As the Company considers the reconductoring of this approximately 1.5-mile segment of Line #183 between Structures #183/2-12 to be ordinary course, detailed supporting documentation has not been provided in this Appendix. However, costs associated with the reconductoring of this 1.5-mile segment of Line #183 have been included in the total costs of the Rebuild Project described in this Appendix for the Commission’s consideration.

operate the rebuilt Line #183 at 115 kV until such time as 230 kV operation of the line is required.³

- (ii) Upgrade line terminal equipment at the Company's existing Bristers Substation to support the new line rating of rebuilt Line #183.

The Company has developed a proactive plan to rebuild transmission lines that are comprised of wood pole structures that are experiencing maintenance and reliability issues, including cracked and decaying wood, ground line rot, and woodpecker damage, as well as weathering steel towers (COR-TEN[®] towers). The proposed Rebuild Project will replace aging infrastructure that is at the end of its service life along a 15.2-mile segment of the Company's existing 23.6-mile 115 kV Bristers-Ox Line #183 between Structure #183/12 and #183/134 in Fauquier and Prince William Counties, Virginia, based on the Company's assessment in accordance with Dominion Energy Virginia's Planning Criteria and consistent with sound engineering judgment. The 15.2-mile segment is inclusive of the Company's existing 0.11-mile 115 kV Line #183 tap circuit, which feeds the Sowego DP owned by NOVEC.

Approximately 10.1 miles of Line #183 proposed for rebuild are supported by wood pole structures dating back to the late 1940s. Industry experience indicates that life for wood pole structures is approximately 35 to 55 years, for conductor and connectors is approximately 40 to 60 years, and for porcelain insulators is approximately 50 years. The majority of these structures are at least 60 years old, and the Company believes it is most cost-effective to rebuild this 10.1-mile section rather than replace individual components.

Approximately 5.1 miles of Line #183 proposed for rebuild are supported by COR-TEN[®] lattice towers that were constructed in the mid-1960s. These COR-TEN[®] towers have been identified for replacement. COR-TEN[®] steel is now known to be problematic when used for lattice-type structures. The Company determined based on sound engineering judgment that it is prudent to take all required outages for Line #183 at one time and rebuild the aging infrastructure on the entire 15.2-mile segment of Line #183, including the 0.11-mile tap circuit, as part of this scheduled active Rebuild Project.

In summary, the proposed Rebuild Project will replace aging infrastructure at the end of its service life and address criteria violations in compliance with the Company's mandatory Planning Criteria, NERC Reliability Standards and annual FERC Form No. 715 reporting requirements, and consistent with sound engineering judgment, thereby enabling the Company to maintain the overall long-term reliability of its transmission system, as well as to provide important system reliability benefits to the Company's entire network.

The length of the existing right-of-way and Company-owned property to be used for the Rebuild Project is approximately 15.2 miles. Because the existing right-of-way and Company-owned

Should the Commission determine that a CPCN is required for this 1.5-mile reconductoring of Line #183 as described herein, the Company requests that the Commission grant such CPCN as part of its final order in this proceeding.

³ The Company plans to operate this 15.2-mile rebuilt segment of Line #183 at 115 kV until such time as 230 kV operation is required, at which time the Company will seek an amendment to any CPCN issued in this proceeding prior to converting the rebuilt line to 230 kV operation.

property are adequate for the proposed Rebuild Project, no new right-of-way is required. Given the availability of existing right-of-way and the statutory preference given to use of existing rights-of-way, and because additional costs and environmental impacts would be associated with the acquisition and construction of new right-of-way, the Company did not consider any alternate routes requiring new right-of-way for this Rebuild Project.

The estimated conceptual cost of the Rebuild Project is approximately \$38.2 million, which includes approximately \$38.0 million for transmission-related work, and approximately \$0.2 million for substation-related work (2022 dollars).

The desired in-service date for the Rebuild Project is December 31, 2025. The Company estimates it will take approximately 29 months for detailed engineering, materials procurement, permitting, and construction after a final order from the Commission. Accordingly, to support this estimated pre-construction activity timeline and construction plan, the Company respectfully requests a final order by July 30, 2023. Should the Commission issue a final order by July 30, 2023, the Company estimates that construction should begin in August 2024 and be completed in December 2025. This construction timeline will enable the Company to meet the targeted in-service date for the Rebuild Project. This schedule is contingent upon obtaining the necessary permits and scheduling outages. Dates may need to be adjusted based on permitting delays or design modifications in order to comply with additional agency requirements identified during the permitting application process, as well as ability to schedule outages or unpredictable delays due to the COVID-19 pandemic, labor shortages, or materials/supply issues.

I. NECESSITY FOR THE PROPOSED PROJECT

- A. State the primary justification for the proposed project (for example, the most critical contingency violation including the first year and season in which the violation occurs). In addition, identify each transmission planning standard(s) (of the Applicant, regional transmission organization (“RTO”), or North American Electric Reliability Corporation) projected to be violated absent construction of the facility.**

Response: The Rebuild Project is necessary to replace aging infrastructure that is at the end of its service life, to comply with the Company’s Planning Criteria and mandatory NERC Reliability Standards, and to maintain reliable service for the overall growth in the Rebuild Project area. See Attachment I.A.1 for an overview map of the proposed Rebuild Project.

Dominion Energy Virginia’s transmission system is responsible for providing transmission service: (i) for redelivery to the Company’s retail customers; (ii) to Appalachian Power Company, Old Dominion Electric Cooperative, NOVEC, Central Virginia Electric Cooperative, and Virginia Municipal Electric Association for redelivery to their retail customers in Virginia; and (iii) to North Carolina Electric Membership Corporation and North Carolina Eastern Municipal Power Agency for redelivery to their customers in North Carolina (collectively, the “Dominion Energy Zone” or “DOM Zone”).

Dominion Energy Virginia is part of the PJM Interconnection, L.L.C. (“PJM”) regional transmission organization (“RTO”), which provides service to a large portion of the eastern United States. PJM is currently responsible for ensuring the reliability of, and coordinating the movement of, electricity through all or parts of Delaware, Illinois, Indiana, Kentucky, Maryland, Michigan, New Jersey, North Carolina, Ohio, Pennsylvania, Tennessee, Virginia, West Virginia, and the District of Columbia. This service area has a population of approximately 65 million and, on August 2, 2006, set a record high of 166,929 megawatts (“MW”) for summer peak demand, of which Dominion Energy Virginia’s load portion was approximately 19,256 MW. On August 12, 2021, the Company set a record high of 20,408 MW for summer peak demand. On February 20, 2015, the Company set a winter and all-time record demand of 21,651 MW. Based on the 2022 PJM Load Forecast, the Dominion Energy Zone is expected to grow with average growth rates of 2.2% summer and 2.6% winter over the next 10 years compared to the PJM average of 0.4% and 0.7% over the same period for the summer and winter, respectively.

Dominion Energy Virginia is also part of the Eastern Interconnection transmission grid, meaning its transmission system is interconnected, directly or indirectly, with all of the other transmission systems in the United States and Canada between the Rocky Mountains and the Atlantic Coast, except for Quebec and most of Texas. All of the transmission systems in the Eastern Interconnection are dependent on each other for moving bulk power through the transmission system and for

reliability support. Dominion Energy Virginia's service to its customers is extremely reliant on a robust and reliable regional transmission system.

NERC has been designated by the Federal Energy Regulatory Commission ("FERC") as the electric reliability organization for the United States. Accordingly, NERC requires that the planning authority and transmission planner develop planning criteria to ensure compliance with NERC Reliability Standards. Mandatory NERC Reliability Standards require that a transmission owner ("TO") develop facility interconnection requirements that identify load and generation interconnection minimum requirements for a TO's transmission system, as well as the TO's reliability criteria.⁴

Federally mandated NERC Reliability Standards constitute minimum criteria with which all public utilities must comply as components of the interstate electric transmission system. Moreover, the Energy Policy Act of 2005 mandates that electric utilities follow these NERC Reliability Standards, and imposes fines for noncompliance up to \$1.3 million per day per violation.

PJM's Regional Transmission Expansion Plan ("RTEP") is the culmination of a FERC-approved annual transmission planning process that includes extensive analysis of the electric transmission system to determine any needed improvements.⁵ PJM's annual RTEP is based on the effective criteria in place at the time of the analyses, including applicable standards and criteria of NERC, PJM, and local reliability planning criteria, among others.⁶ Projects identified through the RTEP process are developed by the TO in coordination with PJM, and are presented at the Transmission Expansion Advisory Committee ("TEAC") meetings prior to inclusion in the RTEP that is then presented for approval by the PJM Board of Managers (the "PJM Board").

Outcomes of the RTEP process include three types of transmission system upgrades or projects: (i) baseline upgrades are those that resolve a system reliability criteria violation, which can include planning criteria from NERC, ReliabilityFirst, SERC Reliability Corporation, PJM, and TOs; (ii) network upgrades are new or upgraded facilities required primarily to eliminate reliability criteria violations caused by proposed generation, merchant transmission, or long-term firm transmission service requests; and (iii) supplemental projects are projects initiated by the TO in order to interconnect new customer load, address degraded equipment performance, improve operational flexibility and efficiency, and increase infrastructure resilience. While supplemental projects are included in the RTEP, and the PJM Board administers stakeholder review of supplemental projects as part

⁴ See FAC-001-3 (R1, R3) (effective April 1, 2021), which can be found at <https://cdn-dominionenergy-prd-001.azureedge.net/-/media/pdfs/virginia/parallel-generation/facility-interconnection-requirements-signed.pdf?la=en&rev=38f51ffb04b1489f921b32a41d9887c8>.

⁵ PJM Manual 14B (effective July 1, 2021) focuses on the RTEP process and can be found at <https://www.pjm.com/-/media/documents/manuals/m14b.ashx>.

⁶ See PJM Manual 14B, Attachment D: PJM Reliability Planning Criteria. See also *supra*, n. 5

of the RTEP process, the PJM Board does not actually approve such projects.

Need to Replace Aging Infrastructure

The Company has developed a proactive plan to rebuild transmission lines that are comprised of wood pole structures that are experiencing maintenance and reliability issues, including cracked and decaying wood, ground line rot, and woodpecker damage, as well as weathering steel towers (COR-TEN® towers). The proposed Rebuild Project will replace aging infrastructure that is at the end of its service life along a 15.2-mile segment of the Company's existing 23.6-mile 115 kV Bristers-Ox Line #183 between Structure #183/12 and #183/134 in Fauquier and Prince William Counties, Virginia, based on the Company's assessment in accordance with Dominion Energy Virginia's Planning Criteria and consistent with sound engineering judgment. Specifically, the Company proposes to remove existing Structures #183/13 through #183/133, of which, existing Structures #183/13 through #183/100 are predominantly single circuit 115 kV wood H-frame structures, and existing Structures #183/101 through #183/133 are predominately 115 kV weathering steel (COR-TEN®) lattice towers. The existing weathering steel (COR-TEN®) lattice towers are framed for double circuit construction; however, the davit arms for one of the circuits are currently vacant. The Company proposes to replace Structures #183/13 through #183/23 with 230 kV single circuit weathering steel H-frames, and to replace Structures #183/24 through #183/133 primarily with 230 kV double circuit weathering steel monopoles, which will have a set of three vacant davit arms available to allow for future load growth. The rebuild of the 15.2-mile segment of the Company's 115 kV Line #183 is inclusive of a 0.11-mile single circuit 115 kV tap circuit, which feeds the Sowego DP owned by NOVEC and will be rebuilt with two 230 kV single circuit weathering steel 3-pole structures.

In addition to the structure replacements, the Company proposes to replace the existing 3-phase twin-bundled 636 ACSR, single 636 ACSR, 4/0 ACSR and 740.8 AAC conductors and existing shield wire on Line #183 between Structures #183/12 and #183/134 with 3-phase twin-bundled 768.2 ACSS conductors and new OPGW fiber optic shield wires, and to upgrade line terminal equipment at Bristers Substation to support the new line rating of rebuilt Line #183.

Section C.2.9 of the Planning Criteria addresses electric transmission infrastructure approaching its end of life:⁷

⁷ The Company's Transmission Planning Criteria (effective April 1, 2021) can be found in Attachment 1 of the Company's Facility Interconnection Requirements document, which is available online at <https://cdn-dominionenergy-prd-001.azureedge.net/-/media/pdfs/virginia/parallel-generation/facility-connection-requirements.pdf?la=en&rev=f280781e90cf47f69ea526c944c9c347&hash=82DD2567D0B033C47536134B8C4D5C5E>. The Company's Planning Criteria regarding infrastructure to be evaluated under end-of-life ("EOL") criteria was updated effective March 24, 2020. However, the process for determining that an asset has reached its EOL remains the same; therefore, the Company continues to use the criteria evaluation process outlined in Section C.2.9 of

Electric transmission infrastructure reaches its end of life as a result of many factors. Some factors such as extreme weather and environmental conditions can *shorten* infrastructure life, while others such as maintenance activities can *lengthen* its life. Once end of life is recognized, in order to ensure continued reliability of the transmission grid, a decision must be made regarding the best way to address this end-of-life asset.

For this criterion, “end of life” is defined as the point at which infrastructure is at risk of failure, and continued maintenance and/or refurbishment of the infrastructure is no longer a valid option to extend the life of the facilities consistent with Good Utility Practice and Dominion Energy Transmission Planning Criteria. The infrastructure to be evaluated under this end-of-life criteria are all regional transmission lines operated at 500 kV and above.

The decision point of this criterion is based on satisfying two metrics:

- 1) *Facility is nearing, or has already passed, its end of life, and*
- 2) *Continued operation risks negatively impacting reliability of the transmission system.*

For facilities that satisfy both of these metrics, this criterion mandates either replacing these facilities with in-kind infrastructure that meets current Dominion standards or employing an alternative solution to ensure the Dominion transmission system satisfies all applicable reliability criteria.

The Rebuild Project will replace aging infrastructure that is at the end of its service life in compliance with the Company’s Planning Criteria, and maintain reliable service for the overall growth in the Rebuild Project area.

- 1) *Facility is nearing, or has already passed, its end of life*

In regards to the first metric of the Company’s Planning Criteria addressing end of life, the Rebuild Project will replace existing structures along a 15.2-mile segment of Line #183, which is supported predominantly by single circuit 115 kV wood H-frame structures and weathering steel (COR-TEN[®]) lattice towers.

The entire Line #183 runs approximately 23.6 miles between the Company’s existing Bristers and Ox Substations. Along the 15.2-mile segment proposed for rebuild, Line #183 currently serves four NOVEC DPs (Sowego, Independent Hill,

the Planning Criteria. See <http://www.pjm.com/-/media/committees-groups/committees/srrtep-s/2020/20200616/20200616-dominion-local-planning-assumptions-2020.ashx>.

Lindendale, and Minnieville) and one Dominion Energy Virginia DP (Elm Farm).

Approximately 10.1 miles of Line #183 proposed for rebuild are supported by wood pole structures dating back to 1948. Industry experience indicates that life for wood pole structures is approximately 35 to 55 years, for conductor and connectors is approximately 40 to 60 years, and for porcelain insulators is approximately 50 years. The majority of these structures are at least 60 years old, and the Company believes it is most cost-effective to rebuild this 10.1-mile section rather than replace individual components.

Approximately 5.1 miles of Line #183 proposed for rebuild are supported by COR-TEN[®] lattice towers that were constructed in the mid-1960s. These COR-TEN[®] towers have been identified for replacement. COR-TEN[®] steel is now known to be problematic when used for lattice-type structures. The Company determined based on sound engineering judgment that it is prudent to take all required outages for Line #183 at one time, while the 10.1-mile section of predominantly wood structures are being replaced, and rebuild the aging infrastructure on the entire 15.2-mile segment of Line #183, including an approximately 0.11-mile tap circuit, as part of this scheduled active Rebuild Project.

2) Continued operation risks negatively impacting reliability of the transmission system

With regard to the second metric of the Company's Planning Criteria addressing end of life, Line #183 provides service to one Dominion Energy Virginia DP (Elm Farm) and four NOVEC DPs (Sowego, Independent Hill, Lindendale, and Minnieville) in Fauquier and Prince William Counties, totaling a projected 2026 forecast of over 200 MW. Combined, these DPs currently serve 35,544 NOVEC and Dominion Energy Virginia customers. From an end-of-life criteria standpoint, the Company would be unable to continue to provide reliable transmission service to the DPs served by Line #183 unless it addresses the aging infrastructure at the end of its service life.

As a part of the PJM 2021 RTEP Proposal Window, PJM identified several thermal overloads under N-1 conditions, as well as generation deliverability violations. In addition, PJM's 2026 RTEP Summer planning model identified several scenarios in violation of the Company's Planning Criteria, which were submitted in the Company's annual FERC Form No. 715 report.⁸ Specifically, in compliance with Section 213(b) of the Federal Power Act, FERC has determined that potential customers must be able to reasonably anticipate the outcome of the technical studies a transmitting utility would perform that assess the availability of transmission capacity to satisfy a request for transmission service. As a result, each utility or its designated agent must submit an annual report via FERC Form 715 (Annual Transmission Planning Evaluation Report). On behalf of all its TOs, PJM then

⁸ For additional information related to FERC Form 715, see <https://www.pjm.com/library/request-access/ferc-form-715>.

reports this information (e.g., violations identified) to FERC.

Under the P1 or P4 N-1 scenarios in which the 230-115 kV transformer at Ox Substation is lost, the segment of Line #183 between NOVEC's Sowego and Independent Hill DPs, as well as the 230-115 kV transformer at Bristers Substation, increase their loading beyond the allowable limit of NERC Reliability Standards.⁹ The same segment between NOVEC's Sowego and Independent Hill DPs was also found to be overloaded and in violation of PJM's generation deliverability process.¹⁰

Regarding the Planning Criteria violations submitted in the Company's annual FERC Form No. 715 report, under the same scenario in which the Ox 230-115 kV transformer is lost, the voltages at the Lindendale, Minnieville, Independent Hill, and Elm Farm DPs were identified to be in violation based on the acceptable voltages allowable for post-contingency radial line segments.¹¹

Additionally, under Section C.2.1.3 of the Company's Planning Criteria, the Company will model an outage on the most critical generators in the area being studied, and the resulting power flow case is considered a critical stress case. Under this critical stress case condition, the generator being studied is taken off-line and the remaining generators connected to the Company's system are proportionally increased to make-up for the lost generator. As a result of this testing, if Possum Point Unit #6 is taken out of service, the loss of the 230-115 kV transformer at Ox Substation results in the Line #183 segment between Sowego and Independent Hill, and the 230-115 kV transformer at Bristers Substation, surpassing the allowable thermal loading.

Need to Utilize 230 kV Construction, Operated at 115 kV

While the rebuilt Line #183 will initially be operated at 115 kV, it is required and prudent to rebuild this segment of the line utilizing 230 kV construction for the following reasons:

- **The Company's standard 230 kV construction is required to resolve low voltage violations in PJM's 2026 RTEP model.** Before considering uprating an existing 115 kV line to 230 kV capability, the Company tests its highest capacity 115 kV conductor for feasibility. For purposes of this Rebuild Project, the power flow analysis in PJM's 2026 RTEP model showed that low voltage violations were not resolved using the Company's highest capacity 115 kV conductor. In contrast, using twin-bundled 768.2 ACSS conductors (a Company standard for new 230 kV construction) resulted in the overall reduction of impedance and resolved the low voltage

⁹ See the TPL standards in *Reliability Standards for the Bulk Electric Systems of North America* at <https://www.nerc.com/pa/Stand/Reliability%20Standards%20Complete%20Set/RSCCompleteSet.pdf>.

¹⁰ See Attachment C in PJM's Manual 14B for PJM's generation delivery criteria. See also *supra*, n. 5.

¹¹ See <https://www.pjm.com/-/media/planning/planning-criteria/dominion-planning-criteria.ashx>.

violations identified in PJM's 2026 RTEP model.

- **While reconductoring an existing line, it is consistent with prudent planning to address future long-term need and load growth.** Based on Dominion Energy Virginia's and NOVEC's load forecasts for the five DPs currently served by Line #183, the 230-115 kV transformers at the Bristers and Ox Substations are nearing their loading capabilities. See Section I.C. Under the N-1 scenario in which either the Bristers or Ox 230-115 kV transformer is lost, the transformer remaining in service is loaded to above 94%, based on the 10-year load projections in the load area. See Section I.D. This is a violation of NERC Reliability Standards, and any further load growth beyond what is currently projected will exacerbate the foreseen violations. Rather than having to replace two 230-115 kV transformers and potentially reconnector Line #183 again in the near future at a higher voltage, rebuilding Line #183 now to operate at 115 kV with the capability of converting to 230 kV in the future will promote reliability and loading capability in the area consistent with prudent planning for long-term need. Such a conversion would be consistent with "prudent utility practice."¹² While the Rebuild Project is not capacity driven, it is prudent planning and engineering to design and build new overhead facilities with a 60+ year life expectancy to the maximum level of capacity and flexibility that can be obtained at a reasonable cost for long-term growth. This is especially true in the Northern Virginia Load Area, where the Company has made consistent efforts since at least 2009 to move load off the 115 kV system and convert to 230 kV where appropriate because of the dynamic nature of the load growth in the area, particularly block load additions.¹³

The Rebuild Project area is located within load areas projected to have high load growth in the 10-year planning horizon. The Northern Virginia Load Area consists of Arlington, Fairfax, Prince William, Loudoun, Fauquier, and Stafford Counties of Virginia and is divided into three load zones identified as Alex-Arlington (Zone 181), Fairfax (Zone 182), and Woodbridge (Zone 183). These three zones have the heaviest concentration of load of the entire Dominion Energy Virginia service area, with approximately 36% of the Company's total summer load attributed to demand in these three zones. NOVEC has already indicated to the Company that it anticipates large block load additions within the immediate area served by Line #183 in the next 10 years due to the beginning of

¹² FERC identifies "prudent utility practices" as including standards, practices, and methods that are currently and commonly used by electric utilities to plan, engineer, select, operate, schedule and maintain electric power facilities and equipment reliably, safely, and efficiently. See, e.g., https://elibrary.ferc.gov/eLibrary/filelist?accession_number=20130806-3007.

¹³ This approach has been identified and established over multiple approved Company electric transmission projects, including in Case Nos. PUE-2009-00134, PUE-2011-00011, PUE-2012-00065, PUE-2014-00025, and PUR-2017-00078.

increased data center activity (see Attachment I.A.2, as discussed below). Further, other load drivers are projected to impact the Rebuild Project load area in the 10-year planning horizon. For example, PJM has approved upgrades at Bristers and Ox Substations that the Company will perform by 2026 in order to address thermal violations caused by overall data center growth in Northern Virginia. As such, it is prudent for the Company to rebuild this segment of Line #183 with 230 kV construction. Operating the 230 kV equipment at 115 kV solves all violations for the PJM RTEP model with the ability to convert to 230 kV providing capability for future growth. This also will allow NOVEC the time it needs to convert its four DPs to 230 kV operability.

- **Rebuilding at 115 kV would only further exacerbate the existing 230 kV bottleneck at Bristers and Ox Substations.** Both end segments of Line #183—from Bristers Substation to Structure #183/12¹⁴ and from Structure #183/135 to Ox Substation—have already been rebuilt to 230 kV standards. However, because Line #183 between Structures #183/12-134 is limited to 115 kV operation, the entire Line #183 is currently constrained to 115 kV operation. In consideration of the Bristers and Ox 230-115 kV transformers reaching their capabilities based on future loading projections on this line, the installation of a 230 kV capable conductor and applicable equipment was determined to be the least impactful and most cost-effective long-term solution. Further, with the potential for further Company and/or NOVEC DP installations in the immediate area, there is an increasing potential for a bottleneck between the existing 230 kV and 500 kV systems at Bristers and Ox Substations, which rebuilding Line #183 with double circuit construction at 230 kV would help resolve, as discussed below.
- **Future generation and storage projects are anticipated in the load area.** The PJM Generation Queue currently has four active solar and energy storage projects, totaling a potential 505 MW addition of generation maximum facility output (“MFO”) in the immediate area of the proposed Rebuild Project. See Section I.B. In consideration of the thermal and voltage capabilities of 115 kV equipment, continuing to operate Line #183 at 115 kV once these projects are connected to the grid, could induce a bottleneck in this area for carrying the generators’ output from the facilities onto the system. Therefore, it is prudent to rebuild Line #183 with 230 kV construction.

Accordingly, as there is a current need to rebuild this 15.2-mile segment of Line #183 due to aging infrastructure and potential reliability criteria violations discussed further below and in Section I.B, it is prudent to utilize 230 kV construction, rather than conduct another rebuild of the line in the near-term

¹⁴ Between Bristers Substation and Structure #183/12, the double circuit structures have been rebuilt to 230 kV standards, but not the conductor. See, *supra*, n. 2.

horizon.

Need for Double Circuit Construction to Accommodate a Future 230 kV Line

Rebuilding Line #183 utilizing 230 kV double circuit construction from Structures #183/24 through #183/133 with a set of three vacant davit arms will allow for the potential addition of a new 230 kV conductor when the need arises in the future, without requiring new right-of-way or expansion of the existing transmission right-of-way corridor Line #183 currently shares with 500 kV Bristers-Ox Line #539. In addition, the existing structures from Quantico to Minnieville Junction, Structure #183/101 to Structure #183/133, are already double circuit lattice towers with three vacant davit arms. Line #183 shares the existing Rebuild Project transmission corridor with 500 kV Line #539 between Structure #183/24 and #183/134 for approximately 13.5 miles. At Structure #183/24 (Structure #539/120), Line #539 leaves the corridor with Line #183 and continues in a southwest direction for 2.6 miles in an existing 200-foot-wide transmission right-of-way corridor, terminating at Bristers Substation. At such time as needed in the future, a new 230 kV conductor could be added to the rebuilt Line #183 between Structures #183/24-134, and could continue from #183/24 to terminate at Bristers Substation within the existing Line #539 corridor right-of-way.

In addition to the future needs discussed above, it is prudent to rebuild this segment of Line #183 with double circuit construction for the following reasons:

- **Inclusion of Independent Hill area in the Prince William County Data Center Opportunity Zone Overlay District.** In the PJM 2026 RTEP model, the loading of the five DPs currently served by Line #183 exceeds 200 MW. Per NERC Reliability Standards and PJM Manual 14B, a load drop of more than 300 MW under an N-1 or N-1-1 scenario would be considered a violation, requiring an additional line extension to be brought into the area to provide relief. As depicted in Attachment I.A.2, the most recent publication of the Prince William County Data Center Opportunity Zone Overlay District document includes the area near the Independent Hill section of Line #183, northwest of Prince William Forest Park. In the Company's experience with typical loading projections for data center campuses in Northern Virginia, the peak loading of just one new data center campus can be expected to exceed 100 MW. With respect to the zoning in Attachment I.A.2, as well as increased interest by developers to branch into this area outside of Loudoun County's heavily concentrated Data Center Alley, the lack of ability to accommodate a second circuit along the Line #183 corridor would put the Company at a severe disadvantage to accommodate future data center growth in the area with the risk of being in violation of PJM Transmission Planning Criteria and NERC Reliability Standards.

With the Rebuild Project constructed as proposed, when necessary, the Company would be able to source an additional 230 kV circuit from the

conversion of either Line #18 or #145 from Possum Point to Smoketown DP that intersect the Rebuild Project near Structures #183/152 and #183/153. A small section of Line #18 and Line #145, approximately 2.5 miles between Smoketown and Minnieville Junction, is currently idle and would require a future conversion to 230 kV as well. The Company would not need to acquire new right-of-way to complete the conversion and tie-in. Thus, it is prudent for the Company to rebuild Line #183 with double circuit structures to meet this expected need using existing right-of-way to impact the surrounding area as little as possible.

- **Increasing developer interest and data center re-zoning in the immediate Rebuild Project area.** As of March 2022, approximately 52 acres of a proposed data center site, Potomac Technology Park, was in the process of re-zoning.¹⁵ This proposed data center campus is addressed as 14854 Dumfries Road, Manassas, Virginia and is located approximately 2.2 miles east of the Independent Hill DP. Assuming approval by Prince William County and a request by the customer for service from the Company, this campus would look to be directly fed via the adjacent Line #183 corridor. With the previously mentioned 300 MW criteria and lack of further 230 kV infrastructure in the area beyond the proposed Rebuild Project, increased potential data center activity such as this pending request furthers the need for this Rebuild Project to maintain the option of bringing an additional circuit into this corridor without having to acquire new right-of-way in relief of future planning constraints.

In summary, even conversion of rebuilt Line #183 from 115 kV to 230 kV would not be sufficient to serve a new data center customer—such as the proposed Potomac Technology Park or other data center in the Independent Hill area—from the Line #183 corridor without the availability of a second new 230 kV line along that corridor. Accordingly, it is prudent and consistent with long-term planning to utilize 230 kV construction, rather than conduct another rebuild of the line in the near-term horizon.

Submission to PJM

The Company initially submitted the Rebuild Project proposal as a supplemental project to the PJM RTEP process in July 2021 to address the end-of-life criteria. See Attachment I.J.1 for the relevant slides presented at the July 2021 PJM Subregional RTEP (“SRRTEP”) meeting. However, due to the violations summarized above, system reinforcements are required by PJM. Accordingly, the Company re-submitted the Rebuild Project to the PJM RTEP process in September 2021 as a baseline upgrade proposal pursuant to PJM’s 2021 Non-Competitive Baseline Upgrade Submission process. Under PJM’s Operating Agreement, in

¹⁵ See https://www.insidenova.com/headlines/developer-proposes-data-center-in-eastern-prince-william-county/article_12035364-8583-11ec-a8c1-9fce2fd5b981.html. See also <https://egcss.pwcgov.org/SelfService#/plan/61c4d6bd-7ac7-41d5-8d7b-f554a223316b?tab=attachments>.

accordance with Schedule 6, Section 1.5.8(n),¹⁶ the Project was deemed not eligible to be listed in the standard competitive PJM Open Window Process due to PJM's Below 200 kV Substation Exclusion. Under this criteria, PJM's Office of the Interconnection shall identify but not post such a violation for inclusion in a proposal window unless the need is otherwise deemed necessary (*e.g.*, the solution for a <200 kV violation impacts transmission lines on the >200 kV transmission system). Attachment I.J.2 provides the relevant slides presented at the November 2021 PJM SRRTEP meeting.

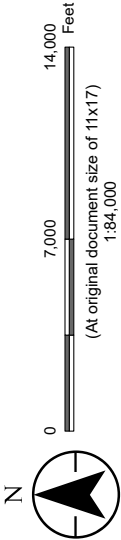
In summary, the proposed Rebuild Project will replace aging infrastructure at the end of its service life and address criteria violations in compliance with the Company's mandatory Planning Criteria, NERC Reliability Standards and annual FERC Form No. 715 reporting requirements, and consistent with sound engineering judgment, thereby enabling the Company to maintain the overall long-term reliability of its transmission system, as well as to provide important system reliability benefits to the Company's entire network.

¹⁶ See <https://agreements.pjm.com/oa/4777>.

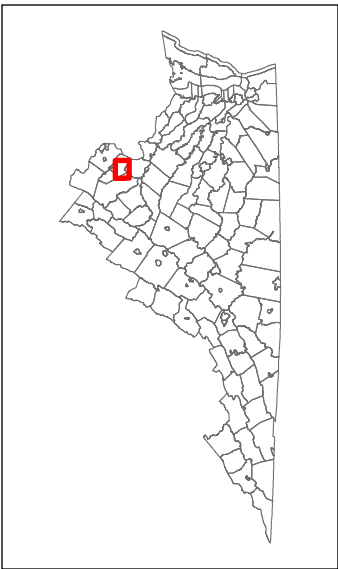
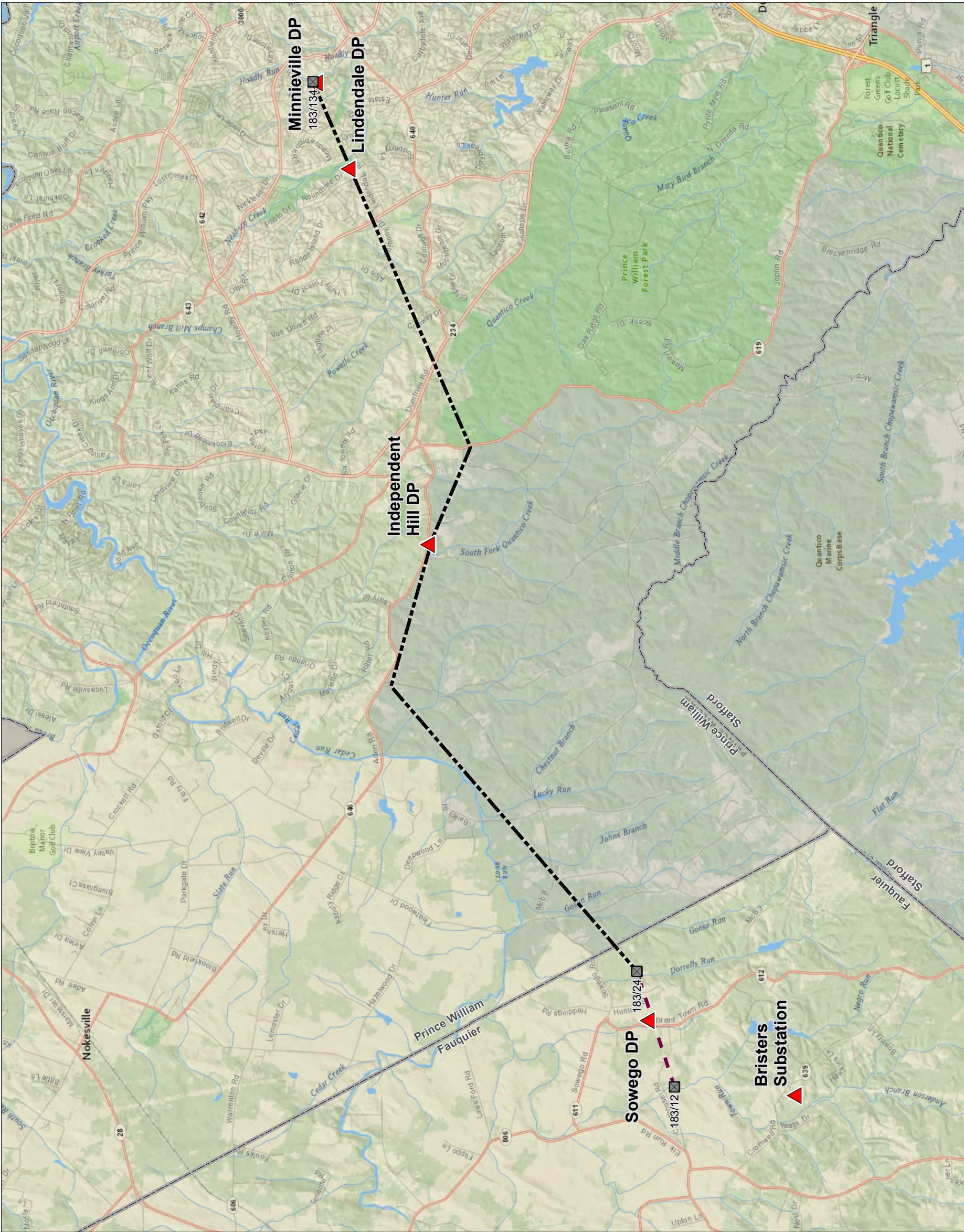
Figure No.
I.A.1
Title
General Overview

Client/Project
Dominion Energy Virginia
Line #183 Partial Rebuild Project
203401769

Project Location
Fauquier and Prince William Counties, Virginia
Prepared by MGS on 2022-01-21
TR by ECL on 2022-02-14
IR by CFG on 2022-02-08



- Substation / DP
- Beginning/Endpoint Structures
- Line #183 Partial Rebuild Project (Double Circuit Structures)
- Line #183 Partial Rebuild Project (Single Circuit Structures)



Notes
1. Coordinate System: NAD 1983 StatePlane Virginia North FIPS 4501 Feet
2. Data Sources: Dominion Energy Virginia, Stantec, DCR
3. Base Map © National Geographic

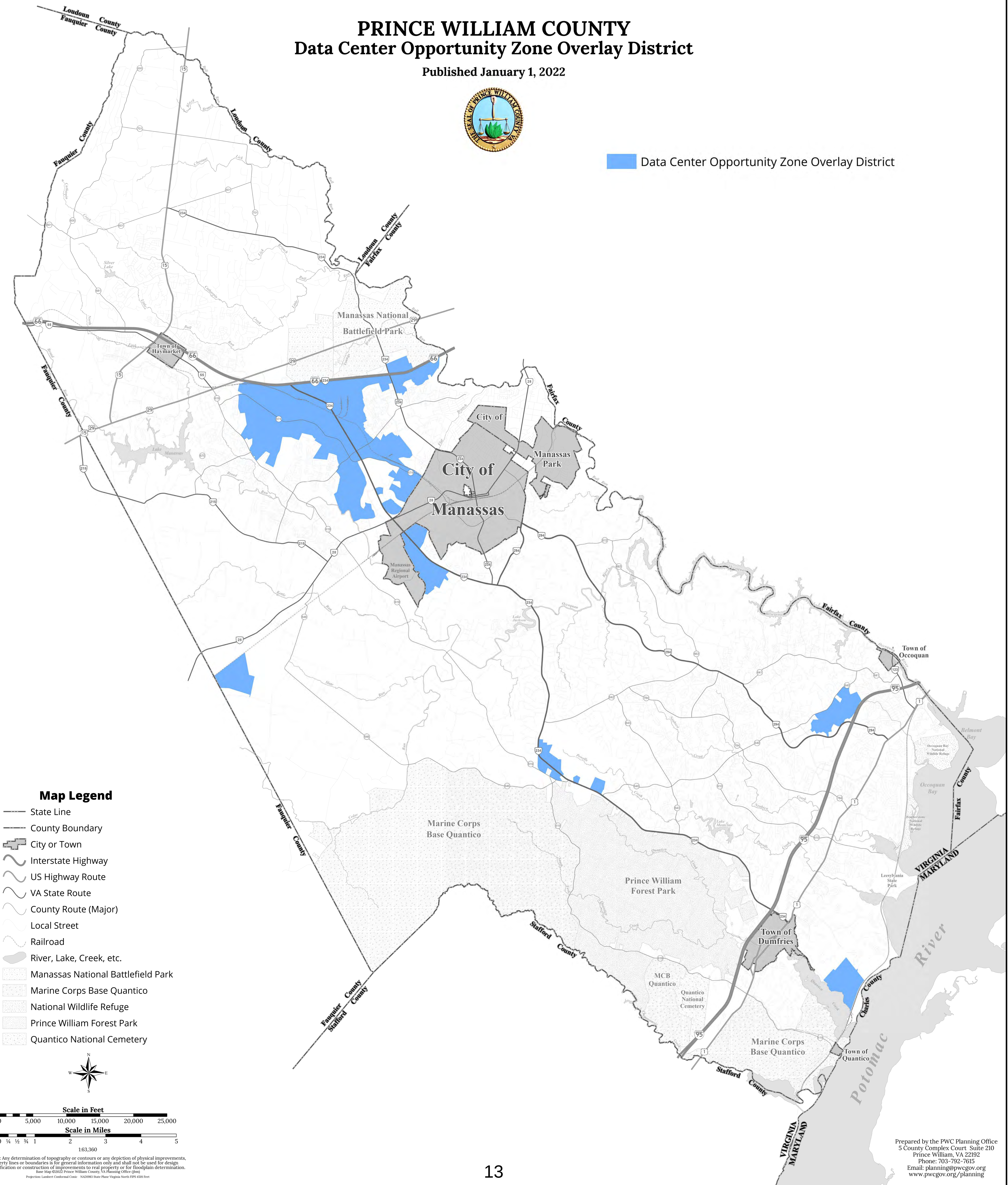


PRINCE WILLIAM COUNTY
Data Center Opportunity Zone Overlay District

Published January 1, 2022

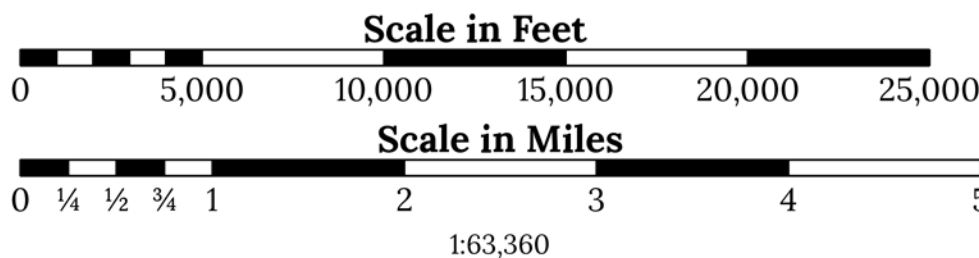


 Data Center Opportunity Zone Overlay District



Map Legend

- State Line
- County Boundary
- City or Town
- Interstate Highway
- US Highway Route
- VA State Route
- County Route (Major)
- Local Street
- Railroad
- River, Lake, Creek, etc.
- Manassas National Battlefield Park
- Marine Corps Base Quantico
- National Wildlife Refuge
- Prince William Forest Park
- Quantico National Cemetery



Note: Any determination of topography or contours or any depiction of physical improvements, property lines or boundaries is for general information only and shall not be used for design modification or construction of improvements to real property or for floodplain determination.
Base Map ©2022 Prince William County, VA Planning Office (John)
Projection: Lambert Conformal Conic NAD83 State Plane Virginia North FIPS 4501 Feet

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www.pwcgov.org/planning

I. NECESSITY FOR THE PROPOSED PROJECT

- B. Detail the engineering justifications for the proposed project (for example, provide narrative to support whether the proposed project is necessary to upgrade or replace an existing facility, to significantly increase system reliability, to connect a new generating station to the Applicant's system, etc.). Describe any known future project(s), including but not limited to generation, transmission, delivery point or retail customer projects, that require the proposed project to be constructed. Verify that the planning studies used to justify the need for the proposed project considered all other generation and transmission facilities impacting the affected load area, including generation and transmission facilities that have not yet been placed into service. Provide a list of those facilities that are not yet in service.**

Response: **(1) Engineering Justification for Project**

Detail the engineering justifications for the proposed project (for example, provide narrative to support whether the proposed project is necessary to upgrade or replace an existing facility, to significantly increase system reliability, to connect a new generating station to the Applicant's system, etc.).

See Section I.A of the Appendix.

(2) Known Future Projects

Describe any known future project(s), including but not limited to generation, transmission, delivery point or retail customer projects, that require the proposed project to be constructed.

The Rebuild Project is required by the Company's end-of-life criteria, as well as the requirement to provide system reinforcements to address the criteria violations as described in Section I.A.

While the Company is currently planning to expand the Bristers Substation, that expansion project is independent of the proposed Rebuild Project and does not require the Rebuild Project to be constructed.

The PJM Generation Queue, however, currently has four active solar and energy storage projects, totaling a potential 505 MW addition of generation (MFO) in the immediate area of the proposed Rebuild Project as summarized in the table below.

Queue Number	Project Name	MFO (MW)	Fuel Type	Projected In-service Date
AF2-119	Bristers-Sowego 115 kV	80	Solar	12/12/2022
AG2-305	Bristers 230 kV	100	Storage	12/31/2023
AH2-084	Sowego	125	Storage	6/1/2027
AI1-032	Bristers 115 kV	200	Storage	12/31/2025

Due to generation units entering the PJM Generation Queue being studied¹⁷ with all existing and approved PJM RTEP Projects in-service, the four projects listed above, and specifically, the AF2-119 project that proposes to interconnect to the Company's transmission system via a single line tap off of Line #183 between Bristers Substation and Sowego DP, are dependent on the Rebuild Project being completed.

(3) Planning Studies

Verify that the planning studies used to justify the need for the proposed project considered all other generation and transmission facilities impacting the affected load area, including generation and transmission facilities that have not yet been placed into service.

Dominion Energy Virginia's Electric Transmission Planning group performs planning studies to ensure delivery of bulk power to a continuously changing customer demand under a wide variety of operating conditions. Studies are performed in coordination with the Company's RTO (i.e., PJM) and in accordance with NERC Reliability Standards. In completing these studies, the Company considered all other known generation and transmission facilities impacting the affected load area.

In order to maintain reliable service to customers and to comply with mandatory NERC Reliability Standards, specifically Facility Connection ("FAC") standard FAC-001,¹⁸ the Company's Facility Interconnections Requirement ("FIR") document¹⁹ addresses the interconnection requirements of generation, transmission, and electricity end-user facilities. The purpose of the NERC FAC standards is to avoid adverse impacts on reliability by requiring each TO to establish facility connection and performance requirements in accordance with FAC-001, and the TO's and end-users meet and adhere to the established facility connection and performance requirements in accordance with FAC-002.

NERC Reliability Standards TPL-001 requirements R2, R5, and R6 require PJM, the Planning Coordinator, and the TO, to have criteria. PJM's planning criteria outlined in Attachment D of Manual 14B requires the Company, as a TO, to follow NERC and Regional Planning Standards and criteria as well as the TO Standards filed in Dominion Energy Virginia's FERC 715 filings. The Company's FERC Form 715 filing contains the Dominion Energy Virginia Transmission Planning Criteria in Exhibit A of the FIR document.

The Company's proposed Rebuild Project is the least impactful solution from a construction, cost, and right-of-way perspective, while still allowing for potential

¹⁷ See <https://www.pjm.com/planning/services-requests/interconnection-queues.aspx> for the PJM Generation Interconnection Queue Database.

¹⁸ See *supra* n. 4.

¹⁹ See *supra* n. 7 for the FIR document.

230 kV operation in the future, as needed. Further, the Rebuild Project will address the Company's end-of-life criteria while remaining in compliance with NERC Reliability Standards and PJM Manual 14B Section 2.3.8, Attachment D, Attachment D-1, Attachment F. See Section I.A for additional discussion.

(4) Facilities List

Provide a list of those facilities that are not yet in service.

Not applicable.

I. NECESSITY FOR THE PROPOSED PROJECT

- C. Describe the present system and detail how the proposed project will effectively satisfy present and projected future electrical load demand requirements. Provide pertinent load growth data (at least five years of historical summer and winter peak demands and ten years of projected summer and winter peak loads where applicable). Provide all assumptions inherent within the projected data and describe why the existing system cannot adequately serve the needs of the Applicant (if that is the case). Indicate the date by which the existing system is projected to be inadequate.**

Response: Attachment I.G.1 shows the portion of the Company's transmission system in the area of the proposed Rebuild Project. The existing Line #183 is part of the Company's 115 kV network, which supports the delivery of generation to retail and wholesale customers. These lines support the network in the Woodbridge area of Northern Virginia.

The table in Attachment I.C.1 provides ten years of historical and projected summer and winter peak loads for the Company's Woodbridge load area through 2031, which includes Line #183. The projected loads in Attachment I.C.1 represent the Company's forecasted peaks based on actual load and the PJM 2022 Load Forecast. Over the period from 2022 to 2031, the summer peak electrical demand for this area is projected to vary between 2,175 MW and 2,593 MW, and the winter peak electrical demand for this area is projected to vary between 1,763 MW and 2,064 MW.

The existing Line #183 cannot adequately serve the needs of the Company and its customers because of the aging infrastructure and violations of NERC Reliability Standards and the Company's Planning Criteria, as discussed in Sections I.A and I.B. The Company has created a plan to address its end-of-life facilities and facilities in violation of planning criteria and standards, setting target completion dates for end-of-life projects based on the condition of the facilities, the Company's resources, and the need to schedule outages. The desired in-service date for completion of the proposed Rebuild Project is December 31, 2025.

Completing the Rebuild Project will support Dominion Energy Virginia's continued reliable electric service to retail and wholesale customers and will support the future overall growth and system generation capability in the area.

Historical load (MW)

	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021
Woodbridge - Summer	1856.7	1760.7	1773.4	1772.9	1857.0	1878.6	1939.6	1750.0	2133.8	2077.9
Woodbridge - Winter	1404.9	1463.3	1698.2	1722.8	1614.1	1683.5	1855.3	1640.9	1557.7	1586.5

Projected load (MW)*

	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031
Woodbridge - Summer	2175.0	2222.0	2255.0	2295.0	2321.0	2408.0	2440.0	2475.0	2512.0	2593.0
Woodbridge - Winter	1763.0	1786.0	1804.0	1828.0	1852.0	1924.0	1952.0	1974.0	2002.0	2064.0

*Forecasted values are based on the PJM 2022 Load Forecast

I. NECESSITY FOR THE PROPOSED PROJECT

- D. If power flow modeling indicates that the existing system is, or will at some future time be, inadequate under certain contingency situations, provide a list of all these contingencies and the associated violations. Describe the critical contingencies including the affected elements and the year and season when the violation(s) is first noted in the planning studies. Provide the applicable computer screenshots of single-line diagrams from power flow simulations depicting the circuits and substations experiencing thermal overloads and voltage violations during the critical contingencies described above.**

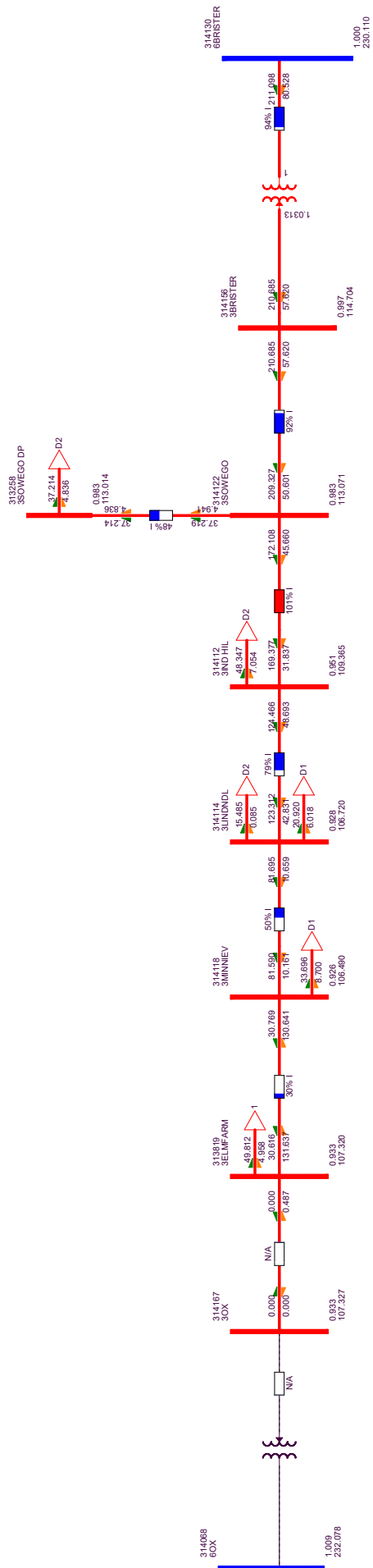
Response: See Section I.A for a summary of the power flow modeling conducted and resulting contingencies and associated violations. See Attachments I.D.1-4 for power flow modeling, as discussed below.

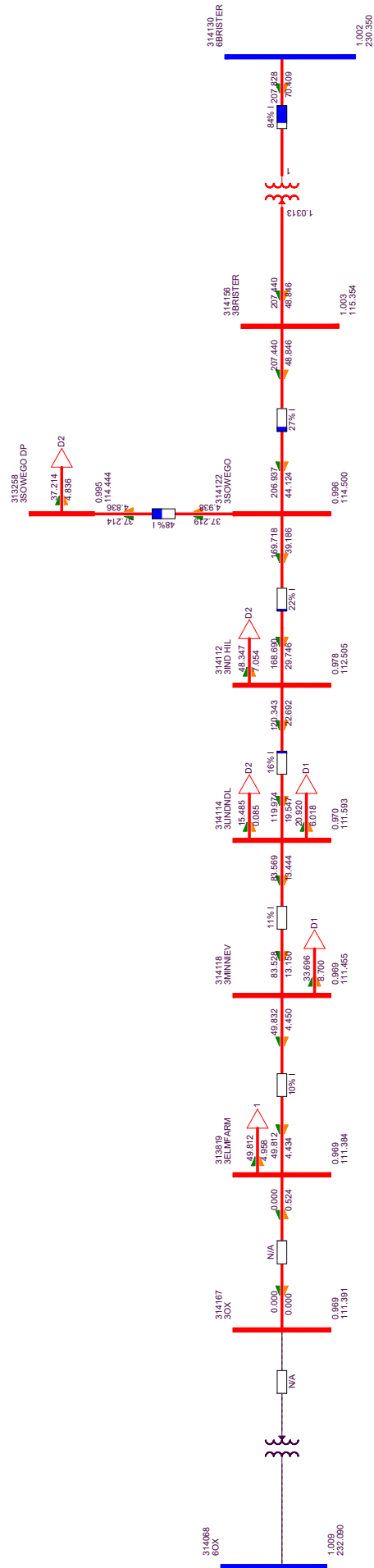
Attachment I.D.1 displays a one-line diagram of Line #183 in Siemens PSS/E of the violations identified by PJM in the 2026 RTEP planning model. As a result of the loss of the Ox 230-115 kV transformer, the thermal loading on a segment of the line between Sowego DP and Independent Hill DP, as well as the Bristers 230-115 kV transformer, exceeds planning criteria (100% and 94%, respectively). Additionally, the Minnieville and Lindendale buses fall below the 0.93 per unit (“pu”) N-1 low voltage planning criteria threshold.

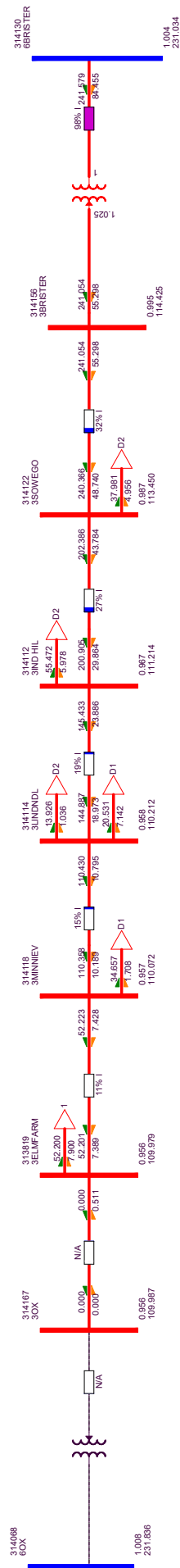
Attachment I.D.2 displays a one-line diagram of Line #183 under the same scenario in which the Ox 230-115 kV transformer is lost with the addition of the proposed Rebuild Project. As a result, all thermal and voltage limits along the entire line segment are within acceptable planning criteria.

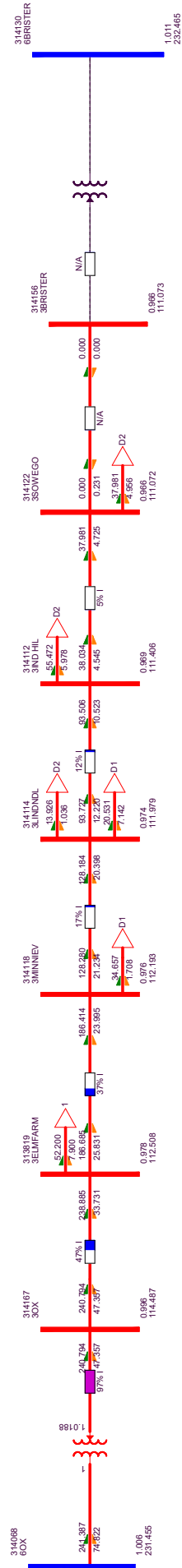
Attachment I.D.3 displays a one-line diagram of Line #183 in Siemens PSS/E based on 2031 loading projections with the proposed Rebuild Project in place operating at 115 kV. For this attachment as well as Attachment I.D.4, PJM’s 2022 August Do-No-Harm RTEP planning model was used to test this simulation on the most current loading forecasts and the addition of future projects to date. As a result of the loss of the Ox 230-115 kV transformer, the thermal loading on the Bristers 230-115 kV transformer exceeds 94%. This is a violation of the Company’s N-1 planning criteria.

Attachment I.D.4 displays a one-line diagram of Line #183 in Siemens PSS/E based on 2031 loading projections with the proposed rebuild in place operating at 115 kV. As a result of the loss of the Bristers 230-115 kV transformer, the thermal loading on the Ox 230-115 kV transformer exceeds 94%. This is a violation of the Company’s N-1 planning criteria.









I. NECESSITY FOR THE PROPOSED PROJECT

E. Describe the feasible project alternatives, if any, considered for meeting the identified need including any associated studies conducted by the Applicant or analysis provided to the RTO. Explain why each alternative was rejected.

Response: No feasible project alternatives were submitted to PJM. As stated in Section I.A, not rebuilding this 15.2-mile segment of 115 kV Line #183 using the Company's standard for 230 kV construction results in non-compliance with NERC Reliability Standards and the Company's Planning Criteria.

Pursuant to the Commission's November 26, 2013, Order entered in Case No. PUE-2012-00029, and its November 1, 2018, Final Order entered in Case No. PUR-2018-00075 ("2018 Final Order"), the Company is required to provide analysis of demand-side resources ("DSM") incorporated into the Company's planning studies. DSM is the broad term that includes both energy efficiency ("EE") and demand response ("DR"). In this case, the Company has identified a need for the Rebuild Project based on the need to replace aging infrastructure and to address violations of NERC Reliability Standards and the Company's Planning Criteria, thereby enabling the Company to maintain the overall long-term reliability of its transmission system.²⁰ Notwithstanding, when performing an analysis based on PJM's 50/50 load forecast, there is no adjustment in load for DR programs that are considered in PJM's fixed resource requirement ("FRR") plan because PJM only dispatches DR when the system is under stress (*i.e.*, a system emergency). Accordingly, while existing DSM is considered to the extent the load forecast accounts for it, DR that previously has been bid into PJM's reliability pricing model ("RPM") market is not a factor in this particular Application because of the identified need for the Rebuild Project. Based on these considerations, the evaluation of the Rebuild Project demonstrated that despite accounting for DSM consistent with PJM's methods, the Rebuild Project is necessary.

Incremental DSM also will not absolve the need for the Rebuild Project. As reflected in Attachment I.C.1, the load area for this Rebuild Project (historic and projected) ranges from 1,763 to 2,593 MW (winter and summer). By way of comparison, statewide, the Company achieved demand savings of 308.4 MW (net) / 396.8 MW (gross) from its DSM Programs in 2021.

²⁰ While the PJM load forecast does not directly incorporate DR, its load forecast incorporates variables derived from Itron that reflect EE by modeling the stock of end-use equipment and its usages. Further, because PJM's load forecast considers the historical non-coincident peak ("NCP") for each load serving entity ("LSE") within PJM, it reflects the actual load reductions achieved by DSM programs to the extent an LSE has used DSM to reduce its NCPs.

I. NECESSITY FOR THE PROPOSED PROJECT

F. Describe any lines or facilities that will be removed, replaced, or taken out of service upon completion of the proposed project, including the number of circuits and normal and emergency ratings of the facilities.

Response: The Rebuild Project includes the removal and replacement of existing facilities on Line #183 as described below. The existing 115 kV Line #183 facilities will be replaced with 230 kV construction that will allow for a future 230 kV conversion. There will be no lines permanently taken out of service as part of the proposed Rebuild Project.

As part of the Rebuild Project, the Company plans to remove the existing conductor along the 15.2-mile segment of Line #183. The existing capacity of the 15.2-mile segment of Line #183 to be rebuilt has normal/emergency ratings as follows:

- Structures #183/12-20: 262/262 MVA summer and 290/290 MVA winter
- Structures #183/20-84: 179/179 MVA summer and 226/226 MVA winter
- Structures #183/84-86C: 262/262 MVA summer and 290/290 MVA winter
- Structures #183/86C-132: 179/179 MVA summer and 226/226 MVA winter
- Structures #183/132-134: 523/523 MVA summer and 580/580 MVA winter

The capacity of the reconductored and rebuilt segments of Line #183 will increase. The resulting normal/emergency ratings of the reconductored and rebuilt segments at the completion of the rebuild will be as follows:

- Structures #183/12-134: 786/786 MVA summer and 824/824 MVA winter

Additionally, as part of the Rebuild Project, the Company proposes to remove the following 115 kV single circuit structures:

- 61 single circuit 115 kV wood H-frame structures,
- 5 single circuit steel 2-pole self-supporting switch structures,
- 28 single circuit 115 kV weathering steel (COR-TEN®) lattice tower structures,
- 21 single circuit 115 kV weathering steel H-frame structures,
- 2 single circuit 115 kV galvanized steel towers,
- 2 single circuit 115 kV wood three pole structures,
- 1 single circuit 115 kV wood monopole,
- 1 single circuit 115 kV weathering steel monopole, and
- 1 single circuit 115 kV concrete H-frame structure.

The rebuild segment of Line #183 will be replaced with the following:

- Structures #183/13-23
 - o 8 single circuit 230 kV weathering steel DOM H-frame tangent structures,
 - o 3 single circuit 230 kV weathering steel double deadend H-Frame structures
- Structures 183/24-133
 - o 87 double circuit 230 kV weathering steel tangent monopoles,
 - o 15 double circuit 230 kV weathering steel double deadend structure,
 - o 6 double circuit 230 kV weathering steel double deadend H-Frame structure
 - o 2 single circuit 230 kV weathering steel double deadend H-Frame structure,
 - o 2 single circuit 230 kV double deadend no arms weathering steel pole
- Sowego DP Tap (Structures #183/1000-1001)
 - o 2 single circuit 230 kV weathering steel three pole structures.

Eight existing 115 kV switches and their supporting structures will be replaced with new 115 kV switches mounted to new weathering steel 2-pole structures. These switches will be installed in the Company's transmission right-of way outside of Sowego, Independence Hill, Lindendale, and Minnieville DPs.

In addition to the structure replacements, the existing 3-phase twin-bundled 636 ACSR, single 636 ACSR and 740.8 AAAC conductors on Line #183 will be replaced with 3-phase twin-bundled 768.2 ACSS conductors. The two 3#6 alumoweld shield wires will be replaced with two OPGW fiber optic shield wires.

I. NECESSITY FOR THE PROPOSED PROJECT

- G. Provide a system map, in color and of suitable scale, showing the location and voltage of the Applicant's transmission lines, substations, generating facilities, etc., that would affect or be affected by the new transmission line and are relevant to the necessity for the proposed line. Clearly label on this map all points referenced in the necessity statement.**

Response: See Attachment I.G.1.

LINE #183 Partial

Rebuild Project

115kV Transmission Line

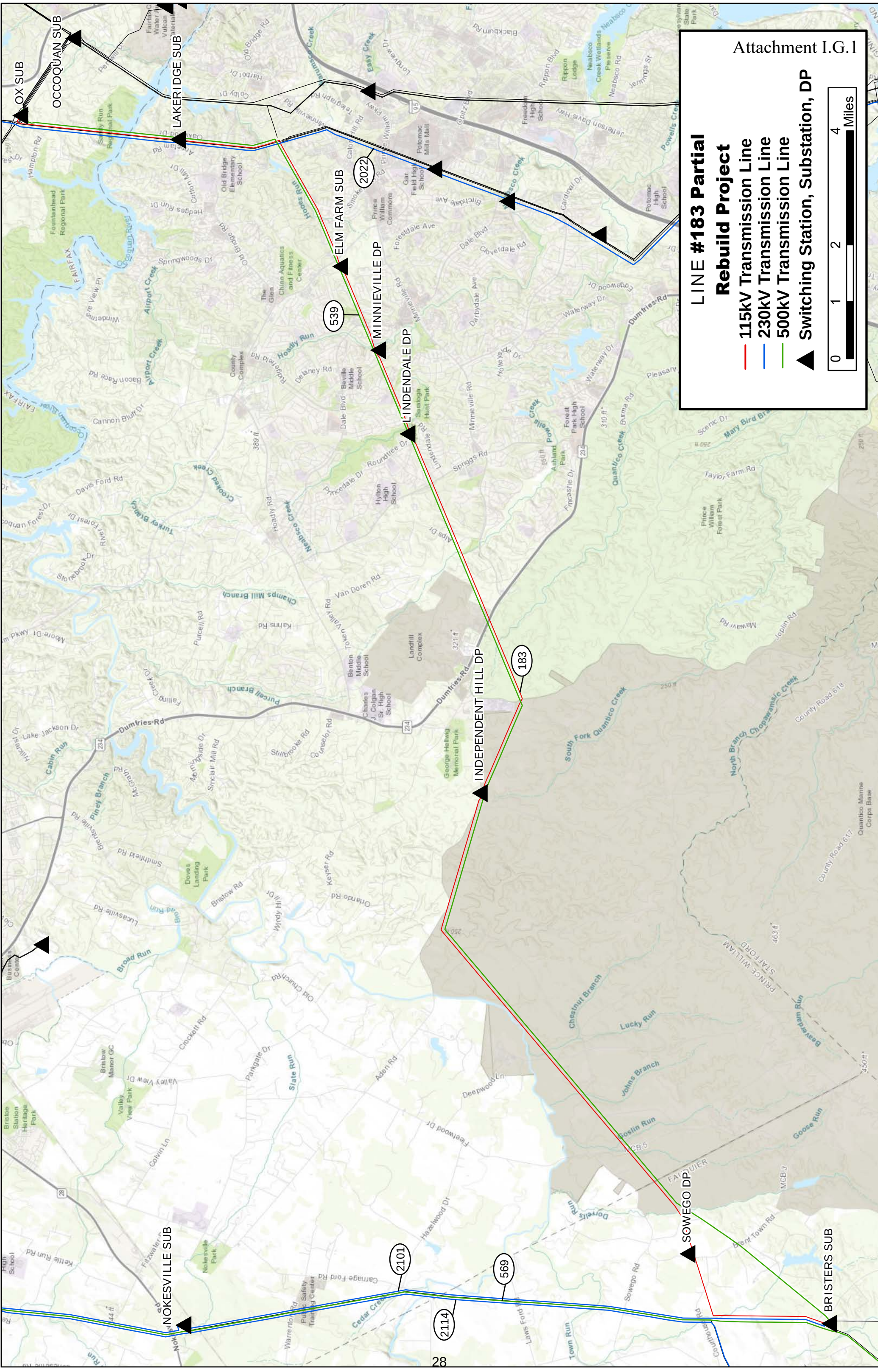
230kV Transmission Line

500kV Transmission Line

Switching Station, Substation, DP

0124

Miles



I. NECESSITY FOR THE PROPOSED PROJECT

H. Provide the desired in-service date of the proposed project and the estimated construction time.

Response: The desired in-service date for the Rebuild Project is December 31, 2025.

The Company estimates that it will take approximately 29 months for detailed engineering, materials procurement, permitting, and construction after a final order from the Commission. Accordingly, to support this estimated pre-construction activity timeline and construction plan, the Company respectfully requests a final order by July 30, 2023. Should the Commission issue a final order by July 30, 2023, the Company estimates that construction should begin in August 2024 and be completed by December 31, 2025. This construction timeline will enable the Company to meet the targeted in-service date for the Rebuild Project. This schedule is contingent upon obtaining the necessary permits and scheduling outages. Dates may need to be adjusted based on permitting delays or design modifications in order to comply with additional agency requirements identified during the permitting application process, as well as ability to schedule outages or unpredictable delays due to the COVID-19 pandemic, labor shortages, or materials/supply issues.

I. NECESSITY FOR THE PROPOSED PROJECT

- I. Provide the estimated total cost of the project as well as total transmission-related costs and total substation-related costs. Provide the total estimated cost for each feasible alternative considered. Identify and describe the cost classification (e.g. “conceptual cost,” “detailed cost,” etc.) for each cost provided.**

Response: The estimated conceptual cost of the Rebuild Project is approximately \$38.2 million, which includes approximately \$38.0 million for transmission-related work, and approximately \$0.2 million for substation-related work (2022 dollars).

I. NECESSITY FOR THE PROPOSED PROJECT

- J. If the proposed project has been approved by the RTO, provide the line number, regional transmission expansion plan number, cost responsibility assignments, and cost allocation methodology. State whether the proposed project is considered to be a baseline or supplemental project.**

Response: The Company initially submitted the Rebuild Project proposal as a supplemental project to the PJM RTEP process in July 2021 to address the end-of-life criteria. See Attachment I.J.1 for the relevant slides presented at the July 2021 PJM SRRTEP meeting.

As discussed in Section I.A, the Company re-submitted the Rebuild Project to the PJM RTEP process in September 2021 as a baseline upgrade proposal pursuant to PJM's 2021 Non-Competitive Baseline Upgrade Submission process after being excluded from competition due to PJM's Below 200 kV Exclusion: Operating Agreement, Schedule 6; 1.5.8(n). Attachment I.J.2 provides the relevant slides presented at the November 2021 PJM SRRTEP meeting.

The Rebuild Project is classified as a baseline project (b3687) initiated by the TO in order to address the Company's end-of-life criteria and resolve potential violations of NERC and FERC Form 715 transmission system reliability criteria. The Rebuild Project was accepted by PJM to be included in the 2021 PJM 2026 RTEP model.

The Rebuild Project is presently 100% cost allocated to the DOM Zone.

SRRTEP Committee Southern Dominion Supplemental Projects

July 12, 2021

Needs

Stakeholders must submit any comments within 10 days of this meeting in order to provide time necessary to consider these comments prior to the next phase of the M-3 process

Dominion Transmission Zone: Supplemental Equipment Material Condition, Performance and Risk

Need Number: DOM-2021-0038

Process Stage: Need Meeting 07/12/2021

Project Driver: Equipment Material Condition, Performance and Risk

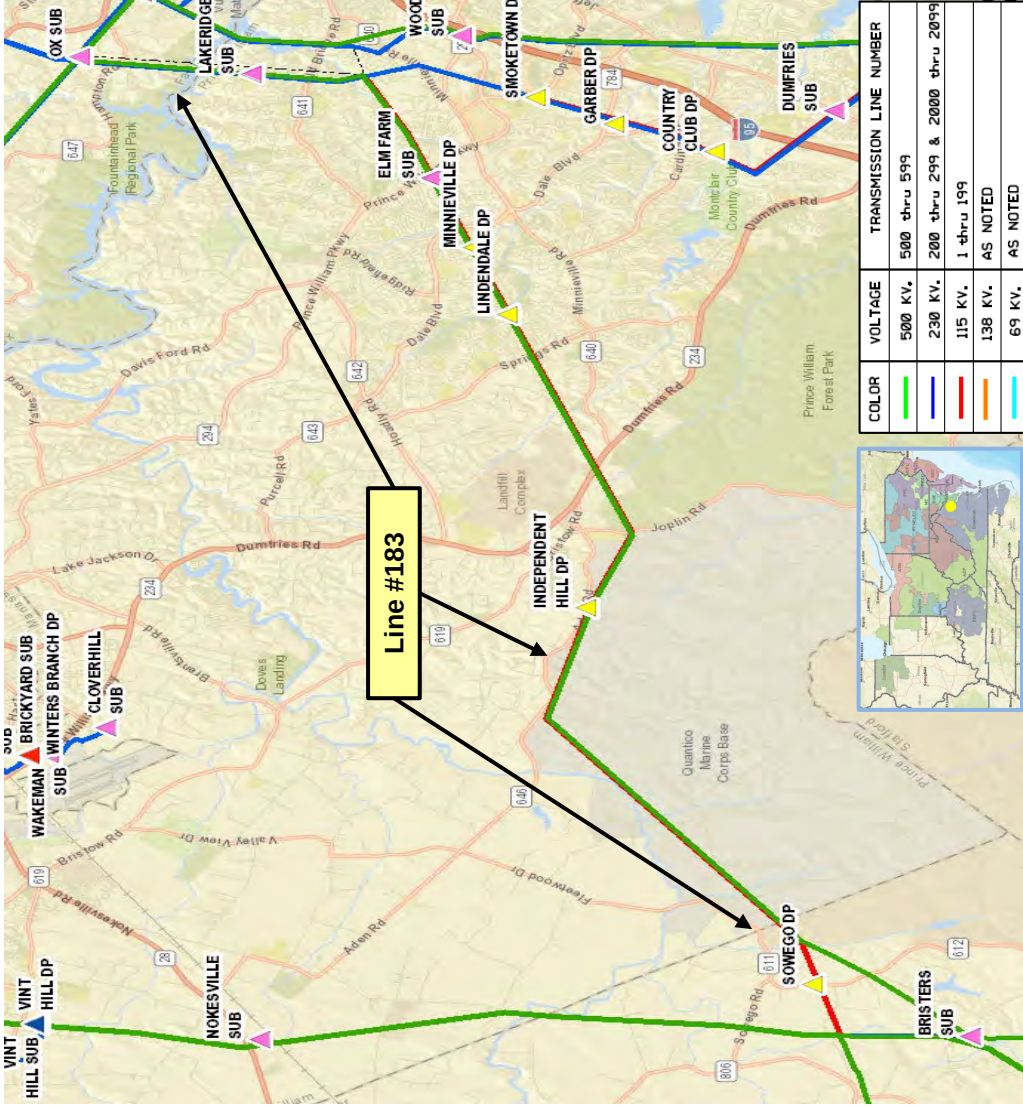
Specific Assumption References:

See details on Equipment Material Condition, Performance and Risk in Dominion's Planning Assumptions presented in December 2020.

Problem Statement:

Dominion Energy has identified a need to replace approximately 15.1 miles of 115 kV Line #183 (Bristers - Ox). The need for replacement is based on the Company's End of Life criteria.

- This line segment between Bristers and Minnieville DP consists of COR-TEN® towers that were constructed in 1967, as well as wood pole structures dating back to 1948.
- The COR-TEN® towers have inherent corrosion problems causing continuous deterioration to the steel members thereby jeopardizing the reliability of this line. The vintage wood pole structures along this ROW have also reached the end of their useful life and are a high priority for replacement.
- Industry guidelines indicate equipment life for steel structures is 40-60 years, wood structures is 35-55 years, conductor and connectors are 40-60 years, and porcelain insulators are 50 years.





Sub Regional RTEP Committee PJM South

November 18, 2021





Recommended Solution Baseline Reliability Project

Process Stage: Recommended Solution

Criteria: Summer Generator Deliverability, N-1, N-1-1 & FERC Form 715

Assumption Reference: 2026 RTEP assumption

Model Used for Analysis: 2026 RTEP Summer case

Proposal Window Exclusion: Below 200 kV exclusion

Problem Statement:

Bristers 230/115kV transformer is overloaded for a single contingency under generator deliverability & for Dominion Stress Case (FERC Form 715).

115kV Line #183 Soweigo – Independent Hill segment is overloaded for a single contingency under generator deliverability, N-1 (single & line fault stuck breaker contingencies), N-1-1 & Dominion Stress Case (FERC Form 715).

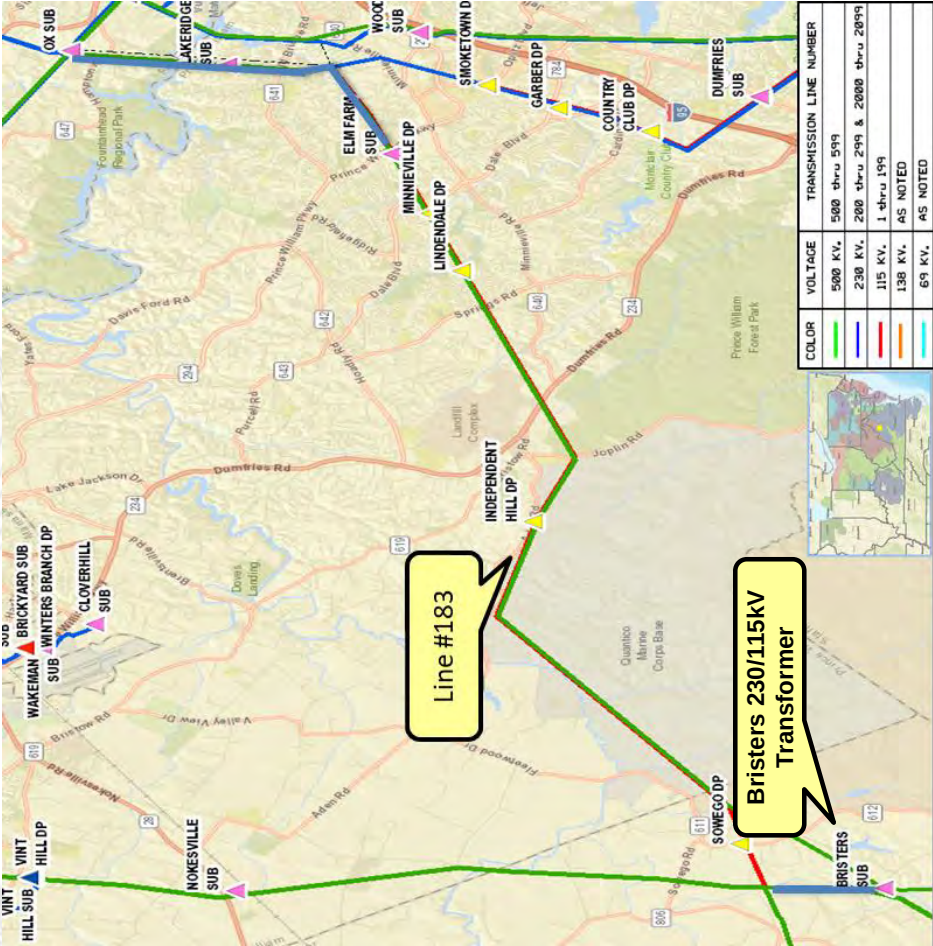
(FG: DOM-T1, DOM-VM14, DOM-VM15, DOM-VM16, DOM-VM17, DOM-VM18, DOM-VM19, DOM-VM21, DOM-VM22, DOM-VM23, DOM-VM24, DOM-VM7, DOM-VM8, DOM-VM9, GD-S11, GD-S34, N1-ST47, N1-ST48, DOM-T2, GD-S34, N1-ST129)

Preliminary Facility Rating (Bristers 230/115kV transformer): 248.7SN /260.2SE/287.1SLD, 319WN/330.8WE/358.4WLD MVA

Preliminary Facility Rating (Ox-Minnieville): 523SN/523SE/601SLD, 580WN/580WE/667WLD MVA

Preliminary Facility Rating (Minnieville-Bristers): 786SN/786SE/904SLD, 824WN/823WE/947WLD MVA

Continued on next slide...





Dominion Transmission Zone: Baseline

Recommended Solution:

This project will require the full rebuild of the approximately 15.1-mile-long line segment between Bristers and Minnieville DP with 2-768 ACSS and 4000 A supporting equipment from Bristers to Ox to allow for future 230 kV capability of 115kV Line #183. The continuous summer normal rating will be 523 MVA from Ox – Minnieville. The continuous summer normal rating will be 786 MVA from Minnieville – Bristers. (b3687)

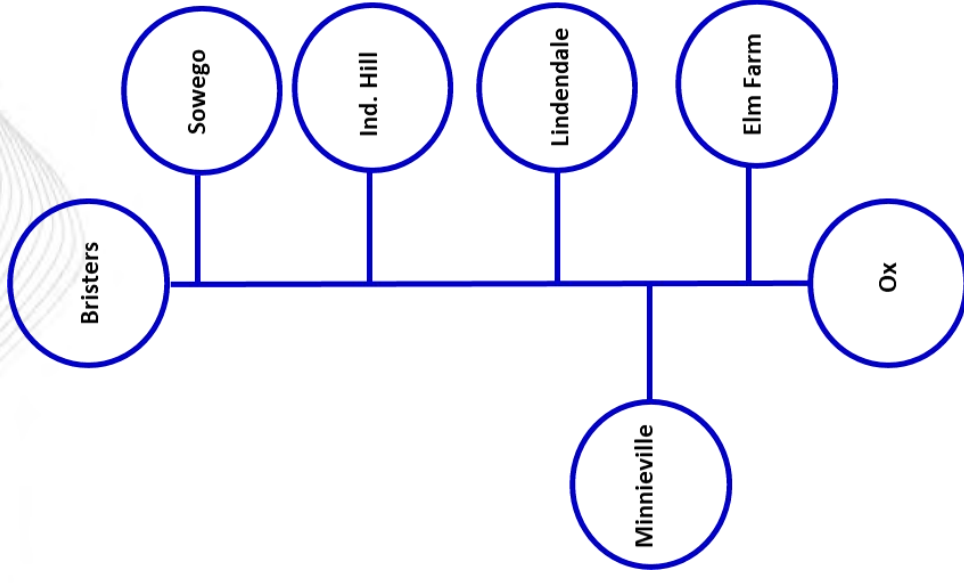
Note: Approximately 1.65 miles of the Bristers – Sowego, as well as approximately 6.86 miles from Ox – Minnieville, had been previously rebuilt with 2-636 ACSR to support future 230 kV capability.

Estimated Cost: \$30 M

Projected In-Service Date: 6/1/2026

Required In-Service Date: 6/1/2026

Previously Presented: 10/14/2021



I. NECESSITY FOR THE PROPOSED PROJECT

- K. If the need for the proposed project is due in part to reliability issues and the proposed project is a rebuild of an existing transmission line(s), provide five years of outage history for the line(s), including for each outage the cause, duration and number of customers affected. Include a summary of the average annual number and duration of outages. Provide the average annual number and duration of outages on all Applicant circuits of the same voltage, as well as the total number of such circuits. In addition to outage history, provide five years of maintenance history on the line(s) to be rebuilt including a description of the work performed as well as the cost to complete the maintenance. Describe any system work already undertaken to address this outage history.**

Response: Not applicable. The need for the Rebuild Project is not driven by outage history, but rather by the need to replace transmission infrastructure approaching its end of life and to resolve potential violations of NERC Reliability Standards and the Company's Planning Criteria. See Sections I.A and I.J of this Appendix.

I. NECESSITY FOR THE PROPOSED PROJECT

- L. If the need for the proposed project is due in part to deterioration of structures and associated equipment, provide representative photographs and inspection records detailing their condition.**

Response: See Attachment I.L.1 for representative photographs of the deterioration of structures supporting Line #183 identified for rebuild, and Attachment I.L.2 for inspection records detailing the condition of those representative structures.

Structure 183/115





Structure 183/120 (1)



Structure 183/120 (2)



Structure 183/121 (1)



Structure 183/121 (2)



Structure 183/121 (3)



Structure 183/122 (1)



Structure 183/122 (2)





Structure 183/127 (1)



Structure 183/127 (2)







Structure 183/130 (1)



Structure 183/130 (2)



Structure 183/130 (3)



Structure 183/130 (4)



Structure 183/130 (5)



Structure 183/130 (6)





Structure 183/141





Structure 183/165 (1)



Structure 183/165 (2)



Line 183 - Representative Structures Requiring Replacement within the next Five Years	
LINE/STR	Reported Structure Damage
183/115	Pole Rot/Decay
183/119	Damaged Insulator
183/120	Damaged Insulator, Damaged Assembly
183/121	Damaged Assembly, Rust Induced Pac Out By Foundation
183/122	Damaged Insulator, Damaged Grounding Wire
183/126	Damaged Insulator
183/127	Rust Induced Pac Out By Foundation, Damaged Concrete Foundation
183/128	Damaged Insulator
183/129	Damaged Insulator
183/130	Damaged Insulators, Foundation Cracking
183/131	Damaged Assembly
183/141	Damaged Assembly
183/159	Damaged Assembly
183/165	Tower Corrosion

I. NECESSITY FOR THE PROPOSED PROJECT

M. In addition to the other information required by these guidelines, applications for approval to construct facilities and transmission lines interconnecting a Non-Utility Generator (“NUG”) and a utility shall include the following information:

- 1. The full name of the NUG as it appears in its contract with the utility and the dates of initial contract and any amendments;**
- 2. A description of the arrangements for financing the facilities, including information on the allocation of costs between the utility and the NUG;**
- 3. a. For Qualifying Facilities (“QFs”) certificated by Federal Energy Regulatory Commission (“FERC”) order, provide the QF or docket number, the dates of all certification or recertification orders, and the citation to FERC Reports, if available;**
b. For self-certificated QFs, provide a copy of the notice filed with FERC;
- 4. Provide the project number and project name used by FERC in licensing hydroelectric projects; also provide the dates of all orders and citations to FERC Reports, if available; and**
- 5. If the name provided in 1 above differs from the name provided in 3 above, give a full explanation.**

Response: Not applicable.

I. NECESSITY FOR THE PROPOSED PROJECT

- N. Describe the proposed and existing generating sources, distribution circuits or load centers planned to be served by all new substations, switching stations and other ground facilities associated with the proposed project.**

Response: Not applicable.

II. DESCRIPTION OF THE PROPOSED PROJECT

A. Right-of-way (“ROW”)

1. Provide the length of the proposed corridor and viable alternatives.

Response: The total length of the Rebuild Project transmission corridor is approximately 15.2 miles. No alternative routes are proposed for the Rebuild Project. See Section II.A.9 of the Appendix for an explanation of the Company’s route selection process.

II. DESCRIPTION OF THE PROPOSED PROJECT

A. Right-of-way (“ROW”)

- 2. Provide color maps of suitable scale (including both general location mapping and more detailed GIS-based constraints mapping) showing the route of the proposed line and its relation to: the facilities of other public utilities that could influence the route selection, highways, streets, parks and recreational areas, scenic and historic areas, open space and conservation easements, schools, convalescent centers, churches, hospitals, burial grounds/cemeteries, airports and other notable structures close to the proposed project. Indicate the existing linear utility facilities that the line is proposed to parallel, such as electric transmission lines, natural gas transmission lines, pipelines, highways, and railroads. Indicate any existing transmission ROW sections that are to be quitclaimed or otherwise relinquished. Additionally, identify the manner in which the Applicant will make available to interested persons, including state and local governmental entities, the digital GIS shape file for the route of the proposed line.**

Response: See Attachment II.A.2. No portion of the 15.2-mile right-of-way is proposed to be quitclaimed or relinquished.

The Company will make the digital Geographic Information Systems (“GIS”) shape file available to interested persons upon request to counsel for the Company as listed in the Rebuild Project Application.

Figure No.
II.A.2

Title
Environmental Constraints Map

Client/Project
Dominion Energy Virginia
Line #183 Partial Rebuild Project

203401769

Project Location
Fauquier and Prince William Counties, Virginia

Prepared by MGS on 2022-02-03
TR by ECL on 2022-02-14
IR by CFG on 2022-02-08

N

0

10,000

20,000

Feet
(At original document size of 11x17)
1:120,000

Substation / DP

Beginning/Endpoint Structures

Line #183 Partial Rebuild Project
(Double Circuit Structures)

Line #183 Partial Rebuild Project
(Single Circuit Structures)

Federal Land

State Land

Local Government Land

County Easement

Private Easement

NPS Easement

Notes
1. Coordinate System: NAD 1983 StatePlane Virginia North FIPS 4501 Feet
2. Data Sources: Dominion Energy Virginia, Stantec, DCR, ESRI, PADUS, National Transportation Atlas Railroads, Virginia Department of Historic Resources, Virginia Cultural Resources Information System (VCRIS)
3. Base Map © National Geographic

Page 01 of 05

Disclaimer: This document has been prepared based on information provided by others as cited in the Notes section. Stantec has not verified the accuracy and/or completeness of this information and shall not be responsible for any errors or omissions which may be incorporated herein as a result. Stantec assumes no responsibility for data supplied in electronic format, and the recipient accepts full responsibility for verifying the accuracy and completeness of the data.

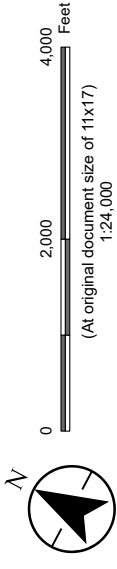
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Figure No.
II.A.2

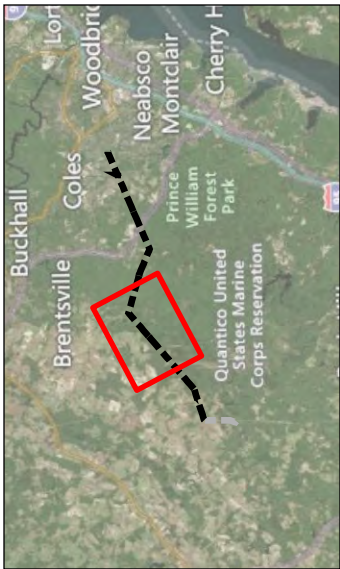
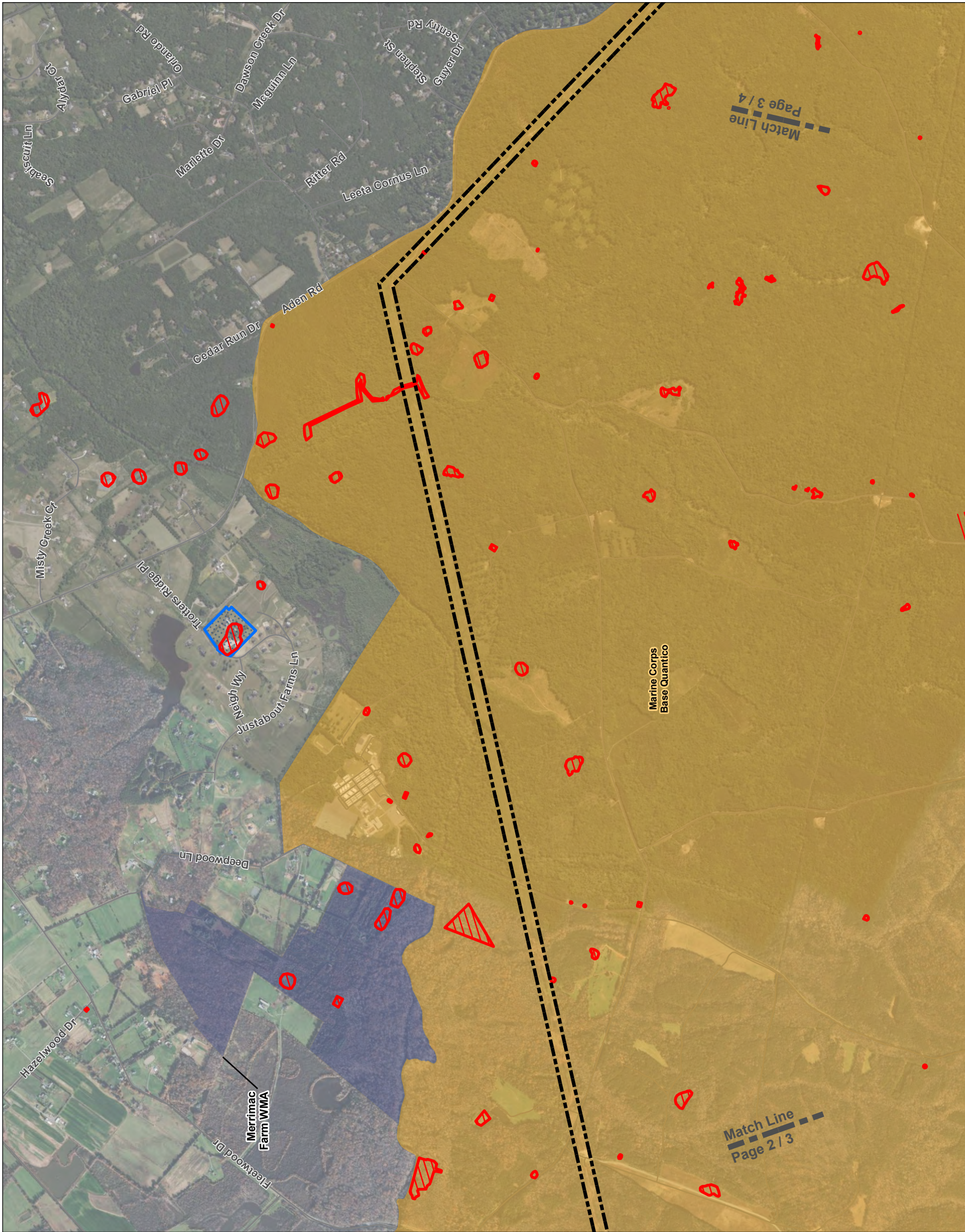
Title
Environmental Constraints Map

Client/Project
Dominion Energy Virginia
Line #183 Partial Rebuild Project
203401769

Project Location
Fauquier and Prince William Counties, Virginia
Prepared by MGS on 2022-02-03
TR by ECL on 2022-02-14
IR by CFG on 2022-02-08



- Substation / DP
- Partial Rebuild Project Right-of-Way
- Archaeological Resource
- Architectural Resource
- Federal Land
- State Land



Notes
1. Coordinate System: NAD 1983 StatePlane Virginia North FIPS 4501 Feet
2. Data Sources: Dominion Energy Virginia, Stantec, DCR, ESRI, PADUS, VDOT, National Transportation Atlas Railroads, Virginia Department of Historic Resources, Virginia Cultural Resources Information System (VCRIS)
3. Orthimagery © Bing Maps
4. Microsoft product screen shot(s) reprinted with permission from Microsoft Corporation

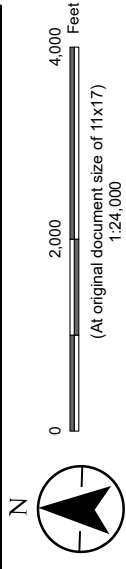


Figure No.
II.A.2

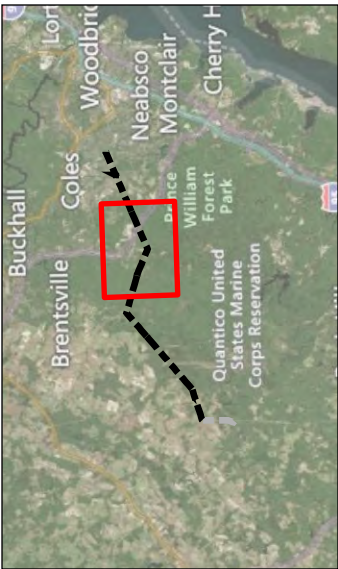
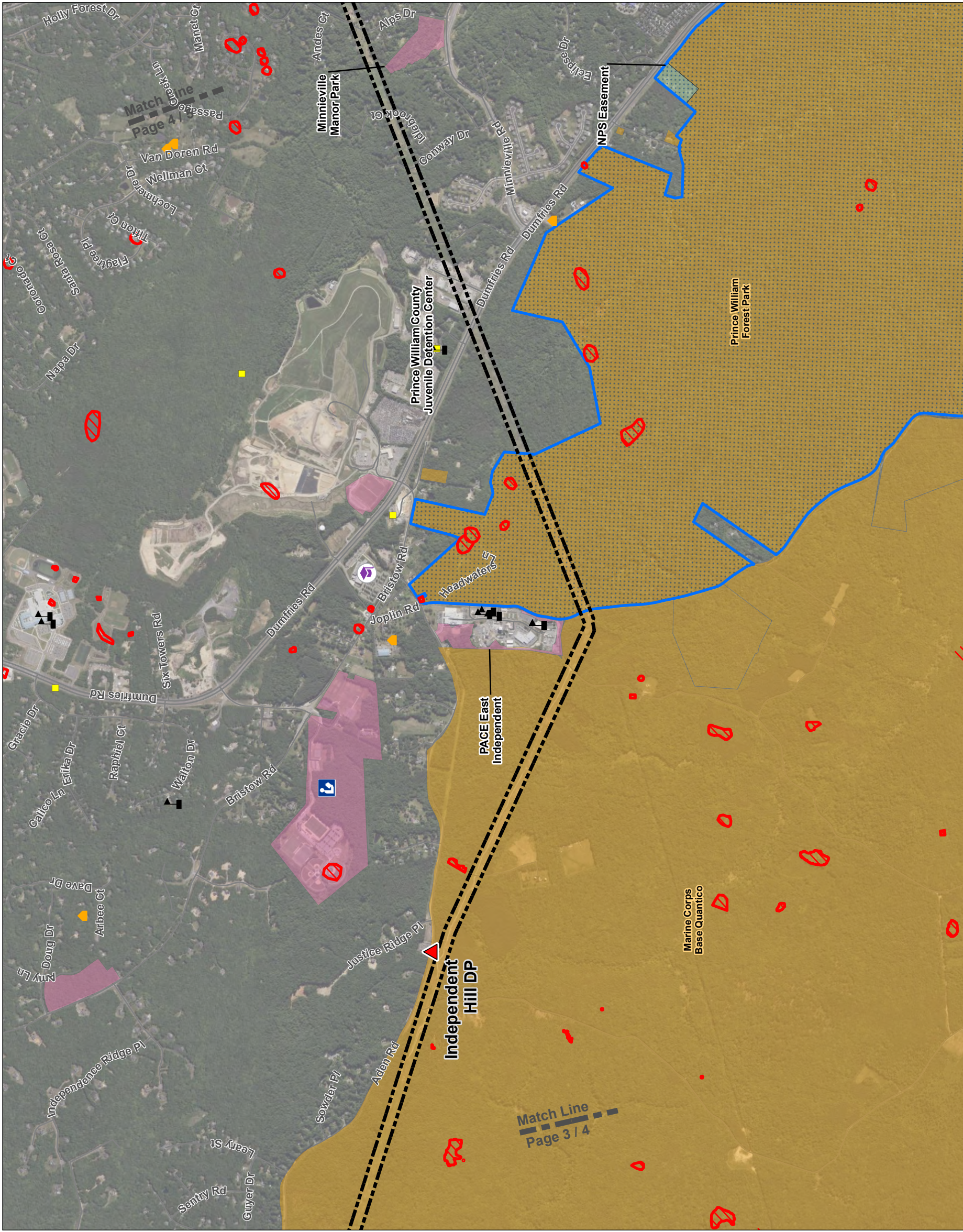
Environmental Constraints Map

Client/Project
Dominion Energy Virginia
Line #183 Partial Rebuild Project
203401769

Project Location
Fauquier and Prince William Counties, Virginia
Prepared by MGS on 2022-02-03
TR by ECL on 2022-02-14
IR by CFG on 2022-02-08



- Substation / DP
- College/University
- Government Office
- Library
- Place of Worship
- School
- Partial Rebuild Project Right-of-Way
- Archaeological Resource
- Architectural Resource
- Federal Land
- Local Government Land
- NPS Easement



Notes
1. Coordinate System: NAD 1983 StatePlane Virginia North FIPS 4501 Feet
2. Data Sources: Dominion Energy Virginia, Stantec, DCR, ESRI, PADUS, VDOT, National Transportation Atlas Railroads, Virginia Department of Historic Resources, Virginia Cultural Resources Information System (VCRIS)
3. Orthimagery © Bing Maps
4. Microsoft product screen shot(s) reprinted with permission from Microsoft Corporation



Figure No.

II.A.2

Title

Environmental Constraints Map

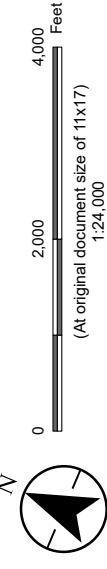
Client/Project

Dominion Energy Virginia
Line #183 Partial Rebuild Project

Project Location

Fauquier and Prince William Counties, Virginia

Prepared by MGS on 2022-02-03
TR by ECL on 2022-02-14
IR by CFG on 2022-02-08

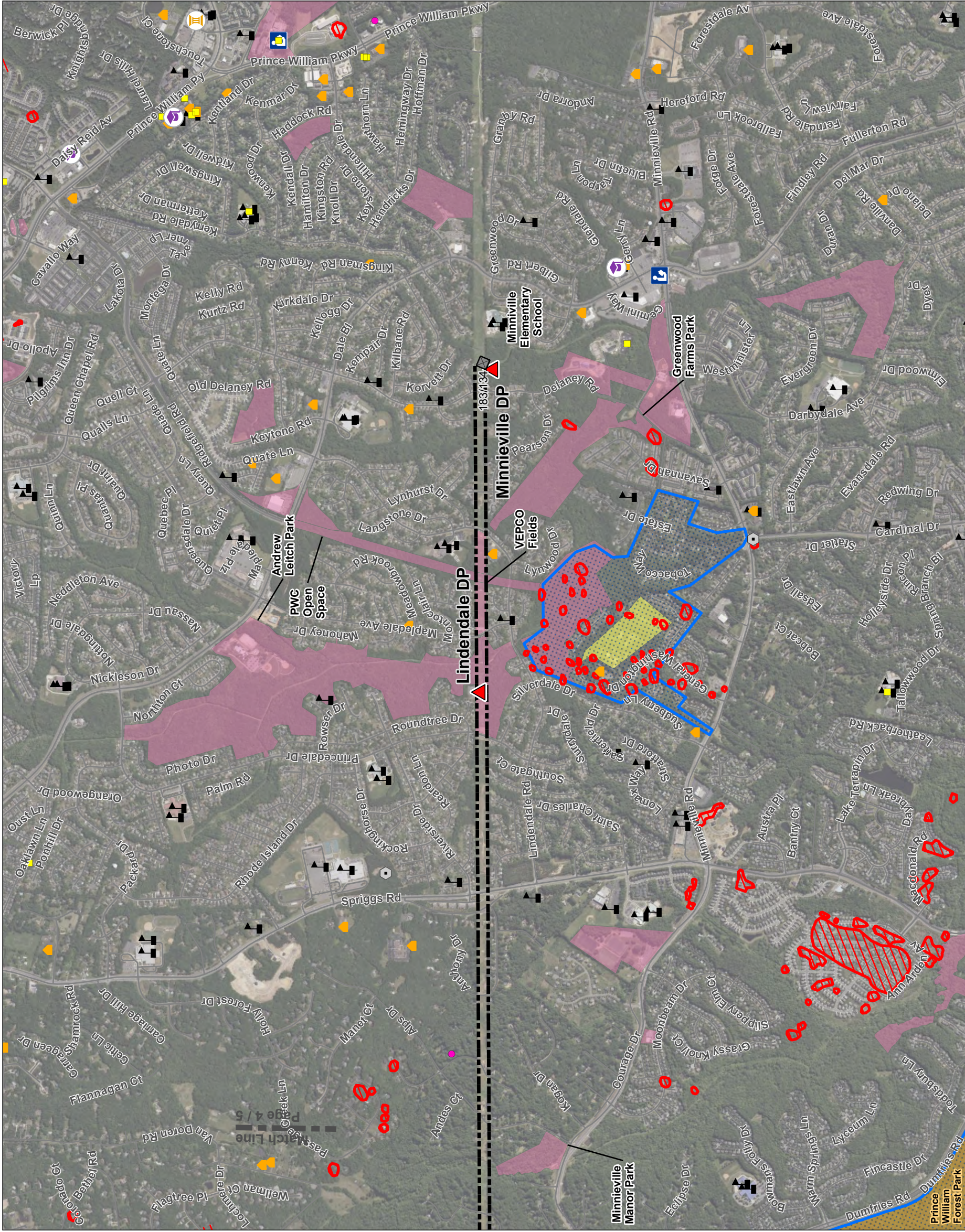


- Substation / DP
- Nursing Homes
- Cemetery
- College/University
- Government Office
- Library
- Museum
- Place of Worship
- School
- Partial Rebuild Project Right-of-Way
- Archaeological Resource
- Architectural Resource
- Federal Land
- Local Government Land
- DHR Conservation Easement



Notes

1. Coordinate System: NAD 1983 StatePlane Virginia North FIPS 4501 Feet
2. Data Sources: Dominion Energy Virginia, Stantec, DCR, ESRI, PADUS, VDOT, National Transportation Atlas Railroads, Virginia Department of Historic Resources, Virginia Cultural Resources Information System (VCRIS)
3. Orthimagery © Bing Maps
4. Microsoft product screen shot(s) reprinted with permission from Microsoft Corporation



II. DESCRIPTION OF THE PROPOSED PROJECT

A. Right-of-way (“ROW”)

- 3. Provide a separate color map of a suitable scale showing all the Applicant’s transmission line ROWs, either existing or proposed, in the vicinity of the proposed project.**

Response: See Attachment I.G.1.

II. DESCRIPTION OF THE PROPOSED PROJECT

A. Right-of-way (“ROW”)

- 4. To the extent the proposed route is not entirely within existing ROW, explain why existing ROW cannot adequately service the needs of the Applicant.**

Response: Not applicable.

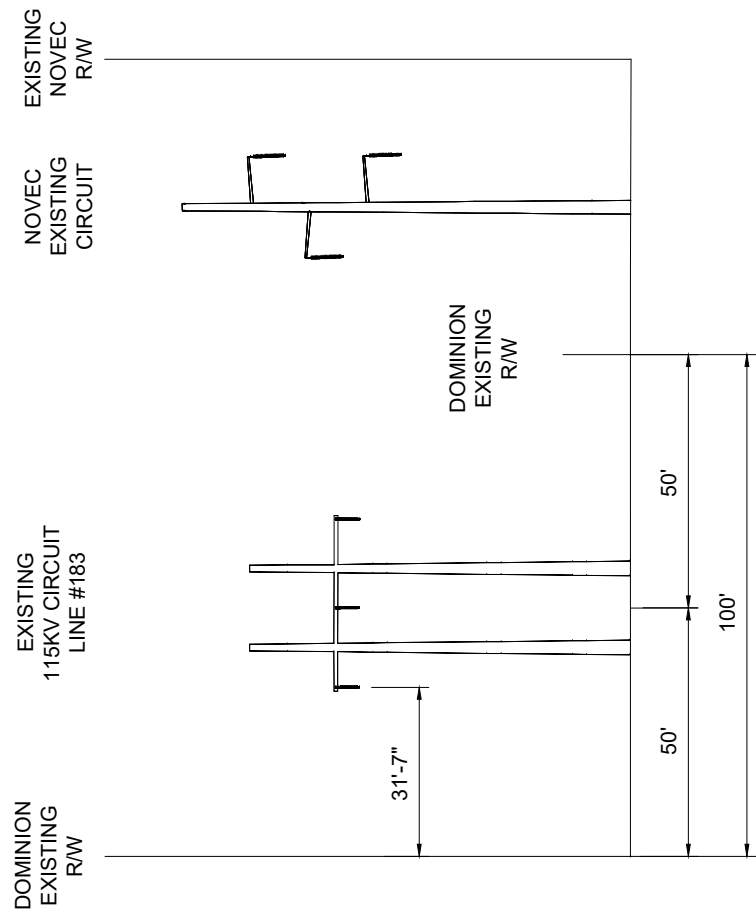
II. DESCRIPTION OF THE PROPOSED PROJECT

A. Right-of-way (“ROW”)

- 5. Provide drawings of the ROW cross section showing typical transmission line structure placements referenced to the edge of the ROW. These drawings should include:**
 - a. ROW width for each cross-section drawing;**
 - b. Lateral distance between the conductors and edge of ROW;**
 - c. Existing utility facilities on the ROW; and**
 - d. For lines being rebuilt in existing ROW, provide all of the above (i) as it currently exists, and (ii) as it will exist at the conclusion of the proposed project.**

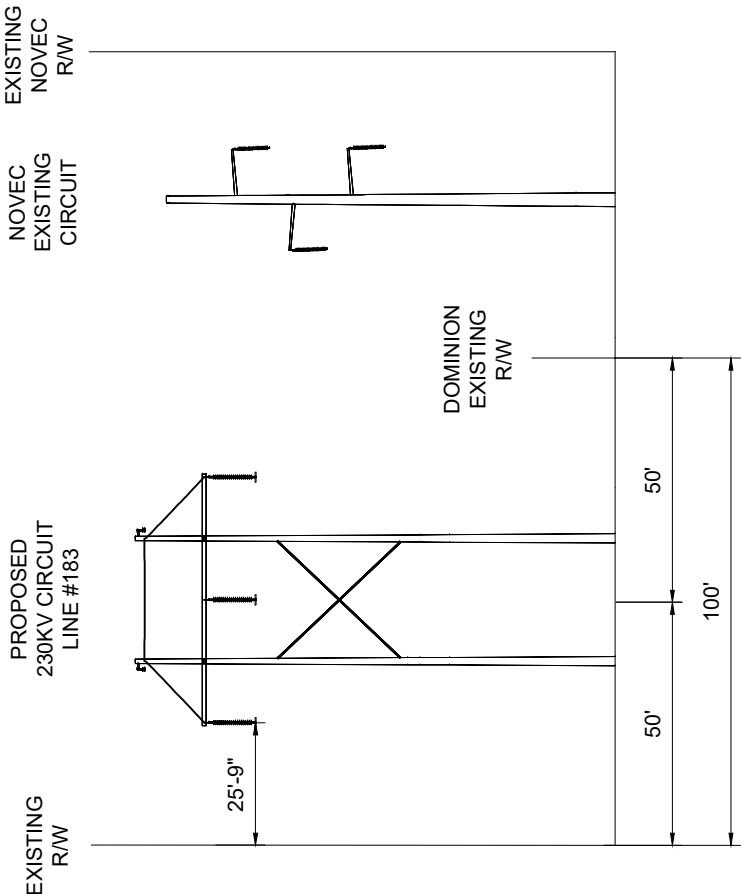
Response: See Attachments II.A.5.a-j.

SECTION 1: EXISTING



		Dominion Energy 10900 Nuckols Road Glen Allen, VA 23060	
STR. 183/13-183/20			
TYPICAL RIGHT OF WAY LOOKING TOWARDS MINNIEVILLE SUBSTATION			
DRAWN	ORIG.	REV.	DRAWING NO.
CHECKED	MLG		
APPROVED			
DATE			
			ATTACHMENT II.A.5.a

SECTION 1: PROPOSED (TYPE 1)



NOTE: INFORMATION CONTAINED ON DRAWING IS CONSIDERED PRELIMINARY IN NATURE AND SUBJECT TO CHANGE BASED ON FINAL DESIGN.



Dominion Energy

10900 Nuckols Road

Glen Allen, VA 23060

STR. 183/13-183/20

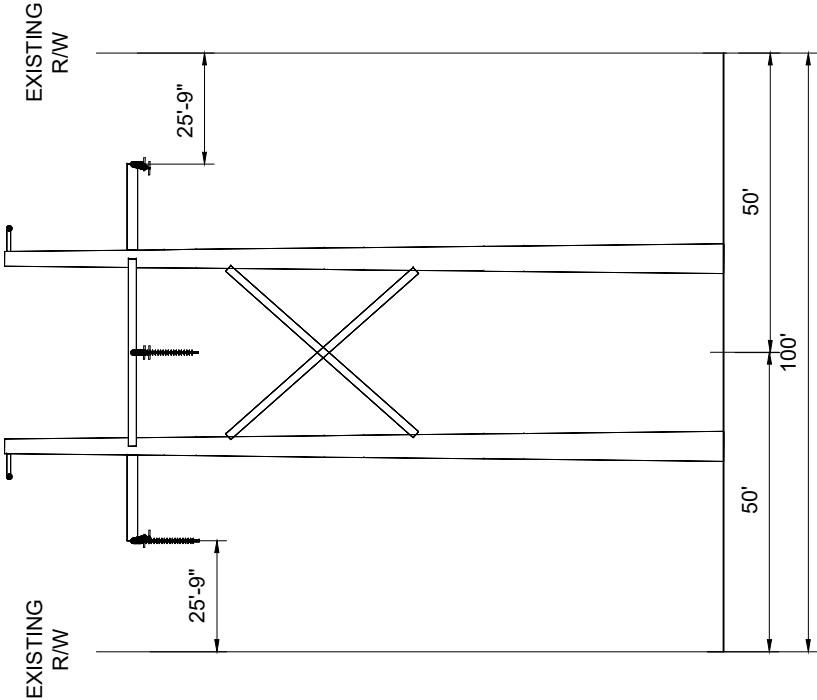
TYPICAL RIGHT OF WAY LOOKING

TOWARDS MINNIEVILLE SUBSTATION

	ORIG.	REV.	REV.	DRAWING NO.
DRAWN	MLG			ATTACHMENT II.A.5.b
CHECKED				
APPROVED				
DATE				

SECTION 1: PROPOSED (TYPE 2)

PROPOSED
230KV CIRCUIT
LINE #183



NOTE: INFORMATION CONTAINED ON DRAWING IS CONSIDERED PRELIMINARY
IN NATURE AND SUBJECT TO CHANGE BASED ON FINAL DESIGN.



Dominion Energy

10900 Nuckols Road

Glen Allen, VA 23060

STR. 183/13-183/20

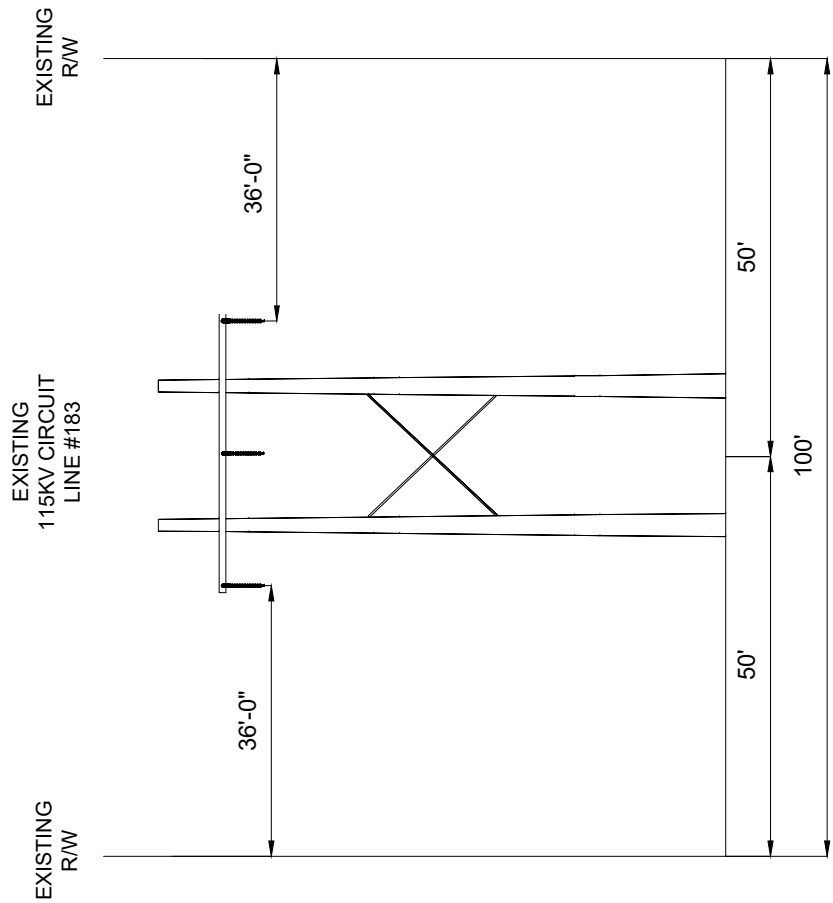
TYPICAL RIGHT OF WAY LOOKING

TOWARDS MINNIEVILLE SUBSTATION

	ORIG.	REV.	REV.	DRAWING NO.
DRAWN	MLG			
CHECKED				
APPROVED				
DATE				

ATTACHMENT II.A.5.c

SECTION 2: EXISTING





Dominion Energy

10900 Nuckols Road

Glen Allen, VA 23060

STR. 183/21-183/23

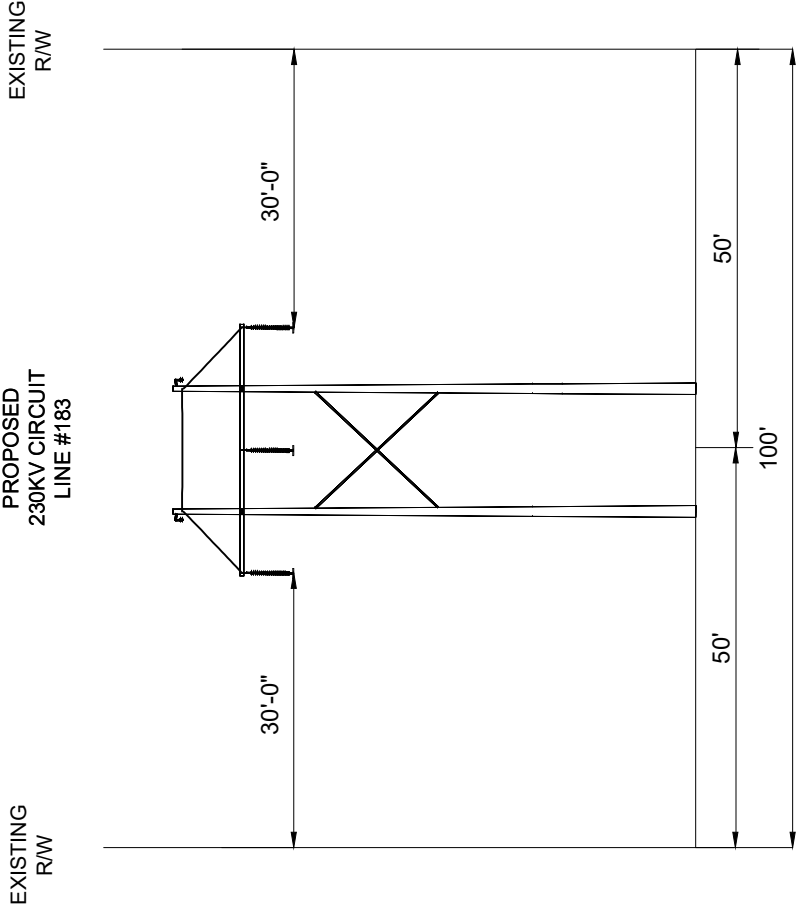
TYPICAL RIGHT OF WAY LOOKING

TOWARDS MINNIEVILLE SUBSTATION

ORIG.		REV.		DRAWING NO.	
DRAWN	MLG				
CHECKED					
APPROVED					
DATE					

ATTACHMENT II.A.5.d

SECTION 2: PROPOSED



NOTE: INFORMATION CONTAINED ON DRAWING IS CONSIDERED PRELIMINARY IN NATURE AND SUBJECT TO CHANGE BASED ON FINAL DESIGN.

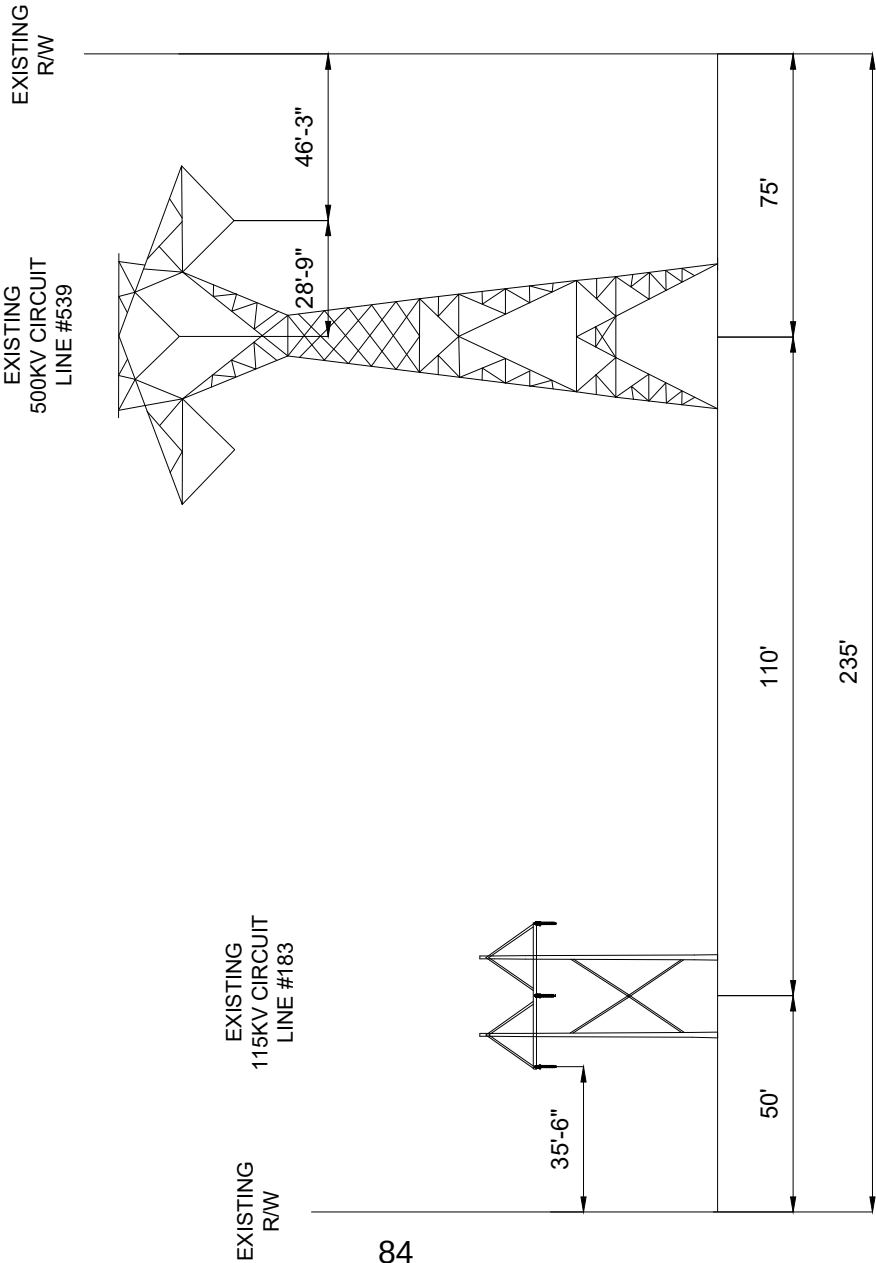


Dominion Energy
10900 Nuckols Road
Glen Allen, VA 23060

STR. 183/21-183/23
TYPICAL RIGHT OF WAY LOOKING
TOWARDS MINNIEVILLE SUBSTATION

DRAWN	CHECKED	APPROVED	DATE	ORIG. MLG	REV.	REV.	DRAWING NO.
							ATTACHMENT II.A.5.e

SECTION 3: EXISTING





Dominion Energy

10900 Nuckols Road

Glen Allen, VA 23060

STR. 183/24-183/98

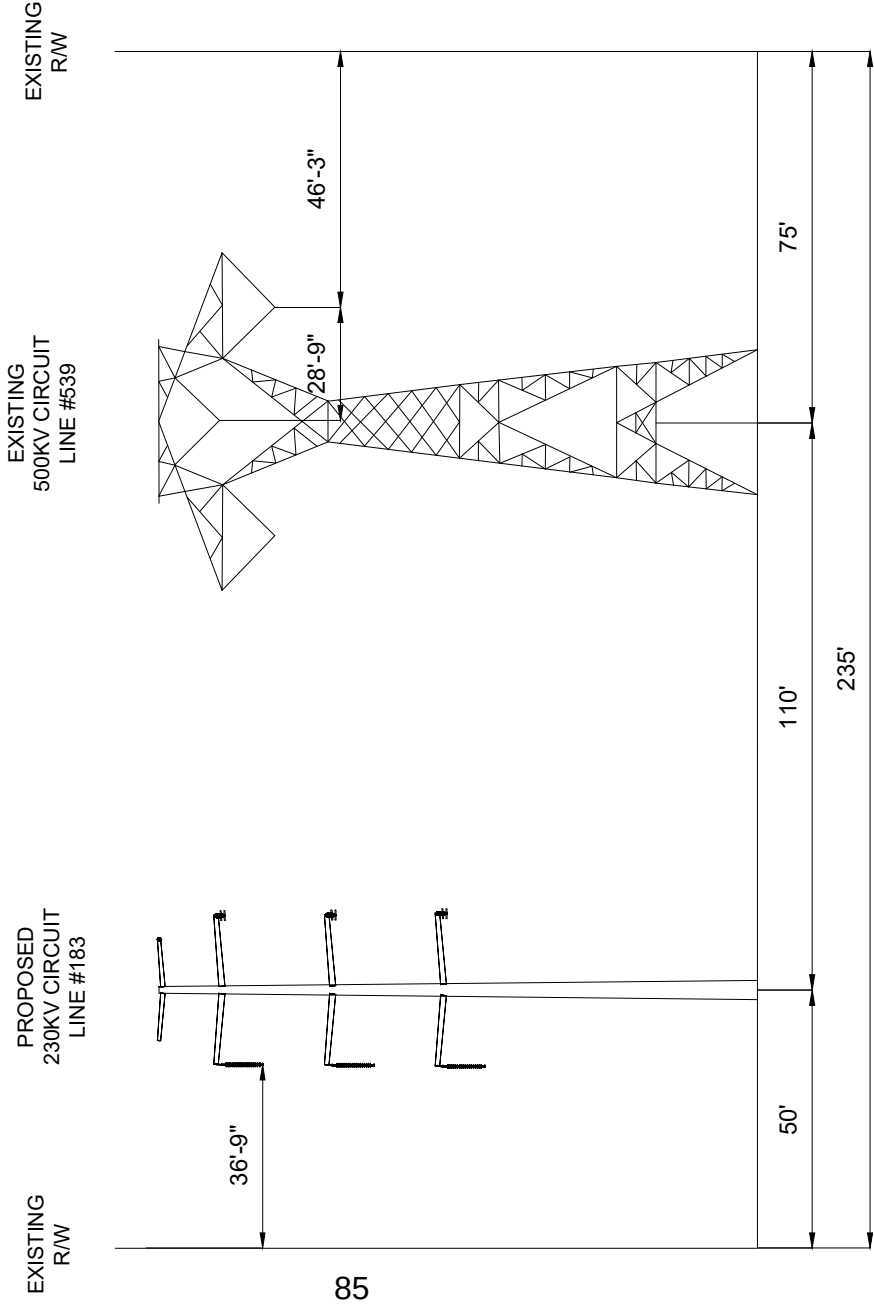
TYPICAL RIGHT OF WAY LOOKING

TOWARDS MINNIEVILLE SUBSTATION

ORIG.		REV.		DRAWING NO.	
DRAWN	MLG				
CHECKED					
APPROVED					
DATE					

ATTACHMENT II.A.5.f

SECTION 3: PROPOSED



NOTE: INFORMATION CONTAINED ON DRAWING IS CONSIDERED PRELIMINARY IN NATURE AND SUBJECT TO CHANGE BASED ON FINAL DESIGN.



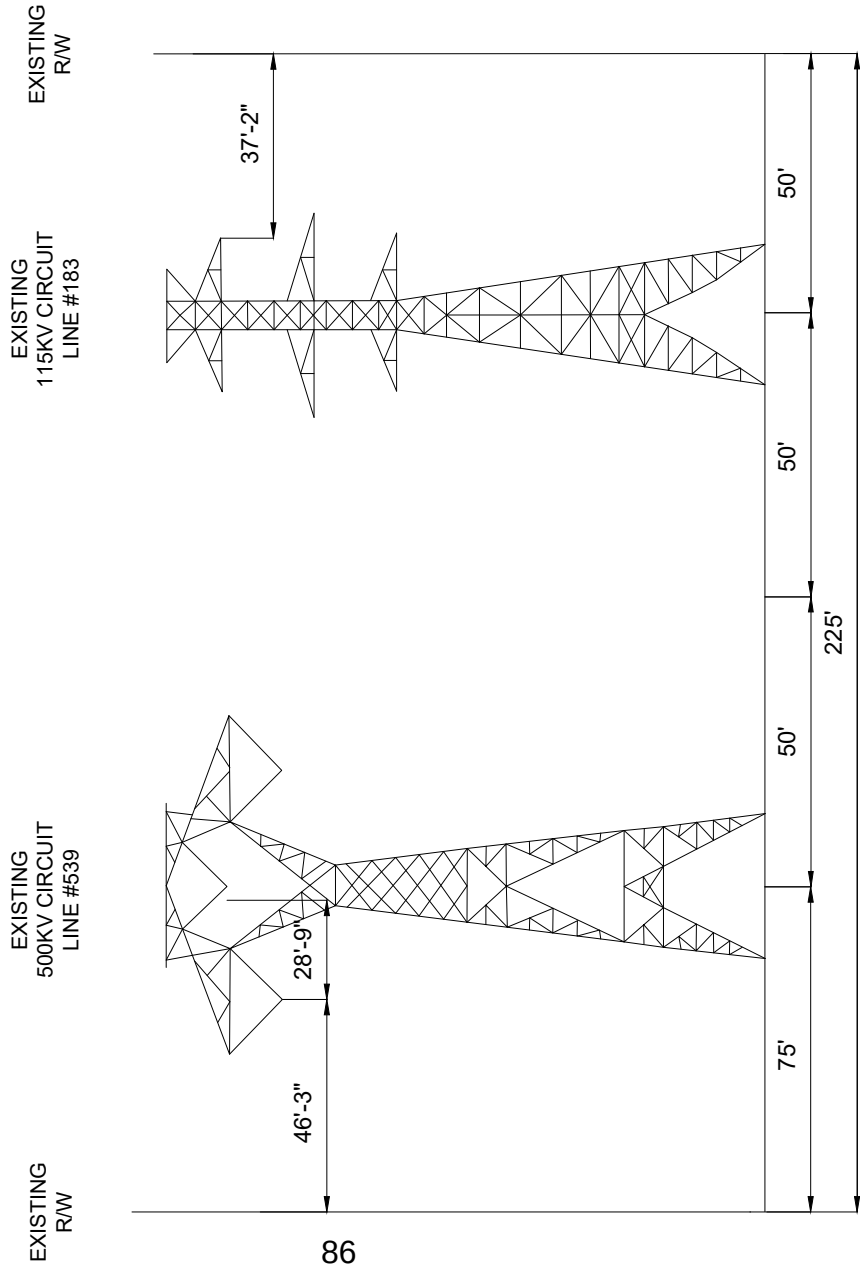
Dominion Energy

10900 Nuckols Road

Glen Allen, VA 23060

STRUCTURE 183/24 - 183/98			
TYPICAL RIGHT OF WAY LOOKING TOWARDS MINNIEVILLE SUBSTATION			
DRAWN	ORIG.	REV.	DRAWING NO.
CHECKED	MLG		
APPROVED			
DATE			
			ATTACHMENT II.A.5.g

SECTION 4: EXISTING





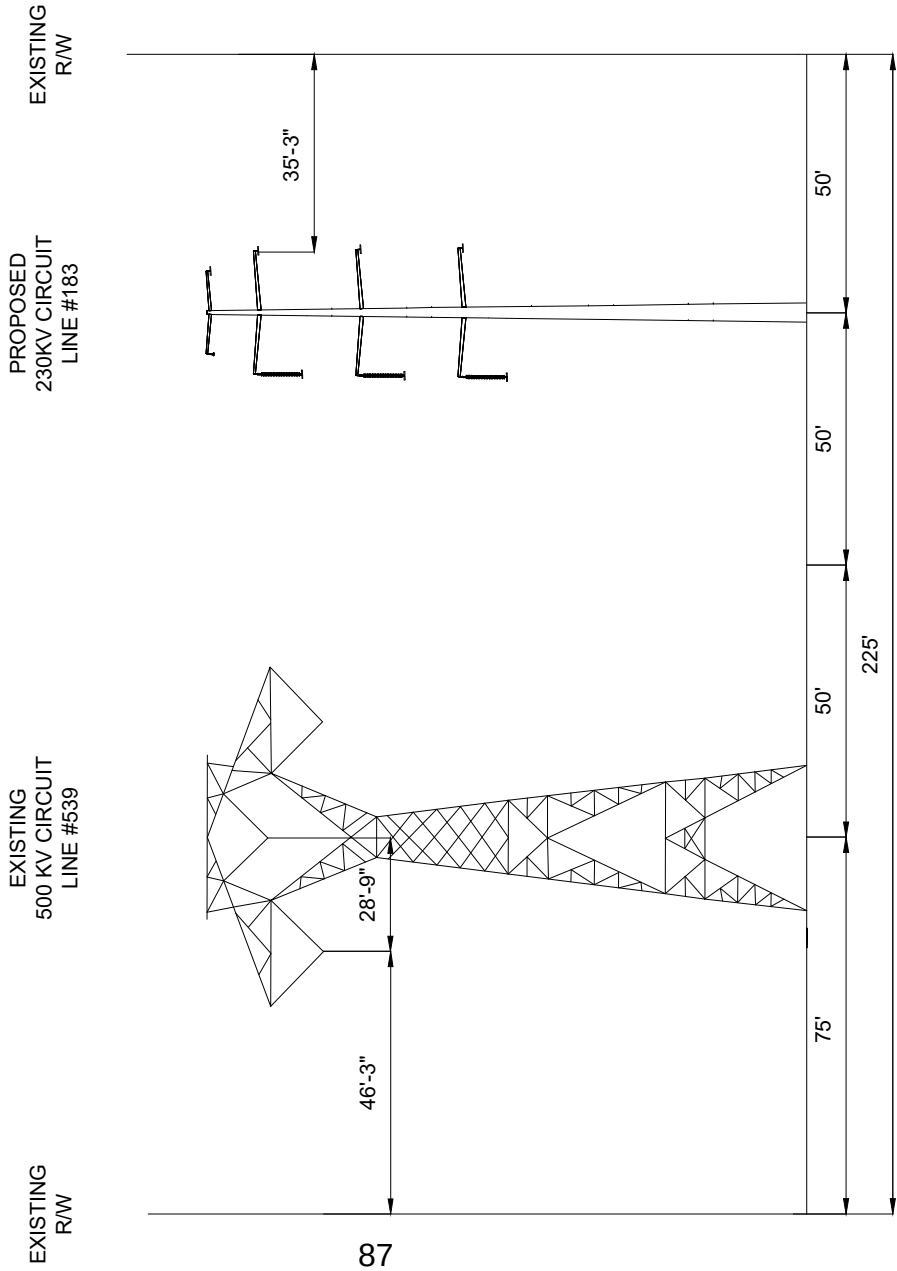
Dominion Energy

10900 Nuckols Road

Glen Allen, VA 23060

STRUCTURE 183/99-183/134			
TYPICAL RIGHT OF WAY LOOKING			
TOWARDS MINNIEVILLE SUBSTATION			
DRAWN	ORIG.	REV.	DRAWING NO.
CHECKED	MLG		
APPROVED			
DATE			
			ATTACHMENT II.A.5.h

SECTION 4: PROPOSED

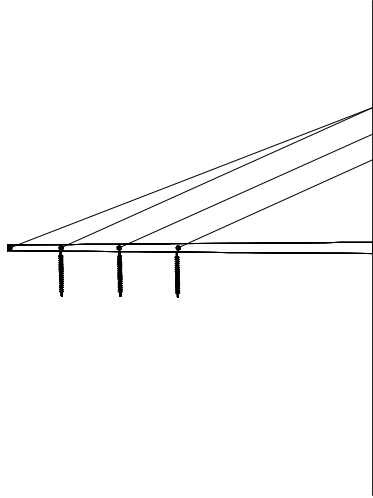


Attachment II.A.5.i

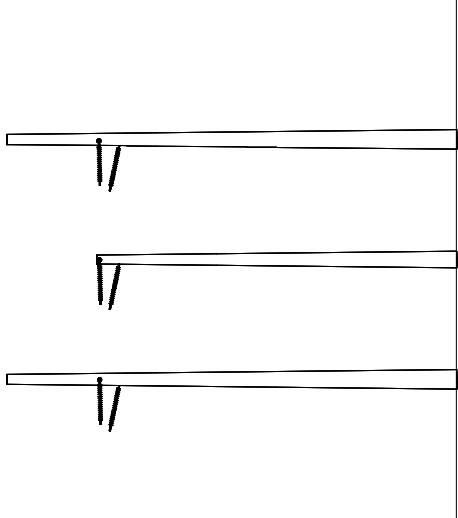
	Dominion Energy 10900 Nuckols Road Glen Allen, VA 23060			
	STRUCTURE 183/99-183/134 TYPICAL RIGHT OF WAY LOOKING TOWARDS MINNIEVILLE SUBSTATION			
	ORIG.	REV.	REV.	DRAWING NO.
	MLG			ATTACHMENT II.A.5.i
DRAWN				
CHECKED				
APPROVED				
DATE				

SOWEGO SUBSTATION PROPERTY

EXISTING
115KV CIRCUIT
LINE #183



PROPOSED
230KV CIRCUIT
LINE #183



Attachment II.A.5.j

NOTE: INFORMATION CONTAINED ON DRAWING IS CONSIDERED PRELIMINARY
IN NATURE AND SUBJECT TO CHANGE BASED ON FINAL DESIGN.



Dominion Energy

10900 Nuckols Road

Glen Allen, VA 23060

STR. 183/1000-183/1001

TYPICAL RIGHT OF WAY LOOKING

TOWARDS MINNIEVILLE SUBSTATION

ORIG.		REV.		DRAWING NO.	
DRAWN	MLG				
CHECKED					
APPROVED					
DATE					

ATTACHMENT II.A.5.j

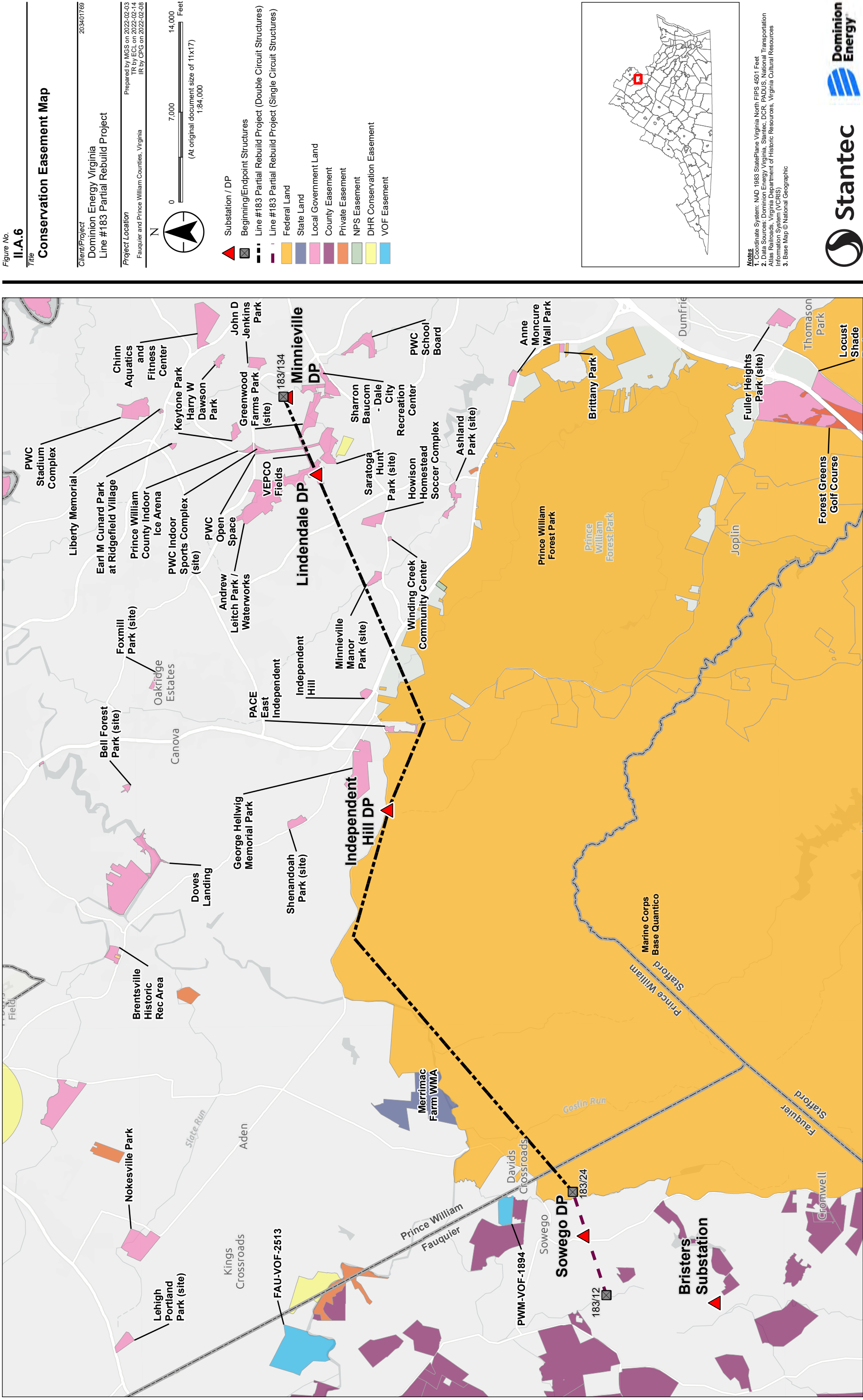
II. DESCRIPTION OF THE PROPOSED PROJECT

A. Right-of-way (“ROW”)

6. Detail what portions of the ROW are subject to existing easements and over what portions new easements will be needed.

Response: The easements for this approximately 15.2-mile transmission right-of-way corridor—which includes at various points 500 kV Line #539—were acquired between the 1940s and 1970s. The Company’s existing 500 kV Line #539 is co-located in the right-of-way with Line #183 for approximately 13.5 miles between Structures #183/24 and #183/134. No additional easements will be required for the Rebuild Project.

The existing right-of-way crosses federal lands, including 8.4 miles of U.S. Marine Corps Base Quantico and 0.6 mile of Prince William Forest Park. See Attachment II.A.6. No part of the existing right-of-way is subject to conservation easements.



II. DESCRIPTION OF THE PROPOSED PROJECT

A. Right-of-way (“ROW”)

7. **Detail the proposed ROW clearing methods to be used and the ROW restoration and maintenance practices planned for the proposed project.**

Response: The existing right-of-way for the 15.2-mile Rebuild Project has a variable width ranging from 100 to 235 feet. This existing right-of-way corridor, as shown in Attachments II.A.5.a-j, is currently maintained for operation of the existing transmission facilities.

Trimming of tree limbs along the edge of the right-of-way may be conducted to support construction activities for the Rebuild Project. For any such minimal clearing within the right-of-way, trees will be cut to no more than three inches above ground level. Trees located outside of the right-of-way that are tall enough to potentially impact the transmission facilities, commonly referred to as “danger trees,” may also need to be cut. Danger trees will be cut to be no more than three inches above ground level, limbed, and will remain where felled. Debris that is adjacent to homes will be disposed of by chipping or removal. In other areas, debris may be mulched or chipped as practicable. Danger tree removal will be accomplished by hand in wetland areas and within 100 feet of streams, if applicable. Care will be taken not to leave debris in streams or wetland areas. Matting will be used for heavy equipment in these areas. Erosion control devices will be used on an ongoing basis during all clearing and construction activities accompanied by weekly Virginia Stormwater Management Program inspections.

Erosion control will be maintained and temporary stabilization for all soil disturbing activities will be used until the right-of-way has been restored. Upon completion of the Rebuild Project, the Company will restore the right-of-way utilizing site rehabilitation procedures outlined in the Company’s *Standards & Specifications for Erosion & Sediment Control and Stormwater Management for Construction and Maintenance of Linear Electric Transmission Facilities (TE VEP 8000)* that was approved by the Virginia Department of Environmental Quality (“DEQ”). Time of year and weather conditions may affect when permanent stabilization takes place.

This right-of-way will continue to be maintained on a regular cycle to prevent interruptions to electric service and provide ready access to the right-of-way in order to patrol and make emergency repairs. Periodic maintenance to control woody growth will consist of hand cutting, machine mowing and herbicide application.

II. DESCRIPTION OF THE PROPOSED PROJECT

A. Right-of-way (“ROW”)

8. Indicate the permitted uses of the proposed ROW by the easement landowner and the Applicant.

Response: Any non-transmission use will be permitted that:

- Is in accordance with the terms of the easement agreement for the right-of-way;
- Is consistent with the safe maintenance and operation of the transmission line;
- Will not restrict future line design flexibility; and
- Will not permanently interfere with future construction.

Examples of typical permitted uses include, subject to the terms of the easement, but are not limited to:

- Agriculture
- Hiking Trails
- Fences
- Perpendicular road crossings
- Perpendicular Utility Crossings
- Residential Driveways
- Wildlife / Pollinator Habitat

II. DESCRIPTION OF THE PROPOSED PROJECT

A. Right-of-way (“ROW”)

9. **Describe the Applicant’s route selection procedures. Detail the feasible alternative routes considered. For each such route, provide the estimated cost and identify and describe the cost classification (e.g. “conceptual cost,” “detailed cost,” etc.). Describe the Applicant’s efforts in considering these feasible alternatives. Detail why the proposed route was selected and other feasible alternatives were rejected. In the event that the proposed route crosses, or one of the feasible routes was rejected in part due to the need to cross, land managed by federal, state, or local agencies or conservation easements or open space easements qualifying under §§ 10.1-1009 – 1016 or §§ 10.1-1700 – 1705 of the Code (or a comparable prior or subsequent provision of the Code), describe the Applicant’s efforts to secure the necessary ROW.**

Response: The Company’s route selection for transmission line rebuild projects begins with a review of existing rights-of-way. This approach generally minimizes impacts on the natural and human environments. This approach is also consistent with Attachment 1 to these Guidelines, which states that existing rights-of-way should be given priority when adding new transmission facilities, and Va. Code §§ 56-46.1 and 56-259, which promote the use of existing rights-of-way for new transmission facilities. For the proposed Rebuild Project, the existing transmission corridor that currently contains Line #183 is adequate.

Because the existing right-of-way is adequate to construct the proposed Rebuild Project, no new right-of-way is necessary. Given the availability of existing right-of-way and the statutory preference given to the use of existing rights-of-way, and because additional costs and environmental impacts would be associated with the acquisition of and construction on new right-of-way, the Company did not consider any alternate routes requiring new right-of-way for this Rebuild Project.

II. DESCRIPTION OF THE PROPOSED PROJECT

A. Right-of-way (“ROW”)

- 10. Describe the Applicant’s construction plans for the project, including how the Applicant will minimize service disruption to the affected load area. Include requested and approved line outage schedules for affected lines as appropriate.**

Response: No service to customers will be interrupted during construction of the Rebuild Project, as the Company has the ability to switch all load to alternate sources. Assuming a final order from the Commission by July 30, 2023, as requested in Section I.H of this Appendix, the Company estimates that construction should begin by August 2024, and be completed by December 31, 2025.

The Company plans to take the following sequential outages for the Rebuild Project:

- New structure erection, installation of conductor, and removal of existing structures—summer 2024 through winter 2025. The Company will take sequential outages for each section between the DPs to complete the work.
- No additional outages will be necessary for foundation installations for engineered structures—the Company will perform this work during the outages required for the structure erection, installation of conductor, and removal of existing structures.

The Company will request line outages from PJM prior to the date of such outages. It is customary for PJM to not grant approval of the outages until shortly before the outages are expected to occur and, therefore, they may be subject to change.

II. DESCRIPTION OF THE PROPOSED PROJECT

A. Right-of-way (“ROW”)

11. Indicate how the construction of this transmission line follows the provisions discussed in Attachment 1 of these Guidelines.

Response: Attachment 1 to these Guidelines contains a tool routinely used by the Company in routing its transmission line projects.

The Company utilized Guideline #1 (existing rights-of-way should be given priority when adding additional facilities) by siting the proposed Rebuild Project within an existing transmission corridor.

By utilizing the existing transmission corridor, the proposed Rebuild Project will minimize impact to any site listed on the National Register of Historic Places (“NRHP”). Thus, it is consistent with Guideline #2 (where practical, rights-of-way should avoid sites listed on the NRHP). See Section III.A for a description of the resources identified in the Stage I Pre-Application Analysis prepared by Stantec Consulting Services Inc. (“Stantec”) on behalf of the Company, which is included with the DEQ Supplement as Attachment 2.I.1. Consistent with its customary practice, the Company will coordinate with the Virginia Department of Historic Resources (“VDHR”) regarding the findings of the Stage I Pre-Application Analysis.

The Company has communicated with a number of local, state, and federal agencies prior to filing this application consistent with Guideline #4 (where government land is involved the Company should contact the agencies early in the planning process). See Sections III.B, III.J, and V.D of this Appendix, and the DEQ Supplement.

The Company follows recommended construction methods on a site-specific basis for typical construction projects (Guidelines ##8, 10, 11, 15, 16, 18 and 22).

The Company also utilizes recommended guidelines in the clearing of right-of-way, constructing facilities and maintaining rights-of-way after construction. Moreover, secondary uses of right-of-way that are consistent with the safe maintenance and operation of facilities are permitted.

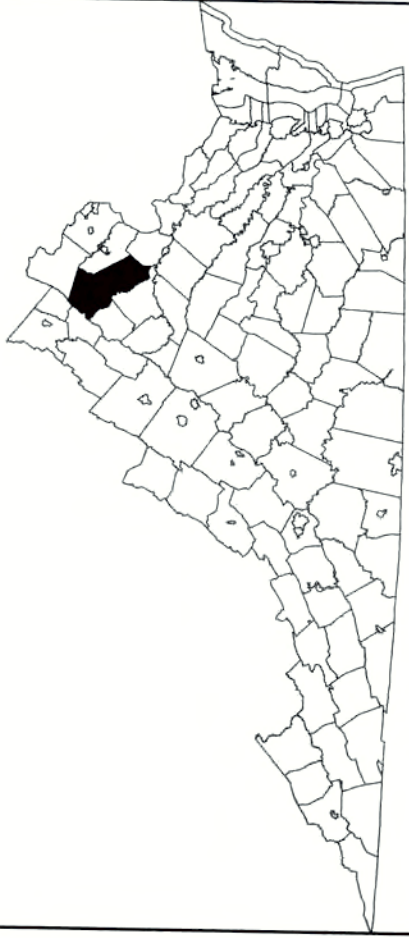
II. DESCRIPTION OF THE PROPOSED PROJECT

A. Right-of-way (“ROW”)

- 12. a. Detail counties and localities through which the line will pass. If any portion of the line will be located outside of the Applicant’s certificated service area: (1) identify each electric utility affected; (2) state whether any affected electric utility objects to such construction; and (3) identify the length of line(s) proposed to be located in the service area of an electric utility other than the Applicant; and**
- b. Provide three (3) color copies of the Virginia Department of Transportation “General Highway Map” for each county and city through which the line will pass. On the maps show the proposed line and all previously approved and certificated facilities of the Applicant. Also, where the line will be located outside of the Applicant’s certificated service area, show the boundaries between the Applicant and each affected electric utility. On each map where the proposed line would be outside of the Applicant’s certificated service area, the map must include a signature of an appropriate representative of the affected electric utility indicating that the affected utility is not opposed to the proposed construction within its service area.**

Response:

- a. The Rebuild Project is located within Fauquier and Prince William Counties Virginia, for a total of approximately 15.2 miles. All 15.2 miles of the Rebuild Project are located within NOVEC’s service territory. The Company has confirmed that NOVEC does not object to the Rebuild Project.
- b. Electronic copies of the maps of the Virginia Department of Transportation “General Highway Map” for Fauquier County and Prince William County are marked as required and filed with the Application. Reduced copies of the maps are provided as Attachment II.A.12.b.i (Fauquier County) and Attachment II.A.12.b.ii (Prince William County).



This digital map depicts the Virginia Electric and Power Company ("Company") transmission facilities in this county as approved by the Virginia State Corporation Commission ("SCC"), and any proposed transmission facilities in this county, as of June 30, 2022. Other Company facilities previously authorized by the SCC may be depicted on prior SCC approved county maps.

VIRGINIA ELECTRIC AND POWER COMPANY
PLANS TO BUILD TRANSMISSION LINES AND
SUBSTATIONS AS SHOWN IN BLACK DASHES
ON THIS MAP.

NOVEC

IS NOT OPPOSED TO SUCH CONSTRUCTION IN
ITS SERVICE TERRITORY.

SIGNATURE

DATE 7/30/2022 TITLE Vice President

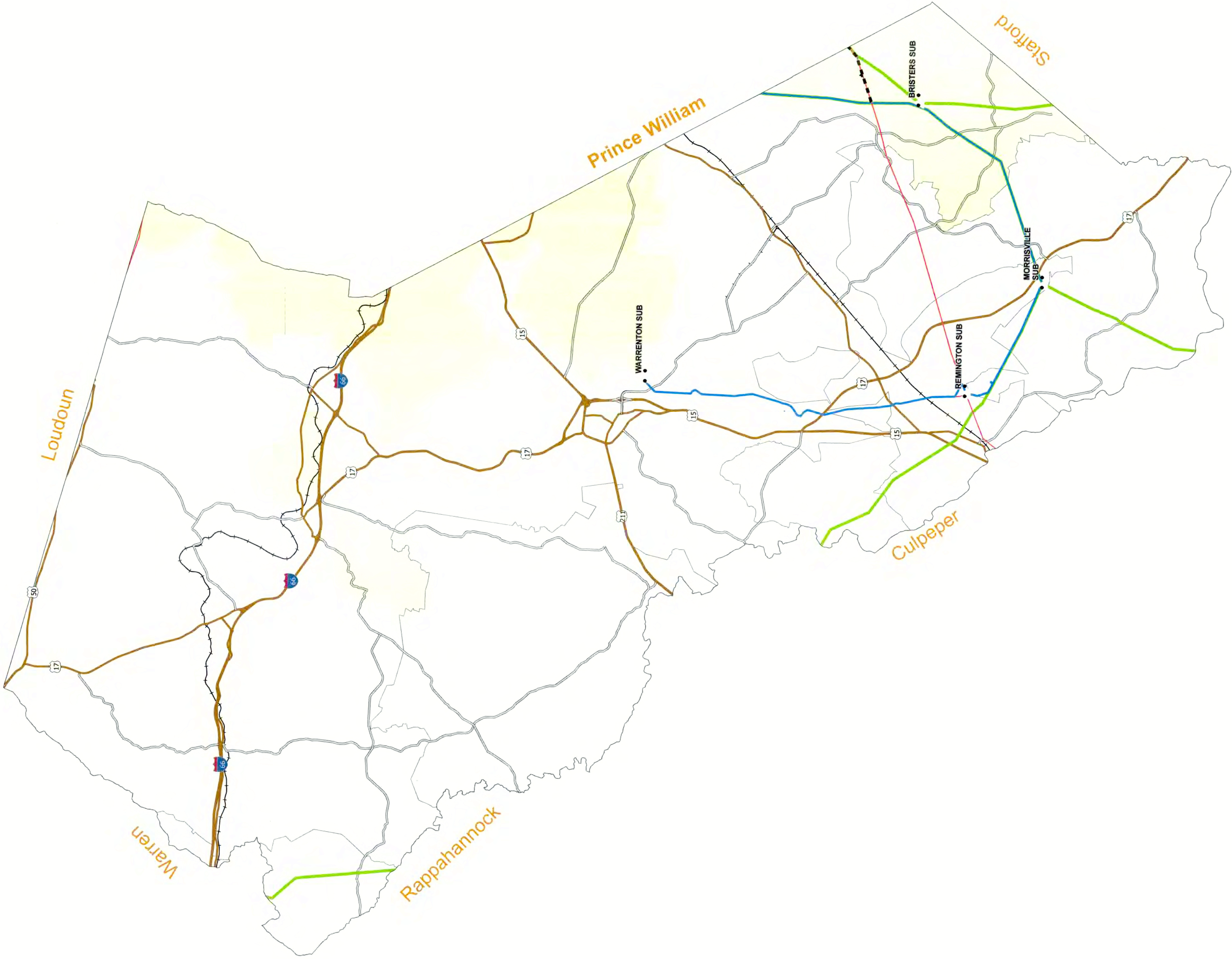
Legend

- Proposed Partial Rebuild Project
- Number of Lines of Structures/Number of Circuits
- Existing Substation
- 115 kV
- 230 kV
- 500 kV

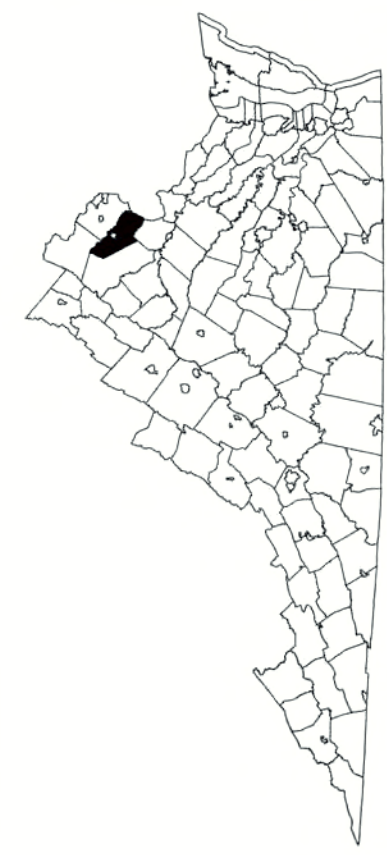
Provider Service Territory

- NOVEC
- VEPCO

Fauquier County Road Map

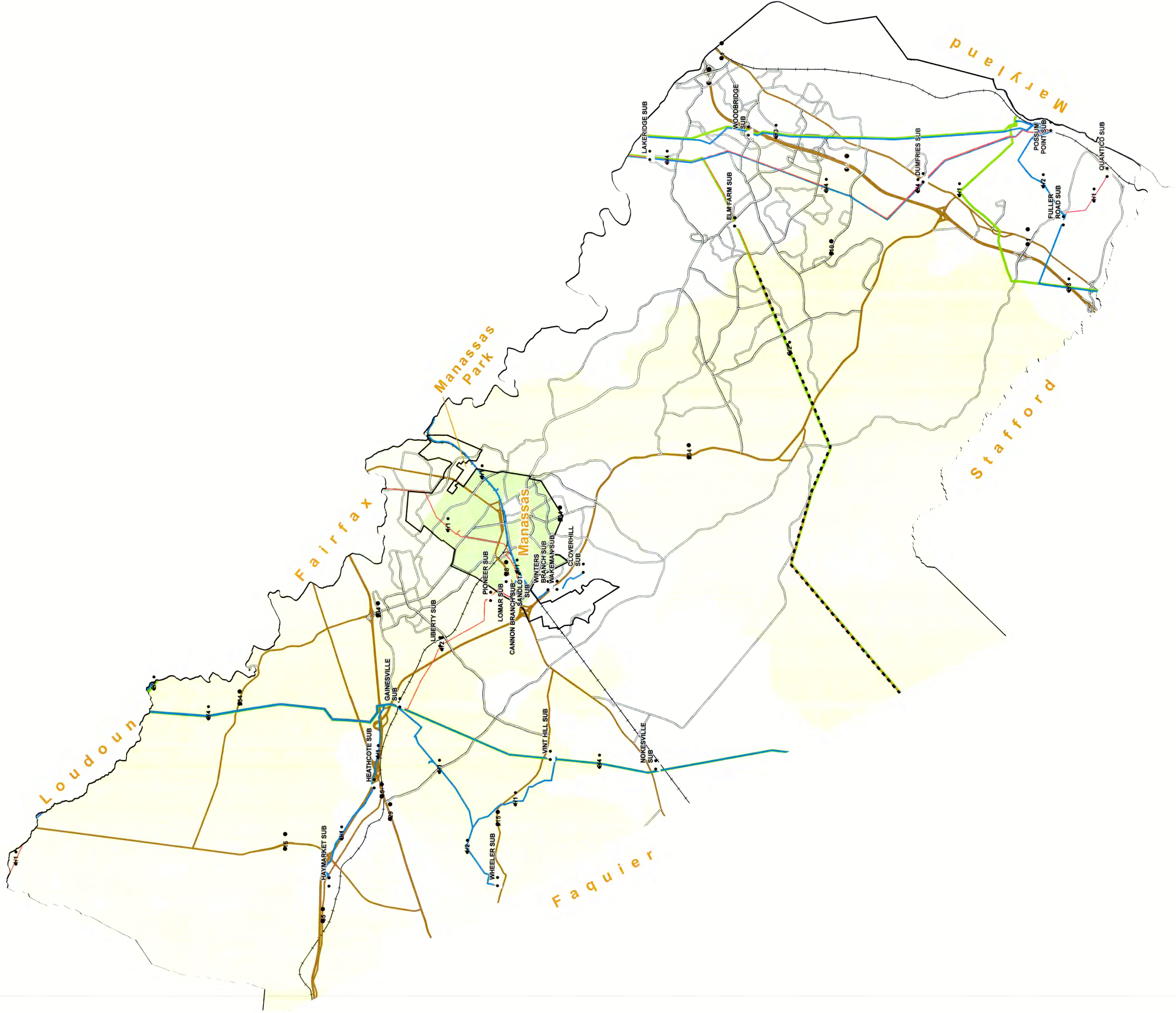


*VDOT and other road data
obtained from Navteq and
County data, current as of
November 2012.



This digital map depicts the Virginia Electric and Power Company ("Company") transmission facilities in this county as approved by the Virginia State Corporation Commission ("SCC"), and any proposed transmission facilities in this county, as of June 30, 2022. Other Company facilities previously authorized by the SCC may be depicted on prior SCC approved county maps.

Prince William County Road Map



VIRGINIA ELECTRIC AND POWER COMPANY
PLANS TO BUILD TRANSMISSION LINES AND
SUBSTATIONS AS SHOWN IN BLACK DASHES
ON THIS MAP

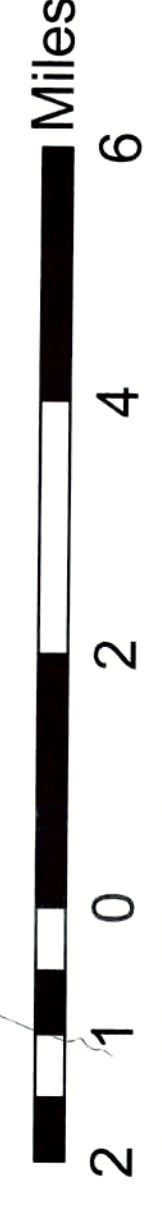
NOVEC

IS NOT OPPOSED TO SUCH CONSTRUCTION IN
ITS SERVICE TERRITORY.

SIGNATURE *Robert E. Bishop* TITLE Vice President
DATE 7/30/2022

- Legend**
- Proposed Partial Rebuild Project
 - Number of Lines of Structures/Number of Circuits
 - Existing Substation
 - 115 kV
 - 230 kV
 - 500 kV
- Provider Service Territory**
- City of Manassas
 - NOVEC
 - VEPCO

*VDOT and other road data
obtained from Navteq and
County data, current as of
November 2012.



II. DESCRIPTION OF THE PROPOSED PROJECT

B. Line Design and Operational Features

- 1. Detail the number of circuits and their design voltage, initial operational voltage, any anticipated voltage upgrade, and transfer capabilities.**

Response: The proposed 15.2-mile rebuild of 115 kV Line #183 between Structure #183/12 and Structure #183/134 will be operated at 115 kV but designed to 230 kV standards to allow for a future voltage upgrade. The rebuilt segment of Line #183 operated at 115 kV will have a 786/786 MVA summer and 824/824 MVA winter transfer capability. At such time as needed in the future, the rebuilt segment of Line #183 operated at 230 kV will have a 1047/1047 MVA summer and 1160/1160 MVA winter transfer capability.

II. DESCRIPTION OF THE PROPOSED PROJECT

B. Line Design and Operational Features

- 2. Detail the number, size(s), type(s), coating and typical configurations of conductors. Provide the rationale for the type(s) of conductor(s) to be used.**

Response: The segment of Line #183 located between Structure #183/12 and Structure #183/134 will have 3-phase twin-bundled 768.2 ACSS (20/7) conductors arranged as shown in Attachments II.B.3.a-m, with two fiber optic shield wires. The twin-bundled 768.2 ACSS (20/7) conductors and fiber optic shield wire are a Company standard for new 230 kV construction.

II. DESCRIPTION OF THE PROPOSED PROJECT

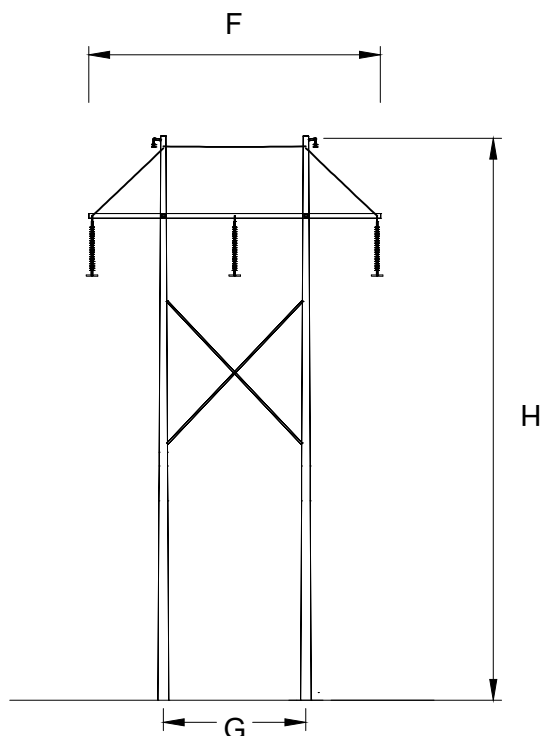
B. Line Design and Operational Features

- 3. With regard to the proposed supporting structures over each portion of the ROW for the preferred route, provide diagrams (including foundation reveal) and descriptions of all the structure types, to include:**
 - a. mapping that identifies each portion of the preferred route;**
 - b. the rationale for the selection of the structure type;**
 - c. the number of each type of structure and the length of each portion of the ROW;**
 - d. the structure material and rationale for the selection of such material;**
 - e. the foundation material;**
 - f. the average width at cross arms;**
 - g. the average width at the base;**
 - h. the maximum, minimum and average structure heights;**
 - i. the average span length; and**
 - j. the minimum conductor-to-ground clearances under maximum operating conditions.**

Response: (a) See Attachment II.B.5.a.

(b)-(j) See Attachments II.B.3.a through II.B.3.m.

SECTION 1



SINGLE CIRCUIT SUSPENSION H-FRAME WITH CROSSBRACE

B. RATIONALE FOR STRUCTURE TYPE:	STRUCTURES ARE TO ACCOMMODATE LINE 183 AND FUTURE PLANNING
C. LENGTH OF R/W (STRUCTURE QUANTITY):	1.00 MILES (6 STRUCTURES)
D. STRUCTURE MATERIAL:	WEATHERING STEEL POLES AND GALVANIZED STEEL CROSSBRACES/CROSSARMS WEATHERING STEEL WAS SELECTED TO CLOSELY MATCH THE EXISTING WOOD POLE STRUCTURES
E. FOUNDATION MATERIAL:	DIRECT EMBED
AVERAGE FOUNDATION REVEAL:	N/A
F. AVERAGE WIDTH AT CROSSARM:	42'
G. AVERAGE WIDTH AT BASE:	6'-8" DIAMETER FOUNDATION (SEE NOTE 1)
H. MINIMUM STRUCTURE HEIGHT:	100'
MAXIMUM STRUCTURE HEIGHT:	120'
AVERAGE STRUCTURE HEIGHT:	114'
I. AVERAGE SPAN LENGTH:	726'
J. MINIMUM CONDUCTOR-TO-GROUND:	22.5' (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

Electric Transmission



Dominion Energy
10900 Nuckols Road
Glen Allen, VA 23060

SECTION 1:
STRUCTURES
183/13-183/20

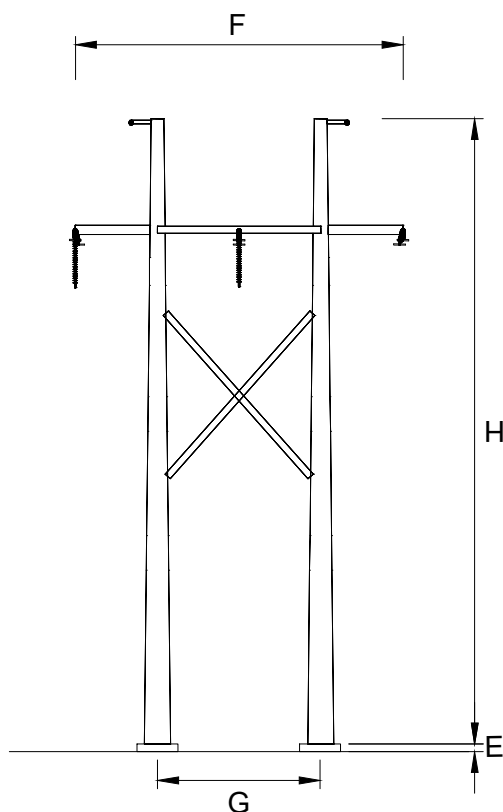
DRAWING NO.

Attachment II.B.3.a

DRAWN MLG

SECTION 1

Attachment II.B.3.b



SINGLE CIRCUIT H-FRAME DOUBLE DEAD-END STRUCTURE

B. RATIONALE FOR STRUCTURE TYPE:	STRUCTURES ARE TO ACCOMMODATE LINE 183 AND FUTURE PLANNING
C. LENGTH OF R/W (STRUCTURE QUANTITY):	1.00 MILES (2 STRUCTURES)
D. STRUCTURE MATERIAL:	WEATHERING STEEL
	WEATHERING STEEL WAS SELECTED TO MATCH THE EXISTING WOOD POLE STRUCTURES
E. FOUNDATION MATERIAL:	CONCRETE
AVERAGE FOUNDATION REVEAL:	SEE NOTE 4
F. AVERAGE WIDTH AT CROSSARM:	48.5'
G. AVERAGE WIDTH AT BASE:	23.5' (SEE NOTE 1)
H. MINIMUM STRUCTURE HEIGHT:	110'
MAXIMUM STRUCTURE HEIGHT:	110'
AVERAGE STRUCTURE HEIGHT:	110'
I. AVERAGE SPAN LENGTH:	633'
J. MINIMUM CONDUCTOR-TO-GROUND:	22.5' (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

Electric Transmission



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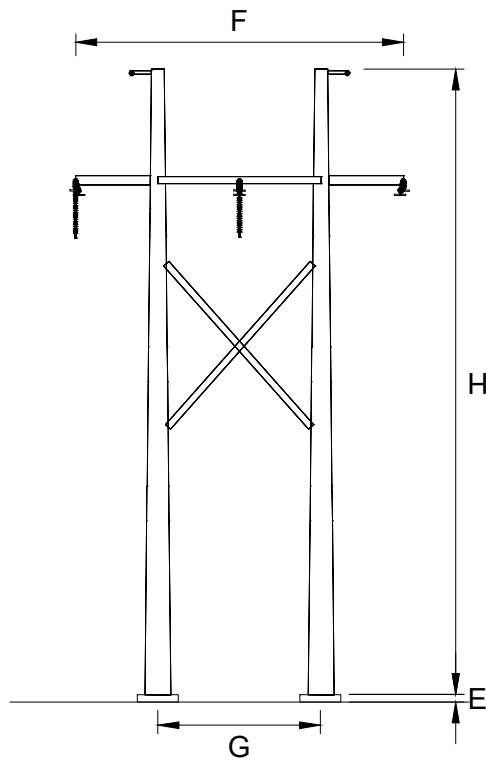
SECTION 1:
STRUCTURES
183/13-183/20

DRAWING NO.

Attachment II.B.3.b

DRAWN MLG

SECTION 2



SINGLE CIRCUIT H-FRAME DOUBLE DEAD-END STRUCTURE

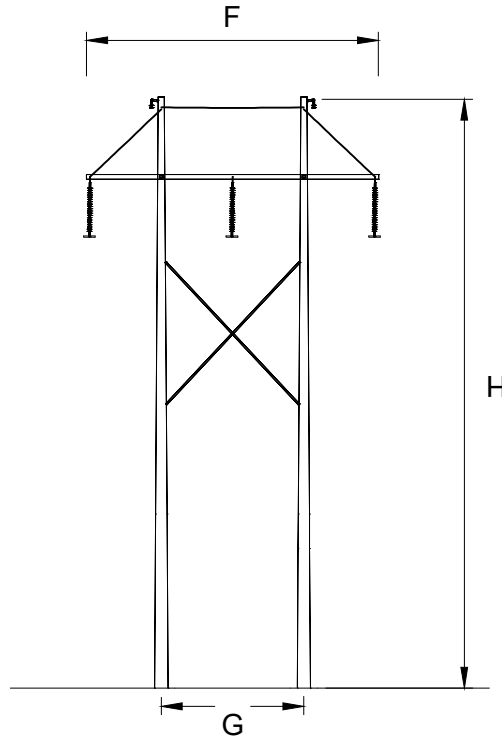
B. RATIONALE FOR STRUCTURE TYPE:	STRUCTURES ARE TO ACCOMMODATE LINE 183 AND FUTURE PLANNING
C. LENGTH OF R/W (STRUCTURE QUANTITY):	0.70 MILES (1 STRUCTURE)
D. STRUCTURE MATERIAL:	WEATHERING STEEL
RATIONALE FOR STRUCTURE MATERIAL:	WEATHERING STEEL WAS SELECTED TO MATCH THE EXISTING WOOD POLE STRUCTURES
E. FOUNDATION MATERIAL:	CONCRETE
AVERAGE FOUNDATION REVEAL:	SEE NOTE 4
F. AVERAGE WIDTH AT CROSSARM:	48.5'
G. AVERAGE WIDTH AT BASE:	23.5'
H. MINIMUM STRUCTURE HEIGHT:	90'
MAXIMUM STRUCTURE HEIGHT:	90'
AVERAGE STRUCTURE HEIGHT:	90'
I. AVERAGE SPAN LENGTH:	848'
J. MINIMUM CONDUCTOR-TO-GROUND:	22.5' (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
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Electric Transmission	SECTION 2: STRUCTURES 183/21-183/23	DRAWING NO. Attachment II.B.3.c
 Dominion Energy 10900 Nuckols Road Glen Allen, VA 23060		DRAWN MLG

SECTION 2

Attachment II.B.3.d



SINGLE CIRCUIT SUSPENSION H-FRAME WITH CROSSBRACE

B. RATIONALE FOR STRUCTURE TYPE:	STRUCTURES ARE TO ACCOMMODATE LINE 183 AND FUTURE PLANNING
C. LENGTH OF R/W (STRUCTURE QUANTITY):	0.70 MILES (2 STRUCTURES)
D. STRUCTURE MATERIAL:	WEATHERING STEEL
RATIONALE FOR STRUCTURE MATERIAL:	WEATHERING STEEL WAS SELECTED TO MATCH THE EXISTING WOOD POLE STRUCTURES
E. FOUNDATION MATERIAL:	DIRECT BURIED
AVERAGE FOUNDATION REVEAL:	N/A
F. AVERAGE WIDTH AT CROSSARM:	42'
G. AVERAGE WIDTH AT BASE:	22'
H. MINIMUM STRUCTURE HEIGHT:	84'
MAXIMUM STRUCTURE HEIGHT:	88'
AVERAGE STRUCTURE HEIGHT:	86'
I. AVERAGE SPAN LENGTH:	915'
J. MINIMUM CONDUCTOR-TO-GROUND:	22.5' (AT MAXIMUM OPERATING TEMPERATURE)

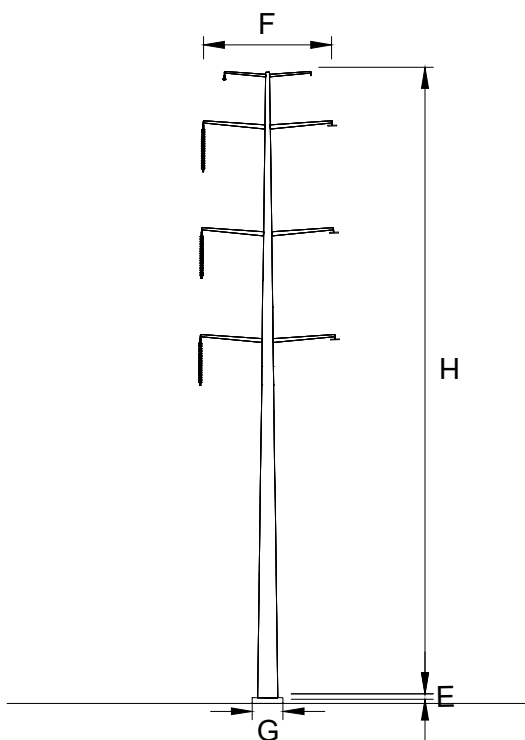
NOTES

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

Electric Transmission		SECTION 2: STRUCTURES 183/21-183/23	DRAWING NO. Attachment II.B.3.d
 Dominion Energy 10900 Nuckols Road Glen Allen, VA 23060			DRAWN MLG

SECTION 3

Attachment II.B.3.e



DOUBLE CIRCUIT SUSPENSION MONOPOLE STRUCTURE

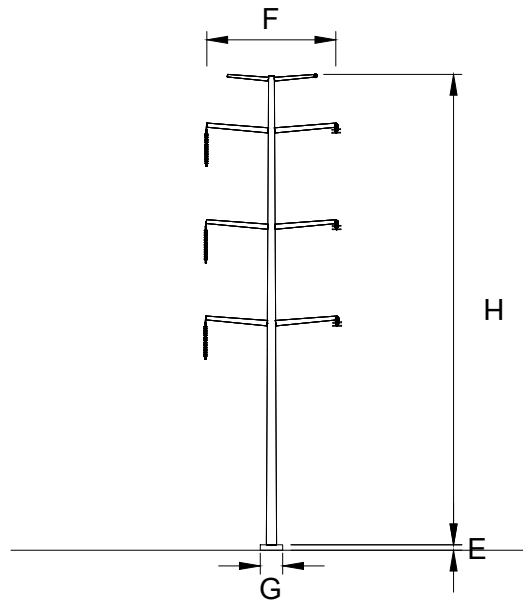
B. RATIONALE FOR STRUCTURE TYPE:	STRUCTURES ARE TO ACCOMMODATE LINE 183 AND FUTURE PLANNING
C. LENGTH OF R/W (STRUCTURE QUANTITY):	8.20 MILES (59 STRUCTURES)
D. STRUCTURE MATERIAL:	WEATHERING STEEL
RATIONALE FOR STRUCTURE MATERIAL:	WEATHERING STEEL WAS SELECTED TO MATCH THE EXISTING WOOD POLE STRUCTURES
E. FOUNDATION MATERIAL:	CONCRETE
AVERAGE FOUNDATION REVEAL:	SEE NOTE 4
F. AVERAGE WIDTH AT CROSSARM:	26.5'
G. AVERAGE WIDTH AT BASE:	6'-8' DIAMETER FOUNDATION (SEE NOTE 1)
H. MINIMUM STRUCTURE HEIGHT:	100'
MAXIMUM STRUCTURE HEIGHT:	125'
AVERAGE STRUCTURE HEIGHT:	108'
I. AVERAGE SPAN LENGTH:	772'
J. MINIMUM CONDUCTOR-TO-GROUND:	22.5' (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

Electric Transmission	SECTION 3: STRUCTURES 183/24-183/98	DRAWING NO. Attachment II.B.3.e
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SECTION 3

Attachment II.B.3.f



DOUBLE CIRCUIT DOUBLE DEAD-END MONOPOLE STRUCTURE

B. RATIONALE FOR STRUCTURE TYPE:	STRUCTURES ARE TO ACCOMMODATE LINE 183 AND FUTURE PLANNING
C. LENGTH OF R/W (STRUCTURE QUANTITY):	8.20 MILES (12 STRUCTURES)
D. STRUCTURE MATERIAL:	WEATHERING STEEL
RATIONALE FOR STRUCTURE MATERIAL:	WEATHERING STEEL WAS SELECTED TO MATCH THE EXISTING WOOD POLE STRUCTURES
E. FOUNDATION MATERIAL:	CONCRETE
AVERAGE FOUNDATION REVEAL:	SEE NOTE 4
F. AVERAGE WIDTH AT CROSSARM:	27'
G. AVERAGE WIDTH AT BASE:	6' - 9' DIAMETER FOUNDATION (SEE NOTE 1)
H. MINIMUM STRUCTURE HEIGHT:	90'
MAXIMUM STRUCTURE HEIGHT:	120'
AVERAGE STRUCTURE HEIGHT:	103'
I. AVERAGE SPAN LENGTH:	570'
J. MINIMUM CONDUCTOR-TO-GROUND:	22.5' (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

Electric Transmission



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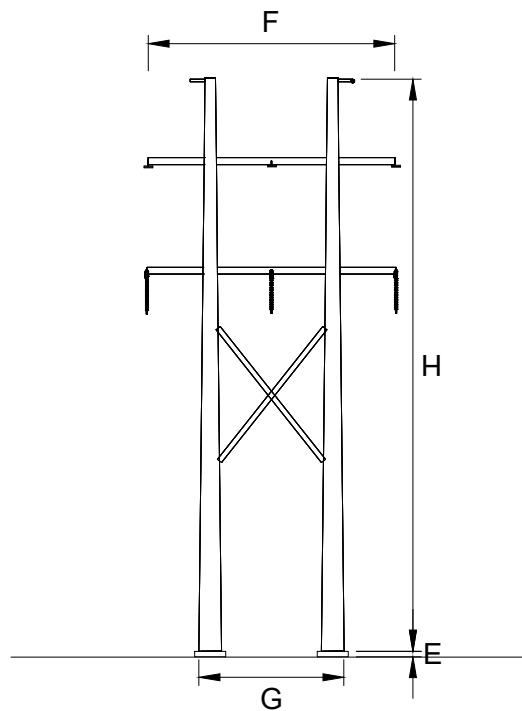
SECTION 3:
STRUCTURES
183/24-183/98

DRAWING NO.

Attachment II.B.3.f

DRAWN MLG

SECTION 3



DOUBLE CIRCUIT H-FRAME DOUBLE DEAD-END STRUCTURE

B. RATIONALE FOR STRUCTURE TYPE:	STRUCTURES ARE TO ACCOMMODATE LINE 183 AND FUTURE PLANNING
C. LENGTH OF R/W (STRUCTURE QUANTITY):	8.20 MILES (3 STRUCTURES)
D. STRUCTURE MATERIAL:	WEATHERING STEEL
RATIONALE FOR STRUCTURE MATERIAL:	WEATHERING STEEL WAS SELECTED TO MATCH THE EXISTING WOOD POLE STRUCTURES
E. FOUNDATION MATERIAL:	CONCRETE
AVERAGE FOUNDATION REVEAL:	SEE NOTE 4
F. AVERAGE WIDTH AT CROSSARM:	48.5'
G. AVERAGE WIDTH AT BASE:	23.5' (SEE NOTE 1)
H. MINIMUM STRUCTURE HEIGHT:	80'
MAXIMUM STRUCTURE HEIGHT:	125'
AVERAGE STRUCTURE HEIGHT:	110'
I. AVERAGE SPAN LENGTH:	407'
J. MINIMUM CONDUCTOR-TO-GROUND:	22.5' (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

Electric Transmission



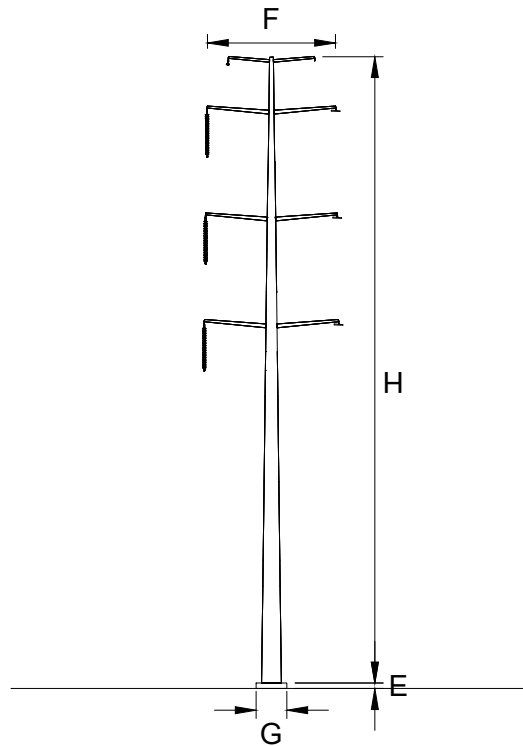
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SECTION 3:
STRUCTURES
183/24-183/98

DRAWING NO.
Attachment II.B.3.g

DRAWN MLG

SECTION 4



DOUBLE CIRCUIT SUSPENSION MONOPOLE STRUCTURE

B. RATIONALE FOR STRUCTURE TYPE:	STRUCTURES ARE TO ACCOMMODATE LINE 183 AND FUTURE PLANNING
C. LENGTH OF R/W (STRUCTURE QUANTITY):	5.30 MILES (27 STRUCTURES)
D. STRUCTURE MATERIAL:	WEATHERED STEEL
RATIONALE FOR STRUCTURE MATERIAL:	WEATHERED STEEL WAS SELECTED TO MATCH THE EXISTING WEATHERING STEEL LATTICE TOWER STRUCTURES
E. FOUNDATION MATERIAL:	CONCRETE
AVERAGE FOUNDATION REVEAL:	SEE NOTE 4
F. AVERAGE WIDTH AT CROSSARM:	26.5'
G. AVERAGE WIDTH AT BASE:	6' -8' FOUNDATION DIAMETER (SEE NOTE 1)
H. MINIMUM STRUCTURE HEIGHT:	110'
MAXIMUM STRUCTURE HEIGHT:	145'
AVERAGE STRUCTURE HEIGHT:	127'
I. AVERAGE SPAN LENGTH:	861'
J. MINIMUM CONDUCTOR-TO-GROUND:	22.5' (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

Electric Transmission



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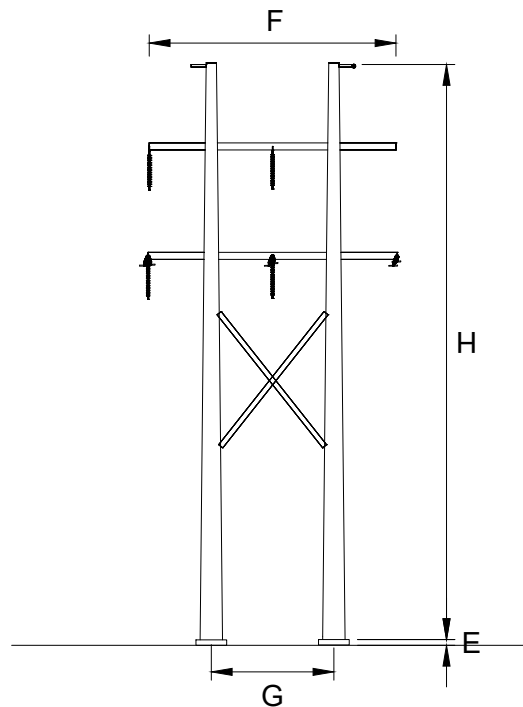
SECTION 4:
STRUCTURES
183/99-183/133

DRAWING NO.
Attachment II.B.3.h

DRAWN MLG

SECTION 4

Attachment II.B.3.i



DOUBLE CIRCUIT H-FRAME DOUBLE DEAD-END STRUCTURE

B. RATIONALE FOR STRUCTURE TYPE:	STRUCTURES ARE TO ACCOMMODATE LINE 183 AND FUTURE PLANNING
C. LENGTH OF R/W (STRUCTURE QUANTITY):	5.30 MILES (3 STRUCTURES)
D. STRUCTURE MATERIAL:	WEATHERING STEEL
RATIONALE FOR STRUCTURE MATERIAL:	WEATHERING STEEL WAS SELECTED TO MATCH THE EXISTING WEATHERING STEEL LATTICE TOWER STRUCTURES
E. FOUNDATION MATERIAL:	CONCRETE
AVERAGE FOUNDATION REVEAL:	SEE NOTE 4
F. AVERAGE WIDTH AT CROSSARM:	48.5'
G. AVERAGE WIDTH AT BASE:	23.5' (SEE NOTE 1)
H. MINIMUM STRUCTURE HEIGHT:	75'
MAXIMUM STRUCTURE HEIGHT:	110'
AVERAGE STRUCTURE HEIGHT:	99'
I. AVERAGE SPAN LENGTH:	598'
J. MINIMUM CONDUCTOR-TO-GROUND:	22.5' (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

Electric Transmission



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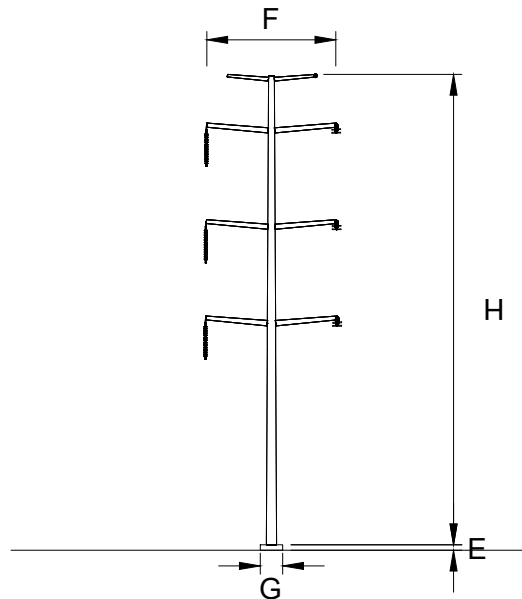
SECTION 4:
STRUCTURES
183/99-183/133

DRAWING NO.

Attachment II.B.3.i

DRAWN MLG

SECTION 4



DOUBLE CIRCUIT DOUBLE DEAD-END MONOPOLE STRUCTURE

B. RATIONALE FOR STRUCTURE TYPE:	STRUCTURES ARE TO ACCOMMODATE LINE 183 AND FUTURE PLANNING
C. LENGTH OF R/W (STRUCTURE QUANTITY):	5.30 MILES (2 STRUCTURES)
D. STRUCTURE MATERIAL:	WEATHERING STEEL
RATIONALE FOR STRUCTURE MATERIAL:	WEATHERING STEEL WAS SELECTED TO MATCH THE EXISTING WEATHERING STEEL LATTICE TOWER STRUCTURES
E. FOUNDATION MATERIAL:	CONCRETE
AVERAGE FOUNDATION REVEAL:	SEE NOTE 4
F. AVERAGE WIDTH AT CROSSARM:	27'
G. AVERAGE WIDTH AT BASE:	6' - 9' DIAMETER FOUNDATION (SEE NOTE 1)
H. MINIMUM STRUCTURE HEIGHT:	125'
MAXIMUM STRUCTURE HEIGHT:	145'
AVERAGE STRUCTURE HEIGHT:	135'
I. AVERAGE SPAN LENGTH:	598'
J. MINIMUM CONDUCTOR-TO-GROUND:	22.5' (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

Electric Transmission



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SECTION 4:
STRUCTURES
183/99-183/133

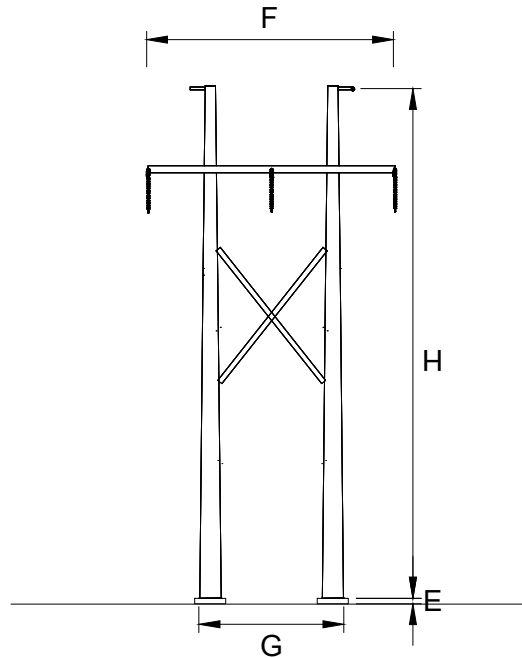
DRAWING NO.

Attachment II.B.3.j

DRAWN MLG

SECTION 4

Attachment II.B.3.k



SINGLE CIRCUIT H-FRAME DOUBLE DEAD-END STRUCTURE

B. RATIONALE FOR STRUCTURE TYPE:	STRUCTURES ARE TO ACCOMMODATE LINE 183 AND FUTURE PLANNING
C. LENGTH OF R/W (STRUCTURE QUANTITY):	5.30 MILES (2 STRUCTURES)
D. STRUCTURE MATERIAL:	WEATHERING STEEL
RATIONALE FOR STRUCTURE MATERIAL:	WEATHERING STEEL WAS SELECTED TO MATCH THE EXISTING WEATHERING STEEL LATTICE TOWER STRUCTURES
E. FOUNDATION MATERIAL:	CONCRETE
AVERAGE FOUNDATION REVEAL:	SEE NOTE 4
F. AVERAGE WIDTH AT CROSSARM:	48.5'
G. AVERAGE WIDTH AT BASE:	23.5' (SEE NOTE 1)
H. MINIMUM STRUCTURE HEIGHT:	90'
MAXIMUM STRUCTURE HEIGHT:	90'
AVERAGE STRUCTURE HEIGHT:	90'
I. AVERAGE SPAN LENGTH:	598'
J. MINIMUM CONDUCTOR-TO-GROUND:	22.5' (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

Electric Transmission



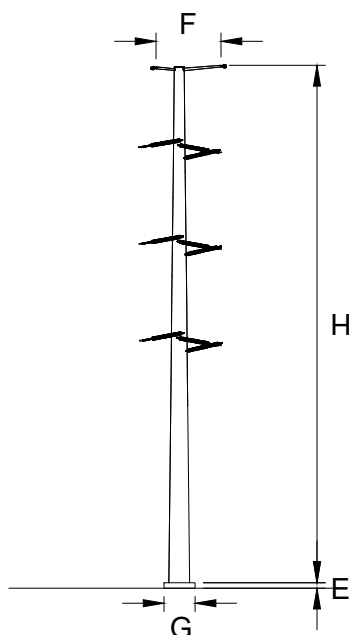
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SECTION 4:
STRUCTURE
183/99-183/133

DRAWING NO.
Attachment II.B.3.k

DRAWN MLG

SECTION 4



SINGLE CIRCUIT STEEL POLE - NO ARMS

B. RATIONALE FOR STRUCTURE TYPE:	STRUCTURES ARE TO ACCOMMODATE LINE 183 AND FUTURE PLANNING
C. LENGTH OF R/W (STRUCTURE QUANTITY):	5.30 MILES (2 STRUCTURES)
D. STRUCTURE MATERIAL:	WEATHERING STEEL
RATIONALE FOR STRUCTURE MATERIAL:	WEATHERING STEEL WAS SELECTED TO MATCH THE EXISTING WEATHERING STEEL LATTICE TOWER STRUCTURES
E. FOUNDATION MATERIAL:	CONCRETE
AVERAGE FOUNDATION REVEAL:	SEE NOTE 4
F. AVERAGE WIDTH AT CROSSARM:	N/A
G. AVERAGE WIDTH AT BASE:	6'-8" DIAMETER FOUNDATION (SEE NOTE 1)
H. MINIMUM STRUCTURE HEIGHT:	100'
MAXIMUM STRUCTURE HEIGHT:	100'
AVERAGE STRUCTURE HEIGHT:	100'
I. AVERAGE SPAN LENGTH:	598'
J. MINIMUM CONDUCTOR-TO-GROUND:	22.5' (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

Electric Transmission



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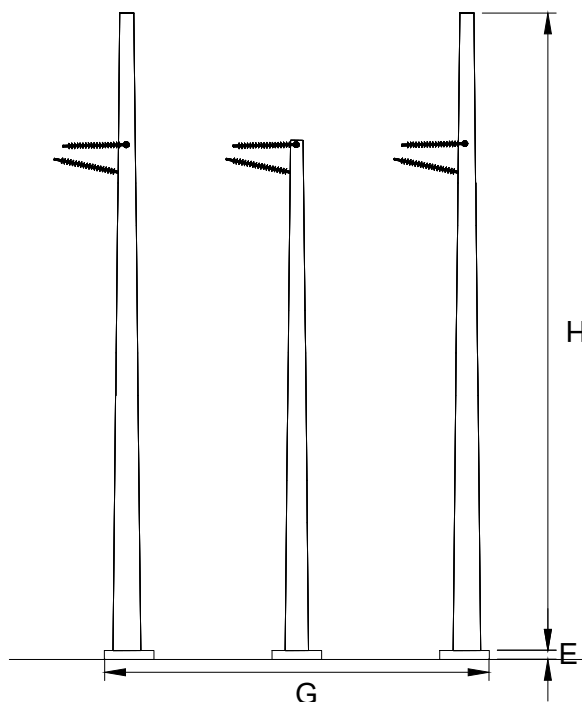
SECTION 4:
STRUCTURE
183/99-183/133

DRAWING NO.

Attachment II.B.3.I

DRAWN MLG

SOWEGO SUBSTATION PROPERTY



SINGLE CIRCUIT DOUBLE DEAD-END 3-POLE STRUCTURE

B. RATIONALE FOR STRUCTURE TYPE:	STRUCTURE ACCOMMODATES FOR LINE 183 REBUILD
C. LENGTH OF R/W (STRUCTURE QUANTITY):	0.11 MILES (2 STRUCTURES)
D. STRUCTURE MATERIAL:	WEATHERING STEEL
RATIONALE FOR STRUCTURE MATERIAL:	WEATHERING STEEL WAS SELECTED TO CLOSELY MATCH THE STRUCTURES THAT HAVE BEEN REPLACED IN THE RECONDUCTORING OF LINE 183
E. FOUNDATION MATERIAL:	CONCRETE
AVERAGE FOUNDATION REVEAL:	SEE NOTE 4
F. AVERAGE WIDTH AT CROSSARM:	N/A
G. AVERAGE WIDTH AT BASE:	44' (SEE NOTE 1)
H. MINIMUM STRUCTURE HEIGHT:	70'
MAXIMUM STRUCTURE HEIGHT:	75'
AVERAGE STRUCTURE HEIGHT:	73'
I. AVERAGE SPAN LENGTH:	283'
J. MINIMUM CONDUCTOR-TO-GROUND:	22.5'

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

Electric Transmission



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SOWEGO SUBSTATION PROPERTY :
STRUCTURES
183/1000-1001

DRAWING NO.

Attachment II.B.3.m

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II. DESCRIPTION OF THE PROPOSED PROJECT

B. Line Design and Operational Features

- 4. With regard to the proposed supporting structures for all feasible alternate routes, provide the maximum, minimum and average structure heights with respect to the whole route.**

Response: Not applicable.

II. DESCRIPTION OF THE PROPOSED PROJECT

B. Line Design and Operational Features

5. For lines being rebuilt, provide mapping showing existing and proposed structure heights for each individual structure within the ROW, as proposed in the application.

Response: See Attachment II.B.5.a for structure mapping.

See the table below for the existing and proposed heights of permanent structures related to the Rebuild Project. The proposed approximate structure heights are from the conceptual design created to estimate the cost of the Rebuild Project and are subject to change based on final engineering design. The approximate structure heights do not include foundation reveal.

Structure Number	Existing Structure Height (ft)	Proposed Structure Above Ground Height (ft)	Attachment II.B.3. Structure Type
183/12*	75	75	NA
183/13	53	88	II.B.3.a
183/14	62	88	II.B.3.a
183/15	56	70	II.B.3.a
183/16	56	75	II.B.3.a
183/17	63	79	II.B.3.a
183/18	57	84	II.B.3.a
183/19	68	110	II.B.3.b
183/20	79	110	II.B.3.b
183/21	83	90	II.B.3.c
183/22	77	88	II.B.3.d
183/23	69	84	II.B.3.d
183/24	50	100	II.B.3.f
183/25	52	100	II.B.3.e
183/26	53	105	II.B.3.e
183/27	52	110	II.B.3.e
183/28	57	105	II.B.3.e
183/29	54	115	II.B.3.e
183/30	52	105	II.B.3.e
183/31	51	100	II.B.3.e
183/32	57	110	II.B.3.e
183/33	58	105	II.B.3.e
183/34	48	100	II.B.3.f
183/35	57	110	II.B.3.e
183/36	55	105	II.B.3.e

183/37	52	105	II.B.3.e
183/38	57	105	II.B.3.e
183/39	56	115	II.B.3.e
183/40	49	105	II.B.3.e
183/41	52	90	II.B.3.f
183/42	57	110	II.B.3.eh
183/43	71	110	II.B.3.eh
183/44	57	115	II.B.3.eh
183/45	52	100	II.B.3.eh
183/46	57	110	II.B.3.eh
183/47	58	110	II.B.3.eh
183/48	57	110	II.B.3.eh
183/49	68	115	II.B.3.e
183/50	51	110	II.B.3.f
183/51	51	100	II.B.3.e
183/52	47	105	II.B.3.e
183/53	49	90	II.B.3.f
183/54	51	105	II.B.3.e
183/55	67	125	II.B.3.e
183/56	74	125	II.B.3.e
183/57	51	110	II.B.3.e
183/58	53	115	II.B.3.e
183/59	58	110	II.B.3.e
183/60	59	105	II.B.3.e
183/61	52	110	II.B.3.e
183/62	57	105	II.B.3.e
183/63	56	105	II.B.3.e
183/64	52	110	II.B.3.e
183/65	52	105	II.B.3.e
183/66	62	100	II.B.3.f
183/67	55	100	II.B.3.f
183/68	51	100	II.B.3.e
183/69	63	120	II.B.3.f
183/70	67	105	II.B.3.e
183/71	57	110	II.B.3.e
183/72	51	100	II.B.3.f
183/73	68	110	II.B.3.e
183/74	52	110	II.B.3.e
183/75	51	105	II.B.3.e
183/76	58	110	II.B.3.e
183/77	59	105	II.B.3.e
183/78	51	100	II.B.3.e
183/79	54	110	II.B.3.e

183/80	68	110	II.B.3.e
183/81	52	105	II.B.3.e
183/82	57	105	II.B.3.e
183/83	47	100	II.B.3.f
183/84	58	125	II.B.3.g
183/86	60	125	II.B.3.g
183/87	62	115	II.B.3.f
183/88	47	110	II.B.3.e
183/89	56	110	II.B.3.e
183/90	48	110	II.B.3.e
183/91	48	100	II.B.3.e
183/92	47	105	II.B.3.e
183/93	51	100	II.B.3.e
183/94	61	105	II.B.3.e
183/95	53	120	II.B.3.e
183/96	53	115	II.B.3.e
183/97	61	110	II.B.3.f
183/98	60	80	II.B.3.g
183/99	62	75	II.B.3.k
183/100	75	145	II.B.3.j
183/101	103	120	II.B.3.h
183/102	104	120	II.B.3.h
183/103	120	140	II.B.3.h
183/104	129	145	II.B.3.h
183/105	103	125	II.B.3.h
183/106	103	120	II.B.3.h
183/107	118	125	II.B.3.h
183/108	107	120	II.B.3.h
183/109	108	130	II.B.3.h
183/110	141	130	II.B.3.h
183/111	103	130	II.B.3.h
183/112	113	125	II.B.3.h
183/113	113	125	II.B.3.j
183/114	108	135	II.B.3.h
183/115	107	135	II.B.3.h
183/116	108	130	II.B.3.h
183/117	104	130	II.B.3.h
183/118	107	140	II.B.3.h
183/119	130	130	II.B.3.h
183/120	103	120	II.B.3.h
183/121	112	130	II.B.3.h
183/122	118	130	II.B.3.h
183/123	57	110	II.B.3.k

183/124**	57	NA	NA
183/125	112	110	II.B.3.k
183/126	125	140	II.B.3.h
183/127	114	135	II.B.3.h
183/128	103	115	II.B.3.h
183/129	104	115	II.B.3.h
183/130	103	115	II.B.3.h
183/130A	NA	105	II.B.3.j
183/131	104	110	II.B.3.h
183/132	43	90	II.B.3.k
183/132B	NA	100	II.B.3.l
183/133	46	90	II.B.3.k
183/133B	NA	100	II.B.3.l
183/134*	145	145	NA
183/1000	NA	75	II.B.3.m
183/1001	78	70	II.B.3.m
Minimum	43	70	
Maximum	141	145	
Average	70	110	

* Existing structures that are not being replaced and are excluded from minimum, maximum, and average calculations.

** Existing structure that is being removed and not replaced; excluded from minimum, maximum, and average calculations.

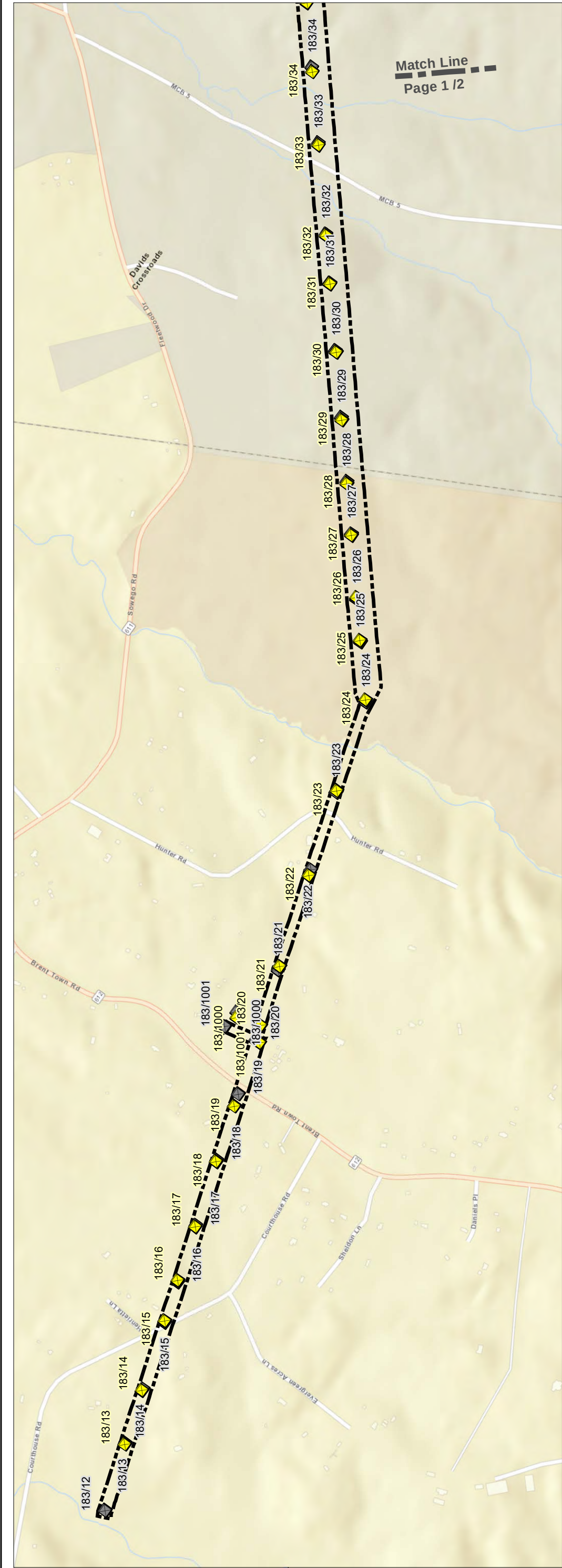
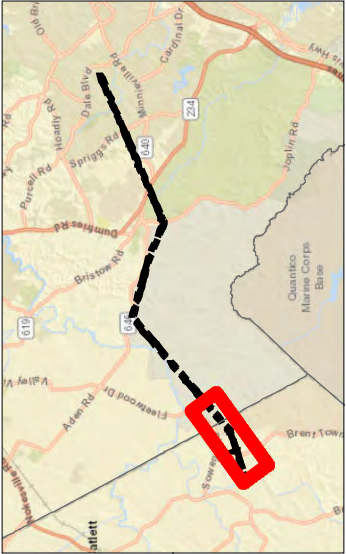


Table II. B.5

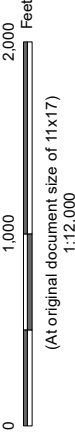
Existing Structure Number	183/12	183/13	183/14	183/15	183/16	183/17	183/18	183/19	183/20	183/21	183/22	183/23	183/24	183/25	183/26	183/27	183/28	183/29	183/30	183/31	183/32	183/33	183/34
Existing Structure Height (Feet)	75	53	62	56	56	63	57	68	78	79	N/A	69	50	52	53	52	57	54	52	51	57	58	48

Proposed Structure Number	183/12	183/13	183/14	183/15	183/16	183/17	183/18	183/19	183/20	183/21	183/22	183/23	183/24	183/25	183/26	183/27	183/28	183/29	183/30	183/31	183/32	183/33	183/34
Proposed Structure Height (Feet)	75	88	88	70	75	79	84	110	70	75	88	84	100	100	105	110	105	115	105	100	110	105	100

*Structure heights do not include foundation reveal. Proposed heights based on preliminary engineering and are subject to change during final engineering
**Structures 183/12 and 183/134 will not be replaced



- Proposed Structure
- Existing Structure
- Project Right-of-Way



Project Location
Fauquier and Prince William Counties, Virginia
Client/Project
Dominion Energy Virginia
Line #183 Partial Rebuild Project

Prepared by GMA on 2022-07-13
TR by MP on 2022-07-13
IR by CPG on 2022-07-13
203401769

Figure No.
II.B.5
Title
Existing and Proposed Structures

- Notes
- Coordinate System: NAD 1983 StatePlane Virginia North FIPS 4501 Feet
 - Data Sources: Dominion Energy Virginia, Stantec, DCR
 - Base Map © ESRI

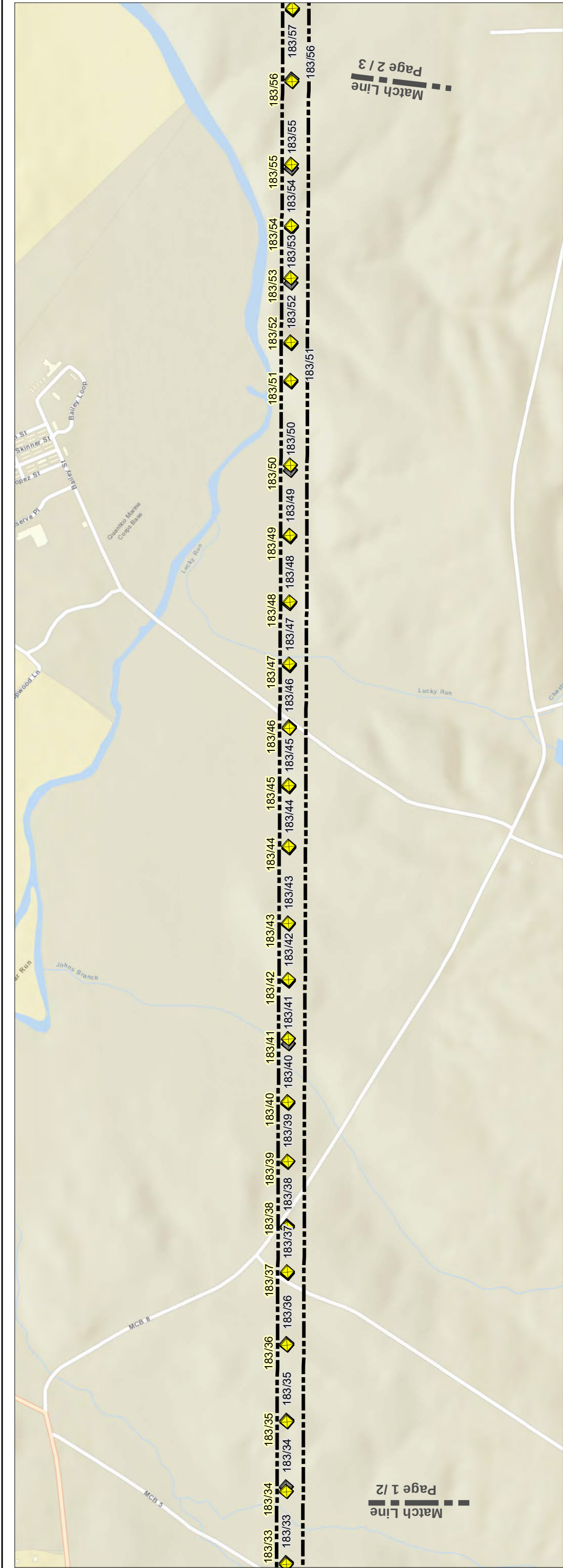
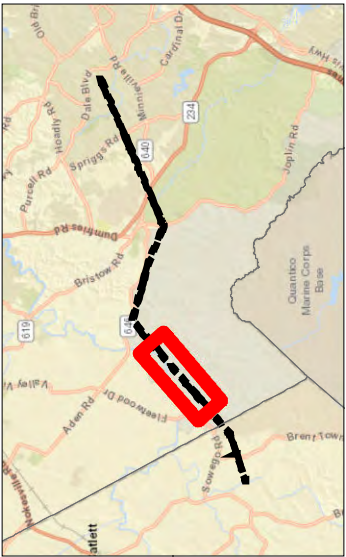


Table II. B.5

Existing Structure Number	183/33	183/34	183/35	183/36	183/37	183/38	183/39	183/40	183/41	183/42	183/43	183/44	183/45	183/46	183/47	183/48	183/49	183/50	183/51	183/52	183/53	183/54	183/55	183/56	183/57
Existing Structure Height (Feet)	58	48	57	55	52	57	56	49	52	57	71	57	52	57	58	57	68	51	51	47	49	51	67	74	51

Proposed Structure Number	183/33	183/34	183/35	183/36	183/37	183/38	183/39	183/40	183/41	183/42	183/43	183/44	183/45	183/46	183/47	183/48	183/49	183/50	183/51	183/52	183/53	183/54	183/55	183/56	183/57
Proposed Structure Height (Feet)	105	100	110	105	105	105	115	105	90	110	110	115	100	110	110	110	115	110	100	105	90	105	125	125	110

*Structure heights do not include foundation reveal. Proposed heights based on preliminary engineering and are subject to change during final engineering
**Structures 183/12 and 183/134 will not be replaced



- Proposed Structure
- Existing Structure
- Project Right-of-Way



Project Location	Prepared by GMA on 2022-07-13 TR by MP on 2022-07-13 IR by CPG on 2022-07-13
Client/Project	Fauquier and Prince William Counties, Virginia Dominion Energy Virginia Line #183 Partial Rebuild Project
Figure No.	203401769
II.B.5	

Existing and Proposed Structures

- Notes
- Coordinate System: NAD 1983 StatePlane Virginia North FIPS 4501 Feet
 - Data Sources: Dominion Energy Virginia, Stantec, DCR
 - Base Map © ESRI

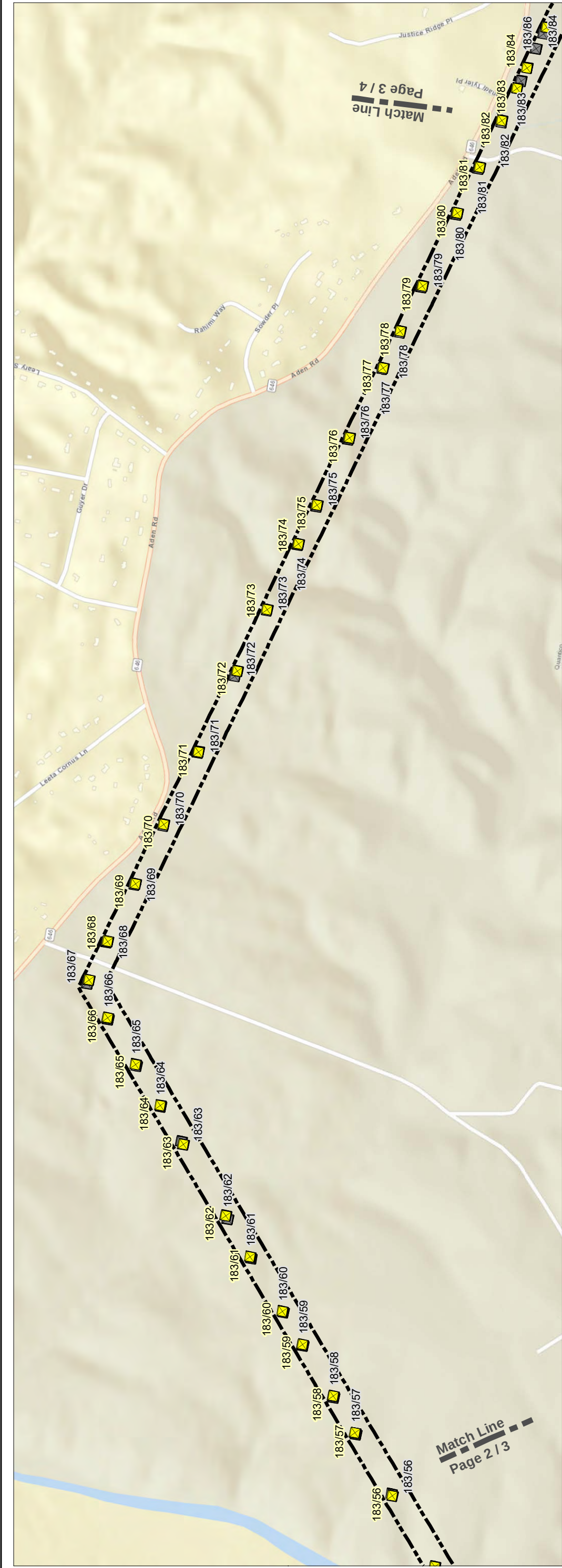
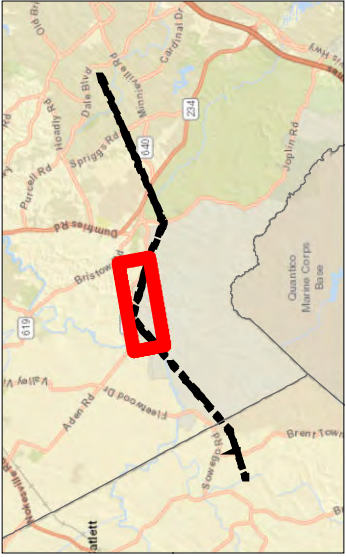


Table II. B.5

Existing Structure Number	183/56	183/57	183/58	183/59	183/60	183/61	183/62	183/63	183/64	183/65	183/66	183/67	183/68	183/69	183/70	183/71	183/72	183/73	183/74	183/75	183/76	183/77	183/78	183/79	183/80	183/81	183/82	183/83	183/84	183/86
Existing Structure Height (Feet)	74	51	53	58	59	52	57	56	52	52	62	55	51	63	67	57	51	68	52	51	58	59	51	54	68	52	57	47	58	60

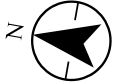
Proposed Structure Number	183/56	183/57	183/58	183/59	183/60	183/61	183/62	183/63	183/64	183/65	183/66	183/67	183/68	183/69	183/70	183/71	183/72	183/73	183/74	183/75	183/76	183/77	183/78	183/79	183/80	183/81	183/82	183/83	183/84	183/86
Proposed Structure Height (Feet)	125	110	115	110	105	110	105	105	110	105	100	100	100	120	105	110	100	110	110	105	110	105	100	110	110	105	105	100	125	125

*Structure heights do not include foundation reveal. Proposed heights based on preliminary engineering and are subject to change during final engineering
**Structures 183/12 and 183/134 will not be replaced



- Notes**
1. Coordinate System: NAD 1983 StatePlane Virginia North FIPS 4501 Feet
 2. Data Sources: Dominion Energy Virginia, Stantec, DCR
 3. Base Map © ESRI

- Proposed Structure
- Existing Structure
- Project Right-of-Way



Project Location
Fauquier and Prince William Counties, Virginia
Prepared by GMA on 2022-07-13
TR by MP on 2022-07-13
IR by CPG on 2022-07-13

Client/Project
Dominion Energy Virginia
Line #183 Partial Rebuild Project
203401769

Figure No.
II.B.5

Title
Existing and Proposed Structures

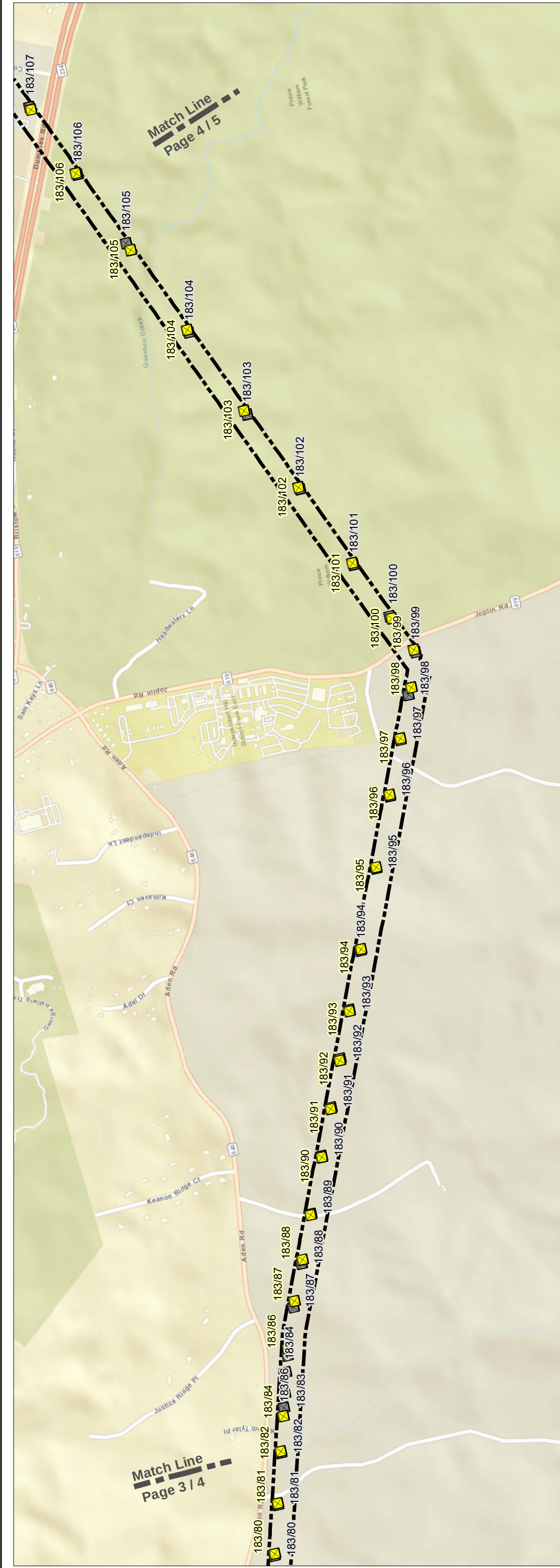
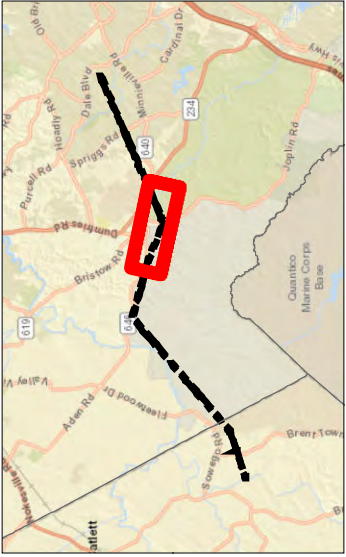


Table II. B.5

Existing Structure Number	183/80	183/81	183/82	183/83	183/84	183/86	183/87	183/88	183/89	183/90	183/91	183/92	183/93	183/94	183/95	183/96	183/97	183/98	183/99	183/100	183/101	183/102	183/103	183/104	183/105	183/106	183/107
Existing Structure Height (Feet)	68	52	57	47	58	60	62	47	56	48	48	47	51	61	53	53	61	60	62	75	103	104	120	129	103	103	118

Proposed Structure Number	183/80	183/81	183/82	183/83	183/84	183/86	183/87	183/88	183/89	183/90	183/91	183/92	183/93	183/94	183/95	183/96	183/97	183/98	183/99	183/100	183/101	183/102	183/103	183/104	183/105	183/106	183/107
Proposed Structure Height (Feet)	110	105	105	100	125	125	115	110	110	110	100	105	100	105	120	115	110	80	75	145	120	120	140	145	125	120	125

*Structure heights do not include foundation reveal. Proposed heights based on preliminary engineering and are subject to change during final engineering
**Structures 183/12 and 183/134 will not be replaced



- Notes
- 1. Coordinate System: NAD 1983 StatePlane Virginia North FIPS 4501 Feet
 - 2. Data Sources: Dominion Energy Virginia, Stantec, DCR
 - 3. Base Map © ESRI

- Proposed Structure
- Existing Structure
- Project Right-of-Way



Project Location	Prepared by GMA on 2022-07-13 TR by MP on 2022-07-13 IR by CPG on 2022-07-13
Client/Project	Fauquier and Prince William Counties, Virginia Dominion Energy Virginia Line #183 Partial Rebuild Project
Figure No.	203401769
II.B.5	

Existing and Proposed Structures

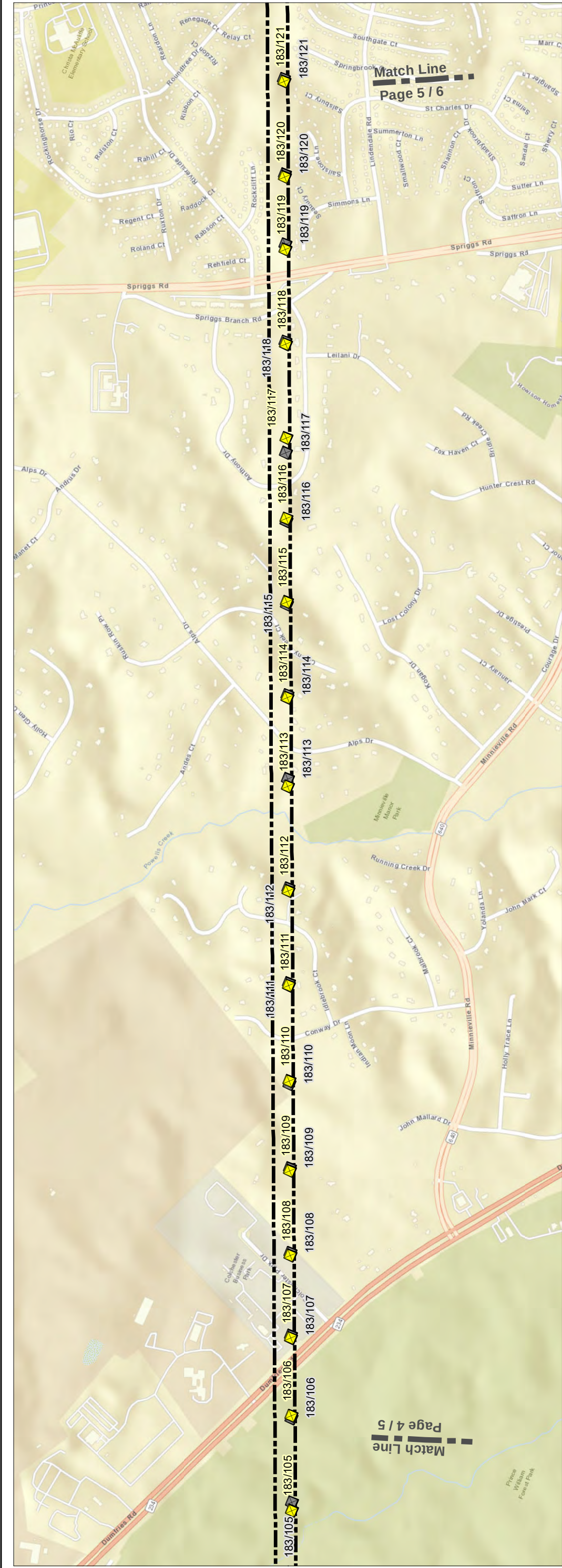
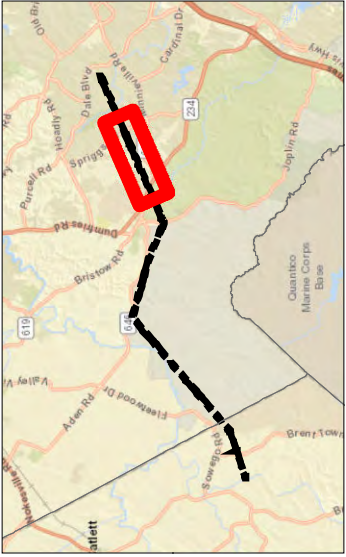


Table II. B.5

Existing Structure Number	183/105	183/106	183/107	183/108	183/109	183/110	183/111	183/112	183/113	183/114	183/115	183/116	183/117	183/118	183/119	183/120	183/121
Existing Structure Height (Feet)	103	103	118	107	108	141	103	113	113	108	107	108	104	107	130	103	112

Proposed Structure Number	183/105	183/106	183/107	183/108	183/109	183/110	183/111	183/112	183/113	183/114	183/115	183/116	183/117	183/118	183/119	183/120	183/121
Proposed Structure Height (Feet)	125	120	125	120	130	130	130	125	125	135	135	130	130	140	130	120	130

*Structure heights do not include foundation reveal. Proposed heights based on preliminary engineering and are subject to change during final engineering
**Structures 183/12 and 183/134 will not be replaced



Notes
1. Coordinate System: NAD 1983 StatePlane Virginia North FIPS 4501 Feet
2. Data Sources: Dominion Energy Virginia, Stantec, DCR
3. Base Map © ESRI

- Proposed Structure
- Existing Structure
- Project Right-of-Way

Project Location	Prepared by GMA on 2022-07-13 TR by MP on 2022-07-13 IR by CPG on 2022-07-13
Client/Project	Fauquier and Prince William Counties, Virginia Dominion Energy Virginia Line #183 Partial Rebuild Project
Figure No.	203401769
II.B.5	

Existing and Proposed Structures

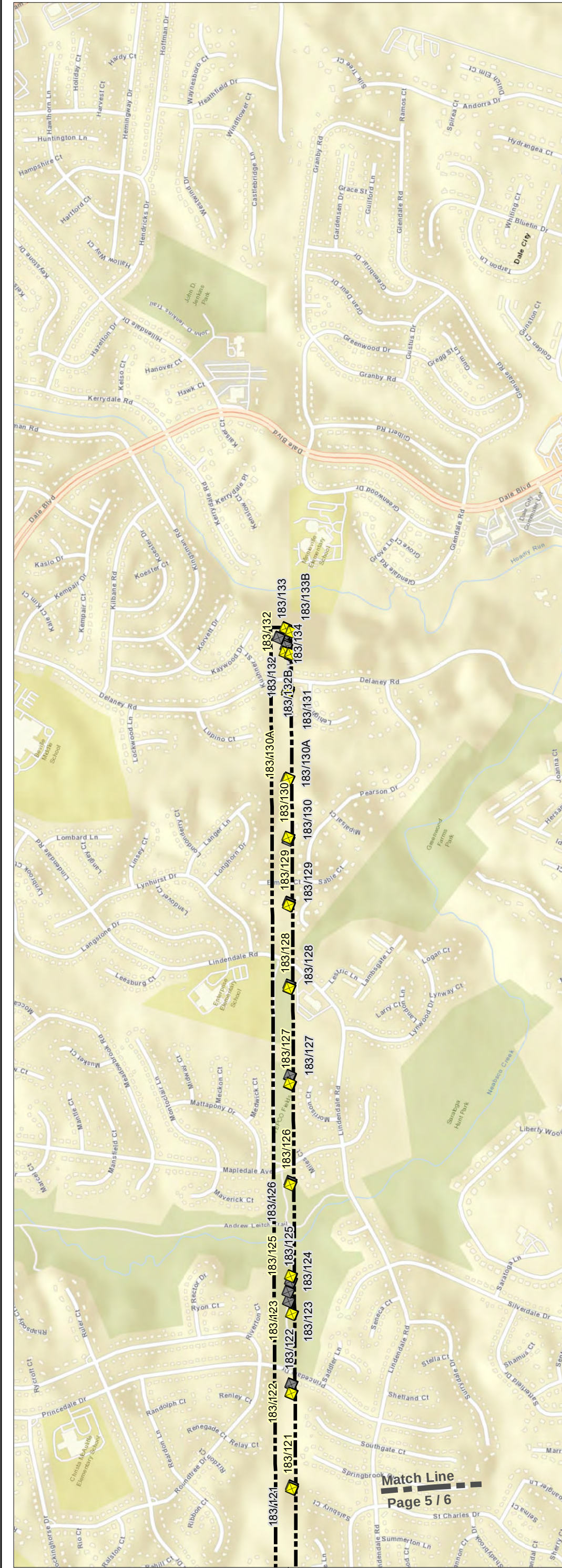
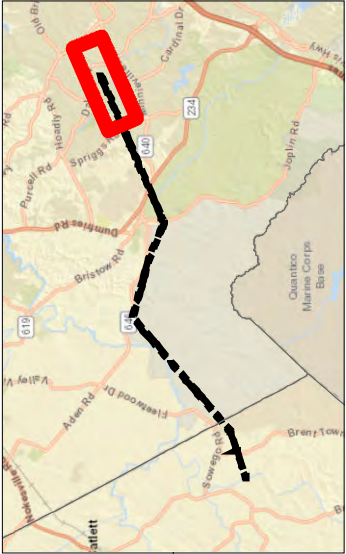


Table II. B.5

Existing Structure Number	183/121	183/122	183/123	183/124	183/125	183/126	183/127	183/128	183/129	183/130	183/130A	183/131	183/132	183/132B	183/133	183/133B	183/134
Existing Structure Height (Feet)	112	118	57	57	112	125	114	103	104	103	N/A	104	43	N/A	46	N/A	145

Proposed Structure Number	183/121	183/122	183/123	183/124	183/125	183/126	183/127	183/128	183/129	183/130	183/130A	183/131	183/132	183/132B	183/133	183/133B	183/134
Proposed Structure Height (Feet)	130	130	110	N/A	110	140	135	115	115	115	105	110	90	100	90	100	145

*Structure heights do not include foundation reveal. Proposed heights based on preliminary engineering and are subject to change during final engineering
**Structures 183/12 and '183/134 will not be replaced



- Proposed Structure
- Existing Structure
- Project Right-of-Way



Project Location	Prepared by GMA on 2022-07-13 TR by MP on 2022-07-13 R by CPG on 2022-07-13
Client/Project	Fauquier and Prince William Counties, Virginia Dominion Energy Virginia Line #183 Partial Rebuild Project
Figure No.	203401769
II.B.5	
Title	

Existing and Proposed Structures

- Notes
- 1. Coordinate System: NAD 1983 StatePlane Virginia North FIPS 4501 Feet
 - 2. Data Sources: Dominion Energy Virginia, Stantec, DCR
 - 3. Base Map © ESRI

II. DESCRIPTION OF THE PROPOSED PROJECT

B. Line Design and Operational Features

6. **Provide photographs for typical existing facilities to be removed, comparable photographs or representations for proposed structures, and visual simulations showing the appearance of all planned transmission structures at identified historic locations within one mile of the proposed centerline and in key locations identified by the Applicant.**

Response: *(a) Photographs for typical existing facilities to be removed*

Representative photographs of typical existing structures on Line #183 are provided in Attachment II.B.6.a.

(b) Comparable photographs or representations for proposed structures

Representative photographs of the structures proposed for the Rebuild Project are provided in Attachment II.B.6.b.

(c) Visual simulations from historic and other key locations

Visual simulations showing the appearance of proposed transmission structures are provided for historic properties where the Rebuild Project will be visible. See Attachments II.B.6.c.i and II.B.6.c.ii, which provide viewshed maps and visual simulations, respectively, of proposed structures at identified historic locations within 1.0 mile of the proposed centerline of the Rebuild Project. Attachment II.B.6.c.i was created using GIS modeling to depict whether the existing and proposed structures are or will be visible from historic properties. Observation Points (“OPs”) used for the simulations are indicated on the maps. Attachment II.B.6.c.ii includes existing photographs and simulations of the proposed structures from the selected OPs. The below table identifies historic properties. The below table identifies historic properties within one mile of the centerline of the Rebuild Project.

Historic Property	OP ²¹	Comments
Bel Air (VDHR #076-0001)	1, 2	No visibility at OP1. Limited visibility of Rebuild Project at OP2 from residential development.
Chopawamsic Recreation Demonstration Area (VDHR #079-0299)	3A, 3B	Visibility of Rebuild Project within historic property only down existing easement.
Effingham (VDHR #076-0006)	5	Visibility of only tops of monopoles above treeline.

²¹ OP4 not included due to similarity of OP5 view.

Elk Run Rural Historic District (VDHR #030-5588)	6, 7	View from existing Sowego DP at OP6. No visibility at OP 7.
Bristersburg Historic District (VDHR #030-5161)	7	No visibility of the Rebuild Project.

Simulations of the Rebuild Project from key locations are provided in Attachment III.B.4.

Typical Single Circuit H-Frame Double Dead End Structure



Typical Single Circuit H-Frame I-String Structure



Typical Double Circuit Tower Structure



Typical Single Circuit Suspension H-Frame Structure



Typical Double Circuit Suspension Monopole Structure



Typical Double Circuit Deadend Monopole Structure



Typical Double Circuit H-Frame Structure



Typical Self-Supporting Switches Structure



Typical 3-Pole Structures



Typical Single Circuit Deadend H-Frame Structure



Typical Monopole No Arms Structure



Figure No.

II.B.6

Title

Viewshed Map

Client/Project

Domion Energy Virginia
Line 183 Partial Rebuild

Project Location

Fauquier and Prince William Counties, Virginia

Prepared by GMA on 2022-07-14
TR by XXX on 2022-07-14
IR by CFG on 2022-07-14

203401607

N

0

7,100

14,200

Feet

(At original document size of 11x17)

1:85,000

Substation

Project Limits

1-Mile Buffer

Architectural Resource

Existing Structures to Remain were omitted from this model.

Notes

1. Coordinate System: NAD 1983 StatePlane Virginia North FIPS 4501 Feet

2. Data Sources: Domion Energy Virginia, Historic resource data provided by Virginia Department of Historic Resources, Virginia Cultural Resources Information System (VCRIS)

3. Viewshed analysis produced from digital elevation model and digital surface model derived from VGIN LIDAR

4. Orthimagery © Bing Maps

5. Microsoft product screen shot(s) reprinted with permission from Microsoft Corporation

Page 01 of 05

Disclaimer: This document has been prepared based on information provided by others as cited in the Notes section. Stantec has not verified the accuracy and/or completeness of this information and shall not be responsible for any errors or omissions which may be incorporated herein as a result. Stantec assumes no responsibility for data supplied in electronic format, and the recipient accepts full responsibility for verifying the accuracy and completeness of the data.

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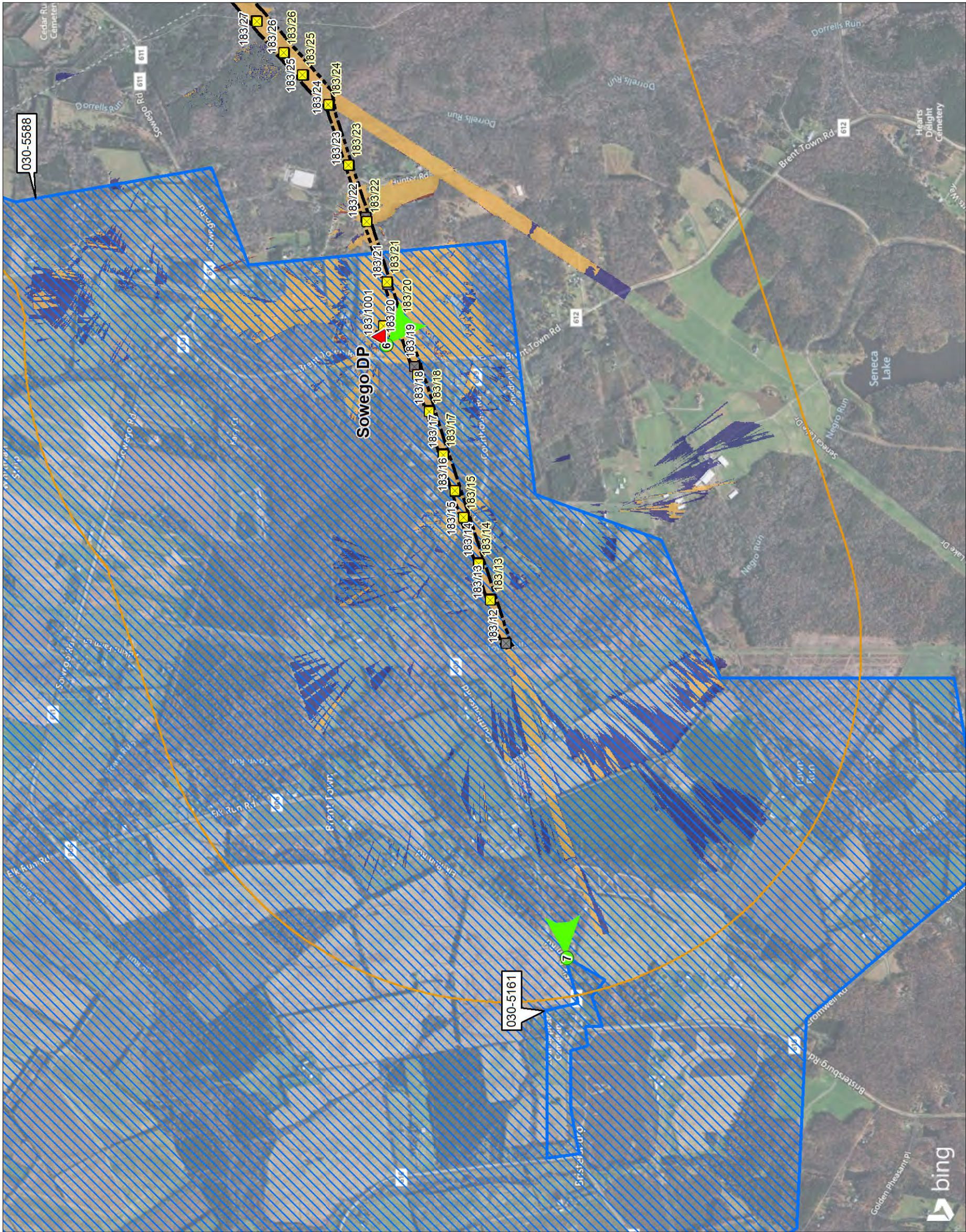


Figure No.

II.B.6

Title

Viewshed Map

Client/Project

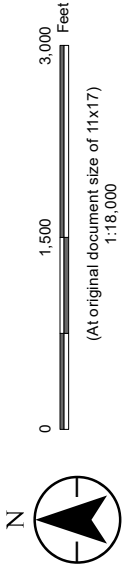
Dominion Energy Virginia
Line 183 Partial Rebuild

203401607

Project Location

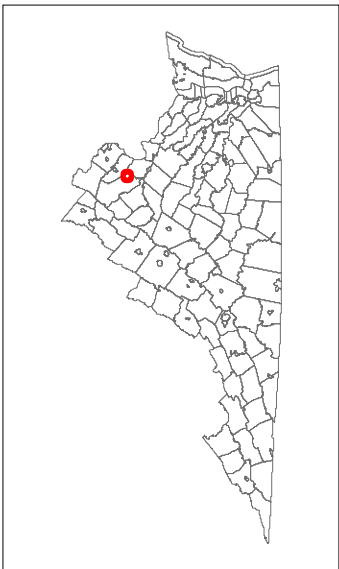
Fauquier and Prince William Counties, Virginia

Prepared by MGS on 2021-08-25
TR by TPS on 2021-09-02
IR by CFG on 2021-09-02



- Substation
- Photo Observation Point
- Proposed Structure
- Existing Structure
- Project Limits
- 1-Mile Buffer
- Architectural Resource
- Existing Visible, Proposed Not Visible
- Both Existing and Proposed Visible
- Existing Not Visible, Proposed Visible

Existing Structures to Remain were omitted from this model.



- Notes
1. Coordinate System: NAD 1983 StatePlane Virginia North FIPS 4501 Feet
 2. Data Sources: Dominion Energy Virginia, Historic resource data provided by Virginia Department of Historic Resources, Virginia Cultural Resources Information System (VCRIS)
 3. Preparation: This map was prepared using ArcGIS Pro 2.9.1 and data derived from VGIN LIDAR
 4. Orthimagery © Bing Maps
 5. Microsoft product screen shot(s) reprinted with permission from Microsoft Corporation



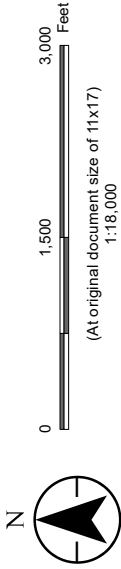
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II.B.6

Title

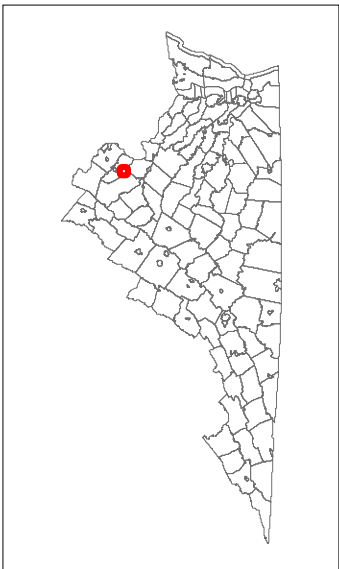
Viewshed Map

Client/Project	20340 607
Dominion Energy Virginia Line 183 Partial Rebuild	
Project Location	
Fauquier and Prince William Counties, Virginia	
Prepared by GMA on 2022-07-14 TR by XXX on 2022-07-14 IR by CFG on 2022-07-14	



- Substation
- Photo Observation Point
- Proposed Structure
- Existing Structure
- Project Limits
- 1-Mile Buffer
- Architectural Resource
- Existing Visible, Proposed Not Visible
- Both Existing and Proposed Visible
- Existing Not Visible, Proposed Visible

Existing Structures to Remain were omitted from this model.



Notes

1. Coordinate System: NAD 1983 StatePlane Virginia North FIPS 4501 Feet
2. Data Sources: Dominion Energy Virginia, Historic resource data provided by Virginia Department of Historic Resources, Virginia Cultural Resources Information System (VCRIS)
3. Preparation: This map was prepared using ArcGIS Pro 2.9.1 and data derived from VGIN LIDAR
4. Orthomagey © Bing Maps
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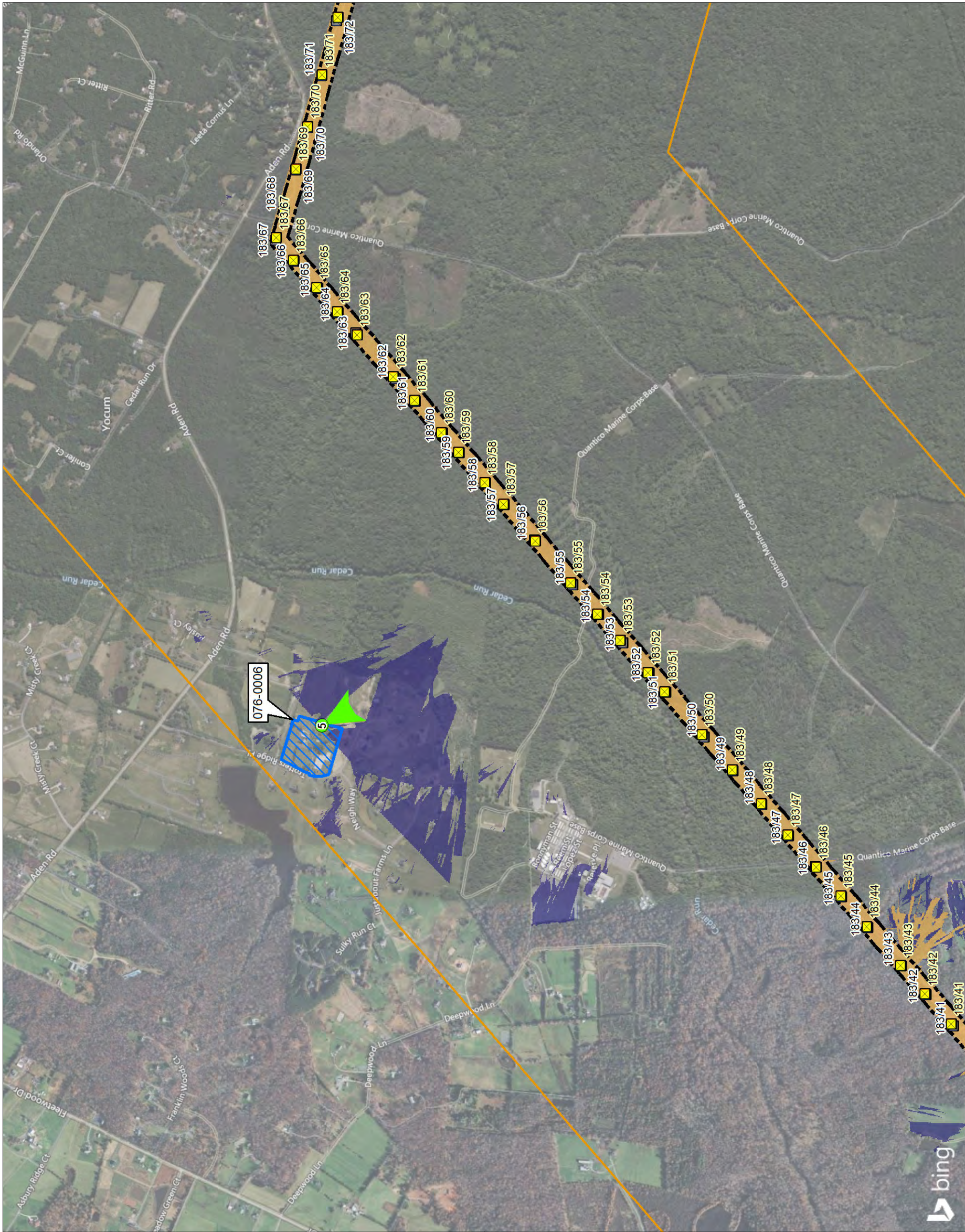


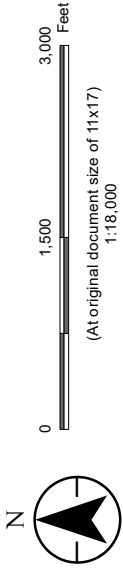
Figure No.
II.B.6

Title
Viewshed Map

Client/Project
Dominion Energy Virginia
Line 183 Partial Rebuild

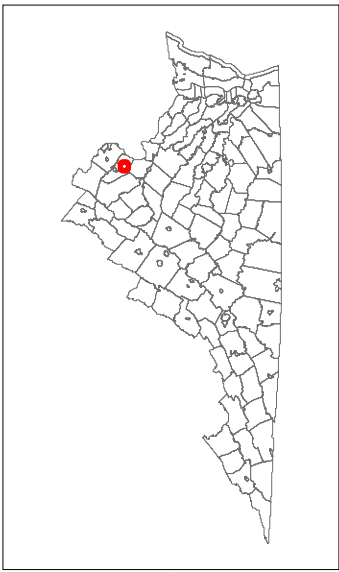
Project Location
Fauquier and Prince William Counties, Virginia

Prepared by GMA on 2022-07-14
TR by XXX on 2022-07-14
IR by CFG on 2022-07-14



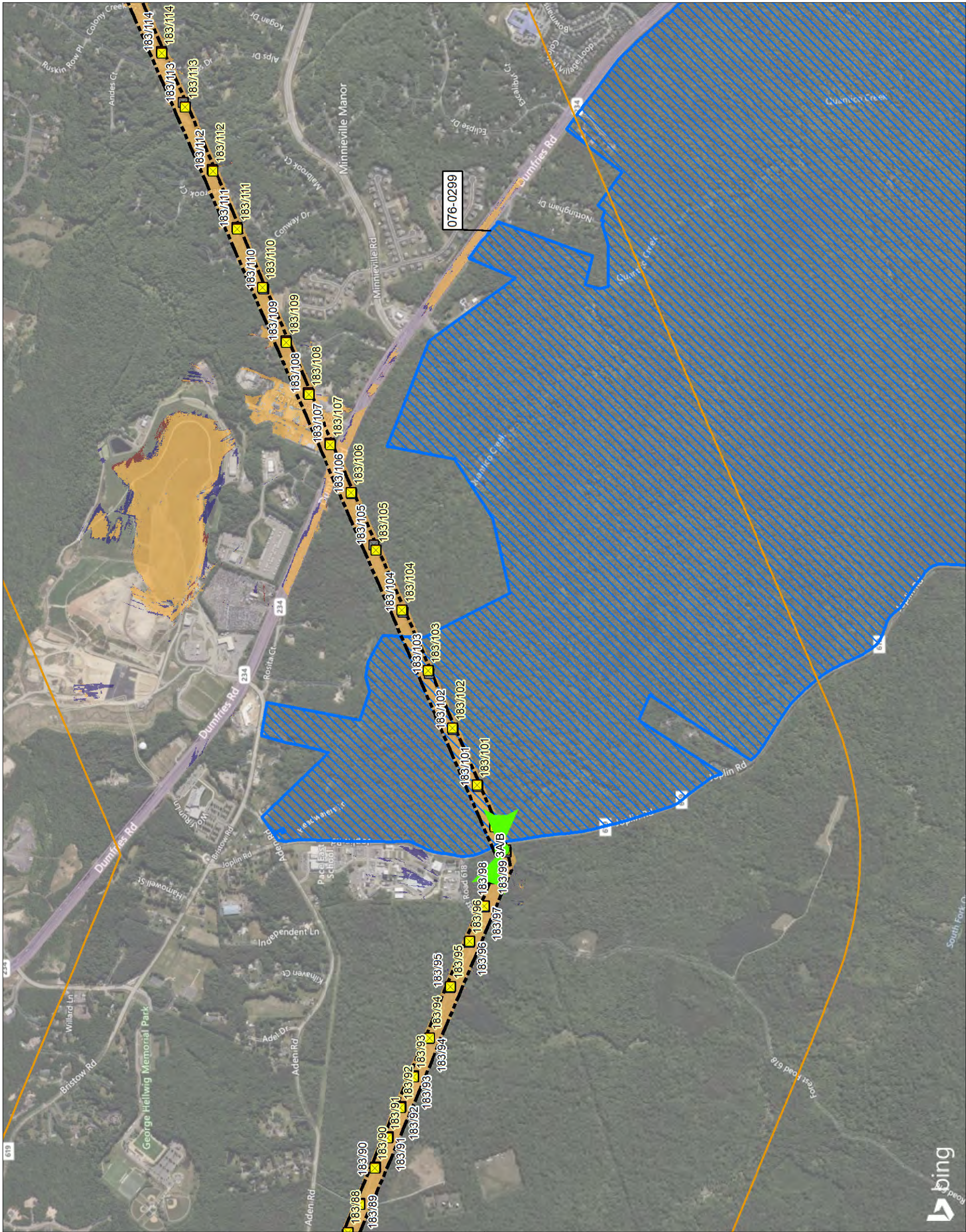
- Substation
- Photo Observation Point
- Proposed Structure
- Existing Structure
- Project Limits
- 1-Mile Buffer
- Architectural Resource
- Existing Visible, Proposed Not Visible
- Both Existing and Proposed Visible
- Existing Not Visible, Proposed Visible

Existing Structures to Remain were omitted from this model.



Notes

1. Coordinate System: NAD 1983 StatePlane Virginia North FIPS 4501 Feet
2. Data Sources: Dominion Energy Virginia, Historic resource data provided by Virginia Department of Historic Resources, Virginia Cultural Resources Information System (VCRIS)
3. Preparation: This map was prepared using data from the Virginia Cultural Resources Information System (VCRIS) and the Virginia Department of Historic Resources (VDHR) and digital surface model derived from VGIN LIDAR
4. Orthimagery © Bing Maps
5. Microsoft product screen shot(s) reprinted with permission from Microsoft Corporation





Photograph provided by Stantec

OP 1 Existing
Bel Air (DHR #076-0001)







Photograph provided by Stantec

OP 2 Existing
Bel Air (DHR #076-0001)



Simulation provided by Stantec

OP 2 Proposed
Bel Air (DHR #076-0001)





Photograph provided by Stantec

OP 3A Existing
Chopawamsic Recreation Demonstration Area (DHR #076-0299)





Simulation by Stantec

OP 3A Proposed
Chopawamsic Recreation Demonstration Area (DHR #076-0299)





Photograph provided by Stantec

OP 3B Existing
Chopawamsic Recreation Demonstration Area (DHR #076-0299)





Simulation by Stantec

OP 3B Proposed
Chopawamsic Recreation Demonstration Area (DHR #076-0299)





Photograph provided by Stantec

OP 5 Existing
Effingham Plantation (DHR #076-0006)





Photograph provided by Stantec

OP 6 Existing
Elk Run Rural Historic District (DHR #030-5588)





Simulation provided by Stantec

OP 6 Proposed
Elk Run Rural Historic District (DHR #030-5588)





Photograph provided by Stantec

OP 7 Existing
Bristersburg Historic District (DHR #030-6151) & Elk Run Rural Historic District (DHR #030-5588)





Simulation provided by Stantec

OP 7 Proposed (Structures Not Visible)
Bristersburg Historic District (DHR #030-6151) & Elk Run Rural Historic District (DHR #030-5588)



II. DESCRIPTION OF THE PROPOSED PROJECT

- C. Describe and furnish plan drawings of all new substations, switching stations, and other ground facilities associated with the proposed project. Include size, acreage, and bus configurations. Describe substation expansion capability and plans. Provide one-line diagrams for each.**

Response: There are no new substations, switching stations, or other ground facilities associated with the proposed Rebuild Project, nor are any of the impacted stations being expanded as part of the Rebuild Project. The Rebuild Project will require the following station work:

The Company will upgrade the line terminal equipment at Bristers Substation. No substation expansion is required for the Rebuild Project.

At Bristers Substation, a wave trap, a disconnect switch, and riser conductors will be replaced to support the new line rating.

III. IMPACT OF LINE ON SCENIC, ENVIRONMENTAL AND HISTORIC FEATURES

- A. Describe the character of the area that will be traversed by this line, including land use, wetlands, etc. Provide the number of dwellings within 500 feet, 250 feet and 100 feet of the centerline, and within the ROW for each route considered. Provide the estimated amount of farmland and forestland within the ROW that the proposed project would impact.**

Response: **Land Use**

The Rebuild Project area is contained within the Fauquier and Prince William Counties for a total project length of approximately 15.2 miles. From Structure #183/12 to Dumfries Road, Line #183 passes through rural land and open space associated with U.S. Marine Corps Base Quantico and Prince William Forest Park. From Dumfries Road to Minnieville DP, land use around the existing right-of-way transitions to suburban.

Farmland/Forests

A total of 116.47 acres of prime farmland, 6.89 acres of prime farmland when certain land management is applied, and 83.69 acres of farmland of statewide importance occurs within the right-of-way encompassing the Line #183 Rebuild Project area. See Attachment III.A.1. Fauquier and Prince William Counties do not have designated farmlands of local importance. Within the existing right-of-way of the Rebuild Project, only the section between Structures #183/19 and #183/23 is currently in agricultural use.

The transmission line right-of-way is regularly maintained to keep vegetation at the emergent and scrub-shrub level for the safe operation of the existing facilities. Since no forested areas exist within the existing right-of-way, no impact to forestland is expected.

The Fauquier County and Prince William County Comprehensive Plans identify agricultural and forestall districts, which are authorized by Va. Code § 15.2-4312. Fauquier County has established 13 Agricultural and Forestal Districts, and Prince William County has one Agricultural and Forestal District. The existing right-of-way associated with the Rebuild Project traverses one parcel associated with the Southern Fauquier Agricultural and Forestal District. A second parcel associated with the Southern Fauquier Agricultural and Forestal District is located immediately west of the start of the Rebuild Project at Structure #183/12. The closest parcel associated with the Prince William County Agricultural and Forestal District, AFD91-1, is located approximately 0.3 mile from the Rebuild Project. See Attachment III.A.1.

The construction of construction access roads and pads for structure erection may represent a temporary effect to farming operations that are occurring within the

Company's easements. The Company utilizes timber mats to access transmission structures within agricultural fields to minimize the impact to the soil, thereby avoiding permanent impact to farmlands. Farming operations currently exist within the Company's easements and the Company will work with landowners on final structure placement to minimize the effect on farming operations. Therefore, prime farmland and agricultural and forestal districts should not be incrementally impacted by the construction of the Rebuild Project.

Wetlands

According to the U.S. Geological Survey ("USGS") topographic quadrangles (Somerville [2019], Nokesville [2019], Independent Hill [2019], Joplin [2019], and Occoquan [2019]), the 15.2-mile section of Line #183 proposed for rebuild crosses Town Run, Dorrells Run, Goose Run, Goslin Run, Johns Branch, Lucky Run, Quantico Creek, Powells Creek, Neabsco Creek, and several perennial and intermittent streams.

A desktop wetlands review of the transmission line corridor evaluating potential impacts to wetlands and streams for the Rebuild Project was prepared by Stantec in June 2022. A copy of the desktop evaluation report is provided in Attachment 2.D.1 to the DEQ Supplement. Review of several desktop resources including National Wetlands Inventory mapping, current and historic aerial photography, USGS Quadrangle maps, and soil surveys were used to evaluate the approximate limits of wetlands and surface waters. Probable wetland areas within the transmission right-of-way were identified and assigned a probability ranking ranging from high to low using criteria that are specified in the evaluation report. Due to the difficulty of classifying wetlands as palustrine emergent wetlands ("PEM") or palustrine scrub-shrub ("PSS") using desktop resources, these Cowardin wetland types are combined in the results. The results of the evaluation are summarized below.

Summary of Potential Jurisdictional Resources Within the Rebuild Project Right-of-Way

PEM/PSS Wetland Probability			Open Water (acres)	Stream Channels Acres (LF)
High (acres)	PEM/PSS Medium (acres)	Low (acres)		
15.89	25.29	13.27	0.09	1.53 (13,187)

Approximately 54.45 acres of potential wetlands were identified within the right-of-way based on the desktop evaluation. Additionally, approximately 0.09 acre of potential open water and 1.53 acres (13,187 linear feet) of potential stream channel were identified. Prior to construction, the Company will obtain any necessary permits to impact jurisdictional resources. A field delineation using methods outlined in the *1987 Corps of Engineers Delineation Manual* and the *2012 Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Eastern*

Mountain and Piedmont Region (Version 2.0) will be conducted within the entire right-of-way and submitted to the Corps as part of the permitting process.

Historic Features

In accordance with the *Guidelines for Assessing Impacts of Proposed Transmission Lines and Associated Facilities on Historic Resources in the Commonwealth of Virginia (2008)*, a Stage I Pre-Application Analysis was conducted by Stantec. This analysis, which is included as Attachment 2.I.1 to the DEQ Supplement, was submitted to VDHR on July 29, 2022.

No National Historic Landmark (“NHL”)-listed architectural resources are located within the 1.5-mile radius of the Rebuild Project centerline. Four NRHP-listed resources are located within 1.0 mile and one NRHP-eligible resource was identified within 0.5 mile of the Rebuild Project centerline.

Based upon the proposed changes to structure heights, the similar heights of the existing Line #539 in the same right-of-way, and the position of the Rebuild Project within the landscape, it is anticipated that the Rebuild Project will have no impact to historic properties with no view of the Rebuild Project, and a minimal impact to those historic properties that will view the Rebuild Project, as shown in the table below. A third historic property, Elk Run Historic District, will view the Rebuild Project and have minimal to moderate impacts. Consistent with its customary practice, the Company will coordinate with VDHR regarding the findings of the Stage I Pre-Application Analysis. The Company expects that additional analysis during a Stage II evaluation will be required to determine whether impacts to the Elk Run Rural Historic District are minimal or moderate.

Previously Recorded Architectural Resources Considered under the Stage I Pre-Application Guidelines

VDHR #	Resource Name	VDHR/NRHP Status	Distance to Centerline (Feet)	Impact
030-5588	Elk Run Rural Historic District	NRHP-Eligible	0	Minimal/Moderate
030-5161	Bristersburg Historic District	NRHP-Listed, VLR Listed	4,487	None
076-0001	Bel Air	NRHP-Listed, VLR Listed	782	None
076-0006	Effingham	NRHP-Listed, VLR Listed	3,998	Minimal
079-0299	Chopawamsic Recreation Demonstration Area	NRHP-Listed, VLR Listed	0	Minimal

Four recorded archaeological resources were identified within the Rebuild Project right-of-way, as shown in the table below.

**Previously Recorded Archeological Resources Considered under the
Stage I Pre-Application Guidelines**

VDHR #	Resource Name	VDHR/NRHP Status	Distance to ROW (Feet)	Impact
44FQ0284	Farmstead, 19 th Century: 4 th quarter (1875-1899), 20 th Century: 1 st half (1900-1949)	Not Eligible	0	Investigate During Archaeological Survey
44PW1837	Farmstead, 19 th Century: 4 th quarter (1875-1899), 20 th Century: 1 st half (1900-1949)	Not Eligible	0	Investigate During Archaeological Survey
44PW0962	Berryman Mill Site, 19 th Century (1800-1899)	Eligible	0	Investigate During Archaeological Survey
44PW0915	Farmstead, 19 th Century (1800-1899), 20 th Century: 1 st half (1900-1949)	Not Evaluated	0	Investigate During Archaeological Survey

Wildlife

A search of the U.S. Fish and Wildlife (“USFWS”) Information, Planning, and Consultation (“IPaC”) system, the Virginia Department of Wildlife Resources (“DWR”) Virginia Fish and Wildlife Information Service (“VAFWIS”), and the Virginia Department of Conservation and Recreation (“DCR”) Natural Heritage Data Explorer (“NHDE”) public databases identified several federal and state listed species that have the potential to occur within the Rebuild Project area. These resources are identified in the report included as Attachment 2.G.1 to the DEQ Supplement. The Company intends to reasonably minimize any impact on these resources and coordinate with DWR as appropriate.

Threatened and endangered species within the Rebuild Project vicinity

Species	Status	Database	Result
Indiana bat (<i>Myotis sodalis</i>)	FE SE	USFWS-IPaC	Identified as potentially occurring within or near the Rebuild Project. No known hibernacula or maternity roost trees within the vicinity of the project. The Rebuild Project will generally occur within an existing, cleared, and maintained right-of-way; however, limited removal of danger trees may be necessary. The Company plans to adhere to the time-of-year-restriction for “pup season” (June 1 – July 31). Given that no Indiana bat hibernacula or maternity roost trees occur in the vicinity of the Rebuild Project, no impacts are expected.

Species	Status	Database	Result
Northern long-eared bat (<i>Myotis septentrionalis</i>)	FT ST	USFWS-IPaC, DWR-NLEB Winter Habitat and Roost Tree Map	Identified as potentially occurring within or near the Rebuild Project. No known hibernacula or maternity roost trees were identified within the vicinity of the Rebuild Project. Limited removal of danger trees may be necessary during the project. The Rebuild Project will generally occur within an existing, cleared, and maintained right-of-way; however, limited removal of danger trees may be necessary. Given that no northern long-eared bat hibernacula or maternity roost trees occur in the vicinity, no impacts are expected. To the extent that impacts may be possible, the Company would plan to rely upon and comply with the 4(d) Rule.
Dwarf wedgemussel (<i>Alasmidonta heterodon</i>)	FE SE	USFWS-IPaC	Identified as potentially occurring within or near the Rebuild Project. This species typically inhabits freshwater streams with slow to moderate current and little silt deposition. The mussel occurs on stream-bottom substrate, including muddy sand, sand, and gravel bottoms. No in-stream work will be required for the Rebuild Project and erosion and sediment controls will be utilized to prevent runoff. Therefore, the Rebuild Project is not anticipated to adversely affect the dwarf wedgemussel.
Monarch butterfly (<i>Danaus plexippus</i>)	FC	USFWS-IPaC	Identified as potentially occurring within or near the Rebuild Project. This species is a nectivorous insect preferring a variety of habitats including rangelands, meadows, riparian areas, farms, and open forests. No agency coordination for federal candidate species is required; therefore, no further action is required for this species.
Small whorled pogonia (<i>Isotria medeoloides</i>)	FT SE	USFWS-IPaC, DCR-NHDE	Identified as potentially occurring near the Rebuild Project. This species grows in moist areas with beech and hickory overstory, and a generally open understory. The Rebuild Project will generally occur within an existing, cleared, and maintained right-of-way; therefore, the Rebuild Project is not anticipated to adversely affect the small whorled pogonia.
Virginia piedmont water boatman (<i>Sigara depressa</i>)	SE	DCR-NHDE	Identified as potentially occurring near the Rebuild Project area. The Virginia piedmont water boatman is an aquatic insect species endemic to several counties in Virginia. No in-stream work is proposed, and erosion and sediment control measures will be used to prevent runoff. Therefore, the Rebuild Project is not anticipated to adversely affect the Virginia piedmont water boatman.

Species	Status	Database	Result
Bald eagle (<i>Haliaeetus leucocephalus</i>)	Bald and Golden Eagle Protection Act	CCB	No bald eagle nests are located within 660 feet of the Rebuild Project. The bald eagle prefers open bodies of water surrounded by tall trees but can also be found in forested areas away from waterbodies. Therefore, the Rebuild Project is not anticipated to adversely affect the bald eagle.

Note: FE denotes species is federally endangered; FT denotes species is federally threatened; FC denotes federal candidate species; SE denotes species is state endangered; ST denotes species is state threatened.

Dwellings

According to Fauquier and Prince William Counties GIS data, there are 547 dwellings located within 500 feet of the centerline of the Rebuild Project, 169 dwellings located within 250 feet of the centerline, 34 dwellings located within 100 feet of the centerline, and no dwellings located within the right-of-way.

Figure No.
III.A.1

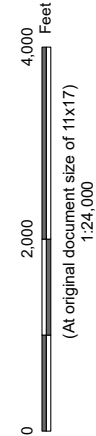
Title
Prime Farmland Map

Client/Project
Dominion Energy Virginia
Line #183 Partial Rebuild Project

203401769

Project Location
Fauquier and Prince William Counties, Virginia

Prepared by MGS on 2022-02-03
TR by ECL on 2022-02-14
IR by CFG on 2022-02-08



Substation / DP

 Beginning/Endpoint Structures

 Partial Rebuild Project Right-of-Way

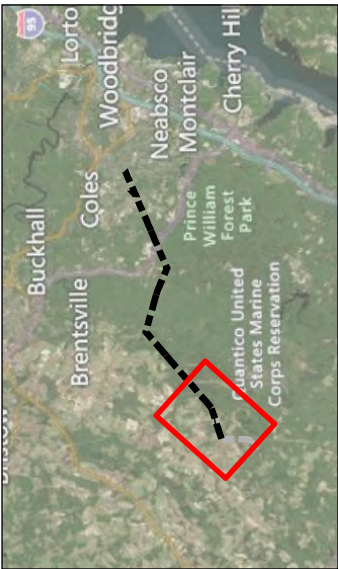
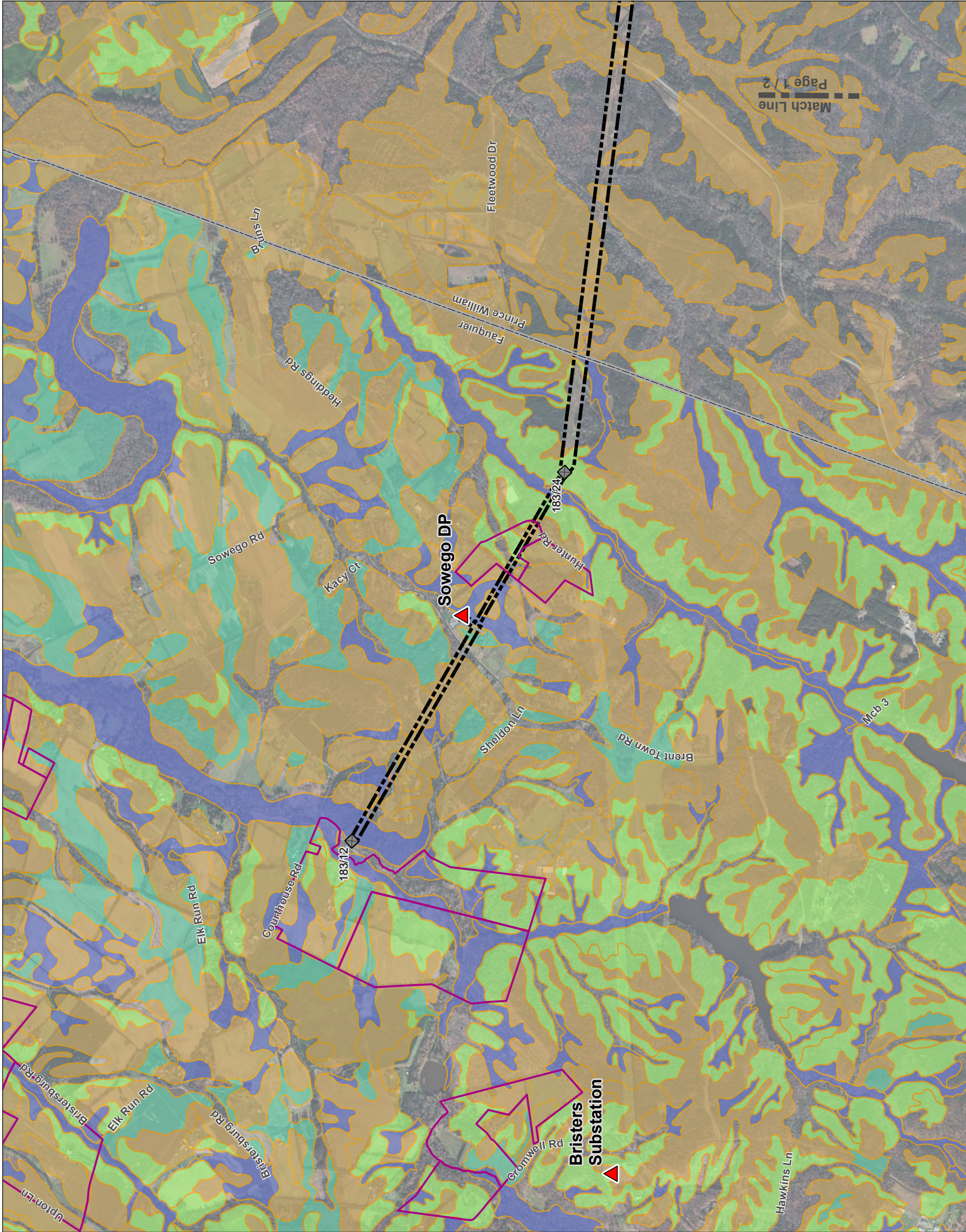
 Agricultural and Forestal District

 All Areas are Prime Farmland (116.47 Acres ±)

 Farmland of Statewide Importance (83.69 Acres ±)

 Prime Farmland if Drained (0.65 Acre ±)

 Prime Farmland if Protected from Flooding or not Frequently Flooded During the Growing Season (6.24 Acres ±)



Notes
1. Coordinate System: NAD 1983 StatePlane Virginia North FIPS 4501 Feet
2. Data Sources: Dominion Energy Virginia, Stantec, DCR, VDOT, Soils data provided by USDA NRCS SSURGO Soil Survey, Fauquier County, Prince William County
3. Orthimagery © Bing Maps
4. Microsoft product screen shot(s) reprinted with permission from Microsoft Corporation



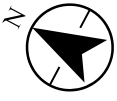
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III.A.1

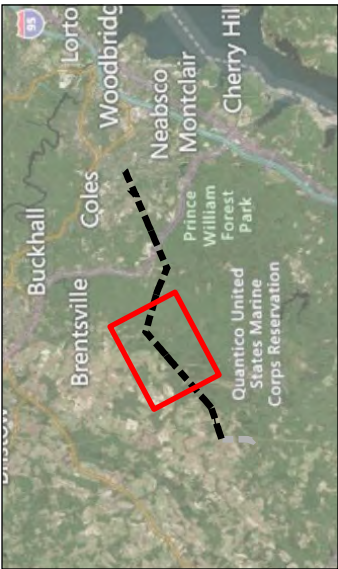
Title

Prime Farmland Map

Client/Project	203401769
Dominion Energy Virginia	
Line #183 Partial Rebuild Project	
Project Location	
Fauquier and Prince William Counties, Virginia	
Prepared by MGS on 2022-02-03	
TR by ECL on 2022-02-14	
IR by CFG on 2022-02-08	



- Substation / DP
- Beginning/Endpoint Structures
 - Partial Rebuild Project Right-of-Way
 - Agricultural and Forestal District
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Notes

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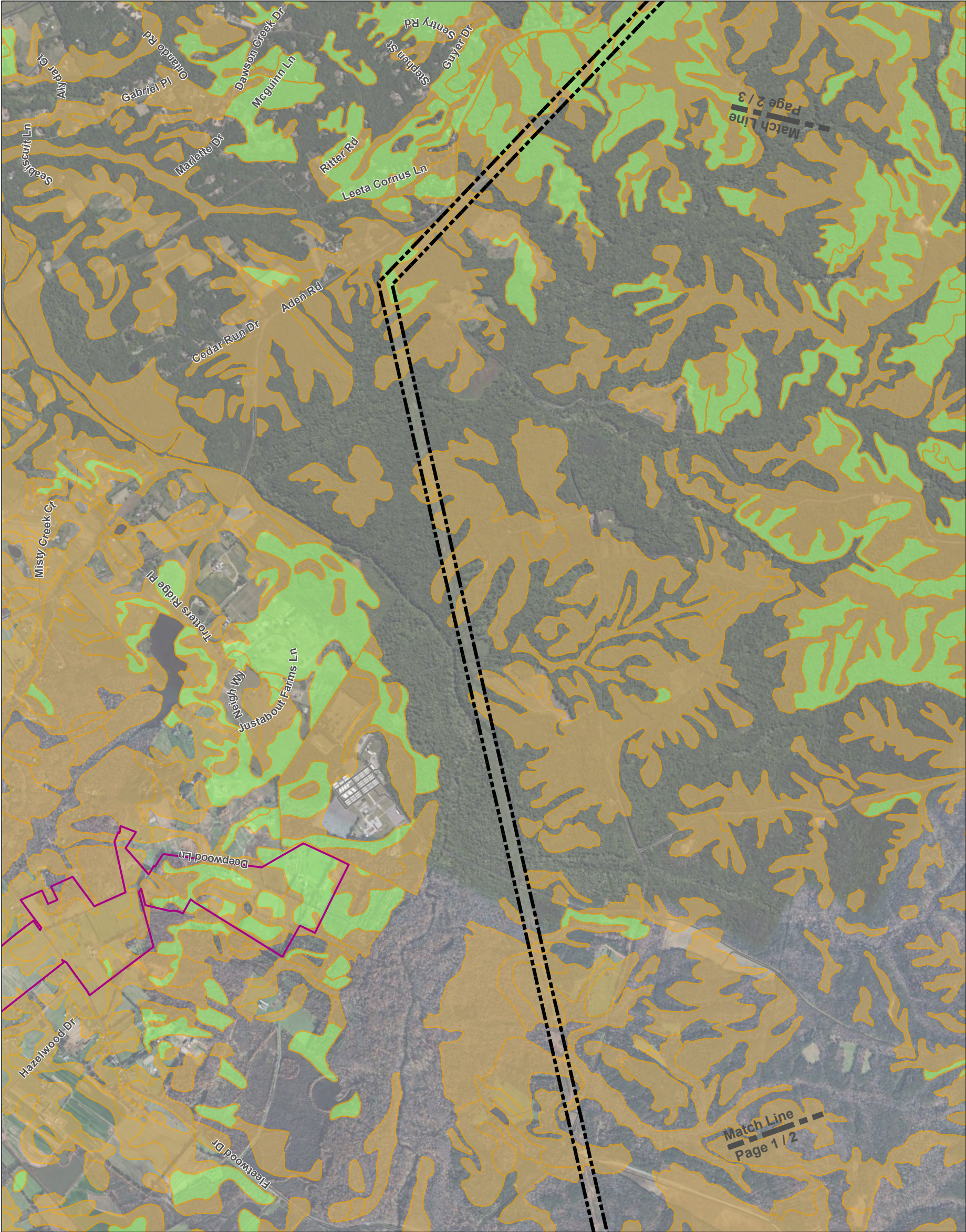


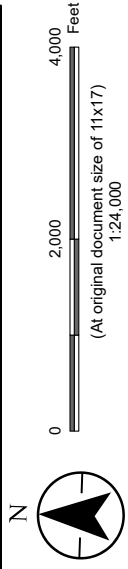
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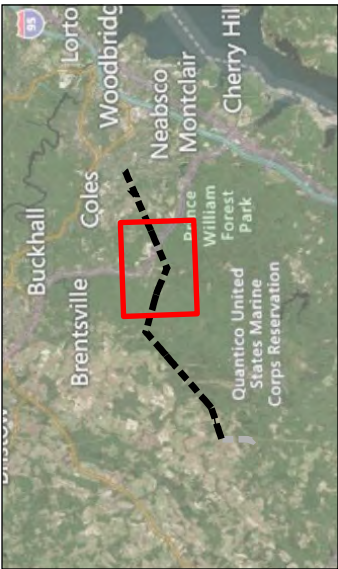
Title

Prime Farmland Map

Client/Project	203401769
Dominion Energy Virginia	
Line #183 Partial Rebuild Project	
Project Location	
Fauquier and Prince William Counties, Virginia	
Prepared by MGS on 2022-02-03	
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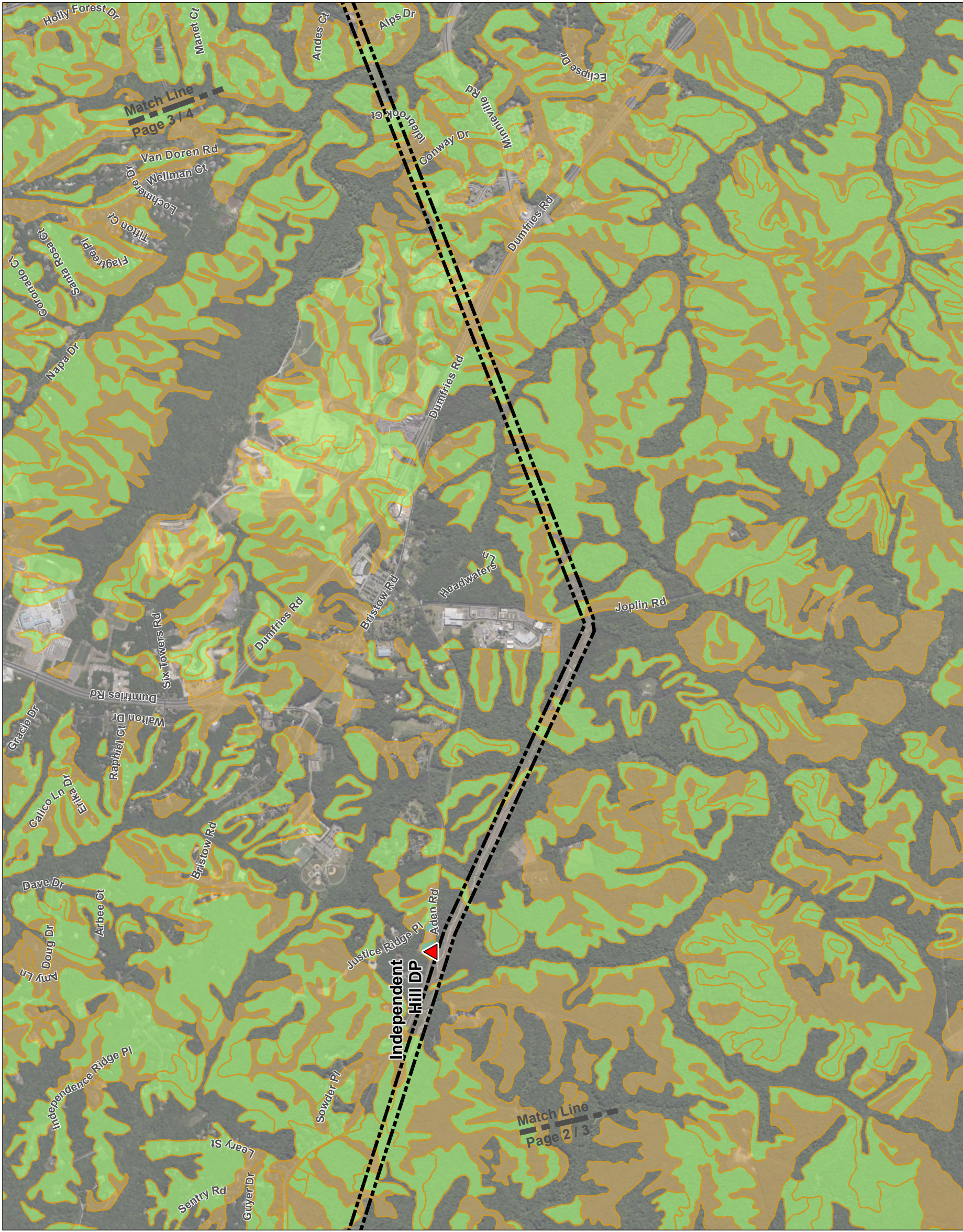


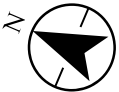
Figure No.

III.A.1

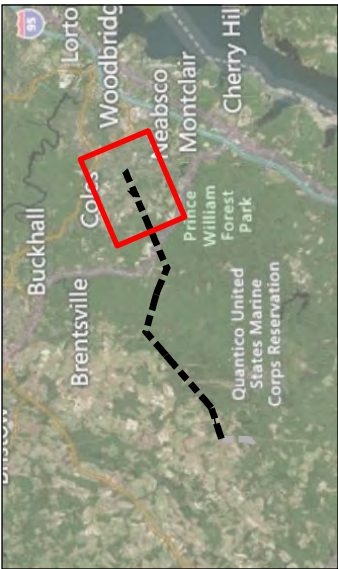
Title

Prime Farmland Map

Client/Project	203401769
Dominion Energy Virginia	
Line #183 Partial Rebuild Project	
Project Location	
Fauquier and Prince William Counties, Virginia	
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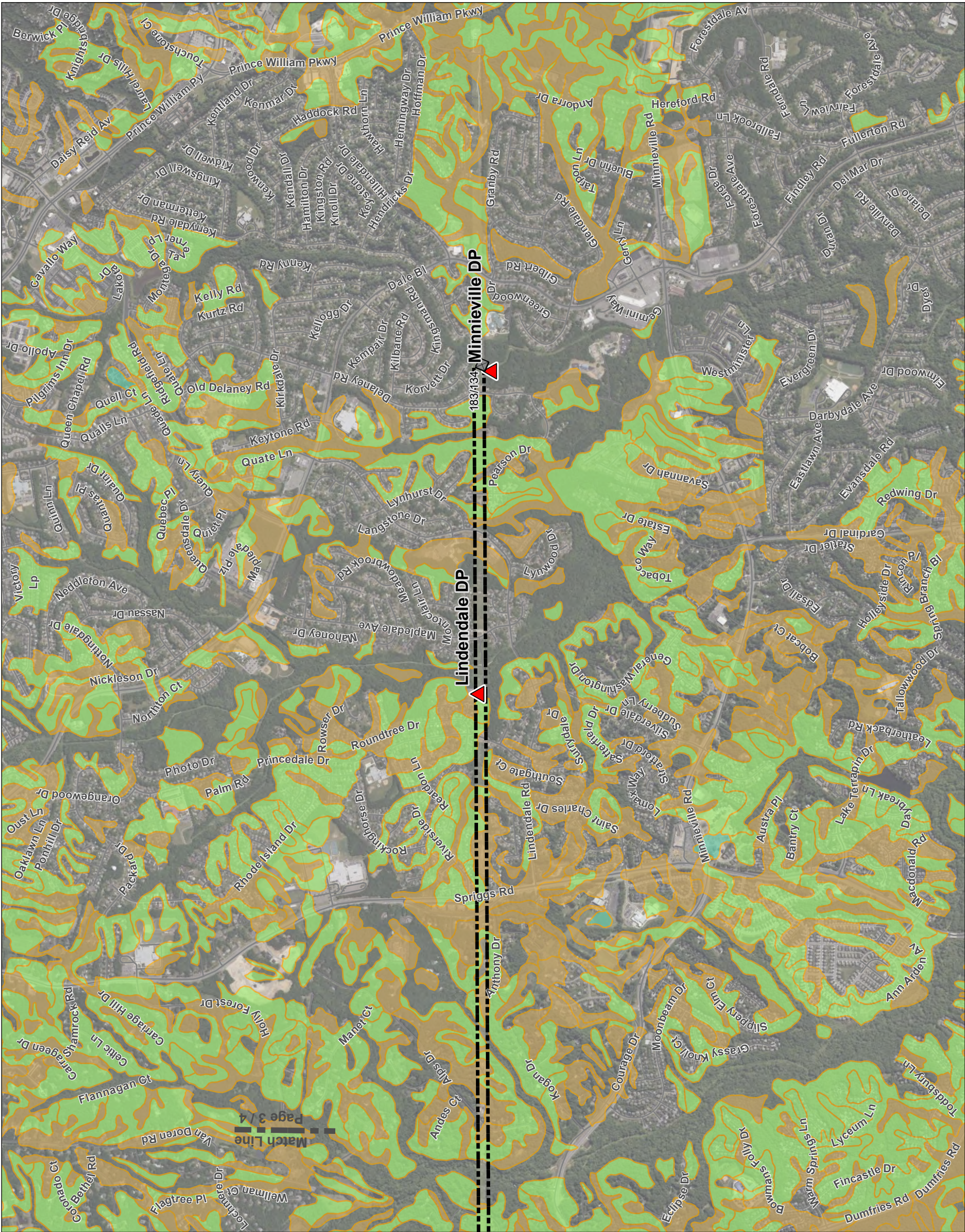


- Substation / DP
- Beginning/Endpoint Structures
 - Partial Rebuild Project Right-of-Way
 - Agricultural and Forestal District
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3. Orthomagey © Bing Maps
4. Microsoft product screen shot(s) reprinted with permission from Microsoft Corporation



III. IMPACT OF LINE ON SCENIC, ENVIRONMENTAL AND HISTORIC FEATURES

B. Describe any public meetings the Applicant has had with neighborhood associations and/or officials of local, state or federal governments that would have an interest or responsibility with respect to the affected area or areas.

Response: In June 2022, the Company launched an internet website dedicated to the proposed Rebuild Project: www.dominionenergy.com/bristersminnieville. The website includes a description and benefits of the proposed Rebuild Project, an explanation of need, route map, photo simulations, an interactive mapping tool which allows residents to input their address to see where they live in relation to the Rebuild Project and proposed structures, a recording of a virtual community meeting held on June 29, 2022, and information on the Commission review process.

In June 2022, the Company sent project announcement mailers advertising a virtual community meeting to approximately 2,010 property owners and residents within 1,000 feet of the Rebuild Project. Each mailer included a postcard with overview map and information about how to join an interactive virtual community meeting to learn more about the Rebuild Project. The postcard provided a brief overview of the proposed Rebuild Project and advised that the Company would host a virtual community meeting. In addition, the communication indicated that detailed materials would be posted to the dedicated Rebuild Project website and how to contact the project team to provide any feedback or questions. Copies of the postcard with overview map are included as Attachment III.B.1.

Newspaper print advertisements, both in English and Spanish, regarding the Rebuild Project and virtual open house were placed in the Prince William Times (circ. 24,005), the Bull Run Observer (circ. 20,271), and Inside NOVA (circ. 25,000). See Attachment III.B.2. In addition, digital and social media advertisements ran in the same print publications as well as NextDoor, Twitter, and Facebook targeting resident and property owners Prince William County and Fauquier County zip codes within close proximity to the Rebuild Project. These ran in both English and Spanish languages. Examples of these advertisements are included as Attachment III.B.3. These digital ads saw over 490,000 impressions, over 5,800 link clicks to the Rebuild Project webpage, and over 67,000 views of the digital ad video.

A virtual open house was held on June 29, 2022, at 6:00 p.m. At the virtual open house, the Company made available details about construction, project timing, project need, structure types and height differences, information on the interactive mapping tool, photo simulations from key areas along the Rebuild Project, and the Commission approval process. There have been 5,490 unique page views on the Rebuild Project webpage in total and a total of 10 views on the posted video recording of the virtual open house (posted on the Rebuild Project webpage). Of the 5,490 unique page views, 3,520 occurred following the June 29, 2022 open house. Traditional open house materials have been posted on the website for the

proposed Rebuild Project, including simulations of the proposed Rebuild Project from key locations and a fact sheet with overview map. The key location simulations are included as Attachment III.B.4.

In addition, the Company researched the demographics of the surrounding communities using the 2015-2019 Esri Updated Demographics data and EPA's EJ Screen 2.0 website to determine that there are 36 Census Block Groups ("CBGs") within the Rebuild Project area that fall within a mile of the existing transmission line. Of these, 12 CBGs are intersected by the Rebuild Project. A review of minority, income, and education census data identified populations within the study area that meet the U.S. Environmental Protection Agency defined threshold for Environmental Justice protections and the thresholds for "community of color" and "low income" set forth in Va. Code § 2.2-234 ("EJ Communities"). Communities of color have been identified in 32 out of 36 CBGs within the study area. Sixteen out of 36 CBGs within the study area appear to be low income. Of the 12 CBGs intersected by the Rebuild Project, 10 meet the definition for a community of color and five meet the definition for low income.

Pursuant to Va. Code §§ 56-46.1 C and 56-259 C, as well as Attachment 1 of these Guidelines, there is a strong preference for the use of existing utility right-of-way whenever feasible. The Rebuild Project is within existing right-of-way, including shared right-of-way with an existing 500 kV transmission line (Line #539) in the vicinity of EJ Communities. Though the Rebuild Project will be replacing the existing 115 kV structures to uprated 230 kV structures that will have an average increase in structure height of 40 feet, these structures will be collocated with the 500 kV line which will have approximately similar heights as the proposed Rebuild Project. Based on the use of the existing right-of-way and height of the existing 500 kV electric transmission line, it is anticipated that there will be minimal impacts to the surrounding communities. Based on the analysis of the Rebuild Project, the Company does not anticipate disproportionately high or adverse impacts to the surrounding community and the EJ Communities located within the study area, consistent with the Rebuild Project design and requirements of the Virginia Code to reasonably minimize adverse impacts.

In addition to its evaluation of impacts, the Company has and will continue to engage the EJ Communities in a manner that allows them to meaningfully participate in the Rebuild Project development and approval process so that the Company can take their views and input into consideration. See Attachment III.B.5 for a copy of the Company's Environmental Justice Policy.



Dominion Energy image. Not project specific.

Electric Transmission
P.O. Box 26666
Richmond, VA 23261



**Dominion
Energy®**

Actions Speak Louder

**YOU'RE INVITED TO
A VIRTUAL COMMUNITY MEETING!
DETAILS ENCLOSED**

IMPORTANT

Local Power Line Project Information

Bristers-Minnieville Transmission Line Rebuild — Virtual Community Meeting

Use your iPhone camera or the QR reader app on other smartphones to visit the project page on our website.



AT DOMINION ENERGY, we are committed to continually reviewing and analyzing our energy infrastructure to provide safe, reliable and affordable electricity to our neighbors. You are receiving this postcard because we have identified the need to rebuild and replace an existing transmission line with a new, higher voltage wire, and taller structures. The line has been in service since the 1940s and needs to be upgraded to continue providing reliable service to the area.

The existing line runs from a power station near Cromwell Drive and Seneca Lake Drive in southeast Fauquier County, or Bristers Substation, to a power station near Minnieville Elementary School in Prince William County, or Minnieville Substation.

In anticipation of increased energy demand in this area in the future, we will not only rebuild the structures but also upgrade the wire. This is necessary to ensure the wire is capable of conducting 230 kilovolts as opposed to its current 115 kilovolts. Structures will be required to be, on average, 40 feet taller.

To learn more about this project, we invite you to attend a virtual community meeting via Webex on Wednesday, June 29, 2022, from 6–7 p.m. During this meeting, you can learn more about our construction process, timelines, and ask questions to our subject matter experts.

Please know that we are dedicated to working safely and courteously in your community and we will continue to keep you updated on our progress.

CONTACT US — Visit our website at DominionEnergy.com/bristersminnieville for project updates. Or contact us by calling 888-291-0190 or sending an email to powerline@dominionenergy.com.

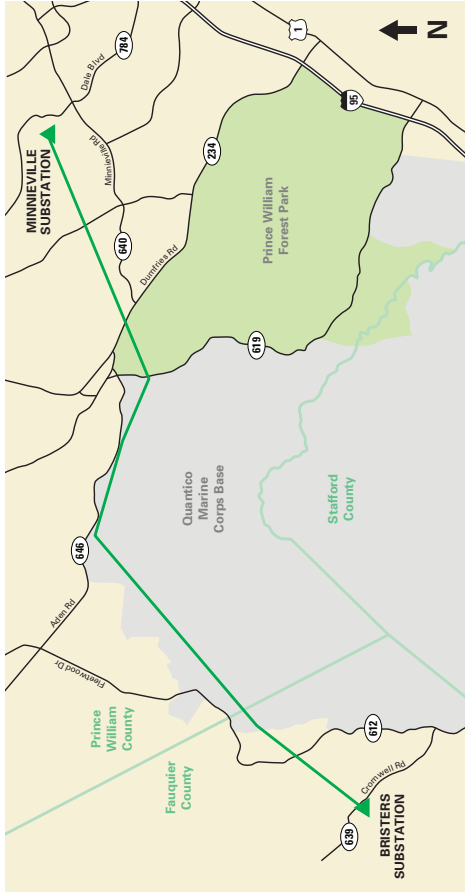
VIRTUAL COMMUNITY MEETING

Live Via Webex Events

Wednesday, June 29, 2022 • 6–7 p.m.

Join the meeting by visiting our website, DominionEnergy.com/bristersminnieville

A recording will be available on the project website after the meeting.



This map is intended to serve as a representation of the project area and is not intended for detailed engineering purposes.

AT DOMINION ENERGY, protecting the grid and making it secure against natural and man-made acts is a top priority. We work alongside government officials to prepare for potential incidents that could affect our ability to provide electricity safely and reliably to the communities we serve. Learn how we're keeping you safe at powerlines101.dominionenergy.com.

You are invited to our Virtual Community Meeting

Learn about the Bristers-Minnieville Electric Transmission Line Rebuild Project planned for Fauquier and Prince William Counties. This project will support electric reliability for all customers in the area.



Use your phone's
camera or QR
reader app to visit
the project page
directly.



**Dominion
Energy®**

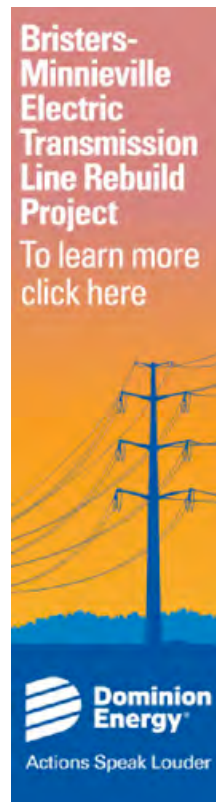
Actions Speak Louder

Join us live online on Wednesday, June 29 at 6 p.m.

You can find event details at

DominionEnergy.com/bristersminnieville

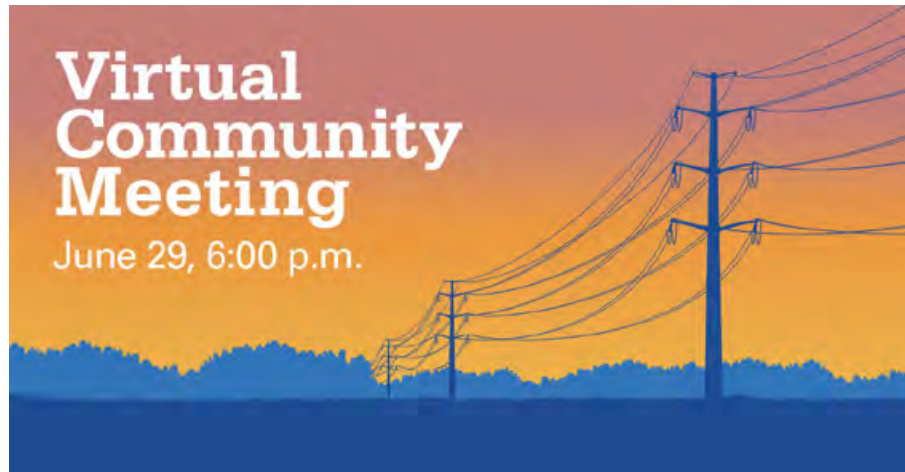
**Dominion Energy
Electric Transmission**

 Bristers-Minnieville
Awareness Display


**Dominion Energy
Electric Transmission**

Bristers-Minnieville
Nextdoor Imagery

Event Post Image:



Awareness Post Image:



**Dominion Energy
Electric Transmission**

Bristers-Minnieville
Social Videos

[Pre-Event Video \(Click to play\)](#)



[Post-Event Video \(Click to play\)](#)



Dominion Energy Electric Transmission

Bristers-Minnieville
Pre Event Newspaper

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Learn about the Bristers-Minnieville Electric Transmission Line Rebuild Project planned for Fauquier and Prince William Counties. This project will support electric reliability for all customers in the area.



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**Dominion
Energy**

Actions Speak Louder

**Dominion Energy
Electric Transmission**

Bristers-Minnieville
Awareness Display



**Dominion Energy
Electric Transmission**

Bristers-Minnieville
Social Videos

[Pre-Event Video \(Click to play\)](#)



[Post-Event Video \(Click to play\)](#)



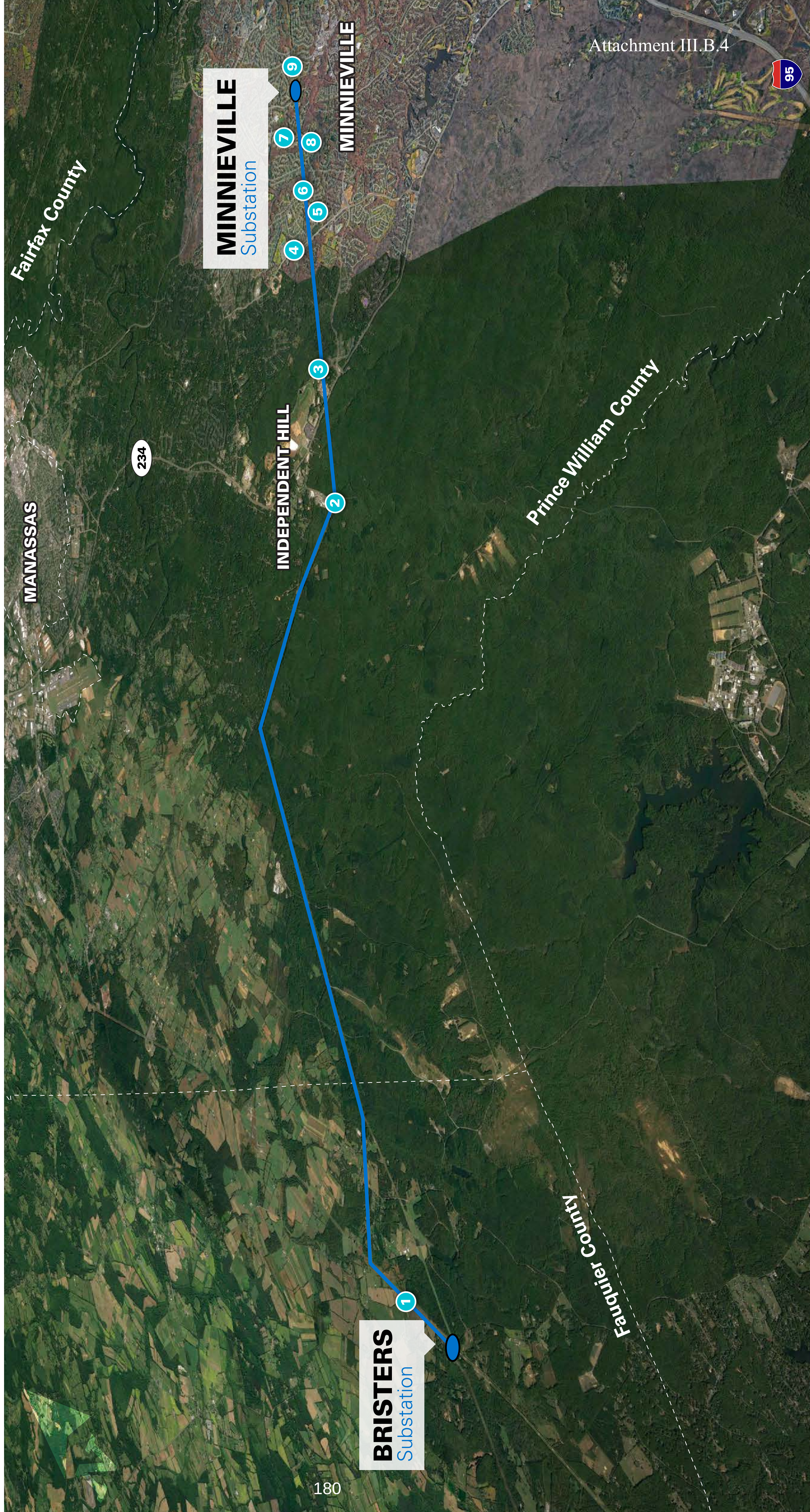
BRISTERS - MINNIEVILLE

Transmission Line Rebuild Project



Photo Location Map

- 1 Photo Location
- Transmission Line Route



BRISTERS MINNIEVILLE

Transmission Line Rebuild Project

Photo Simulation 1

Date: 02/01/2022

Time: 11:21am

Viewing Direction:

Southwest from Cromwell Rd.

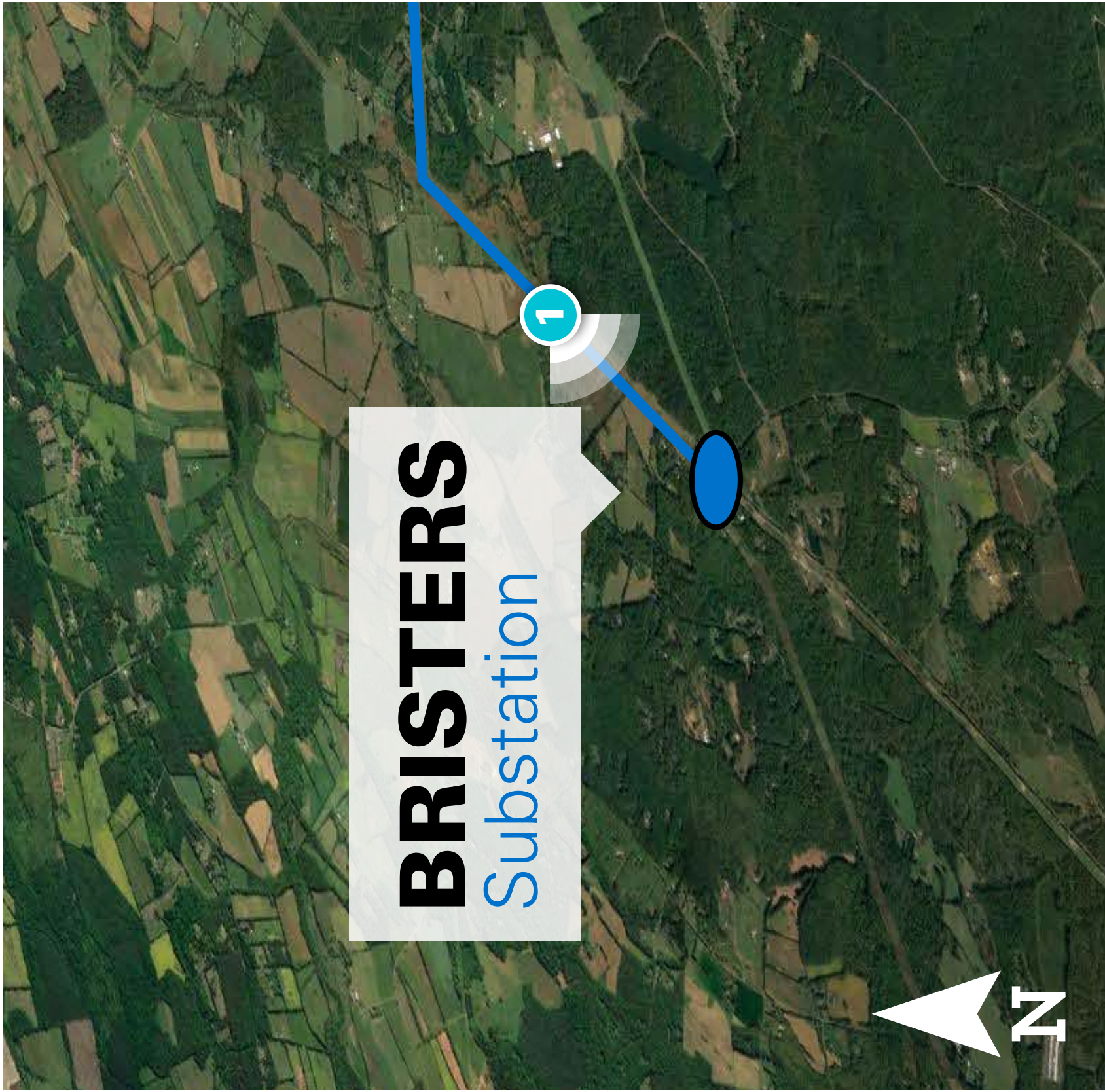
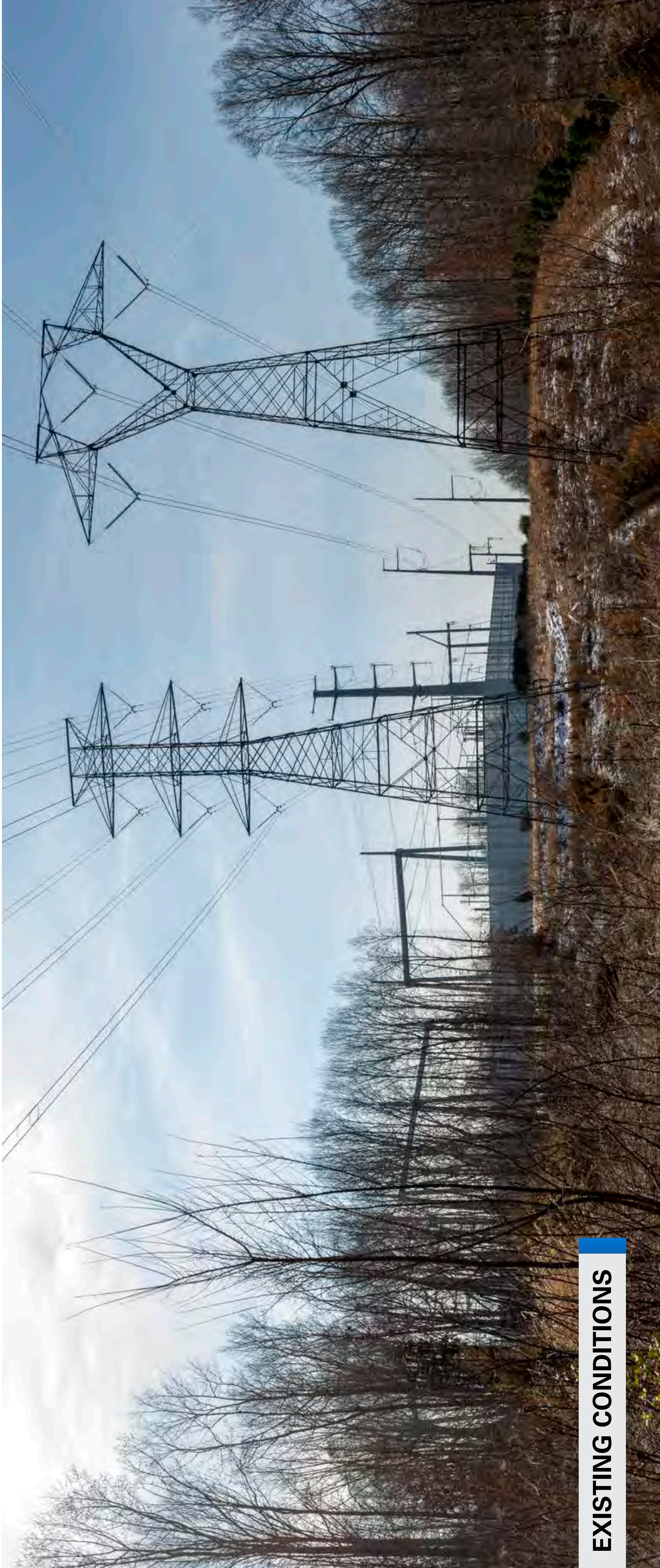


Photo Simulations are for discussion purposes only. Final design is subject to change pending public, engineering, and regulatory review.



BRISTERS MINNIEVILLE

Transmission Line Rebuild Project

Photo Simulation 2

Date: 02/01/2022

Time: 9:52 am

Viewing Direction:
East from Joplin Rd



Photo Simulations are for discussion purposes only. Final design is subject to change pending public, engineering, and regulatory review.



EXISTING CONDITIONS



PROPOSED CONDITIONS

BRISTERS MINNIEVILLE

Transmission Line Rebuild Project

Photo Simulation 3

Date: 02/01/2022

Time: 9:26 am

Viewing Direction:

Southwest from East of Colchester Park Dr

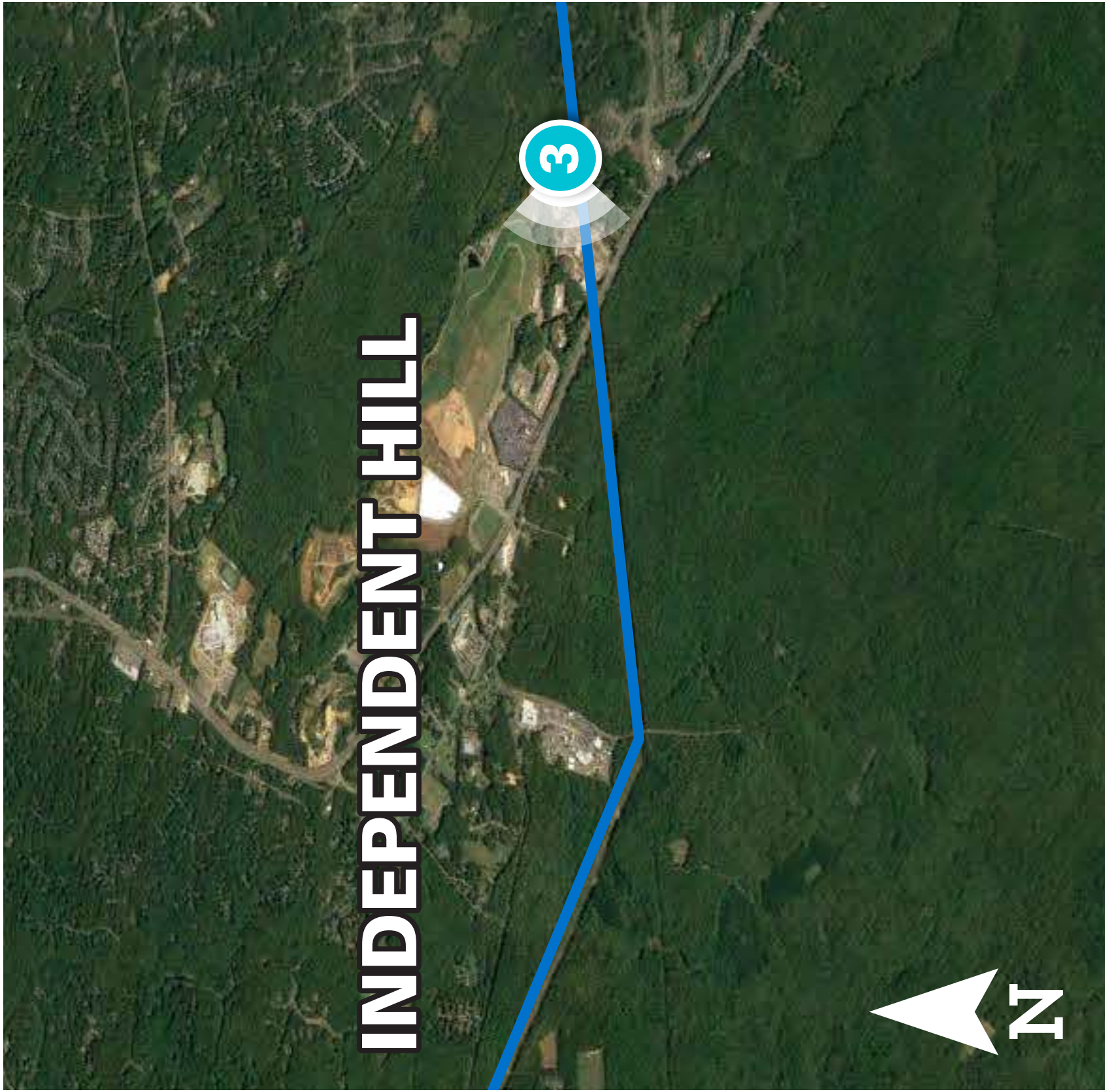


Photo Simulations are for discussion purposes only. Final design is subject to change pending public, engineering, and regulatory review.



BRISTERS MINNIEVILLE

Transmission Line Rebuild Project

Photo Simulation 4

Date: 01/31/2022

Time: 3:20 pm

Viewing Direction:

East from Spriggs Rd.

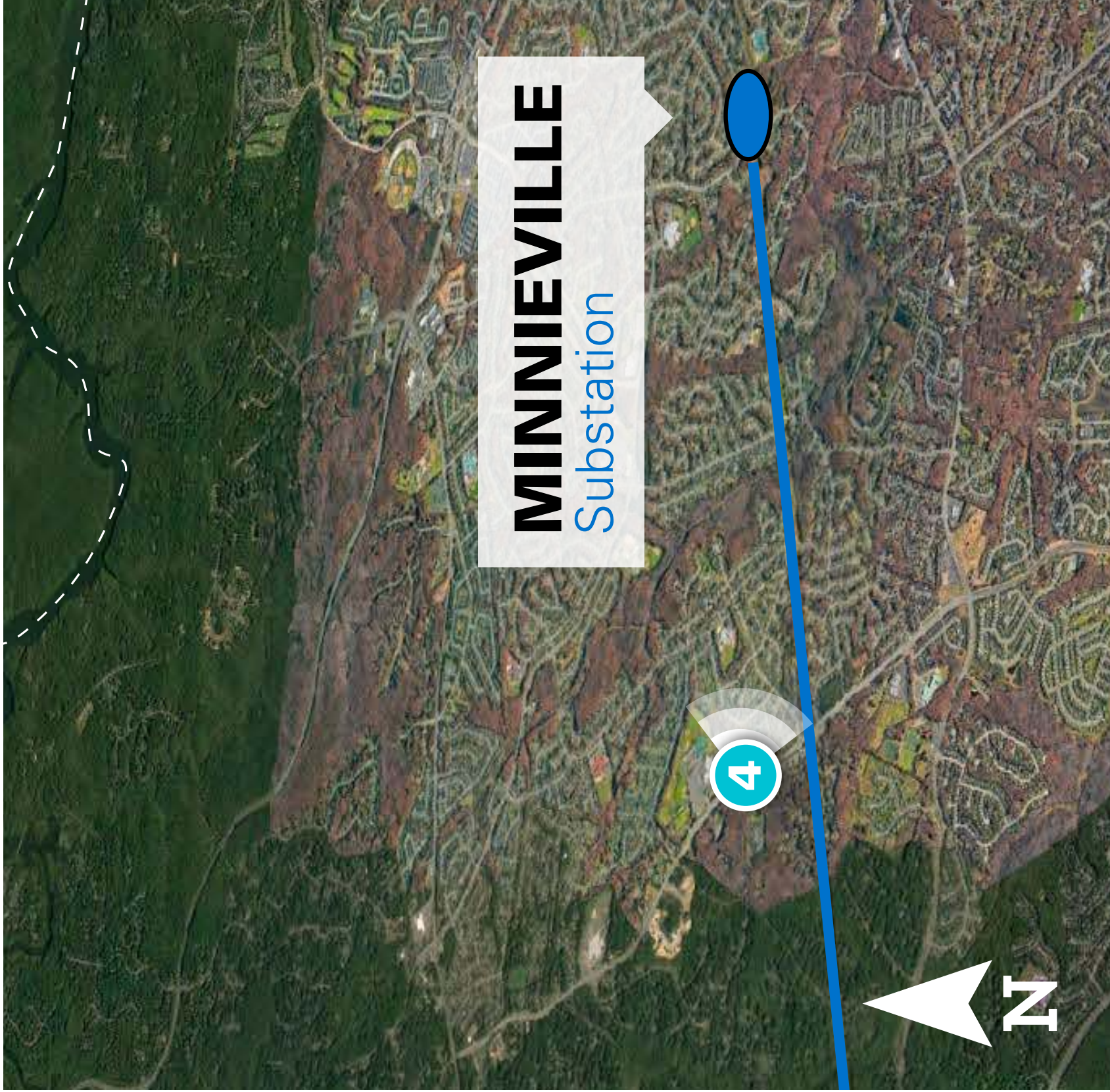


Photo Simulations are for discussion purposes only. Final design is subject to change pending public, engineering, and regulatory review.



BRISTERS MINNIEVILLE

Transmission Line Rebuild Project

Photo Simulation 5

Date: 01/31/2022

Time: 2:02 pm

Viewing Direction:

Northwest from Shaw Ct

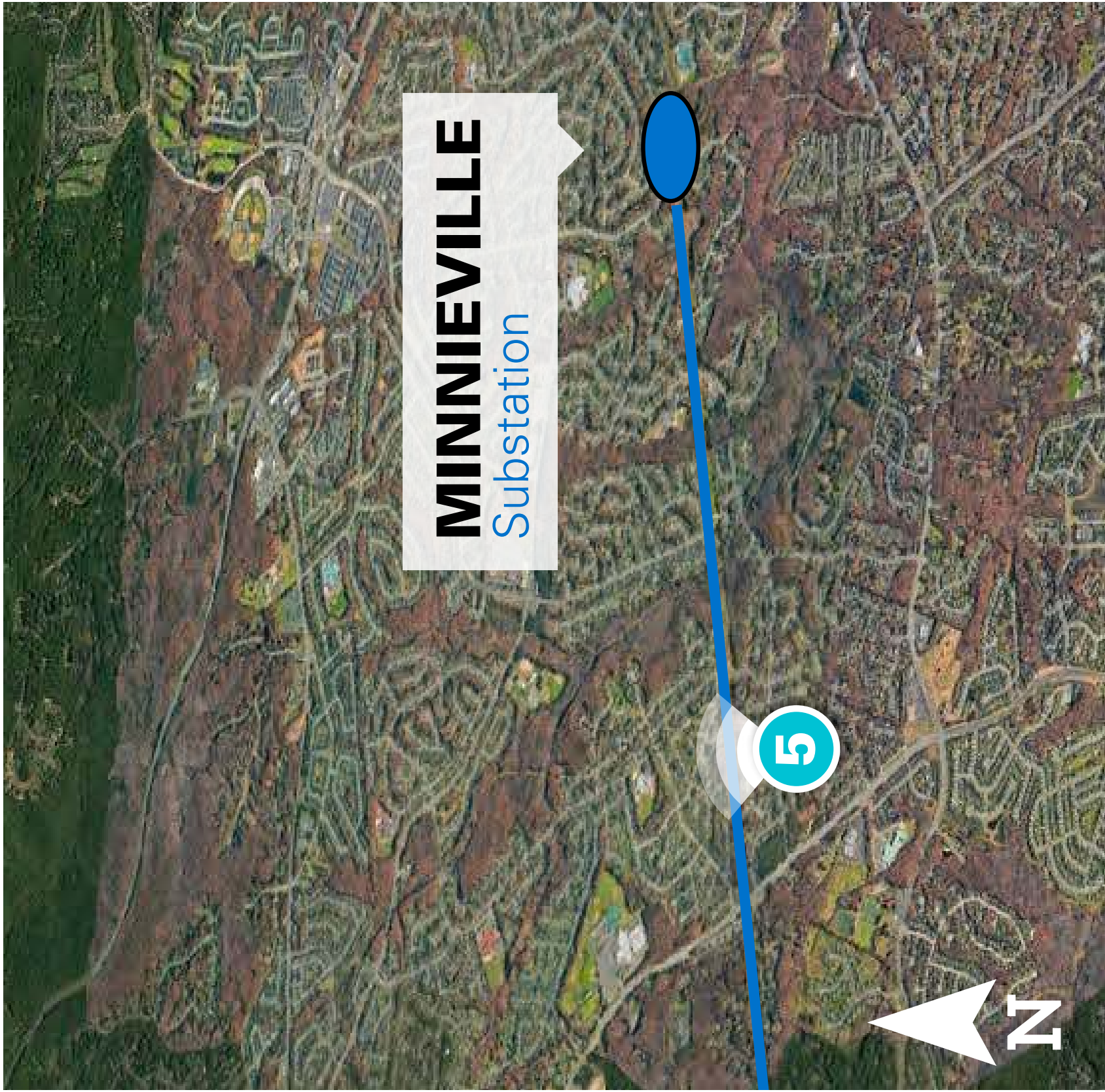


Photo Simulations are for discussion purposes only. Final design is subject to change pending public, engineering, and regulatory review.



EXISTING CONDITIONS



PROPOSED CONDITIONS

BRISTERS MINNIEVILLE

Transmission Line Rebuild Project

Photo Simulation 6

Date: 01/31/2022

Time: 1:43 pm

Viewing Direction:

East from Prinedale Dr

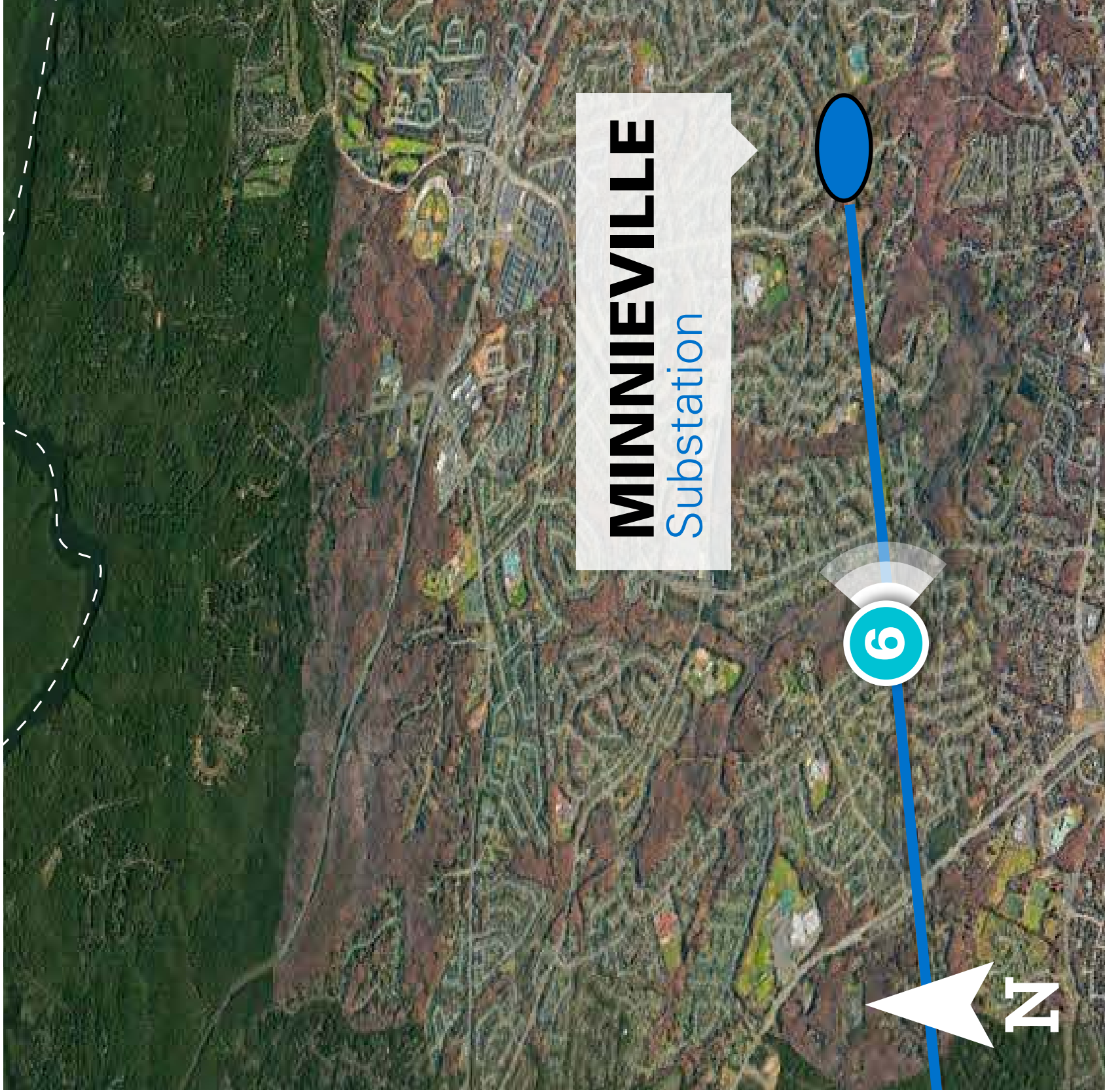
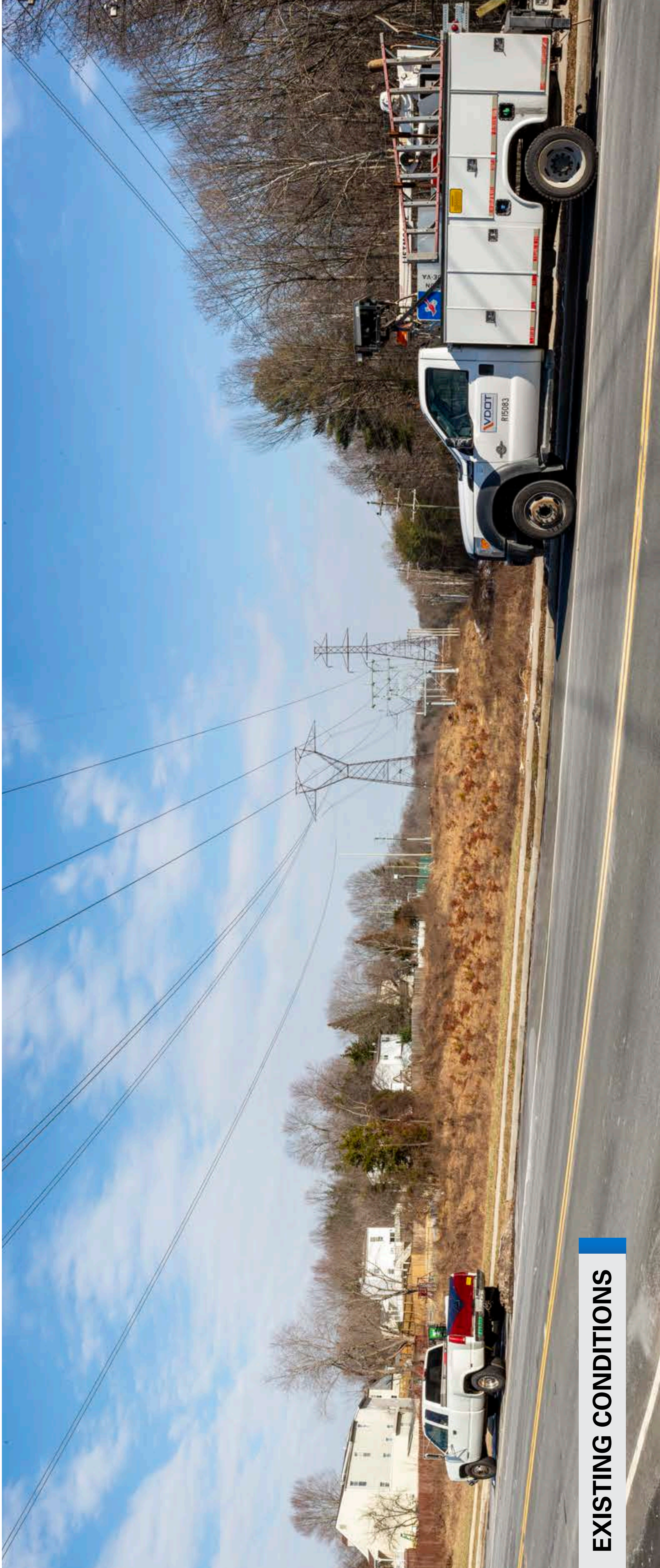
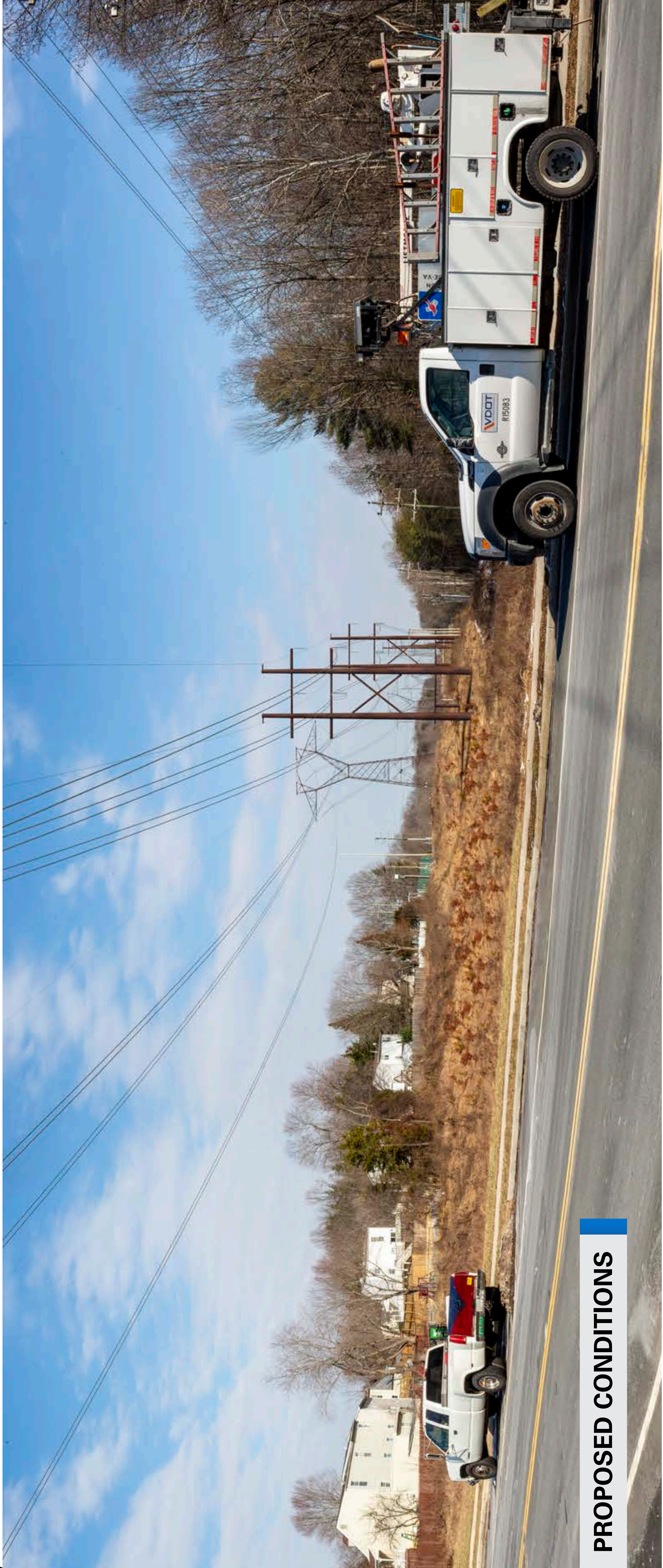


Photo Simulations are for discussion purposes only. Final design is subject to change pending public, engineering, and regulatory review.



EXISTING CONDITIONS



PROPOSED CONDITIONS

BRISTERS MINNIEVILLE

Transmission Line Rebuild Project

Photo Simulation 7

Date: 01/31/2022

Time: 12:53 pm

Viewing Direction:

South from Enterprise Elementary School

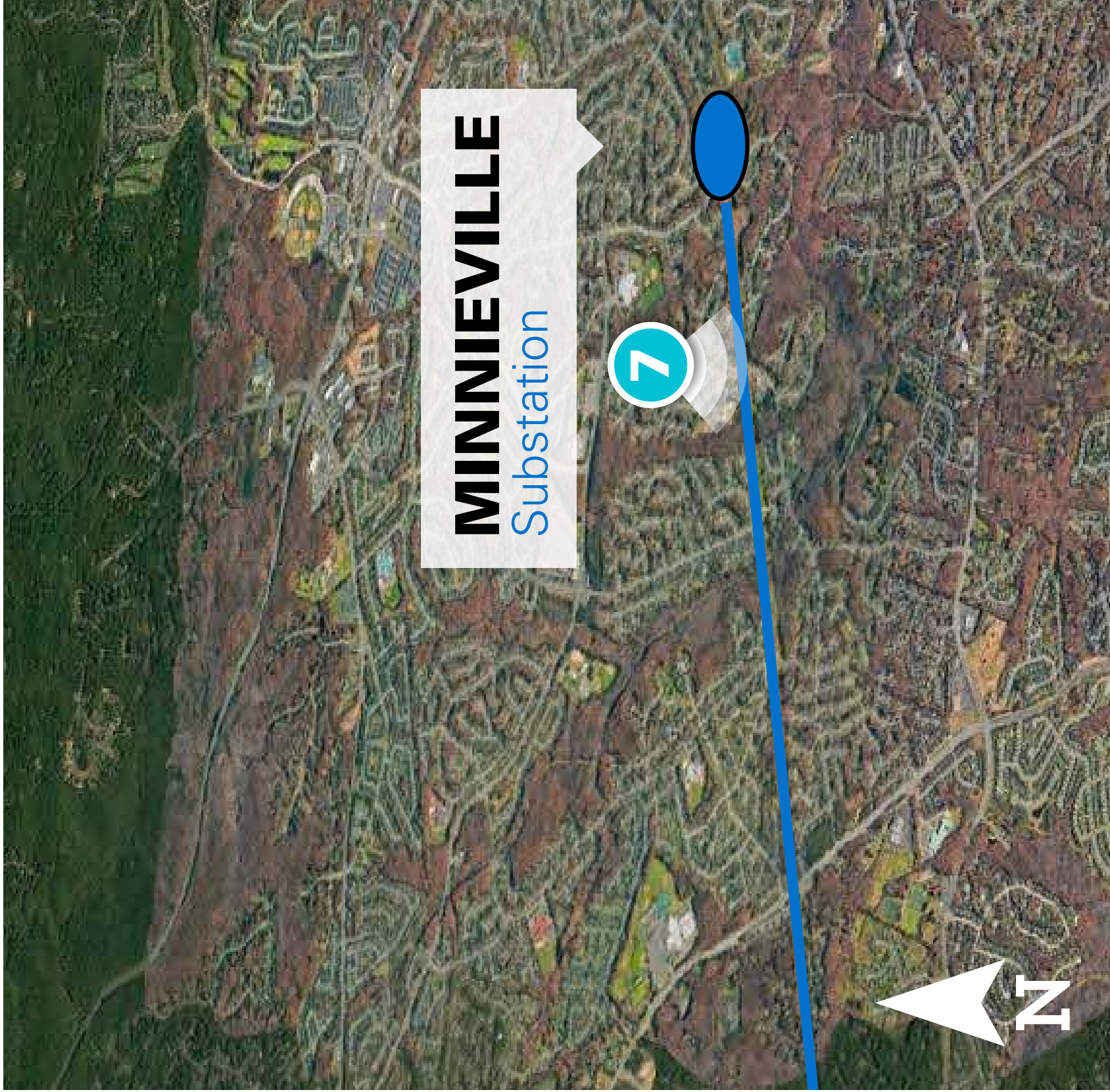


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EXISTING CONDITIONS



PROPOSED CONDITIONS



BRISTERS MINNIEVILLE

Transmission Line Rebuild Project

Photo Simulation 8

Date: 01/31/2022

Time: 1:08 pm

Viewing Direction:

Northeast from Dale City Christian Church

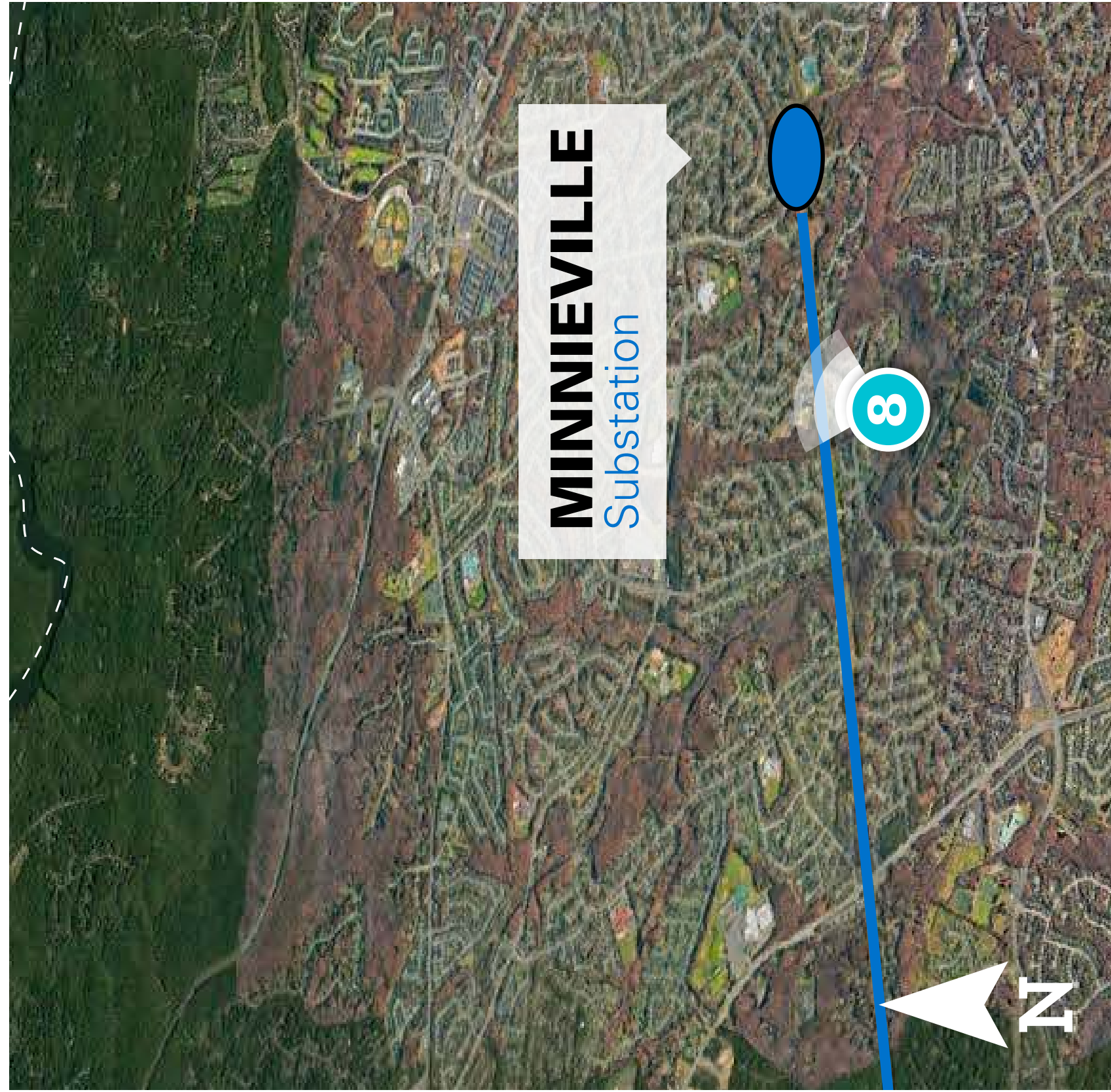


Photo Simulations are for discussion purposes only. Final design is subject to change pending public, engineering, and regulatory review.





EXISTING CONDITIONS



PROPOSED CONDITIONS

BRISTERS MINNIEVILLE

Transmission Line Rebuild Project

Photo Simulation 9

Date: 01/31/2022

Time: 3:20 pm

Viewing Direction:

West from Minnieville Elementary School

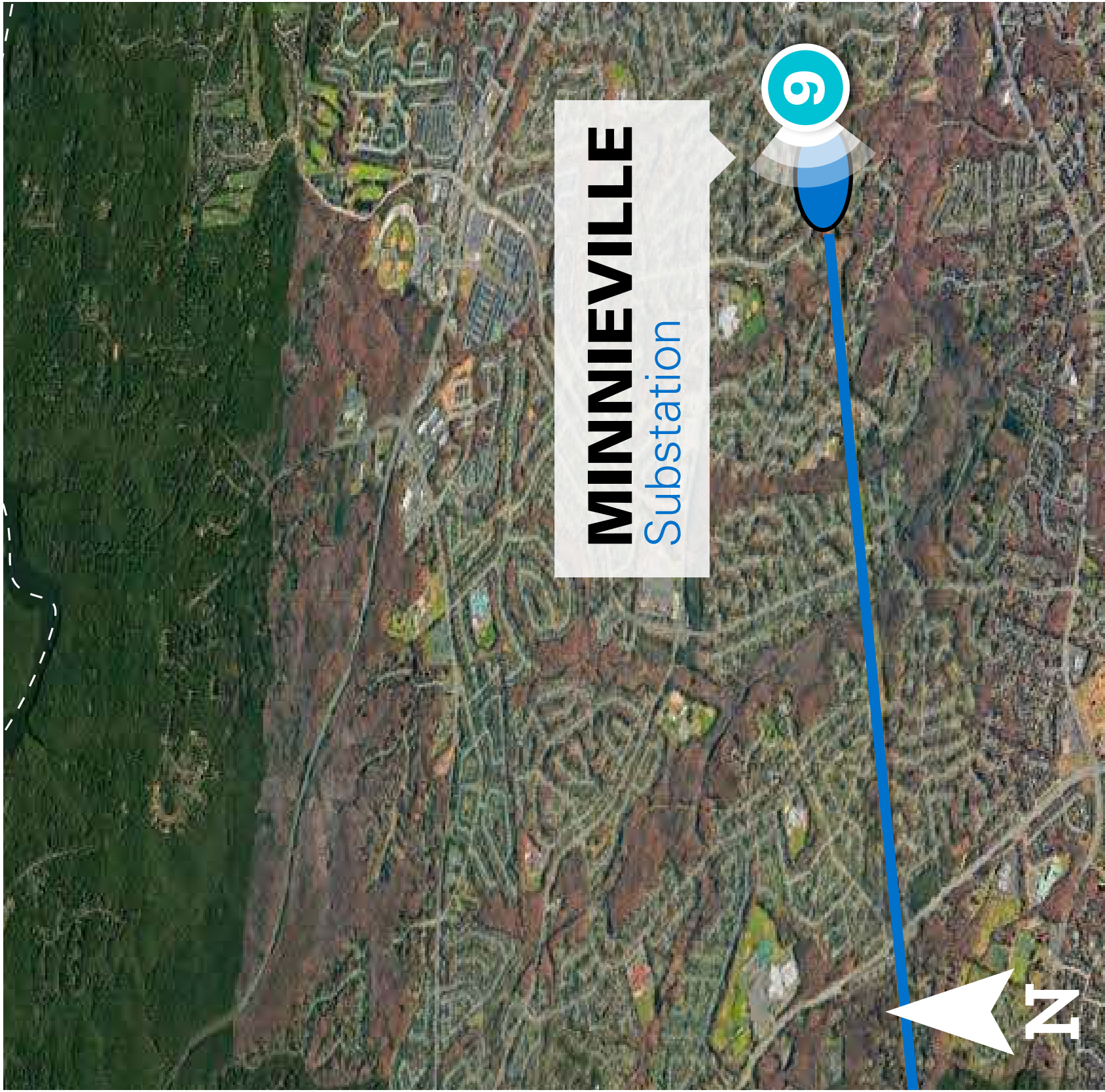


Photo Simulations are for discussion purposes only. Final design is subject to change pending public, engineering, and regulatory review.





Environmental Justice: Ongoing Commitment to Our Communities

At Dominion Energy, we are committed to providing reliable, affordable, clean energy in accordance with our values of safety, ethics, excellence, embrace change and team work. This includes listening to and learning all we can from the communities we are privileged to serve.

Our values also recognize that environmental justice considerations must be part of our everyday decisions, community outreach and evaluations as we move forward with projects to modernize the generation and delivery of energy.

To that end, communities should have a meaningful voice in our planning and development process, regardless of race, color, national origin, or income. Our neighbors should have early and continuing opportunities to work with us. We pledge to undertake collaborative efforts to work to resolve issues. We will advance purposeful inclusion to ensure a diversity of views in our public engagement processes.

Dominion Energy will be guided in meeting environmental justice expectations of fair treatment and sincere involvement by being inclusive, understanding, dedicated to finding solutions, and effectively communicating with our customers and our neighbors. We pledge to be a positive catalyst in our communities.

November 2018

III. IMPACT OF LINE ON SCENIC, ENVIRONMENTAL AND HISTORIC FEATURES

C. Detail the nature, location, and ownership of each building that would have to be demolished or relocated if the project is built as proposed.

Response: During the Company's review of the existing corridor, it identified approximately three unauthorized encroachments within the Rebuild Project right-of-way. These encroachments include two sheds and a horse barn within the easement. The encroachments will need to be addressed with the respective property owners as the Company continues to investigate the right-of-way.

In support of the Rebuild Project, the Company will be reviewing the entire corridor width prior to construction and plans to address unauthorized encroachments and easement violations, as appropriate.

III. IMPACT OF LINE ON SCENIC, ENVIRONMENTAL AND HISTORIC FEATURES

- D. Identify existing physical facilities that the line will parallel, if any, such as existing transmission lines, railroad tracks, highways, pipelines, etc. Describe the current use and physical appearance and characteristics of the existing ROW that would be paralleled, as well as the length of time the transmission ROW has been in use.**

Response: The 15.2-mile segment of Line #183 proposed for rebuild extends within an existing transmission line right-of-way corridor from Structure #183/12 to Structure #183/134. Bristers-Ox Line #539 parallels Line #183 within the Rebuild Project corridor between Structure #183/24 and Structure #183/134. Electric distribution lines are located within various sections of the existing easement including between Structure #183/12 and Sowego DP and between Spriggs Road and Lindendale DP. The easements for the transmission right-of-way have been in use since acquired primarily in the late 1940s and early 1970s.

III. IMPACT OF LINE ON SCENIC, ENVIRONMENTAL AND HISTORIC FEATURES

- E. Indicate whether the Applicant has investigated land use plans in the areas of the proposed route and indicate how the building of the proposed line would affect any proposed land use.**

Response: The Company reviewed the *Fauquier County Comprehensive Plan* and the *Prince William County Comprehensive Plan* to evaluate the potential effect the Rebuild Project could have on future development. Neither plan directly addresses an overhead transmission line. The Rebuild Project is not expected to affect any surrounding proposed land use since the transmission corridor has been in use for at least 70 years. Prince William County is in the process of updating its Comprehensive Plan. The Company reviewed the draft Land Use section of the Comprehensive Plan dated January 31, 2022, and the draft Future Land Use Map dated February 1, 2022. There are no updates in the draft plans that would change any conclusions derived from the effective plans.

III. IMPACT OF LINE ON SCENIC, ENVIRONMENTAL AND HISTORIC FEATURES

F. Government Bodies

- 1. Indicate if the Applicant determined from the governing bodies of each county, city and town in which the proposed facilities will be located whether those bodies have designated the important farmlands within their jurisdictions, as required by § 3.2-205 B of the Code.**
- 2. If so, and if any portion of the proposed facilities will be located on any such important farmland:**
 - a. Include maps and other evidence showing the nature and extent of the impact on such farmlands;**
 - b. Describe what alternatives exist to locating the proposed facilities on the affected farmlands, and why those alternatives are not suitable; and**
 - c. Describe the Applicant's proposals to minimize the impact of the facilities on the affected farmland.**

Response: 1. Fauquier and Prince William Counties have no designated important farmlands within their jurisdiction.

2. Not applicable.

III. IMPACT OF LINE ON SCENIC, ENVIRONMENTAL AND HISTORIC FEATURES

G. Identify the following that lie within or adjacent to the proposed ROW:

- 1. Any district, site, building, structure, or other object included in the National Register of Historic Places maintained by the U.S. Secretary of the Interior;**
- 2. Any historic architectural, archeological, and cultural resources, such as historic landmarks, battlefields, sites, buildings, structures, districts or objects listed or determined eligible by the Virginia Department of Historic Resources (“DHR”);**
- 3. Any historic district designated by the governing body of any city or county;**
- 4. Any state archaeological site or zone designated by the Director of the DHR, or its predecessor, and any site designated by a local archaeological commission, or similar body;**
- 5. Any underwater historic assets designated by the DHR, or predecessor agency or board;**
- 6. Any National Natural Landmark designated by the U.S. Secretary of the Interior;**
- 7. Any area or feature included in the Virginia Registry of Natural Areas maintained by the Virginia Department of Conservation and Recreation (“DCR”);**
- 8. Any area accepted by the Director of the DCR for the Virginia Natural Area Preserves System;**
- 9. Any conservation easement or open space easement qualifying under §§ 10.1-1009 – 1016, or §§ 10.1-1700 – 1705, of the Code (or a comparable prior or subsequent provision of the Code);**
- 10. Any state scenic river;**
- 11. Any lands owned by a municipality or school district; and**
- 12. Any federal, state or local battlefield, park, forest, game or wildlife preserve, recreational area, or similar facility. Features, sites, and the like listed in 1 through 11 above need not be identified again.**

- Response:
1. There is one NRHP-listed architectural resource within 500 feet of the centerline of the existing right-of-way for the Rebuild Project. Chopawamsic Recreation Demonstration Area (VDHR# 079-0299) is crossed by the existing right-of-way.
 2. NRHP-listed resources within and adjacent to the right-of-way are provided in the table below. Two NRHP-eligible resources are within or adjacent to the existing right-of-way.

Resources Eligible for Listing on the NRHP Within or Adjacent to the Rebuild Project Right-of-Way

VDHR#	Resource Name	VDHR Determination	Distance to Line (feet)
030-5588	Elk Run Rural Historic District	NRHP-eligible	0
44PW0962	Berryman Mill Site, 19 th Century (1800-1899)	NRHP-eligible	0

3. Fauquier County and Prince William County both recognize historic overlay districts; however, no historic districts are located within or adjacent to the right-of-way.
4. As noted in Section III.A, four archaeological sites have been identified within the existing right-of-way. Archaeological sites adjacent to the right-of-way are listed in the below table.

Archaeological Sites Within or Adjacent to the Rebuild Project Right-of-Way

VDHR#	Resource Name	VDHR Determination	Distance to Line (feet)
44FQ0284	Farmstead, 19 th Century: 4 th quarter (1875-1899), 20 th Century: 1 st half (1900-1949)	Not Eligible	0
44PW1837	Farmstead, 19 th Century: 4 th quarter (1875-1899), 20 th Century: 1 st half (1900-1949)	Not Eligible	0
44PW0962	Berryman Mill Site, 19 th Century (1800-1899)	Eligible	0
44PW0915	Farmstead, 19 th Century (1800-1899), 20 th Century: 1 st half (1900-1949)	Not Evaluated	0

5. None.

6. None.
7. None.
8. None.
9. None.
10. None.
11. No Fauquier County-owned properties are within or adjacent to the Rebuild Project right-of-way. The Rebuild Project is within 500 feet of lands owned by Prince William County as indicated in the below table.

**Archaeological Sites Within or
Adjacent to the Rebuild Project Right-of-Way**

Name	Managing Entity	Distance to Line (feet)
Pace East Independent	Prince William County School Board	320
Minnieville Manor Park	Prince William County Park Authority	220
Andrew Leitch Park	Prince William County Park Authority	0
VEPCO Fields	Prince William County Park Authority	0
Prince William County Open Space	Prince William County Board of Supervisors	0
Enterprise Elementary School	Prince William County School Board	100
Greenwood Farms Park	Prince William County Park Authority	125
Minnieville Elementary School	Prince William County School Board	600

12. In addition to those listed in items 1 through 11, the proposed Rebuild Project crosses Prince William Forest Park, which is managed by the National Park Service. Prince William Forest Park has the same boundary as the Chopawamsic Recreation Demonstration Area.

III. IMPACT OF LINE ON SCENIC, ENVIRONMENTAL AND HISTORIC FEATURES

- H. List any registered aeronautical facilities (airports, helipads) where the proposed route would place a structure or conductor within the federally defined airspace of the facilities. Advise of contacts, and results of contacts, made with appropriate officials regarding the effect on the facilities' operations.**

Response: 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 FAA’s website (<https://oeaaa.faa.gov/oeaaa/external/portal.jsp>) was reviewed to identify airports within 10 nautical miles of the proposed Rebuild Project. The following airports were identified:

- Warrenton/Fauquier Airport, approximately 5.5 miles west of Line #183
- Manassas Regional Airport, approximately 5.0 miles north of Line #183
- Quantico Marine Corps Airfield (Turner Field), approximately 9.1 miles southeast of Line #183
- Davison Army Airfield (Fort Belvoir), approximately 8.8 miles northeast of Structure #183/134

Additionally, there are several private airfields in the vicinity of the Rebuild Project including Maples Field (approximately 2.5 miles north of Structure #183/12) and the Flying Circus Airshow (approximately 8.1 miles west of Structure #183/12).

Based on a preliminary review, impacts to air navigation are not anticipated but FAA filings are required for construction cranes. The Company has filed for obstruction evaluation determinations for these structures. No structures exceed obstruction standards, but all require submission of Form 7460-2 Part 2 within five days of construction reaching its greatest height.

In an email dated June 23, 2022, the Virginia Department of Aviation (the “DOAv”) stated that after review, it was determined that the proposed Rebuild Project is beyond 20,000 linear feet of a public use or military airport. This email is provided as Attachment 2.O.3 in the DEQ Supplement. The DOAv commented that a Form 7460 must be submitted to the FAA if any proposed transmission structures or the crane that will be used to remove or replace the structures will reach a height of 200 feet above the ground level (“agl”). The Company will file Form 7460 with the FAA for each proposed structure or crane that will exceed 200 feet agl.

III. IMPACT OF LINE ON SCENIC, ENVIRONMENTAL AND HISTORIC FEATURES

- I. Advise of any scenic byways that are in close proximity to or that will be crossed by the proposed transmission line and describe what steps will be taken to mitigate any visual impacts on such byways. Describe typical mitigation techniques for other highways' crossings.**

Response: The Rebuild Project does not cross any scenic Virginia byways. Use of the existing project corridor minimizes or eliminates permanent incremental impacts at road crossings.

III. IMPACT OF LINE ON SCENIC, ENVIRONMENTAL AND HISTORIC FEATURES

J. Identify coordination with appropriate municipal, state, and federal agencies.

Response: As described in detail in Sections III.B and V.D of the Appendix, the Company solicited feedback from Fauquier and Prince William Counties regarding the proposed Rebuild Project. Below is a list of coordination that has occurred with municipal, state, and federal agencies:

- Met with Prince William County Supervisor Andrea Bailey, who represents the Potomac District, in January 2022 and June 2022 to provide a briefing and update on the proposed Rebuild Project.
- Met with Prince William County Supervisor Victor S. Angry, who represents the Neabsco District, on June 23, 2022, to provide a briefing and update on the proposed Rebuild Project.
- Met with Fauquier County Deputy Administrator Erin Kozanecki on July 8, 2022, to provide a Rebuild Project status update and sent a map of the Fauquier County portion of the Rebuild Project on July 13, 2022.
- Provided additional details on structures and locations to Prince William County Deputy County Executive, Rebecca Horner, on July 18, 2022.
- Coordination with the Corps, DEQ, and the Virginia Department of Transportation (“VDOT”) will take place as appropriate to obtain necessary approvals for the Rebuild Project.
- Letters dated June 22, 2022, were submitted to Prince William and Fauquier Counties to describe the Rebuild Project and request comment. See Section V.D.
- Letters were submitted to the agencies listed in Section V.C prior to filing, describing the Rebuild Project and requesting comment. See Attachment 2 to the DEQ Supplement.
- A Stage I Pre-Application Analysis has been prepared and was submitted to VDHR on July 29, 2022. See Attachment 2.I.1 to the DEQ Supplement.
- In a letter dated June 23, 2022, the Company provided a project announcement and update and solicited comments from several federally recognized Native American tribes, including the Chickahominy Indian Tribe, Chickahominy Indian Tribe Eastern Division, Nansemond Indian Tribe of Virginia, Pamunkey Indian Tribe, Rappahannock Tribe, and Upper Mattaponi Indian Tribe, and several state recognized Native American tribes, including the Cheroenhaka (Nottoway) Indian Tribe, Mattaponi

Tribe, Monacan Indian Nation, Nottoway Indian Tribe of Virginia, and Patawomeck Indian Tribe of Virginia. Additionally, the Company consulted the Housing and Urban Development (“HUD”) Tribal Directory Assessment Tool (“TDAT”) database to identify Native American tribes with specific interests in the Rebuild Project area. A copy of the letter template is included as Attachment III.J.1.

See also Sections III.B, III.K and V.D of this Appendix, and the DEQ Supplement.

Dominion Energy Virginia Dominion Energy North Carolina
Electric Transmission
701 East Cary Street, Richmond, VA 23219
DominionEnergy.com



June 23, 2022

Electric Transmission Line Rebuild Project in Fauquier and Prince William Counties

Dear _____:

At Dominion Energy, we are dedicated to maintaining reliable and secure electric service in the communities we serve. As a valued stakeholder with a vested interest in the community, we would like to inform you of the need to rebuild and reconductor an existing transmission line. The existing line runs from a power station near Cromwell Drive and Seneca Lake Drive in southeast Fauquier County, or Bristers Substation, to a power station near Minnieville Elementary School in Prince William County, or Minnieville Substation.

Originally built in the 1940s, the line and related components need to be updated to ensure continued, reliable operation and to prepare for increased energy demand in this area in the future.

We are proposing to build a double-circuit line to support up to 230-kilovolt future capacity. This new infrastructure would consist of galvanized steel monopoles and galvanized steel 2-pole structures. To comply with the latest safety standards, the new double-circuit structures would be approximately 40 feet taller on average and built in approximately the same locations as the existing structures.

This project will take a two-fold approach. We will reconductor, or replace the wires, for about 1.6 miles of the transmission line outside of the Bristers Substation – no structures will be replaced in this section - and then rebuild the remaining portion to the Minnieville Substation which includes approximately 1.9 miles in Fauquier County and 13.1 miles in Prince William County.

We are currently preparing to submit an application with the Virginia State Corporation Commission (SCC) in July 2022. To see a project overview map and photo simulations, please visit our webpage at DominionEnergy.com/bristersminnieville.

Please feel free to notify other relevant organizations that may have an interest in the project area. For reference, recipients of this letter include other county and statewide historic, cultural and scenic organizations and Native American Tribes. We also invite you to attend a virtual community meeting on June 29, 2022 from 6-7 p.m. You can find meeting details, as well as project information, on our project webpage.

If you would like to meet to discuss, or if you have any initial questions, please do not hesitate to contact us by sending an email to Stephen.S.Precker@dominionenergy.com or calling 888-291-0190. You may also contact Tribal Relations Manager Ken Custalow by sending an email to Ken.Custalow@dominionenergy.com or calling 804-837-2067.

Sincerely,

A handwritten signature in black ink, appearing to read "Stephen Precker".

Steve Precker
The Electric Transmission Project Team

III. IMPACT OF LINE ON SCENIC, ENVIRONMENTAL AND HISTORIC FEATURES

K. Identify coordination with any non-governmental organizations or private citizen groups.

Response: In June 2022, the Company solicited comments via letter from the community leaders, environmental groups, business groups identified below. In a letter dated June 20, 2022, the Company provided a project announcement and update and solicited comments from several cultural and advocacy groups, including Preservation Virginia, the American Battlefield Trust, Colonial National Historical Park, Council of Virginia Archaeologists, Scenic Virginia, National Trust for Historic Preservation, Piedmont Environmental Council, Norfolk State University, VDHR, and Dutton + Associates, LLC. A copy of the letter template, which included a project overview map, is included as Attachment III.K.1.

Name	Organization
Ms. Elizabeth S. Kostelny	Preservation Virginia
Mr. Thomas Gilmore	American Battlefield Trust
Mr. Jim Campi	American Battlefield Trust
Mr. Max Hokit	American Battlefield Trust
Mr. Steven Williams	Colonial National Historical Park
Ms. Eleanor Breen	Council of Virginia Archaeologists
Ms. Leighton Powell	Scenic Virginia
Ms. Elaine Chang	National Trust for Historic Preservation
Ms. Julie Bolthouse	Piedmont Environmental Council
Mr. John McCarthy	Piedmont Environmental Council
Dr. Newby-Alexander, Dean	Norfolk State University
Mr. Roger Kirchen	Virginia Department of Historic Resources
Ms. Adrienne Birge-Wilson	Virginia Department of Historic Resources
Mr. Alexander Macaulay	Macaulay & Jamerson
Mr. Dave Dutton	Dutton + Associates, LLC

The Company received a response letter from VDHR dated July 27, 2022. See Attachment III.K.2.

Dominion Energy Virginia
Electric Transmission
P.O. Box 26666, Richmond, VA 23261-6666
DominionEnergy.com



June 20, 2022

Electric Transmission Line Rebuild Project in Fauquier and Prince William Counties

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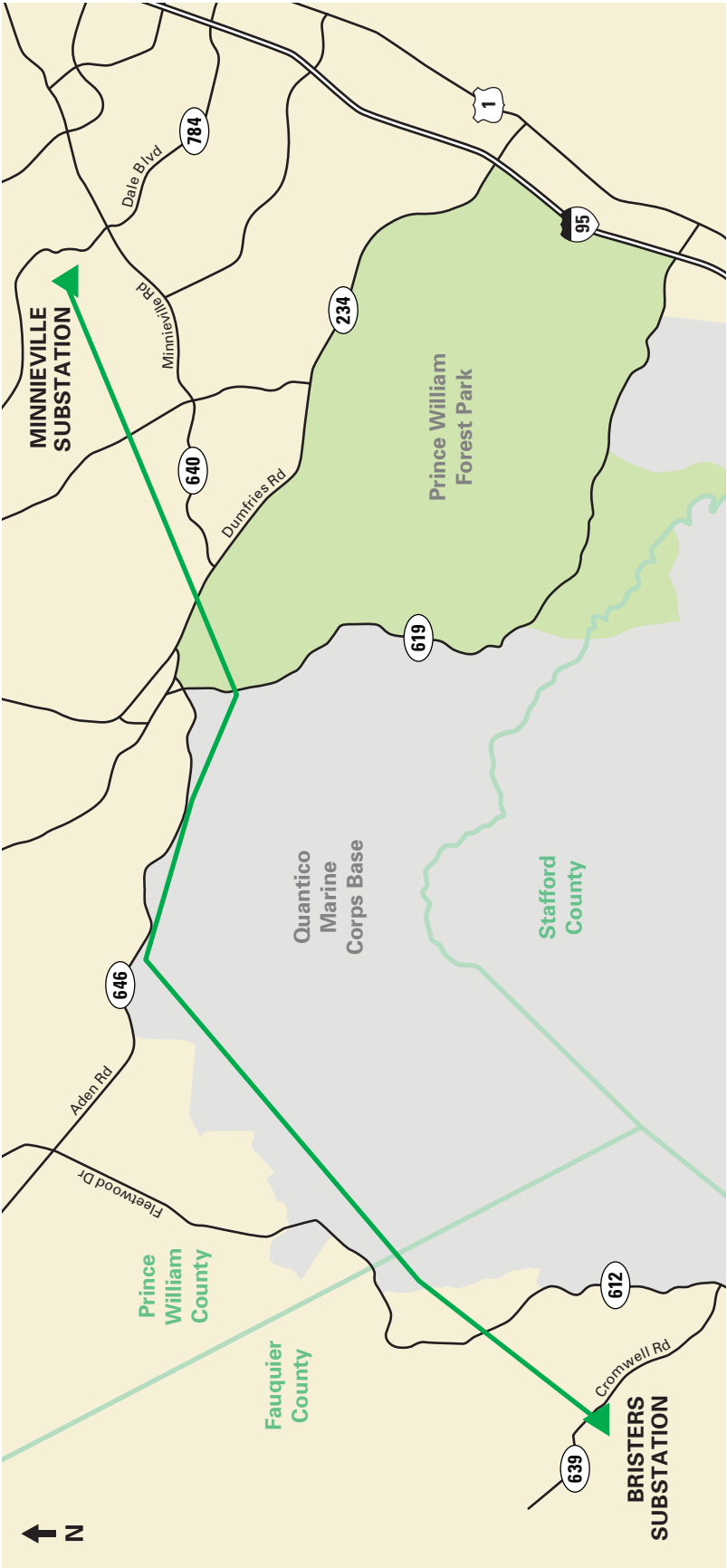
Please feel free to notify other relevant organizations that may have an interest in the project area. For reference, recipients of this letter include other county and statewide historic, cultural and scenic organizations and Native American Tribes. We also invite you to attend a virtual community meeting on June 29, 2022 from 6-7 p.m. You can find meeting details, as well as project information, on our project webpage.

If you would like to meet to discuss, or if you have any initial questions, please do not hesitate to contact us by sending an email to Stephen.S.Precker@dominionenergy.com or calling 888-291-0190.

Sincerely,

A handwritten signature in black ink that reads "Stephen S. Precker".

Steve Precker
The Electric Transmission Project Team



This map is intended to serve as a representation of the project area and is not intended for detailed engineering purposes.



COMMONWEALTH of VIRGINIA

Travis A. Voyles
Acting Secretary of Natural
and Historic Resources

Department of Historic Resources
2801 Kensington Avenue, Richmond, Virginia 23221

Julie V. Langan
Director
Tel: (804) 367-2323
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www.dhr.virginia.gov

July 27, 2022

Steve Precker
Dominion Energy Virginia
Electric Transmission
P.O. Box 26666
Richmond, VA 23261

Re: Bristers to Minnieville 230 kV Electric Transmission Line Fauquier to Prince William Counties
Fauquier and Prince William Counties, Virginia
DHR File No. 2022-44398

Dear Mr. Precker,

We have received your request for comments on the project referenced above. The undertaking, as presented, involves the rebuild of approximately 15 miles of existing transmission line. Our comments are provided as technical assistance to Dominion. We have not been notified by any state or federal agency of their involvement in this project; however, we reserve the right to provide additional comment pursuant to the National Historic Preservation Act, if applicable.

The submission states that Dominion plans to prepare an application for a certificate of public convenience and necessity (CPCN) from the State Corporation Commission (SCC). Typically, we recommend that Dominion follows the *Guidelines for Assessing Impacts of Proposed Electric Transmission Lines and Associated Facilities on Historic Resources in the Commonwealth of Virginia*, developed by DHR and the SCC to assist project proponents in developing transmission line projects that minimize impacts to historic resources.

Generally, we recommend that the project proponent establish a study area for each route alternative under consideration and gather information on known resources. A qualified cultural resources consultant in the appropriate discipline should perform an assessment of impact for each known historic resource present within the proposed study area.

Once the route alternatives have been finalized, DHR recommends that full archaeological and architectural surveys be performed to determine the effect of the project on all historic resources listed in or eligible for listing in the National Register. This process involves the identification and recordation of all archaeological sites and structures greater than 50 years of age, the evaluation of those resources for listing in the National Register, determining the degree of impact of the project on eligible resources, and developing a plan to avoid, minimize, or mitigate any negative impacts. Comments received from the public or other stakeholder

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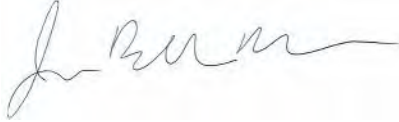
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regarding impacts to specific historic resources should be addressed as part of this survey and assessment process.

Thank you for seeking our comments on this project. If you have any questions at this time, please do not hesitate to contact me at jennifer.bellville-marrion@dhr.virginia.gov.

Sincerely,

A handwritten signature in dark ink, appearing to read "J. Bellville-Marrion", with a long horizontal flourish extending to the right.

Jenny Bellville-Marrion, Project Review Archaeologist
Review and Compliance Division

III. IMPACT OF LINE ON SCENIC, ENVIRONMENTAL AND HISTORIC FEATURES

L. Identify any environmental permits or special permissions anticipated to be needed.

Response: See the table below for potential permits anticipated for the proposed Rebuild Project.

Potential Permits

Activity	Permit	Agency
Impacts to wetlands and waters of the U.S.	Nationwide Permit 57	U.S. Army Corps of Engineers
Impacts to wetlands and waters of the state	Virginia Water Protection Permit	Virginia Department of Environmental Quality
Encroachment over subaqueous bottom	VMRC	Virginia Marine Resources Commission
Discharge of Stormwater from Construction	Construction General Permit	Virginia Department of Environmental Quality
Work within VDOT right-of-way	Land Use Permit	Virginia Department of Transportation
Construction Activities in Prince William Forest Park	Special Use Permit	National Park Service
Archaeological Investigations on Federal Lands	Archaeological Resources Protect Act (ARPA) Permit	National Park Service

IV. HEALTH ASPECTS OF ELECTROMAGNETIC FIELDS (“EMF”)

- A. Provide the calculated maximum electric and magnetic field levels that are expected to occur at the edge of the ROW. If the new transmission line is to be constructed on an existing electric transmission line ROW, provide the present levels as well as the maximum levels calculated at the edge of ROW after the new line is operational.

Response: Public exposure to magnetic fields is best estimated by field levels from power lines calculated at annual average loading. For any day of the year, the electric and magnetic field (“EMF”) levels associated with average conditions provide the best estimate of potential exposure. Maximum (peak) values are less relevant as they may occur for only a few minutes or hours each year.

This section describes the levels of EMF associated with the existing and proposed transmission lines. EMF levels are provided for both historical (2020) and future (2026) annual average and maximum (peak) loading conditions.

Existing Lines - Historical Average Loading

EMF levels were calculated for the existing lines at the *historical average* load condition of 315.25 amps for Line #183 and 709.94 amps for Line #539. Line #183 has a maximum operating voltage of 230 kV and Line #539 has a maximum operating voltage of 500 kV when supported on existing structures. See Attachments II.A.5.a, d, f, h, and j.

These field levels were calculated at mid-span where the conductors are closest to the ground and the conductors are at a historical average load operating temperature.

EMF levels at the edge of the rights-of-way for the existing lines at the historical average loading:

<u>Attachment</u>	<u>Left Edge Looking Towards Minnieville Substation</u>		<u>Right Edge Looking Towards Minnieville Substation</u>	
	Electric Field (kV/m)	Magnetic Field (mG)	Electric Field (kV/m)	Magnetic Field (mG)
II.A.5.a	1.302	17.297	1.259	17.072
II.A.5.d	1.002	11.402	1.018	11.588
II.A.5.f	1.426	22.320	1.398	23.234
II.A.5.h	1.173	19.799	0.348	12.681
II.A.5.j	0.256	12.151	0.147	7.936

Existing Lines – Historical Peak Loading

EMF levels were calculated for the existing line at the **historical peak** load condition of 546.66 amps for Line #183 and 2028.0 amps for Line #539. Line #183 has a maximum operating voltage of 230 kV and Line #539 has a maximum operating voltage of 500 kV when supported on existing structures. See Attachments II.A.5. a, d, f, h, and j.

These field levels were calculated at mid-span where the conductors are closest to the ground at a historical peak load operating temperature.

The EMF levels at the edge of the rights-of-way for the existing lines at the historical peak loading:

<u>Attachment</u>	<u>Left Edge Looking Towards Minnieville Substation</u>		<u>Right Edge Looking Towards Minnieville Substation</u>	
	Electric Field (kV/m)	Magnetic Field (mG)	Electric Field (kV/m)	Magnetic Field (mG)
II.A.5.a	1.302	30.047	1.258	29.656
II.A.5.d	1.005	19.838	1.021	20.162
II.A.5.f	1.428	47.603	1.398	65.770
II.A.5.h	1.173	55.039	0.348	30.745
II.A.5.j	0.255	21.101	0.148	13.774

Proposed Project - Historical Average Loading

EMF levels were calculated for the proposed Rebuild Project at the **historical average** load condition of 315.25 amps for Line #183 and 709.94 amps for Line #539. Line #183 has a maximum operating voltage of 230 kV and Line #539 has a maximum operating voltage of 500 kV when supported on existing structures. See Attachments II.A.5.b, c, e, g, i, and j.

These field levels were calculated at mid-span where the conductors are closest to the ground and the conductors are at a historical average load operating temperature.

EMF levels at the edge of the rights-of-way for the proposed Rebuild Project at the historical average loading:

<u>Attachment</u>	<u>Left Edge Looking Towards Minnieville Substation</u>		<u>Right Edge Looking Towards Minnieville Substation</u>	
	Electric Field (kV/m)	Magnetic Field (mG)	Electric Field (kV/m)	Magnetic Field (mG)
II.A.5.b & c	1.302	17.275	1.259	17.051
II.A.5.e	1.000	11.375	1.016	11.560
II.A.5.g	1.425	22.295	1.398	23.234
II.A.5.i	1.173	19.797	0.348	12.677
II.A.5.j	0.257	12.139	0.146	7.931

Proposed Project – Historical Peak Loading

EMF levels were calculated for the proposed Rebuild Project at the **historical peak** load condition of 546.66 amps for Line #183 and 2028.0 amps for Line #539. Line #183 has a maximum operating voltage of 230 kV and Line #539 has a maximum operating voltage of 500 kV when supported on existing structures. See Attachments II.A.5.b, c, e, g, i, and j.

These field levels were calculated at mid-span where the conductors are closest to the ground at a historical peak load operating temperature.

The EMF levels at the edge of the rights-of-way for the proposed Rebuild Project at the historical peak loading:

<u>Attachment</u>	<u>Left Edge Looking Towards Minnieville Substation</u>		<u>Right Edge Looking Towards Minnieville Substation</u>	
	Electric Field (kV/m)	Magnetic Field (mG)	Electric Field (kV/m)	Magnetic Field (mG)
II.A.5.b & c	1.301	30.141	1.257	29.746
II.A.5.e	1.010	19.954	1.027	20.282
II.A.5.g	1.431	47.715	1.398	65.766
II.A.5.i	1.173	55.048	0.347	30.757
II.A.5.j	0.253	21.154	0.149	13.797

Proposed Project - Projected Average Loading in 2026

EMF levels were calculated for the proposed Rebuild Project at the **projected average** load condition of 360.98 amps for Line #183 and 602.41 amps for Line #539. Line #183 has a maximum operating voltage of 230 kV and Line #539 has a maximum operating voltage of 500 kV when supported on existing structures. See Attachments II.A.5.b, c, e, g, i, and j.

These field levels were calculated at mid-span where the conductors are closest to the ground and the conductors are at a projected average load operating temperature.

EMF levels at the edge of the rights-of-way for the proposed Rebuild Project at the projected average loading:

<u>Attachment</u>	<u>Left Edge Looking Towards Minnieville Substation</u>		<u>Right Edge Looking Towards Minnieville Substation</u>	
	Electric Field (kV/m)	Magnetic Field (mG)	Electric Field (kV/m)	Magnetic Field (mG)
II.A.5.b & c	1.302	19.800	1.259	19.543
II.A.5.e	1.001	13.048	1.017	13.261
II.A.5.g	1.426	23.244	1.398	19.880
II.A.5.i	1.173	17.211	0.398	12.296
II.A.5.j	0.147	9.086	0.256	13.911

Proposed Project – Projected Peak Loading in 2026

EMF levels were calculated for the proposed Rebuild Project at the *projected peak* load condition of 625.96 amps for Line #183 and 1720.84 amps for Line #539. Line #183 has a maximum operating voltage of 230 kV and Line #539 has a maximum operating voltage of 500 kV when supported on existing structures. See Attachments II.A.5.b, c, e, g, i, and j.

These field levels were calculated at mid-span where the conductors are closest to the ground at a projected peak load operating temperature.

The EMF levels at the edge of the rights-of-way for the proposed Rebuild Project at the projected peak loading:

<u>Attachment</u>	<u>Left Edge Looking Towards Minnieville Substation</u>		<u>Right Edge Looking Towards Minnieville Substation</u>	
	Electric Field (kV/m)	Magnetic Field (mG)	Electric Field (kV/m)	Magnetic Field (mG)
II.A.5.b & c	1.301	34.616	1.256	34.161
II.A.5.e	1.015	22.977	1.032	23.358
II.A.5.g	1.435	48.074	1.398	56.068
II.A.5.i	1.173	47.418	0.346	28.595
II.A.5.j	0.251	24.282	0.151	15.824

IV. HEALTH ASPECTS OF ELECTROMAGNETIC FIELDS (“EMF”)

- B. If the Applicant is of the opinion that no significant health effects will result from the construction and operation of the line, describe in detail the reasons for that opinion and provide references or citations to supporting documentation.**

Response: The conclusions of multidisciplinary scientific review panels assembled by national and international scientific agencies during the past two decades are the foundation of the Company’s opinion that no adverse health effects will result from the operation of the proposed Rebuild Project. Each of these panels has evaluated the scientific research related to health and power-frequency EMF and provided conclusions that form the basis of guidance to governments and industries. The Company regularly monitors the recommendations of these expert panels to guide their approach to EMF.

Research on EMF and human health varies widely in approach. Some studies evaluate the effects of high, short-term EMF exposures not typically found in people’s day-to-day lives on biological responses, while others evaluate the effects of common, lower EMF exposures found throughout communities. Studies also have evaluated the possibility of effects (*e.g.*, cancer, neurodegenerative diseases, and reproductive effects) of long-term exposure. Altogether, this research includes well over a hundred epidemiologic studies of people in their natural environment and many more laboratory studies of animals (*in vivo*) and isolated cells and tissues (*in vitro*). Standard scientific procedures, such as weight-of-evidence methods, were used by the expert panels assembled by agencies to identify, review, and summarize the results of this large and diverse research.

The reviews of EMF biological and health research have been conducted by numerous scientific and health agencies, including the European Health Risk Assessment Network on Electromagnetic Fields Exposure (“EFHRAN”), the International Commission on Non-Ionizing Radiation Protection (“ICNIRP”), the World Health Organization (“WHO”), the IEEE’s International Committee on Electromagnetic Safety (“ICES”), the Scientific Committee on Emerging and Newly Identified Health Risks (“SCENIHR”) of the European Commission, and the Swedish Radiation Safety Authority (“SSM”) (formerly the Swedish Radiation Protection Authority [“SSI”]) (WHO, 2007; SCENIHR, 2009, 2015; EFHRAN, 2010, 2012; ICNIRP, 2010; SSM, 2015, 2016, 2018, 2019, 2020, 2021; ICES, 2019). The general scientific consensus of the agencies that have reviewed this research, relying on generally accepted scientific methods, is that the scientific evidence does not confirm that common sources of EMF in the environment, including transmission lines and other parts of the electric system, appliances, etc., are a cause of any adverse health effects.

The most recent reviews on this topic include the 2015 report by SCENIHR and annual reviews published by SSM (*e.g.*, for the years 2015 through 2021). These reports, similar to previous reviews, found that the scientific evidence does not

confirm the existence of any adverse health effects caused by environmental or community exposure to EMF.

The WHO has recommended that countries adopt recognized international standards published by ICNIRP and ICES. Typical levels of EMF from Dominion's power lines outside its property and rights-of-way are far below the screening reference levels of EMF recommended for the general public and still lower than exposures equivalent to restrictions to limits on fields within the body (ICNIRP, 2010; ICES, 2019).

Thus, based on the conclusions of scientific reviews and the levels of EMF associated with the proposed Rebuild Project, the Company has determined that no adverse health effects are anticipated to result from the operation of the proposed Rebuild Project.

References

European Health Risk Assessment Network on Electromagnetic Fields Exposure (EFHRAN). Report on the Analysis of Risks Associated to Exposure to EMF: *In Vitro* and *In Vivo* (Animals) Studies. Milan, Italy: EFHRAN, 2010.

European Health Risk Assessment Network on Electromagnetic Fields Exposure (EFHRAN). Risk Analysis of Human Exposure to Electromagnetic Fields (Revised). Report D2 of the EFHRAN Project. Milan, Italy: EFHRAN, 2012.

International Commission on Non-ionizing Radiation Protection (ICNIRP). Guidelines for limiting exposure to time-varying electric and magnetic fields (1 Hz to 100 kHz). *Health Phys* 99: 818-36, 2010.

International Committee on Electromagnetic Safety (ICES). IEEE Standard for Safety Levels with Respect to Human Exposure to Electromagnetic Fields 0 to 300 GHz. IEEE Std C95.1-2019. New York, NY: IEEE, 2019.

Scientific Committee on Emerging and Newly Identified Health Risks (SCENIHR). Health Effects of Exposure to EMF. Brussels, Belgium: European Commission, 2009.

Scientific Committee on Emerging and Newly Identified Health Risks (SCENIHR). Opinion on Potential Health Effects of Exposure to Electromagnetic Fields (EMF). Brussels, Belgium: European Commission, 2015.

Swedish Radiation Safety Authority (SSM). Research 2015:19. Recent Research on EMF and Health Risk - Tenth report from SSM's Scientific Council on Electromagnetic Fields. Stockholm, Sweden: Swedish Radiation Safety Authority (SSM), 2015.

Swedish Radiation Safety Authority (SSM). Research 2016:15. Recent Research on EMF and Health Risk - Eleventh report from SSM's Scientific Council on

Electromagnetic Fields, 2016. Including Thirteen years of electromagnetic field research monitored by SSM's Scientific Council on EMF and health: How has the evidence changed over time? Stockholm, Sweden: Swedish Radiation Safety Authority (SSM), 2016.

Swedish Radiation Safety Authority (SSM). Research 2018:09. Recent Research on EMF and Health Risk - Twelfth report from SSM's Scientific Council on Electromagnetic Fields, 2017. Stockholm, Sweden: Swedish Radiation Safety Authority (SSM), 2018.

Swedish Radiation Safety Authority (SSM). Research 2019:08. Recent Research on EMF and Health Risk – Thirteenth Report from SSM's Scientific Council on Electromagnetic Fields, 2018. Stockholm, Sweden: Swedish Radiation Safety Authority (SSM), 2019.

Swedish Radiation Safety Authority (SSM). Research 2020:04. Recent Research on EMF and Health Risk – Fourteenth Report from SSM's Scientific Council on Electromagnetic Fields, 2019. Stockholm, Sweden: Swedish Radiation Safety Authority (SSM), 2020.

Swedish Radiation Safety Authority (SSM). Research 2021:08. Recent Research on EMF and Health Risk – Fifteenth report from SSM's Scientific Council on Electromagnetic Fields, 2020. Stockholm, Sweden: Swedish Radiation Safety Authority (SSM), 2021.

World Health Organization (WHO). Environmental Health Criteria 238: Extremely Low Frequency (ELF) Fields. Geneva, Switzerland: World Health Organization, 2007.

IV. HEALTH ASPECTS OF ELECTROMAGNETIC FIELDS (“EMF”)

C. Describe and cite any research studies on EMF the Applicant is aware of that meet the following criteria:

- 1. Became available for consideration since the completion of the Virginia Department of Health’s most recent review of studies on EMF and its subsequent report to the Virginia General Assembly in compliance with 1985 Senate Joint Resolution No. 126;**
- 2. Include findings regarding EMF that have not been reported previously and/or provide substantial additional insight into findings; and**
- 3. Have been subjected to peer review.**

Response: The Virginia Department of Health (“VDH”) conducted its most recent review and issued its report on the scientific evidence on potential health effects of extremely low frequency (“ELF”) EMF in 2000: “[T]he Virginia Department of Health is of the opinion that there is no conclusive and convincing evidence that exposure to extremely low frequency EMF emanated from nearby high voltage transmission lines is causally associated with an increased incidence of cancer or other detrimental health effects in humans.”²²

The continuing scientific research on EMF exposure and health has resulted in many peer-reviewed publications since 2000. The accumulating research results have been regularly and repeatedly reviewed and evaluated by national and international health, scientific, and government agencies, including most notably:

- The WHO, which published one of the most comprehensive and detailed reviews of the relevant scientific peer-reviewed literature in 2007;
- SCENIHR, a committee of the European Commission, which published its assessments in 2009 and 2015;
- The SSM, which has published annual reviews of the relevant peer-reviewed scientific literature since 2003, with its most recent review published in 2021; and,
- EFHRAN, which published its reviews in 2010 and 2012.

The above reviews provide detailed analyses and summaries of relevant recent peer-reviewed scientific publications. The conclusions of these reviews that the evidence overall does not confirm the existence of any adverse health effects due to exposure to EMF below scientifically established guideline values are consistent with the conclusions of the VDH report. With respect to the statistical association observed in some of the childhood leukemia epidemiologic studies, the most recent

²² See <http://www.vdh.virginia.gov/content/uploads/sites/12/2016/02/highfinal.pdf>.

comprehensive review of the literature by SCENIHR, published in 2015, concluded that “no mechanisms have been identified and no support is existing [*sic*] from experimental studies that could explain these findings, which, together with shortcomings of the epidemiological studies prevent a causal interpretation” (SCENIHR, 2015, p. 16).

While research is continuing on multiple aspects of EMF exposure and health, many of the recent publications have focused on an epidemiologic assessment of the relationship between EMF exposure and childhood leukemia and EMF exposure and neurodegenerative diseases. Of these, the following recent publications, published following the inclusion date (June 2014) for the SCENIHR (2015) report through May 2021, provided additional evidence and contributed to clarification of previous findings. Overall, new research studies have not provided evidence to alter the previous conclusions of scientific and health organizations, including the WHO and SCENIHR.

Recent epidemiologic studies of EMF and childhood leukemia include:

- Bunch et al. (2015) assessed the potential association between residential proximity to high-voltage underground cables and development of childhood cancer in the United Kingdom largely using the same epidemiologic data as in a previously published study on overhead transmission lines (Bunch et al., 2014). No statistically significant associations or trends were reported with either distance to underground cables or calculated magnetic fields from underground cables for any type of childhood cancers.
- Pedersen et al. (2015) published a case-control study that investigated the potential association between residential proximity to power lines and childhood cancer in Denmark. The study included all cases of leukemia (n=1,536), central nervous system tumor, and malignant lymphoma (n=417) diagnosed before the age of 15 between 1968 and 2003 in Denmark, along with 9,129 healthy control children matched on sex and year of birth. Considering the entire study period, no statistically significant increases were reported for any of the childhood cancer types.
- Salvan et al. (2015) compared measured magnetic-field levels in the bedroom for 412 cases of childhood leukemia under the age of 10 and 587 healthy control children in Italy. Although the statistical power of the study was limited because of the small number of highly exposed subjects, no consistent statistical associations or trends were reported between measured magnetic-field levels and the occurrence of leukemia among children in the study.
- Bunch et al. (2016) and Swanson and Bunch (2018) published additional analyses using data from an earlier study (Bunch et al., 2014). Bunch et al. (2016) reported that the association with distance to power lines observed in earlier years was linked to calendar year of birth or year of cancer diagnosis, rather than the age of the power lines. Swanson and Bunch (2018) re-analyzed

data using finer exposure categories (*e.g.*, cut-points of every 50-meter distance) and broader groupings of diagnosis date (*e.g.*, 1960-1979, 1980-1999, and 2000-on) and reported no overall associations between exposure categories and childhood leukemia for the later periods (1980 and on), and consistent pattern for the periods prior to 1980.

- Crespi et al. (2016) conducted a case-control epidemiologic study of childhood cancers and residential proximity to high-voltage power lines (60 kilovolts [“kV”] to 500 kV) in California. Childhood cancer cases, including 5,788 cases of leukemia and 3,308 cases of brain tumor, diagnosed under the age of 16 between 1986 and 2008, were identified from the California Cancer Registry. Controls, matched on age and sex, were selected from the California Birth Registry. Overall, no consistent statistically significant associations for leukemia or brain tumor and residential distance to power lines were reported.
- Kheifets et al. (2017) assessed the relationship between calculated magnetic-field levels from power lines and development of childhood leukemia within the same study population evaluated in Crespi et al. (2016). In the main analyses, which included 4,824 cases of leukemia and 4,782 controls matched on age and sex, the authors reported no consistent patterns, or statistically significant associations between calculated magnetic-field levels and childhood leukemia development. Similar results were reported in subgroup and sensitivity analyses. In two subsequent studies, Amoon et al. (2018a, 2019) examined the potential impact of residential mobility (*i.e.*, moving residences between birth and diagnosis) on the associations reported in Crespi et al. (2016) and Kheifets et al. (2017). Amoon et al. (2018a) concluded that changing residences was not associated with either calculated magnetic-field levels or proximity to the power lines, while Amoon et al. (2019) concluded that while uncontrolled confounding by residential mobility had some impact on the association between EMF exposure and childhood leukemia, it was unlikely to be the primary driving force behind the previously reported associations in Crespi et al. (2016) and Kheifets et al. (2017).
- Amoon et al. (2018b) conducted a pooled analysis of 29,049 cases and 68,231 controls from 11 epidemiologic studies of childhood leukemia and residential distance from high-voltage power lines. The authors reported no statistically-significant association between childhood leukemia and proximity to transmission lines of any voltage. Among subgroup analyses, the reported associations were slightly stronger for leukemia cases diagnosed before 5 years of age and in study periods prior to 1980. Adjustment for various potential confounders (*e.g.*, socioeconomic status, dwelling type, residential mobility) had little effect on the estimated associations.
- Kyriakopoulou et al. (2018) assessed the association between childhood acute leukemia and parental occupational exposure to social contacts, chemicals, and electromagnetic fields. The study was conducted at a major pediatric hospital in Greece and included 108 cases and 108 controls matched for age, gender,

and ethnicity. Statistically non-significant associations were observed between paternal exposure to magnetic fields and childhood acute leukemia for any of the exposure periods examined (1 year before conception; during pregnancy; during breastfeeding; and from birth until diagnosis); maternal exposure was not assessed due to the limited sample size. No associations were observed between childhood acute leukemia and exposure to social contacts or chemicals.

- Auger et al. (2019) examined the relationship between exposure to EMF during pregnancy and risk of childhood cancer in a cohort of 784,000 children born in Québec. Exposure was defined using residential distance to the nearest high-voltage transmission line or transformer station. The authors reported statistically non-significant associations between proximity to transformer stations and any cancer, hematopoietic cancer, or solid tumors. No associations were reported with distance to transmission lines.
- Crespi et al. (2019) investigated the relationship between childhood leukemia and distance from high-voltage lines and calculated magnetic-field exposure, separately and combined, within the California study population previously analyzed in Crespi et al. (2016) and Kheifets et al. (2017). The authors reported that neither close proximity to high-voltage lines nor exposure to calculated magnetic fields alone were associated with childhood leukemia; an association was observed only for those participants who were both close to high-voltage lines (< 50 meters) and had high calculated magnetic fields (≥ 0.4 microtesla [*i.e.*, ≥ 4 milligauss]). No associations were observed with low-voltage power lines (< 200 kV). In a subsequent study, Amoon et al. (2020) examined the potential impact of dwelling type on the associations reported in Crespi et al. (2019). Amoon et al. (2020) concluded that while the type of dwelling at which a child resides (*e.g.*, single-family home, apartment, duplex, mobile home) was associated with socioeconomic status and race or ethnicity, it was not associated with childhood leukemia and did not appear to be a potential confounder in the relationship between childhood leukemia and magnetic-field exposure in this study population.
- Swanson et al. (2019) conducted a meta-analysis of 41 epidemiologic studies of childhood leukemia and magnetic-field exposure published between 1979 and 2017 to examine trends in childhood leukemia development over time. The authors reported that while the estimated risk of childhood leukemia initially increased during the earlier period, a statistically non-significant decline in estimated risk has been observed from the mid-1990s until the present (*i.e.*, 2019).
- Talibov et al. (2019) conducted a pooled analysis of 9,723 cases and 17,099 controls from 11 epidemiologic studies to examine the relationship between parental occupational exposure to magnetic fields and childhood leukemia. No statistically significant association was found between either paternal or maternal exposure and leukemia (overall or by subtype). No associations were observed in the meta-analyses.

- Núñez-Enríquez et al. (2020) assessed the relationship between residential magnetic-field exposure and B-lineage acute lymphoblastic leukemia (“B-ALL”) in children under 16 years of age in Mexico. The study included 290 cases and 407 controls matched on age, gender, and health institution; magnetic-field exposure was assessed through the collection of 24-hour measurements in the participants’ bedrooms. While the authors reported some statistically significant associations between elevated magnetic-field levels and development of B-ALL, the results were dependent on the chosen cut-points.
- Seomun et al. (2021) performed a meta-analysis based on 33 previously published epidemiologic studies investigating the potential relationship between magnetic-field exposure and childhood cancers, including leukemia and brain cancer. For childhood leukemia, the authors reported statistically significant associations with some, but not all, of the chosen cut-points for magnetic-field exposure. The associations between magnetic-field exposure and childhood brain cancer were statistically non-significant. The study provided limited new insight as most of the studies included in the current meta-analysis, were included in previously conducted meta- and pooled analyses.

Recent epidemiologic studies of EMF and neurodegenerative diseases include:

- Seelen et al. (2014) conducted a population-based case-control study in the Netherlands and included 1,139 cases diagnosed with amyotrophic lateral sclerosis (“ALS”) between 2006 and 2013 and 2,864 frequency-matched controls. The shortest distance from the case and control residences to the nearest high-voltage power line (50 to 380 kilovolts [kV]) was determined by geocoding. No statistically significant associations between residential proximity to power lines with voltages of either 50 to 150 kV or 220 to 380 kV and ALS were reported.
- Sorahan and Mohammed (2014) analyzed mortality from neurodegenerative diseases in a cohort of approximately 73,000 electricity supply workers in the United Kingdom. Cumulative occupational exposure to magnetic-fields was calculated for each worker in the cohort based on their job titles and job locations. Death certificates were used to identify deaths from neurodegenerative diseases. No associations or trends for any of the included neurodegenerative diseases (Alzheimer’s disease, Parkinson’s disease, and ALS) were observed with various measures of calculated magnetic fields.
- Koeman et al. (2015, 2017) analyzed data from the Netherlands Cohort Study of approximately 120,000 men and women who were enrolled in the cohort in 1986 and followed up until 2003. Lifetime occupational history, obtained through questionnaires, and job-exposure matrices on ELF magnetic fields and other occupational exposures were used to assign exposure to study subjects. Based on 1,552 deaths from vascular dementia, the researchers reported a statistically not significant association of vascular dementia with estimated exposure to metals, chlorinated solvents, and ELF magnetic fields. However,

because no exposure-response relationship for cumulative exposure was observed and because magnetic fields and solvent exposures were highly correlated with exposure to metals, the authors attributed the association with ELF magnetic fields and solvents to confounding by exposure to metals (Koeman et al., 2015). Based on a total of 136 deaths from ALS among the cohort members, the authors reported a statistically significant, approximately two-fold association with ELF magnetic fields in the highest exposure category. This association, however, was no longer statistically significant when adjusted for exposure to insecticides (Koeman et al., 2017).

- Fischer et al. (2015) conducted a population-based case-control study that included 4,709 cases of ALS diagnosed between 1990 and 2010 in Sweden and 23,335 controls matched to cases on year of birth and sex. The study subjects' occupational exposures to ELF magnetic fields and electric shocks were classified based on their occupations, as recorded in the censuses and corresponding job-exposure matrices. Overall, neither magnetic fields nor electric shocks were related to ALS.
- Vergara et al. (2015) conducted a mortality case-control study of occupational exposure to electric shock and magnetic fields and ALS. They analyzed data on 5,886 deaths due to ALS and over 58,000 deaths from other causes in the United States between 1991 and 1999. Information on occupation was obtained from death certificates and job-exposure matrices were used to categorize exposure to electric shocks and magnetic fields. Occupations classified as "electric occupations" were moderately associated with ALS. The authors reported no consistent associations for ALS, however, with either electric shocks or magnetic fields, and they concluded that their findings did not support the hypothesis that exposure to either electric shocks or magnetic fields explained the observed association of ALS with "electric occupations."
- Pedersen et al. (2017) investigated the occurrence of central nervous system diseases among approximately 32,000 male Danish electric power company workers. Cases were identified through the national patient registry between 1982 and 2010. Exposure to ELF magnetic fields was determined for each worker based on their job titles and area of work. A statistically significant increase was reported for dementia in the high exposure category when compared to the general population, but no exposure-response pattern was identified, and no similar increase was reported in the internal comparisons among the workers. No other statistically significant increases among workers were reported for the incidence of Alzheimer's disease, Parkinson's disease, motor neuron disease, multiple sclerosis, or epilepsy, when compared to the general population, or when incidence among workers was analyzed across estimated exposure levels.
- Vinceti et al. (2017) examined the association between ALS and calculated magnetic-field levels from high-voltage power lines in Italy. The authors included 703 ALS cases and 2,737 controls; exposure was assessed based on

residential proximity to high-voltage power lines. No statistically significant associations were reported and no exposure-response trend was observed. Similar results were reported in subgroup analyses by age, calendar period of disease diagnosis, and study area.

- Checkoway et al. (2018) investigated the association between Parkinsonism²³ and occupational exposure to magnetic fields and several other agents (endotoxins, solvents, shift work) among 800 female textile workers in Shanghai. Exposure to magnetic fields was assessed based on the participants' work histories. The authors reported no statistically significant associations between Parkinsonism and occupational exposure to any of the agents under study, including magnetic fields.
- Gunnarsson and Bodin (2018) conducted a meta-analysis of occupational risk factors for ALS. The authors reported a statistically significant association between occupational exposures to EMF, estimated using a job-exposure matrix, and ALS among the 11 studies included. Statistically significant associations were also reported between ALS and jobs that involve working with electricity, heavy physical work, exposure to metals (including lead) and chemicals (including pesticides), and working as a nurse or physician. The authors reported some evidence for publication bias. In a subsequent publication, Gunnarsson and Bodin (2019) updated their previous meta-analysis to also include Parkinson's disease and Alzheimer's disease. A slight, statistically significant association was reported between occupational exposure to EMF and Alzheimer's disease; no association was observed for Parkinson's disease.
- Huss et al. (2018) conducted a meta-analysis of 20 epidemiologic studies of ALS and occupational exposure to magnetic fields. The authors reported a weak overall association; a slightly stronger association was observed in a subset analysis of six studies with full occupational histories available. The authors noted substantial heterogeneity among studies, evidence for publication bias, and a lack of a clear exposure-response relationship between exposure and ALS.
- Jalilian et al. (2018) conducted a meta-analysis of 20 epidemiologic studies of occupational exposure to magnetic fields and Alzheimer's disease. The authors reported a moderate, statistically significant overall association; however, they noted substantial heterogeneity among studies and evidence for publication bias.
- Rösli and Jalilian (2018) performed a meta-analysis using data from five epidemiologic studies examining residential exposure to magnetic fields and

²³ Parkinsonism is defined by Checkoway et al. (2018) as “a syndrome whose cardinal clinical features are bradykinesia, rest tremor, muscle rigidity, and postural instability. Parkinson disease is the most common neurodegenerative form of [parkinsonism]” (p. 887).

ALS. A statistically non-significant negative association was reported between ALS and the highest exposed group, where exposure was defined based on distance from power lines or calculated magnetic-field level.

- Gervasi et al. (2019) assessed the relationship between residential distance to overhead power lines in Italy and risk of Alzheimer's dementia and Parkinson's disease. The authors included 9,835 cases of Alzheimer's dementia and 6,810 cases of Parkinson's disease; controls were matched by sex, year of birth, and municipality of residence. A weak, statistically non-significant association was observed between residences within 50 meters of overhead power lines and both Alzheimer's dementia and Parkinson's disease, compared to distances of over 600 meters.
- Peters et al. (2019) examined the relationship between ALS and occupational exposure to both magnetic fields and electric shock in a pooled study of data from three European countries. The study included 1,323 ALS cases and 2,704 controls matched for sex, age, and geographic location; exposure was assessed based on occupational title and defined as low (background), medium, or high. Statistically significant associations were observed between ALS and ever having been exposed above background levels to either magnetic fields or electric shocks; however, no clear exposure-response trends were observed with exposure duration or cumulative exposure. The authors also noted significant heterogeneity in risk by study location.
- Filippini et al. (2020) investigated the associations between ALS and several environmental and occupational exposures, including electromagnetic fields, within a case-control study in Italy. The study included 95 cases and 135 controls matched on age, gender, and residential province; exposure to electromagnetic fields was assessed using the participants' responses to questions related to occupational use of electric and electronic equipment, occupational EMF exposure, and residential distance to overhead power lines. The authors reported a statistically significant association between ALS and residential proximity to overhead power lines and a statistically non-significant association between ALS and occupational exposure to EMF; occupational use of electric and electronic equipment was associated with a statistically non-significant decrease in ALS development.
- Huang et al. (2020) conducted a meta-analysis of 43 epidemiologic studies examining potential occupational risk factors for dementia or mild cognitive impairment. The authors included five cohort studies and seven case-control studies related to magnetic-field exposure. For both study types, the authors reported positive associations between dementia and work-related magnetic-field exposures. The paper, however, provided no information on the occupations held by the study participants, their magnetic-field exposure levels, or how magnetic-field levels were assessed; therefore, the results are difficult to interpret. The authors also reported a high level of heterogeneity among

studies. Thus, this analysis adds little, if any, to the overall weight of evidence on a potential association between dementia and magnetic fields.

- Jalilian et al. (2020) conducted a meta-analysis of ALS and occupational exposure to both magnetic fields and electric shocks within 27 studies from Europe, the United States, and New Zealand. A weak, statistically significant association was reported between magnetic-field exposure and ALS; however, the authors noted evidence of study heterogeneity and publication bias. No association was observed between ALS and electric shocks.
- Chen et al. (2021) conducted a case-control study to examine the association between occupational exposure to electric shocks, magnetic fields, and motor neuron disease (“MND”) in New Zealand. The study included 319 cases with a MND diagnosis (including ALS) and 604 controls, matched on age and gender; exposure was assessed using the participants’ occupational history questionnaire responses and previously developed job-exposure matrices for electric shocks and magnetic fields. The authors reported no associations between MND and exposure to magnetic fields; positive associations were reported between MND and working at a job with the potential for electric shock exposure.

References

Amoon AT, Oksuzyan S, Crespi CM, Arah OA, Cockburn M, Vergara X, Kheifets L. Residential mobility and childhood leukemia. *Environ Res* 164: 459-466, 2018a.

Amoon AT, Crespi CM, Ahlbom A, Bhatnagar M, Bray I, Bunch KJ, Clavel J, Feychting M, Hemon D, Johansen C, Kreis C, Malagoli C, Marquant F, Pedersen C, Raaschou-Nielsen O, Rösli M, Spycher BD, Sudan M, Swanson J, Tittarelli A, Tuck DM, Tynes T, Vergara X, Vinceti M, Wunsch-Filho V, Kheifets L. Proximity to overhead power lines and childhood leukaemia: an international pooled analysis. *Br J Cancer* 119: 364-373, 2018b.

Amoon AT, Arah OA, Kheifets L. The sensitivity of reported effects of EMF on childhood leukemia to uncontrolled confounding by residential mobility: a hybrid simulation study and an empirical analysis using CAPS data. *Cancer Causes Control* 30: 901-908, 2019.

Amoon AT, Crespi CM, Nguyen A, Zhao X, Vergara X, Arah OA, and Kheifets L. The role of dwelling type when estimating the effect of magnetic fields on childhood leukemia in the California Power Line Study (CAPS). *Cancer Causes Control* 31:559-567, 2020.

Auger N, Bilodeau-Bertrand M, Marcoux S, Kosatsky T. Residential exposure to electromagnetic fields during pregnancy and risk of child cancer: A longitudinal cohort study. *Environ Res* 176: 108524, 2019.

Bunch KJ, Keegan TJ, Swanson J, Vincent TJ, Murphy MF. Residential distance

at birth from overhead high-voltage powerlines: childhood cancer risk in Britain 1962-2008. *Br J Cancer* 110: 1402-1408, 2014.

Bunch KJ, Swanson J, Vincent TJ, Murphy MF. Magnetic fields and childhood cancer: an epidemiological investigation of the effects of high-voltage underground cables. *J Radiol Prot* 35: 695-705, 2015.

Bunch KJ, Swanson J, Vincent TJ, Murphy MF. Epidemiological study of power lines and childhood cancer in the UK: further analyses. *J Radiol Prot* 36: 437-455, 2016.

Checkoway H, Ilango S, Li W, Ray RM, Tanner CM, Hu SC, Wang X, Nielsen S, Gao DL, Thomas DB. Occupational exposures and parkinsonism among Shanghai women textile workers. *Am J Ind Med* 61: 886-892, 2018.

Chen GX, Mannetje A, Douwes J, Berg LH, Pearce N, Kromhout H, Glass B, Brewer N, McLean DJ. Occupational exposure to electric shocks and extremely low-frequency magnetic fields and motor neurone disease. *Am J Epidemiol* 190(3):393-402, 2021.

Crespi CM, Vergara XP, Hooper C, Oksuzyan S, Wu S, Cockburn M, Kheifets L. Childhood leukaemia and distance from power lines in California: a population-based case-control study. *Br J Cancer* 115: 122-128, 2016.

Crespi CM, Swanson J, Vergara XP, Kheifets L. Childhood leukemia risk in the California Power Line Study: Magnetic fields versus distance from power lines. *Environ Res* 171: 530-535, 2019.

European Health Risk Assessment Network on Electromagnetic Fields Exposure (EFHRAN). Report on the Analysis of Risks Associated to Exposure to EMF: *In Vitro* and *In Vivo* (Animals) Studies. Milan, Italy: EFHRAN, 2010.

European Health Risk Assessment Network on Electromagnetic Fields Exposure (EFHRAN). Risk Analysis of Human Exposure to Electromagnetic Fields (Revised). Report D2 of the EFHRAN Project. Milan, Italy: EFHRAN, 2012.

Filippini T, Tesauro M, Fiore M, Malagoli C, Consonni M, Violi F, Iacuzio L, Arcolin E, Oliveri Conti G, Cristaldi A, Zuccarello P, Zucchi E, Mazzini L, Pisano F, Gagliardi I, Patti F, Mandrioli J, Ferrante M, Vinceti M. Environmental and occupational risk factors of amyotrophic lateral sclerosis: A population-based case-control study. *Int J Environ Res Public Health* 17(8):2882, 2020.

Fischer H, Kheifets L, Huss A, Peters TL, Vermeulen R, Ye W, Fang F, Wiebert P, Vergara XP, Feychting M. Occupational Exposure to Electric Shocks and Magnetic Fields and Amyotrophic Lateral Sclerosis in Sweden. *Epidemiology* 26: 824-830, 2015.

Gervasi F, Murtas R, Decarli A, Giampiero Russo A. Residential distance from

high-voltage overhead power lines and risk of Alzheimer's dementia and Parkinson's disease: a population-based case-control study in a metropolitan area of Northern Italy. *Int J Epidemiol*, 2019.

Gunnarsson LG and Bodin L. Amyotrophic lateral sclerosis and occupational exposures: A systematic literature review and meta-analyses. *Int J Environ Res Public Health* 15(11):2371, 2018.

Gunnarsson LG and Bodin L. Occupational exposures and neurodegenerative diseases: A systematic literature review and meta-analyses. *Int J Environ Res Public Health* 16(3):337, 2019.

Huang LY, Hu HY, Wang ZT, Ma YH, Dong Q, Tan L, Yu JT. Association of occupational factors and dementia or cognitive impairment: A systematic review and meta-analysis. *J Alzheimers Dis* 78(1):217-227, 2020.

Huss A, Peters S, Vermeulen R. Occupational exposure to extremely low-frequency magnetic fields and the risk of ALS: A systematic review and meta-analysis. *Bioelectromagnetics* 39: 156-163, 2018.

Jalilian H, Teshnizi SH, Rösli M, Neghab M. Occupational exposure to extremely low frequency magnetic fields and risk of Alzheimer disease: A systematic review and meta-analysis. *Neurotoxicology* 69: 242-252, 2018.

Jalilian H, Najafi K, Khosravi Y, and Rösli M. Amyotrophic lateral sclerosis, occupational exposure to extremely low frequency magnetic fields and electric shocks: A systematic review and meta-analysis. *Rev Environ Health* 36(1):129-142, 2020.

Kheifets L, Crespi CM, Hooper C, Cockburn M, Amoon AT, Vergara XP. Residential magnetic fields exposure and childhood leukemia: a population-based case-control study in California. *Cancer Causes Control* 28: 1117-1123, 2017.

Koeman T, Schouten LJ, van den Brandt PA, Slottje P, Huss A, Peters S, Kromhout H, Vermeulen R. Occupational exposures and risk of dementia-related mortality in the prospective Netherlands Cohort Study. *Am J Ind Med* 58: 625-635, 2015.

Koeman T, Slottje P, Schouten LJ, Peters S, Huss A, Veldink JH, Kromhout H, van den Brandt PA, Vermeulen R. Occupational exposure and amyotrophic lateral sclerosis in a prospective cohort. *Occup Environ Med* 74: 578-585, 2017.

Kyriakopoulou A, Meimeti E, Moisoglou I, Psarrou A, Provatopoulou X, Dounias G. Parental Occupational Exposures and Risk of Childhood Acute Leukemia. *Mater Sociomed* 30: 209-214, 2018.

Núñez-Enríquez JC, Correa-Correa V, Flores-Lujano J, Pérez-Saldivar ML, Jiménez-Hernández E, Martín-Trejo JA, Espinoza-Hernández LE, Medina-Sanson A, Cárdenas-Cardos R, Flores-Villegas LV, Peñaloza-González JG, Torres-Nava

JR, Espinosa-Elizondo RM, Amador-Sánchez R, Rivera-Luna R, Dosta-Herrera JJ, Mondragón-García JA, González-Ulibarri JE, Martínez-Silva SI, Espinoza-Anrubio G, Duarte-Rodríguez DA, García-Cortés LR, Gil-Hernández AE, Mejía-Aranguré JM. Extremely low-frequency magnetic fields and the risk of childhood B-lineage acute lymphoblastic leukemia in a city with high incidence of leukemia and elevated exposure to ELF magnetic fields. *Bioelectromagnetics* 41(8):581-597, 2020.

Pedersen C, Johansen C, Schüz J, Olsen JH, Raaschou-Nielsen O. Residential exposure to extremely low-frequency magnetic fields and risk of childhood leukaemia, CNS tumour and lymphoma in Denmark. *Br J Cancer* 113: 1370-1374, 2015.

Pedersen C, Poulsen AH, Rod NH, Frei P, Hansen J, Grell K, Raaschou-Nielsen O, Schüz J, Johansen C. Occupational exposure to extremely low-frequency magnetic fields and risk for central nervous system disease: an update of a Danish cohort study among utility workers. *Int Arch Occup Environ Health* 90: 619-628, 2017.

Peters S, Visser AE, D'Ovidio F, Beghi E, Chio A, Logroscino G, Hardiman O, Kromhout H, Huss A, Veldink J, Vermeulen R, van den Berg LH. Associations of Electric Shock and Extremely Low-Frequency Magnetic Field Exposure With the Risk of Amyotrophic Lateral Sclerosis. *Am J Epidemiol* 188: 796-805, 2019.

Röösli M and Jalilian H. A meta-analysis on residential exposure to magnetic fields and the risk of amyotrophic lateral sclerosis. *Rev Environ Health* 33: 295-299, 2018.

Salvan A, Ranucci A, Lagorio S, Magnani C. Childhood leukemia and 50 Hz magnetic fields: findings from the Italian SETIL case-control study. *Int J Environ Res Public Health* 12: 2184-2204, 2015.

Scientific Committee on Emerging and Newly Identified Health Risks (SCENIHR). Health Effects of Exposure to EMF. Brussels, Belgium: European Commission, 2009.

Scientific Committee on Emerging and Newly Identified Health Risks (SCENIHR). Opinion on Potential Health Effects of Exposure to Electromagnetic Fields (EMF). Brussels, Belgium: European Commission, 2015.

Seelen M, Vermeulen RC, van Dillen LS, van der Kooi AJ, Huss A, de Visser M, van den Berg LH, Veldink JH. Residential exposure to extremely low frequency electromagnetic fields and the risk of ALS. *Neurology* 83: 1767-1769, 2014.

Seomun G, Lee J, Park J. Exposure to extremely low-frequency magnetic fields and childhood cancer: A systematic review and meta-analysis. *PLoS One* 16:e0251628, 2021.

Sorahan T and Mohammed N. Neurodegenerative disease and magnetic field

exposure in UK electricity supply workers. *Occup Med (Lond)* 64: 454-460, 2014.

Swanson J and Bunch KJ. Reanalysis of risks of childhood leukaemia with distance from overhead power lines in the UK. *J Radiol Prot* 38: N30-N35, 2018.

Swanson J, Kheifets L, and Vergara X. Changes over time in the reported risk for childhood leukaemia and magnetic fields. *J Radiol Prot* 39:470-488, 2019.

Swedish Radiation Safety Authority (SSM). Research 2019:08. Recent Research on EMF and Health Risk – Thirteenth Report from SSM's Scientific Council on Electromagnetic Fields, 2018. Stockholm, Sweden: Swedish Radiation Safety Authority (SSM), 2019.

Talibov M, Olsson A, Bailey H, Erdmann F, Metayer C, Magnani C, Petridou E, Auvinen A, Spector L, Clavel J, Roman E, Dockerty J, Nikkila A, Lohi O, Kang A, Psaltopoulou T, Miligi L, Vila J, Cardis E, Schüz J. Parental occupational exposure to low-frequency magnetic fields and risk of leukaemia in the offspring: findings from the Childhood Leukaemia International Consortium (CLIC). *Occup Environ Med* 76:746-753, 2019.

Vergara X, Mezei G, Kheifets L. Case-control study of occupational exposure to electric shocks and magnetic fields and mortality from amyotrophic lateral sclerosis in the US, 1991-1999. *J Expo Sci Environ Epidemiol* 25: 65-71, 2015.

Vinceti M, Malagoli C, Fabbi S, Kheifets L, Violi F, Poli M, Caldara S, Sesti D, Violanti S, Zanichelli P, Notari B, Fava R, Arena A, Calzolari R, Filippini T, Iacuzio L, Arcolin E, Mandrioli J, Fini N, Odone A, Signorelli C, Patti F, Zappia M, Pietrini V, Oleari P, Teggi S, Ghermandi G, Dimartino A, Ledda C, Mauceri C, Sciacca S, Fiore M, Ferrante M. Magnetic fields exposure from high-voltage power lines and risk of amyotrophic lateral sclerosis in two Italian populations. *Amyotroph Lateral Scler Frontotemporal Degener* 18: 583-589, 2017.

World Health Organization (WHO). Environmental Health Criteria 238: Extremely Low Frequency (ELF) Fields. Geneva, Switzerland: World Health Organization, 2007.

V. NOTICE

- A. Furnish a proposed route description to be used for public notice purposes. Provide a map of suitable scale showing the route of the proposed project. For all routes that the Applicant proposed to be noticed, provide minimum, maximum and average structure heights.**

Response: A map showing the existing route to be used for the Rebuild Project is provided as Attachment V.A. A written description of the route is as follows:

The proposed route for the Rebuild Project is located within an approximately 15.2-mile existing transmission corridor right-of-way, which includes the 115 kV Line #183, as well as the 500 kV Line #539 between Structures #183/24 and #183/134. The existing corridor varies in width from 100 to 235 feet. The existing transmission line right-of-way for the proposed route of the Rebuild Project originates at Structure #183/12, south of Courthouse Road in Fauquier County, continues westerly approximately 0.9 mile to the tap line to Sowego DP, then continues westerly approximately 0.7 mile to Structure #183/24 on Marine Corps Base Quantico in Prince William County where it meets Line #539. From this point, the Rebuild Project continues westerly paralleling Line #539 approximately 13.5 miles through Marine Corps Base Quantico, Prince William Forest Park, crossing Dumfries and Spriggs Roads, and then terminating at Structure #183/134 near the Minnieville DP in Prince William County.

For the proposed Rebuild Project, the existing wooden H-frames and lattice towers are proposed to be replaced with new weathering steel monopole and H-frame structures. The minimum proposed structure height is approximately 70 feet, the maximum proposed structure height is approximately 145 feet, and the average proposed structure height is approximately 110 feet, based on preliminary conceptual design, excluding foundation reveal and subject to change based on final engineering design.

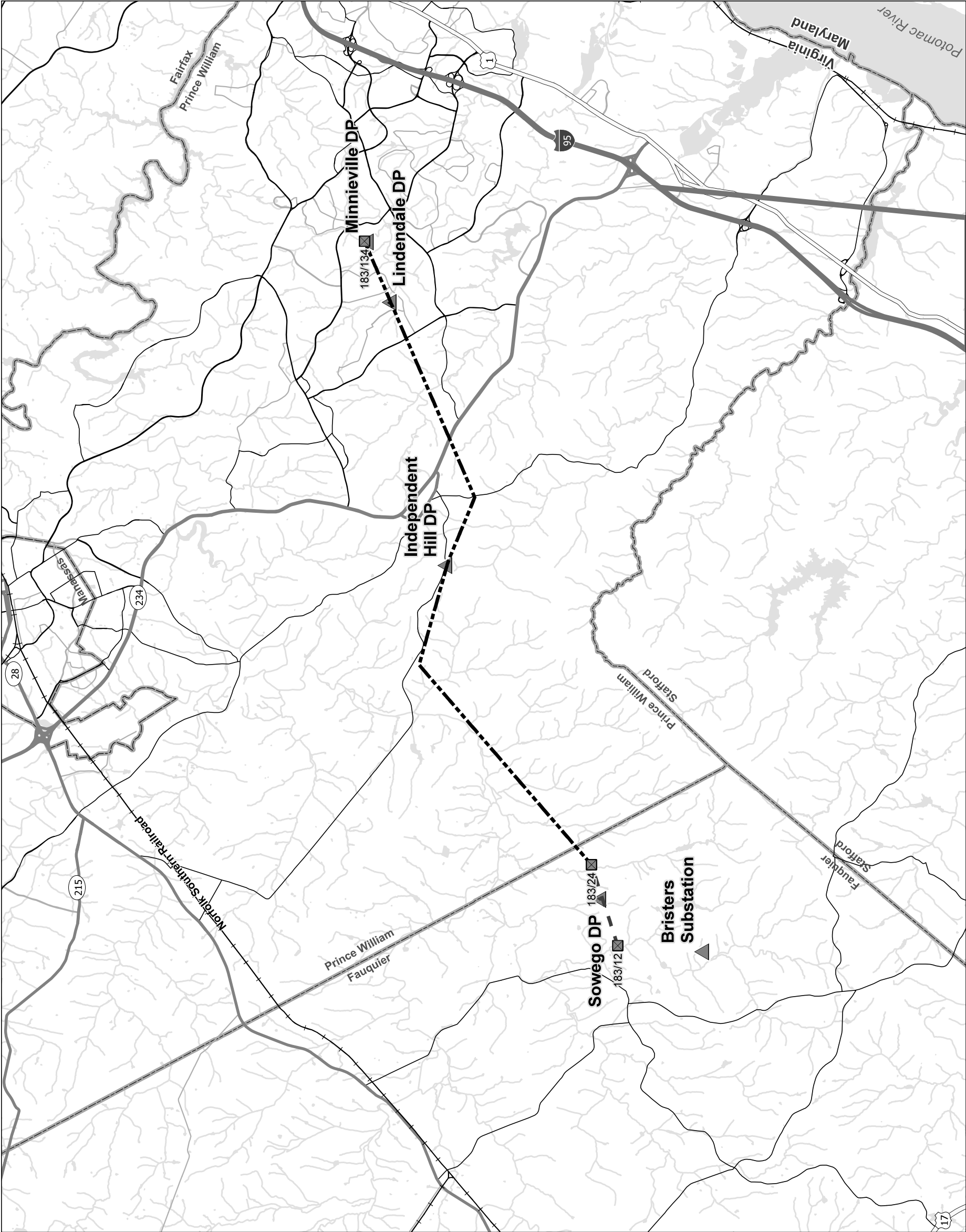


Figure No.
V.A

Title
Notification Map

Client/Project
203401769
Dominion Energy Virginia
Line #183 Partial Rebuild Project

Project Location
Prepared by MGS on 2022-01-21
TR by ECL on 2022-02-14
IR by CFG on 2022-02-08
Fauquier and Prince William Counties, Virginia

N

0 10,000 20,000

Feet

(At original document size of 11x17)

1:120,000

▲ Substation / DP

■ Beginning/Endpoint Structures

--- Line #183 Partial Rebuild Project (Double Circuit Structures)

- - - Line #183 Partial Rebuild Project (Single Circuit Structures)

== Interstate

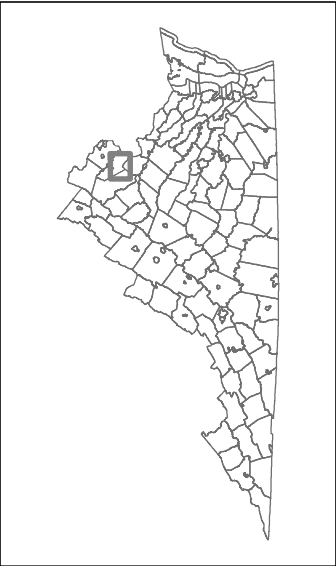
== Other Major Road

== Secondary Road

== Local Connecting Road

== Important Local Road

++ Railroad



Notes
1. Coordinate System: NAD 1983 StatePlane Virginia North FIPS 4501 Feet
2. Data Sources: Dominion Energy Virginia, Stantec, DCR, National Transportation Atlas
Railroads, USFWS National Wetlands Inventory (NWI) and USGS National Hydrography
Dataset (NHD), ESRI, VDOT



V. NOTICE

- B. List Applicant offices where members of the public may inspect the application. If applicable, provide a link to website(s) where the application may be found.**

Response: Due to ongoing health concerns, the Application will be made available electronically for public inspection at:
<https://www.dominionenergy.com/bristersminnieville>.

V. NOTICE

- C. List all federal, state, and local agencies and/or officials that may reasonably be expected to have an interest in the proposed construction and to whom the Applicant has furnished or will furnish a copy of the application.**

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

Ms. Michelle Henicheck
Office of Wetlands and Streams
Department of Environmental Quality
1111 East Main Street, Suite 1400
Richmond, Virginia 23219

Ms. Trisha Beasley
Department of Environmental Quality
VWP Permit Manager, Northern Regional Office
13901 Crown Court
Woodbridge, Virginia 22193

Ms. Rene Hypes
Virginia Department of Conservation and Recreation
Division of Natural Heritage
600 East Main Street, 24th Floor
Richmond, Virginia 23219

Ms. Kristal McKelvey
Department of Conservation and Recreation, Planning Bureau
600 East Main Street, 17th Floor
Richmond, Virginia 23219

Mr. Roger Kirchen
Department of Historic Resources
Review and Compliance Division
2801 Kensington Avenue
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Virginia Department of Wildlife Resources
7870 Villa Park, Suite 400
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Mr. Keith Tignor
Virginia Department of Agriculture and Consumer Affairs
102 Governor Street
Richmond, Virginia 23219

Mr. Karl Didier, PhD
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Regulator of the Day
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Culpeper District Engineer
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Culpeper, Virginia 22701

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Mr. Dave Heironimus
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Ms. Linda Wilson
VDOT Land Use Permitting – Fauquier County
457 E. Shirley Avenue
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Mr. Paul S. McCulla
Fauquier County Administrator
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Warrenton Virginia 20186

Mr. Elijah Johnson
Prince William Acting County Executive
1 County Complex Court
Prince William, Virginia 22192

Quantico Marine Base
NAVFAC/Mid-Atlantic/Quantico
Nikki Hunt, Director
Building 2009 Zeilin Road
Quantico, Virginia 22134

Prince William Forest Park
National Park Service
Mr. George Liffert, Superintendent
18100 Park Headquarters Road
Triangle, Virginia 22172

V. NOTICE

- D. If the application is for a transmission line with a voltage of 138 kV or greater, provide a statement and any associated correspondence indicating that prior to the filing of the application with the SCC the Applicant has notified the chief administrative officer of every locality in which it plans to undertake construction of the proposed line of its intention to file such an application, and that the Applicant gave the locality a reasonable opportunity for consultation about the proposed line (similar to the requirements of § 15.2-2202 of the Code for electric transmission lines of 150 kV or more).**

Response: In accordance with Va. Code §15.2-2202 E, letters dated June 22, 2022, were delivered to Ms. Nikki Hunt, Director NAVFAC/Mid-Atlantic/Quantico, Mr. Paul McCulla, Administrator of Fauquier County, and Mr. Elijah Johnson, Administrator of Prince William County, where the Rebuild Project is located. The letters stated the Company's intention to file this Application and invited the Counties to consult with the Company about the Rebuild Project. These letters to Fauquier County and Prince William County are included as Attachments V.D.1, V.D.2, and V.D.3, respectively.

Dominion Energy Services, Inc.
10900 Nuckols Rd, 4th Floor
Glen Allen, VA 23060



June 22, 2022

BY EMAIL

Ms. Nikki Hunt
NAVFAC Mid-Atlantic
Building 2009 Zeilin Road
Quantico, VA 22134
niiki.hunt@navy.mil

RE: Dominion Energy Virginia's Proposed Line #183 Partial Rebuild Project, Fauquier and Prince William Counties, Virginia

Ms. Hunt,

Dominion Energy Virginia (the "Company") is proposing to partially rebuild the existing 115 kV Bristers-Ox Line #183 (the "Rebuild Project") within Fauquier and Prince William Counties, Virginia. The Rebuild Project is necessary to replace aging infrastructure that is at the end of its service life in order to ensure that Dominion Energy Virginia can continue to meet customer needs and maintain reliable electric service for the overall growth in the area in compliance with mandatory North American Electric Reliability Corporation Reliability Standards and the Company's mandatory electric transmission planning criteria.

Specifically, the Company proposes as part of this Rebuild Project to rebuild an approximately 15-mile segment of the Company's existing 23.6-mile 115 kV Line #183 between Structure #183/12 and Structure #183/134 with standard 230 kV construction. The Rebuild Project will include replacement of structures, as well conductors and shield wire, within the existing right-of-way along this segment of Line #183. Additionally, the Company plans to replace the existing conductors and shield wire on Line #183 between Structure #183/12 and the Bristers Substation as part of the Rebuild Project.

The Company is in the process of preparing an application for a certificate of public convenience and necessity from the State Corporation Commission ("SCC"). At this time, in advance of an SCC filing, the Company respectfully requests that you submit any comments or additional information that would have bearing on the proposed Rebuild Project within 30 days of the date of this letter.

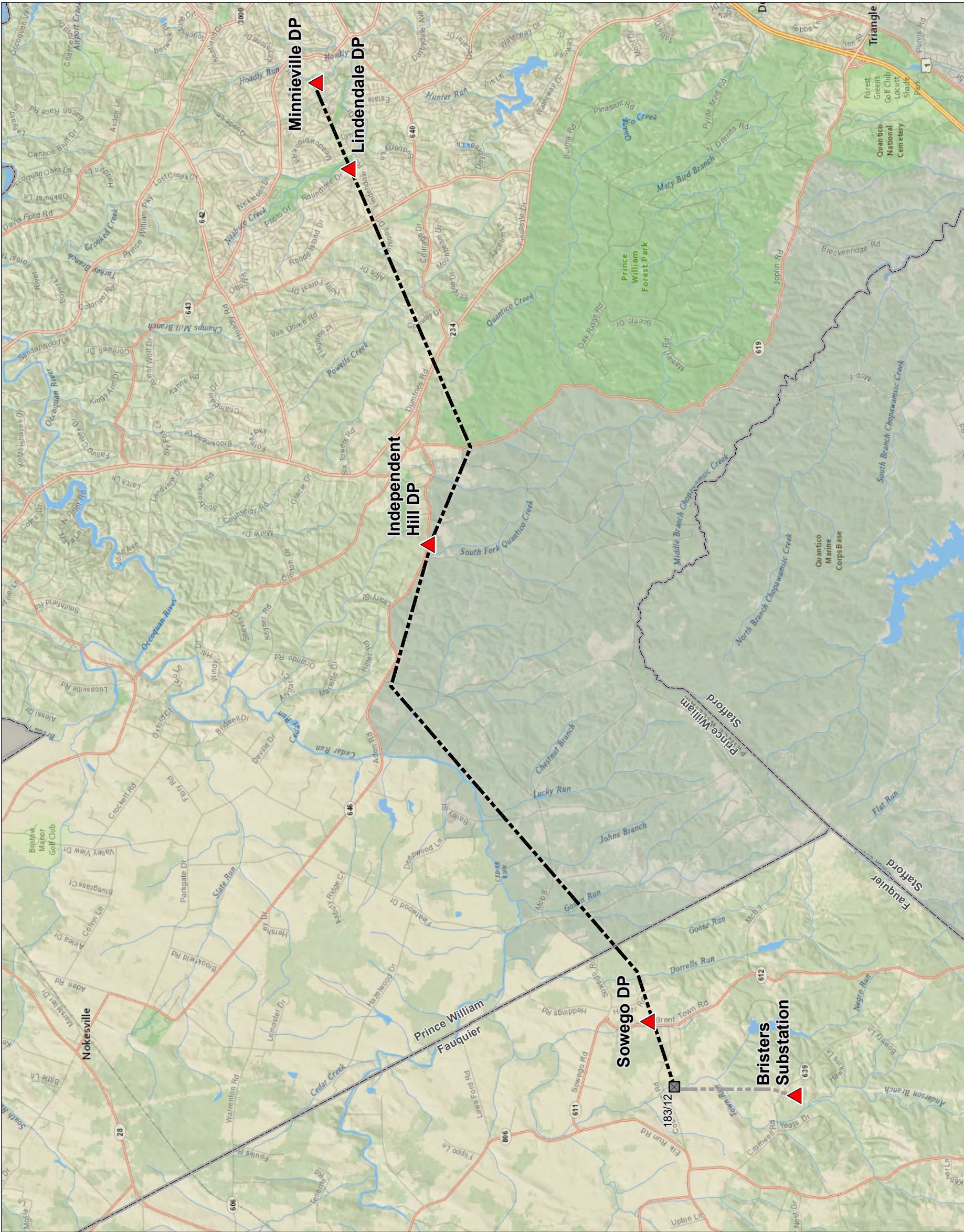
If you would like to receive a GIS shapefile of the transmission line routes to assist in the project review or if there are any questions, please do not hesitate to contact me by phone or email.

We appreciate your assistance with this project review and look forward to any additional information you may have to offer.

Sincerely,

Nancy

Nancy Reid
Siting & Permitting Specialist
434.532.7579
nancy.r.reid@dominionenergy.com



Dominion Energy Services, Inc.
10900 Nuckols Rd, 4th Floor
Glen Allen, VA 23060



June 22, 2022

BY EMAIL

Mr. Paul S. McCulla
Fauquier County Administrator
10 Hotel Street, Ste 204
Warrenton VA 20186
paul.mcculla@fauquiercounty.gov

RE: Dominion Energy Virginia's Proposed Line #183 Partial Rebuild Project, Fauquier and Prince William Counties, Virginia

Mr. McCulla,

Dominion Energy Virginia (the "Company") is proposing to partially rebuild the existing 115 kV Bristers-Ox Line #183 (the "Rebuild Project") within Fauquier and Prince William Counties, Virginia. The Rebuild Project is necessary to replace aging infrastructure that is at the end of its service life in order to ensure that Dominion Energy Virginia can continue to meet customer needs and maintain reliable electric service for the overall growth in the area in compliance with mandatory North American Electric Reliability Corporation Reliability Standards and the Company's mandatory electric transmission planning criteria.

Specifically, the Company proposes as part of this Rebuild Project to rebuild an approximately 15-mile segment of the Company's existing 23.6-mile 115 kV Line #183 between Structure #183/12 and Structure #183/134 with standard 230 kV construction. The Rebuild Project will include replacement of structures, as well conductors and shield wire, within the existing right-of-way along this segment of Line #183. Additionally, the Company plans to replace the existing conductors and shield wire on Line #183 between Structure #183/12 and the Bristers Substation as part of the Rebuild Project.

The Company is in the process of preparing an application for a certificate of public convenience and necessity from the State Corporation Commission ("SCC"). At this time, in advance of an SCC filing, the Company respectfully requests that you submit any comments or additional information that would have bearing on the proposed Rebuild Project within 30 days of the date of this letter.

If you would like to receive a GIS shapefile of the transmission line routes to assist in the project review or if there are any questions, please do not hesitate to contact me by phone or email.

We appreciate your assistance with this project review and look forward to any additional information you may have to offer.

Sincerely,

Nancy

Nancy Reid
Siting & Permitting Specialist
434.532.7579
nancy.r.reid@dominionenergy.com

Attachment: Project Notice Map

Figure No.

I.A.1

Title

General Overview

Client/Project

Dominion Energy Virginia

Line #183 Partial Rebuild Project

Project Location

Fauquier and Prince William Counties, Virginia

Prepared by MGS on 2022-01-21

TR by ECL on 2022-02-14

IR by CFG on 2022-02-08

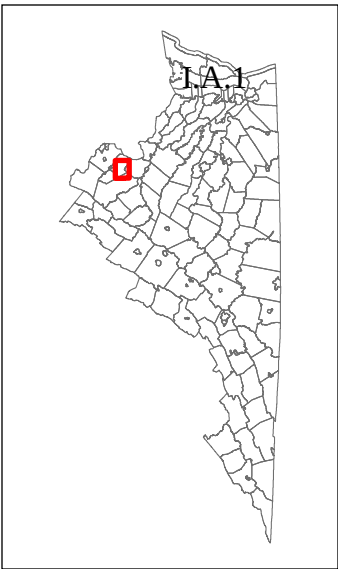
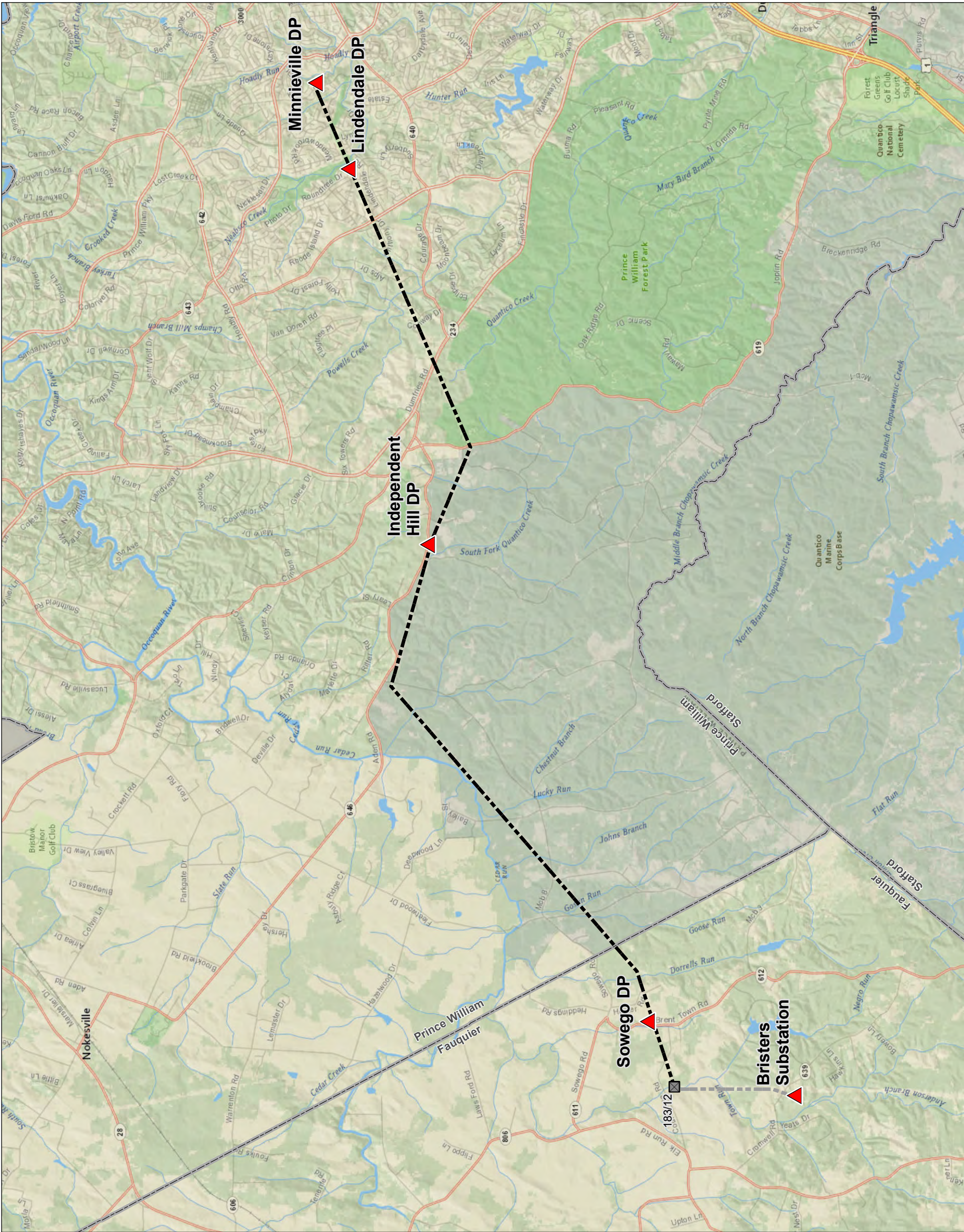


Substation / DP

Structure 183/12

Line #183 Partial Rebuild Project

Line #183 Reconductor Only



Notes

1. Coordinate System: NAD 1983 StatePlane Virginia North FIPS 4501 Feet

2. Data Sources: Dominion Energy Virginia, Stantec, DCR

3. Base Map © National Geographic



Dominion Energy Services, Inc.
10900 Nuckols Rd, 4th Floor
Glen Allen, VA 23060



June 22, 2022

BY EMAIL

Mr. Elijah Johnson
Prince William County Executive
1 County Complex Court
Prince William, VA 22192
communications@pwcgov.org

RE: Dominion Energy Virginia's Proposed Line #183 Partial Rebuild Project, Fauquier and Prince William Counties, Virginia

Mr. Johnson,

Dominion Energy Virginia (the "Company") is proposing to partially rebuild the existing 115 kV Bristers-Ox Line #183 (the "Rebuild Project") within Fauquier and Prince William Counties, Virginia. The Rebuild Project is necessary to replace aging infrastructure that is at the end of its service life in order to ensure that Dominion Energy Virginia can continue to meet customer needs and maintain reliable electric service for the overall growth in the area in compliance with mandatory North American Electric Reliability Corporation Reliability Standards and the Company's mandatory electric transmission planning criteria.

Specifically, the Company proposes as part of this Rebuild Project to rebuild an approximately 15-mile segment of the Company's existing 23.6-mile 115 kV Line #183 between Structure #183/12 and Structure #183/134 with standard 230 kV construction. The Rebuild Project will include replacement of structures, as well conductors and shield wire, within the existing right-of-way along this segment of Line #183. Additionally, the Company plans to replace the existing conductors and shield wire on Line #183 between Structure #183/12 and the Bristers Substation as part of the Rebuild Project.

The Company is in the process of preparing an application for a certificate of public convenience and necessity from the State Corporation Commission ("SCC"). At this time, in advance of an SCC filing, the Company respectfully requests that you submit any comments or additional information that would have bearing on the proposed Rebuild Project within 30 days of the date of this letter.

If you would like to receive a GIS shapefile of the transmission line routes to assist in the project review or if there are any questions, please do not hesitate to contact me by phone or email.

We appreciate your assistance with this project review and look forward to any additional information you may have to offer.

Sincerely,

Nancy

Nancy Reid
Siting & Permitting Specialist
434.532.7579
nancy.r.reid@dominionenergy.com

Attachment: Project Notice Map

Figure No.

I.A.1

Title

General Overview

Client/Project

Dominion Energy Virginia

Line #183 Partial Rebuild Project

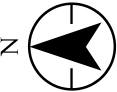
Project Location

Fauquier and Prince William Counties, Virginia

Prepared by MGS on 2022-01-21

TR by ECL on 2022-02-14

IR by CFG on 2022-02-08

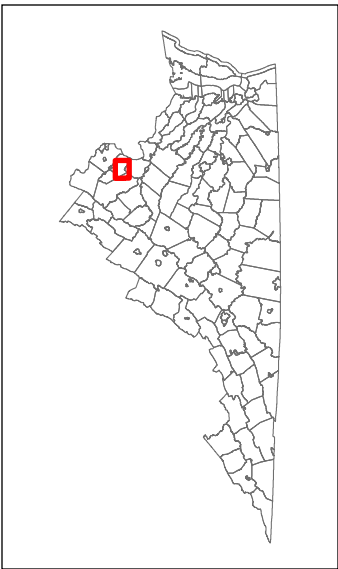
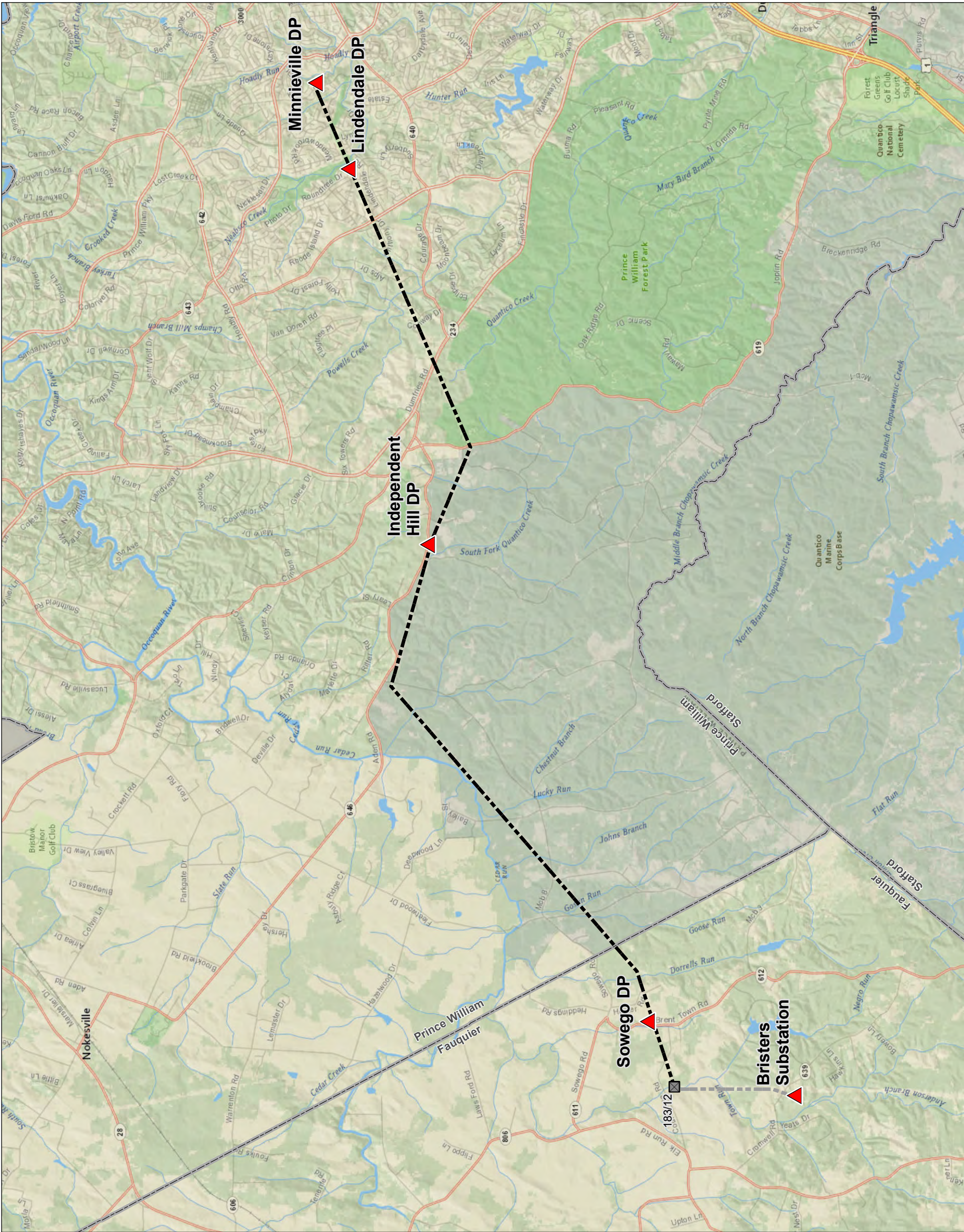


Substation / DP

Structure 183/12

Line #183 Partial Rebuild Project

Line #183 Reconductor Only



Notes

1. Coordinate System: NAD 1983 StatePlane Virginia North FIPS 4501 Feet

2. Data Sources: Dominion Energy Virginia, Stantec, DCR

3. Base Map © National Geographic



COMMONWEALTH OF VIRGINIA
STATE CORPORATION COMMISSION

APPLICATION OF	)	
	)	
VIRGINIA ELECTRIC AND POWER COMPANY	)	Case No. PUR-2022-00123
	)	
For approval and certification of electric	)	
transmission facilities: Line #183	)	
Partial Rebuild Project	)	

**IDENTIFICATION, SUMMARIES AND TESTIMONY OF DIRECT WITNESSES OF
VIRGINIA ELECTRIC AND POWER COMPANY**

Steven Schweiger

Witness Direct Testimony Summary
Direct Testimony
Appendix A: Background and Qualifications

Darren E. Campbell

Witness Direct Testimony Summary
Direct Testimony
Appendix A: Background and Qualifications

Santosh Bhattarai

Witness Direct Testimony Summary
Direct Testimony
Appendix A: Background and Qualifications

Nancy R. Reid

Witness Direct Testimony Summary
Direct Testimony
Appendix A: Background and Qualifications

WITNESS DIRECT TESTIMONY SUMMARY

Witness: Steven Schweiger

Title: Area Planning Engineer

Summary:

Company Witness Steven Schweiger sponsors those portions of the Appendix describing the Company's transmission system and need for, and benefits of, the proposed Rebuild Project, as follows:

- Section I.B: This section details the engineering justifications for the proposed project.
- Section I.C: This section describes the present system and details how the proposed project will effectively satisfy present and projected future load demand requirements.
- Section I.D: This section describes critical contingencies and associated violations due to the inadequacy of the existing system.
- Section I.E: This section explains feasible project alternatives.
- Section I.H: This section provides the desired in-service date of the proposed project and the estimated construction time.
- Section I.J: This section provides information about the project if approved by the RTO.
- Section I.K: Although not applicable, this section provides outage history and maintenance history for existing transmission lines if the proposed project is a rebuild and is due in part to reliability issues.
- Section I.M: Although not applicable, this section contains information for transmission lines interconnecting a non-utility generator.
- Section I.N: Although not applicable, this section, when applicable, provides the proposed and existing generating sources, distribution circuits or load centers planned to be served by all new substations, switching stations, and other ground facilities associated with the proposed project.
- Section II.A.10: This section provides details of the construction plans for the proposed project, including requested and approved line outage schedules.

Additionally, Company Witness Schweiger co-sponsors the following portions of the Appendix:

- Section I.A (co-sponsored with Company Witness Darren E. Campbell): This section details the primary justifications for the proposed project.
- Section I.F (co-sponsored with Company Witness Darren E. Campbell): This section describes any lines or facilities that will be removed, replaced or taken out of service upon completion of the proposed project, including the number of circuits and normal and emergency ratings of the facilities.
- Section I.G (co-sponsored with Company Witness Nancy R. Reid): This section provides a system map for the affected area.
- Section II.A.3 (co-sponsored with Company Witness Nancy R. Reid): This section provides color maps of existing or proposed rights-of-way in the vicinity of the project.

A statement of Mr. Schweiger's background and qualifications is attached to his testimony as Appendix A.

**DIRECT TESTIMONY
OF
STEVEN SCHWEIGER
ON BEHALF OF
VIRGINIA ELECTRIC AND POWER COMPANY
BEFORE THE
STATE CORPORATION COMMISSION OF VIRGINIA
CASE NO. PUR-2022-00123**

1 **Q. Please state your name, position with Virginia Electric and Power Company**
2 **(“Dominion Energy Virginia” or the “Company”), and business address.**

3 A. My name is Steven Schweiger, and I am an Area Planning Engineer in the Electric
4 Transmission Planning Department for the Company. My business address is 10900
5 Nuckols Road, Glen Allen, Virginia 23060. A statement of my qualifications and
6 background is provided as Appendix A.

7 **Q. Please describe your areas of responsibility with the Company.**

8 A. I am responsible for planning the Company’s electric transmission system for voltages of
9 69 kilovolt (“kV”) through 500 kV.

10 **Q. What is the purpose of your testimony in this proceeding?**

11 A. In order to replace aging infrastructure that is at the end of its service life, to comply with
12 mandatory North American Electric Reliability Corporation (“NERC”) Reliability
13 Standards and the Company’s mandatory electric transmission planning criteria
14 (“Planning Criteria”), and to maintain reliable service for the overall growth in the area,
15 the Company proposes the following rebuild project located within existing right-of-way
16 or on Company-owned property in Fauquier and Prince William Counties, Virginia (the
17 “Rebuild Project”):

- 18 • Rebuild an approximately 15.2-mile segment of the Company’s existing 23.6-mile
19 115 kV Bristers-Ox Line #183 between Structure #183/12 and Structure #183/134.

Specifically, remove existing Structures #183/13 through #183/133, of which, existing Structures #183/13 through #183/100 are predominantly single circuit 115 kV wood H-frame structures, and existing Structures #183/101 through #183/133 are predominately 115 kV weathering steel (COR-TEN®) lattice towers. The existing weathering steel (COR-TEN®) lattice towers are framed for double circuit construction; however, the davit arms for one of the circuits are currently vacant. The Company proposes to replace Structures #183/13 through #183/23 with 230 kV single circuit weathering steel H-frames, and to replace Structures #183/24 through #183/133 primarily with 230 kV double circuit weathering steel monopoles, which will have a set of three vacant davit arms available to allow for future load growth. This rebuild of the 15.2-mile segment of the Company's 115 kV Line #183 is inclusive of an approximately 0.11-mile single circuit 115 kV tap circuit, which feeds the Sowego Delivery Point ("DP") owned by Northern Virginia Electric Cooperative ("NOVEC") and will be rebuilt with two 230 kV single circuit weathering steel 3-pole structures. In addition to the structure replacements, the existing 3-phase twin-bundled 636 ACSR, single 636 ACSR, 4/0 ACSR and 740.8 AAAC conductors and existing shield wire on Line #183 between Structures #183/2 and #183/12 and between Structures #183/12 and #183/134 will be replaced with 3-phase twin-bundled 768.2 ACSS conductors and new optical ground wire ("OPGW") fiber optic shield wires. The Company proposes to operate the rebuilt Line #183 at 115 kV until such time as 230 kV operation is required.

- Upgrade line terminal equipment at the Company's existing Bristers Substation to support the new line rating of rebuilt Line #183.

The purpose of my testimony is to describe the Company's transmission system and the need for, and benefits of, the proposed Rebuild Project. I am sponsoring Sections I.B, I.C, I.D, I.E, I.H, I.J, I.K, I.M, I.N, and II.A.10 of the Appendix. Additionally, I co-sponsor the Executive Summary with Company Witnesses Darren E. Campbell, Santosh Bhattarai, and Nancy R. Reid; Sections I.A and I.F with Company Darren E. Campbell; and Sections I.G and II.A.3 with Company Witness Nancy R. Reid.

Q. Does this conclude your pre-filed direct testimony?

A. Yes, it does.

**BACKGROUND AND QUALIFICATIONS
OF
STEVEN SCHWEIGER**

Steven Schweiger received a Bachelor of Science degree in Electrical Engineering from Hofstra University in Hempstead, New York. Before joining Dominion Energy Virginia in 2021, Mr. Schweiger worked with multiple electric utility companies in the Northeast, Midwest, and Southern regions from 2017 to 2021 as a Transmission Planning Consultant for Burns & McDonnell.

Mr. Schweiger has previously submitted pre-filed testified to the State Corporation Commission of Virginia.

WITNESS DIRECT TESTIMONY SUMMARY

Witness: Darren E. Campbell

Title: Associate Transmission Line Engineer (Burns & McDonnell)

Summary:

Company Witness Darren E. Campbell sponsors those portions of the Appendix providing an overview of the design characteristics of the transmission facilities for the proposed Rebuild Project, and discussing electric and magnetic field levels, as follows:

- Section I.L: This section provides photographs illustrating the deterioration of structures and associated equipment as applicable.
- Section II.A.5: This section provides drawings of the right-of-way cross section showing typical transmission lines structure placements.
- Sections II.B.1 to II.B.3: These sections provide the line design and operational features of the proposed project.
- Section II.B.4: Although not applicable, this section normally provides the line design and operational features of a proposed project.
- Section IV: This section provides analysis on the health aspects of electric and magnetic field levels.

Additionally, Company Witness Campbell co-sponsors the following portions of the Appendix:

- Section I.A (co-sponsored with Company Witness Steven Schweiger): This section details the primary justifications for the proposed project.
- Section I.F (co-sponsored with Company Witness Steven Schweiger): This section describes any lines or facilities that will be removed, replaced or taken out of service upon completion of the proposed project, including the number of circuits and normal and emergency ratings of the facilities.
- Section I.I (co-sponsored with Company Witness Santosh Bhattarai): This section provides the estimated total cost of the proposed project.
- Section II.B.5 (co-sponsored with Company Witness Nancy R. Reid): This section provides the mapping and structure heights for the existing overhead structures.
- Section V.A (co-sponsored with Company Witness Nancy R. Reid): This section provides information related to public notice of the proposed project

A statement of Mr. Campbell's background and qualifications is attached to his testimony as Appendix A.

**DIRECT TESTIMONY
OF
DARREN E. CAMPBELL
ON BEHALF OF
VIRGINIA ELECTRIC AND POWER COMPANY
BEFORE THE
STATE CORPORATION COMMISSION OF VIRGINIA
CASE NO. PUR-2022-00123**

1 **Q. Please state your name, position and place of employment, and business address.**

2 A. My name is Darren E. Campbell, and I am an Associate Transmission Line Engineer at
3 Burns & McDonnell providing testimony on behalf of Virginia Electric and Power
4 Company (“the “Company”). My business address is 9400 Ward Parkway, Kansas City,
5 Missouri 64114. A statement of my qualifications and background is provided as
6 Appendix A.

7 **Q. Please describe your responsibilities as an Associate Transmission Line Engineer.**

8 A. I am responsible for the estimating, conceptual, and final design of high voltage
9 transmission line projects from 69 kilovolt (“kV”) to 500 kV.

10 **Q. What is the purpose of your testimony in this proceeding?**

11 A. In order to replace aging infrastructure that is at the end of its service life, to comply with
12 mandatory North American Electric Reliability Corporation (“NERC”) Reliability
13 Standards and the Company’s mandatory electric transmission planning criteria
14 (“Planning Criteria”), and to maintain reliable service for the overall growth in the area,
15 the Company proposes the following rebuild project located within existing right-of-way
16 or on Company-owned property in Fauquier and Prince William Counties, Virginia (the
17 “Rebuild Project”):

- 18 • Rebuild an approximately 15.2-mile segment of the Company’s existing 23.6-mile
19 115 kV Bristers-Ox Line #183 between Structure #183/12 and Structure #183/134.

Specifically, remove existing Structures #183/13 through #183/133, of which, existing Structures #183/13 through #183/100 are predominantly single circuit 115 kV wood H-frame structures, and existing Structures #183/101 through #183/133 are predominately 115 kV weathering steel (COR-TEN®) lattice towers. The existing weathering steel (COR-TEN®) lattice towers are framed for double circuit construction; however, the davit arms for one of the circuits are currently vacant. The Company proposes to replace Structures #183/13 through #183/23 with 230 kV single circuit weathering steel H-frames, and to replace Structures #183/24 through #183/133 primarily with 230 kV double circuit weathering steel monopoles, which will have a set of three vacant davit arms available to allow for future load growth. This rebuild of the 15.2-mile segment of the Company's 115 kV Line #183 is inclusive of an approximately 0.11-mile single circuit 115 kV tap circuit, which feeds the Sowego Delivery Point ("DP") owned by Northern Virginia Electric Cooperative ("NOVEC") and will be rebuilt with two 230 kV single circuit weathering steel 3-pole structures. In addition to the structure replacements, the existing 3-phase twin-bundled 636 ACSR, single 636 ACSR, 4/0 ACSR and 740.8 AAAC conductors and existing shield wire on Line #183 between Structures #183/2 and #183/12 and between Structures #183/12 and #183/134 will be replaced with 3-phase twin-bundled 768.2 ACSS conductors and new optical ground wire ("OPGW") fiber optic shield wires. The Company proposes to operate the rebuilt Line #183 at 115 kV until such time as 230 kV operation is required.

- Upgrade line terminal equipment at the Company's existing Bristers Substation to support the new line rating of rebuilt Line #183.

The purpose of my testimony is to describe the design characteristics of the transmission facilities for the proposed Rebuild Project, and also to discuss electric and magnetic field levels. I sponsor Sections I.L, II.A.5, II.B.1 to II.B.4, and IV of the Appendix. I also co-sponsor the Executive Summary with Company Witnesses Steven Schweiger, Santosh Bhattarai, and Nancy R. Reid; Sections I.A and I.F of the Appendix with Company Witness Steven Schweiger; Section I.I of the Appendix with Company Witness Santosh Bhattarai; and Sections II.B.5 and V.A with Company Witness Nancy R. Reid.

Q. Does this conclude your pre-filed direct testimony?

A. Yes, it does.

**BACKGROUND AND QUALIFICATIONS
OF
DARREN E. CAMPBELL**

Mr. Darren E. Campbell earned his bachelor's degree from University of Missouri-Columbia in Civil Engineering. He has approximately 15 years of experience working in transmission line engineering industry as a consultant. His professional experience includes the structural and overhead design for transmission lines ranging from 34.5 kV to 500 kV.

WITNESS DIRECT TESTIMONY SUMMARY

Witness: Santosh Bhattarai

Title: Consulting Engineer – Substation Engineering

Summary:

Company Witness Santosh Bhattarai sponsors or co-sponsors the following portions of the Appendix describing the work to be performed at an existing substation for the proposed Rebuild Project, as follows:

- Section I.I (co-sponsored with Company Witness Darren E. Campbell): This section provides the estimated total cost of the proposed project.
- Section II.C: This section describes and furnishes a one-line diagram of the substation(s) associated with the proposed project.

A statement of Mr. Bhattarai's background and qualifications is attached to his testimony as Appendix A.

**DIRECT TESTIMONY
OF
SANTOSH BHATTARAI
ON BEHALF OF
VIRGINIA ELECTRIC AND POWER COMPANY
BEFORE THE
STATE CORPORATION COMMISSION OF VIRGINIA
CASE NO. PUR-2022-00123**

1 **Q. Please state your name, position with Virginia Electric and Power Company**
2 **(“Dominion Energy Virginia” or the “Company”), and business address.**

3 A. My name is Santosh Bhattarai, and I am a Consulting Engineer in the Substation
4 Engineering section of the Electric Transmission group of the Company. My business
5 address is 2400 Grayland Avenue, Richmond, Virginia 23220. A statement of my
6 qualifications and background is provided as Appendix A.

7 **Q. Please describe your area of responsibility with the Company.**

8 A. I am responsible for the substation project requirements, feasibility studies, conceptual
9 physical design, scope development, preliminary engineering, and cost estimating for
10 high voltage transmission and distribution substations.

11 **Q. What is the purpose of your testimony in this proceeding?**

12 A. In order to replace aging infrastructure that is at the end of its service life, to comply with
13 mandatory North American Electric Reliability Corporation (“NERC”) Reliability
14 Standards and the Company’s mandatory electric transmission planning criteria
15 (“Planning Criteria”), and to maintain reliable service for the overall growth in the area,
16 the Company proposes the following rebuild project located within existing right-of-way
17 or on Company-owned property in Fauquier and Prince William Counties, Virginia (the
18 “Rebuild Project”):

- 1 • Rebuild an approximately 15.2-mile segment of the Company's existing 23.6-mile
2 115 kV Bristers-Ox Line #183 between Structure #183/12 and Structure #183/134.
3 Specifically, remove existing Structures #183/13 through #183/133, of which,
4 existing Structures #183/13 through #183/100 are predominantly single circuit 115
5 kV wood H-frame structures, and existing Structures #183/101 through #183/133 are
6 predominately 115 kV weathering steel (COR-TEN®) lattice towers. The existing
7 weathering steel (COR-TEN®) lattice towers are framed for double circuit
8 construction; however, the davit arms for one of the circuits are currently vacant. The
9 Company proposes to replace Structures #183/13 through #183/23 with 230 kV single
10 circuit weathering steel H-frames, and to replace Structures #183/24 through
11 #183/133 primarily with 230 kV double circuit weathering steel monopoles, which
12 will have a set of three vacant davit arms available to allow for future load growth.
13 This rebuild of the 15.2-mile segment of the Company's 115 kV Line #183 is
14 inclusive of an approximately 0.11-mile single circuit 115 kV tap circuit, which feeds
15 the Sowego Delivery Point ("DP") owned by Northern Virginia Electric Cooperative
16 ("NOVEC") and will be rebuilt with two 230 kV single circuit weathering steel 3-
17 pole structures. In addition to the structure replacements, the existing 3-phase twin-
18 bundled 636 ACSR, single 636 ACSR, 4/0 ACSR and 740.8 AAAC conductors and
19 existing shield wire on Line #183 between Structures #183/2 and #183/12 and
20 between Structures #183/12 and #183/134 will be replaced with 3-phase twin-bundled
21 768.2 ACSS conductors and new optical ground wire ("OPGW") fiber optic shield
22 wires. The Company proposes to operate the rebuilt Line #183 at 115 kV until such
23 time as 230 kV operation is required.
- 24 • Upgrade line terminal equipment at the Company's existing Bristers Substation to
25 support the new line rating of rebuilt Line #183.

26 The purpose of my testimony is to describe the work to be performed at the Bristers
27 Substation. I sponsor Section II.C of the Appendix and co-sponsor the Executive
28 Summary with Company Witnesses Steven Schweiger, Darren Campbell, and Nancy R.
29 Reid, and Section I.I of the Appendix with Company Witness Darren Campbell,
30 specifically, as those sections pertain to substation work.

31 **Q. Does this conclude your pre-filed direct testimony?**

32 **A.** Yes, it does.

**BACKGROUND AND QUALIFICATIONS
OF
SANTOSH BHATTARAI**

Santosh Bhattarai received a Master of Science degree in Electrical Engineering from South Dakota State University in 2006. Before working for the Company, Mr. Bhattarai worked at Electrical Consultants, Inc. from 2006 to 2009 in Billings, Montana as a Substation Design Engineer. Then, from 2010 to 2013, he worked at Electrical Consultants, Inc. in Madison, Wisconsin as a Substation Project Engineer. Mr. Bhattarai's responsibilities included the evaluation of the substation project requirements, development of project scope documents, estimates and schedules, preparation of specifications and bid documents, material procurement, development of detailed physical drawings, bill of materials, electrical schematics, and wiring diagrams. Mr. Bhattarai joined the Dominion Energy Virginia Substation Engineering department in November 2013 as an Engineer III. He was promoted to Consulting Engineer in July 2019. He has been licensed as a Professional Engineer in the Commonwealth of Virginia since 2015. In recognition of his professional standing, the Institute of Electrical and Electronics Engineers board elected him to the grade of Senior Member in 2017.

Mr. Bhattarai has previously submitted pre-filed testified to the State Corporation Commission of Virginia.

WITNESS DIRECT TESTIMONY SUMMARY

Witness: Nancy R. Reid

Title: Siting and Permitting Specialist

Summary:

Company Witness Nancy R. Reid sponsors those portions of the Appendix providing an overview of the design of the route for the proposed Rebuild Project, and related permitting, as follows:

- Section II.A.1: This section provides the length of the proposed corridor and viable alternatives to the proposed project.
- Section II.A.2: This section provides a map showing the route of the proposed project in relation to notable points close to the proposed project.
- Section II.A.4: This section explains why the existing right-of-way is not adequate to serve the need, to the extent applicable.
- Sections II.A.6 to II.A.8: These sections provide detail regarding the right-of-way for the proposed project.
- Section II.A.9: This section describes the proposed route selection procedures and details alternative routes considered.
- Section II.A.11: This section details how the construction of the proposed project follows the provisions discussed in Attachment 1 of the Transmission Appendix Guidelines.
- Section II.A.12: This section identifies the counties and localities through which the proposed project will pass and provides General Highway Maps for these localities.
- Section II.B.6: This section provides photographs of existing facilities, representations of proposed facilities, and visual simulations.
- Section III: This section details the impact of the proposed project on scenic, environmental, and historic features.

Additionally, Ms. Reid co-sponsors the following portions of the Appendix:

- Section I.G (co-sponsored with Company Witness Steven Schweiger): This section provides a system map for the affected area.
- Section II.A.3 (co-sponsored with Company Witness Steven Schweiger): This section provides color maps of existing or proposed rights-of-way in the vicinity of the proposed project.
- Section II.B.5 (co-sponsored with Company Witness Darren Campbell): This section provides the mapping and structure heights for the existing overhead structures.
- Section V.A (co-sponsored with Company Witness Darren Campbell): This section provides information related to public notice of the proposed project.

Finally, Ms. Reid sponsors the DEQ Supplement filed with the Application.

A statement of Ms. Reid's background and qualifications is attached to her testimony as Appendix A.

**DIRECT TESTIMONY
OF
NANCY R. REID
ON BEHALF OF
VIRGINIA ELECTRIC AND POWER COMPANY
BEFORE THE
STATE CORPORATION COMMISSION OF VIRGINIA
CASE NO. PUR-2022-00123**

1 **Q. Please state your name, position with Virginia Electric and Power Company**
2 **(“Dominion Energy Virginia” or the “Company”), and business address.**

3 A. My name is Nancy R. Reid, and I am a Siting and Permitting Specialist for the Company.
4 My business address is 10900 Nuckols Road, Glen Allen, Virginia 23060. A statement
5 of my qualifications and background is provided as Appendix A.

6 **Q. Please describe your areas of responsibility with the Company.**

7 A. I am responsible for identifying appropriate routes for transmission lines and obtaining
8 necessary federal, state, and local approvals and environmental permits for those
9 facilities. In this position, I work closely with government officials, permitting agencies,
10 property owners, and other interested parties, as well as with other Company personnel,
11 to develop facilities needed by the public so as to reasonably minimize environmental
12 and other impacts on the public in a reliable, cost-effective manner.

13 **Q. What is the purpose of your testimony in this proceeding?**

14 A. In order to replace aging infrastructure that is at the end of its service life, to comply with
15 mandatory North American Electric Reliability Corporation (“NERC”) Reliability
16 Standards and the Company’s mandatory electric transmission planning criteria
17 (“Planning Criteria”), and to maintain reliable service for the overall growth in the area,
18 the Company proposes the following rebuild project located within existing right-of-way

or on Company-owned property in Fauquier and Prince William Counties, Virginia (the “Rebuild Project”):

- Rebuild an approximately 15.2-mile segment of the Company’s existing 23.6-mile 115 kV Bristers-Ox Line #183 between Structure #183/12 and Structure #183/134. Specifically, remove existing Structures #183/13 through #183/133, of which, existing Structures #183/13 through #183/100 are predominantly single circuit 115 kV wood H-frame structures, and existing Structures #183/101 through #183/133 are predominately 115 kV weathering steel (COR-TEN®) lattice towers. The existing weathering steel (COR-TEN®) lattice towers are framed for double circuit construction; however, the davit arms for one of the circuits are currently vacant. The Company proposes to replace Structures #183/13 through #183/23 with 230 kV single circuit weathering steel H-frames, and to replace Structures #183/24 through #183/133 primarily with 230 kV double circuit weathering steel monopoles, which will have a set of three vacant davit arms available to allow for future load growth. This rebuild of the 15.2-mile segment of the Company’s 115 kV Line #183 is inclusive of an approximately 0.11-mile single circuit 115 kV tap circuit, which feeds the Sowego Delivery Point (“DP”) owned by Northern Virginia Electric Cooperative (“NOVEC”) and will be rebuilt with two 230 kV single circuit weathering steel 3-pole structures. In addition to the structure replacements, the existing 3-phase twin-bundled 636 ACSR, single 636 ACSR, 4/0 ACSR and 740.8 AAAC conductors and existing shield wire on Line #183 between Structures #183/2 and #183/12 and between Structures #183/12 and #183/134 will be replaced with 3-phase twin-bundled 768.2 ACSS conductors and new optical ground wire (“OPGW”) fiber optic shield wires. The Company proposes to operate the rebuilt Line #183 at 115 kV until such time as 230 kV operation is required.
- Upgrade line terminal equipment at the Company’s existing Bristers Substation to support the new line rating of rebuilt Line #183.

The purpose of my testimony is to provide an overview of the route and permitting for the proposed Rebuild Project. As it pertains to routing and permitting, I sponsor Sections II.A.1, II.A.2, II.A.4, II.A.6, II.A.7, II.A.8, II.A.9, II.A.11, II.A.12, II.B.6, III, and V of the Appendix. I also sponsor the DEQ Supplement filed with the Application, and co-sponsor the Executive Summary with Company Witnesses Steven Schweiger, Darren Campbell, and Santosh Bhattarai; Sections I.G and II.A.3 with Company Witness Steven Schweiger; and Sections II.B.5 and V.A of the Appendix with Company Witness Darren Campbell.

1 **Q. Has the Company complied with Va. Code § 15.2-2202 E?**

2 A. Yes. In accordance with Va. Code § 15.2-2202 E, letters dated June 22, 2022, were sent
3 to Ms. Nikki Hunt, Director NAVFAC/Mid-Atlantic/Quantico, Mr. Paul McCulla,
4 Administrator of Fauquier County, and Mr. Elijah Johnson, Administrator of Prince
5 William County, where the Rebuild Project is located. The letters stated the Company's
6 intention to file this Application and invited the Counties to consult with the Company
7 about the Rebuild Project. Copies of the letters are included as Appendix Attachments
8 V.D.1, V.D.2 and V.D.3, respectively.

9 **Q. Does this conclude your pre-filed direct testimony?**

10 A. Yes, it does.

**BACKGROUND AND QUALIFICATIONS
OF
NANCY R. REID**

Nancy R. Reid earned her Bachelor's degree from Christopher Newport University in environmental biology with a minor in chemistry and her Master's degree in Safety and Environmental Management from Columbia Southern University. Her past work experience includes working for the City of Franklin and Southampton County as the Environmental Specialist where she developed the areas stormwater management and permitting programs. Ms. Reid joined Dominion Energy in 2017 as an Environmental Compliance Coordinator where she assisted in developing the environmental program for the most efficient combined-cycle gas plant in the country and is now a Sitting and Permitting Specialist for Electric Transmission.

Ms. Reid has previously submitted pre-filed testimony to the State Corporation Commission of Virginia.