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August 14, 2024

BY ELECTRONIC FILING

Hon. Bernard J. Logan, Clerk
State Corporation Commission
Tyler Building, 1st Floor
1300 East Main Street
Richmond, VA 23219

Re: Application of Virginia Electric and Power Company for Approval and Certification of Electric Transmission Facilities: Aquia Harbour – Possum Point Lines #29, #252, #2083, and #568 Rebuild – Case No. PUR-2024-00142.

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 Virginia Department of Transportation "General Highway Map" for Stafford County, Prince William County, and the City of Fredericksburg, as well as the digital geographic information system ("GIS") map required by Va. Code § 56-46.1, which is Attachment II.A.2 to the Appendix, were provided via an e-room to the Commission's Division of Public Utility Regulation.

If you have any questions or need further information, please feel free to contact us.

Sincerely,

Andrew J. Flavin

Timothy L. McHugh

Enclosures

cc: William H. Chambliss, Esq.
Mr. David Essah (without enclosures)
Mr. Neil Joshipura (without enclosures)
Mr. Michael A. Cizenski (without enclosures)
David J. DePippo, Esq.
Charlotte P. McAfee, Esq.
Annie C. Larson, Esq.
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William H. Smith, III, Esq.

Dominion Energy®

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

Before the State Corporation Commission of Virginia

Aquia Harbour – Possum Point Lines #29, #252, #2083, and #568 Rebuild

Application No. 339

Case No. PUR-2024-00142

Filed: August 14, 2024

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

Aquia Harbour – Possum Point
Lines #29, #252, #2083, and #568 Rebuild

Application No. 339

Case No. PUR-2024-00142

Filed: August 14, 2024

COMMONWEALTH OF VIRGINIA

STATE CORPORATION COMMISSION

APPLICATION OF	)	
	)	
VIRGINIA ELECTRIC AND POWER COMPANY	)	Case No. PUR-2024-00142
	)	
For approval and certification of electric transmission facilities: Aquia Harbour – Possum Point Lines #29, #252, #2083, and #568 Rebuild	)	

APPLICATION OF VIRGINIA ELECTRIC AND POWER COMPANY FOR APPROVAL AND CERTIFICATION OF ELECTRIC TRANSMISSION FACILITIES: AQUIA HARBOUR – POSSUM POINT LINES #29, #252, #2083, AND #568 REBUILD

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: (a) maintain the structural integrity and reliability of the networked transmission system; (b) resolve identified violations of the mandatory North American Electric Reliability Corporation ("NERC") Reliability Standards; and (c) provide for future load growth in the Woodbridge Load Area, Virginia Electric and Power Company ("Dominion Energy Virginia" or the "Company") proposes, in Stafford County, Prince William County, and the City of Fredericksburg, to rebuild its existing transmission corridor between Fredericksburg Substation and Possum Point Switching Station by:

- Rebuilding, primarily within existing right-of-way or on Company-owned property, approximately 11.4 miles of the existing Fredericksburg-Possum Point 115 kilovolt ("kV") Line #29[1] on double circuit monopole structures utilizing current 230 kV standards, from the Company's existing Aquia Harbour Switching Station[2] ("Aquia Harbour Station") to Structure #29/1850, and then 0.5 mile from Structure #29/1850 to the Company's existing Possum Point Station 230 kV switchyard.

- Removing approximately 0.6 mile of 115 kV Line #29 from Structure #29/1850 to the Possum Point Station 115 kV switchyard.

- Rebuilding a 0.2 mile segment of Line #29, between Structure #29/1835 and the Company's existing Fuller Road Substation, using an additional 50 feet of right-of-way.

- Rebuilding, primarily within existing right-of-way or on Company-owned property, approximately 11.4 miles of the existing Aquia Harbour-Possum Point 230 kV Line #252, on double circuit monopole structures utilizing current 230 kV standards, from Aquia Harbour Station to Structure #252/5583, and then 0.5 mile from Structure #252/5583 to the Company's Possum Point Station 230 kV switchyard.

- Rebuilding a 0.2 mile segment of Line #252 between Structure #252/5568 and Fuller

[1] The segments of Line #29 that will be rebuilt as part of the Rebuild Project will be renamed to Line #2309.

[2] This Appendix discusses two different facilities with similar names: the Aquia Harbour Switching Station and the Aquia Substation. Both are discussed in detail in Section I.C.

Road Substation using an additional 50 feet of right-of-way.[3]

- Relocating and rebuilding, entirely within existing right-of-way or on Company-owned property, approximately 6.8 miles of the existing Ladysmith-Possum Point 500 kV Line #568 on single circuit monopole structures, between Aquia Harbour Station and Possum Point Station.

- Rebuilding, entirely within existing right-of-way or on Company-owned property, approximately 0.7 mile of 230 kV Fredericksburg-Birchwood Non-Utility Generator ("NUG") Line #2083 on double circuit monopole structures (with vacant arms) between the Company's Fredericksburg Substation and Mary Washington Boulevard and Hospital Drive ("Hospital Junction"), located within the City of Fredericksburg.

(collectively, the "Rebuild Project").[4]

4. The Rebuild Project will replace aging infrastructure that is at the end of its service life to comply with the Company's mandatory electric transmission planning criteria (the "Planning Criteria"), thereby enabling the Company to maintain the overall long-term reliability of its transmission system. Specifically, Lines #29 and Line #252 between Aquia Harbour Station and Possum Point Station 115 kV and 230 kV switchyards were constructed in in 1978 mostly on

[3] The Company further proposes to rebuild the existing 0.1 mile segment of Lines #252 and #29 northwest of Fuller Road Substation using additional right-of-way that increases linearly to form a triangular area of additional right-of-way. Starting at Structure #252/5566 (#29/1833), there is no additional right-of-way. As Lines #252 and #29 travel east, the right-of-way will expand to include up to an additional 67 feet of width at the eastern edge of Mars Station Road.

[4] The Rebuild Project is the second phase of the work the Company plans to undertake as described in its Application filed on March 14, 2024, in Case No. PUR-2024-00035, *Application of Virginia Electric and Power Company for Approval and Certification of Electric Facilities: Fredericksburg-Aquia Harbour Lines #29, #2104, and #2157 Partial Rebuild*.
The Company will also perform work associated with the Rebuild Project at the Fredericksburg, Cranes Corner, Aquia, Ladysmith, and Fuller Road Substations, and Possum Point and Aquia Harbour Stations. This work, while not included as part of the Rebuild Project, is discussed in Section II.C (the Cranes Corner work is discussed immediately below). Additionally, the Company intends to add one backbone structure outside of the Company's Cranes Corner Substation in the existing right-of-way to maximize capacity and minimize line crossings in the corridor. Finally, the Company intends to install approximately 0.3 mile of a new 115 kV line starting at the Fuller Road Substation to feed Marine Corps Base Quantico ("MCBQ") once the entire corridor has been uprated to 230 kV. The Company's work associated with the relocation of the backbone structure at Cranes Corner Substation and the new 0.3 mile 115 kV line to feed MCBQ are not components of the Rebuild Project. The Company considers this work to qualify as an "ordinary extension[] or improvement[] in the usual course of business (*i.e.*, "ordinary course") pursuant to § 56-265.2 A 1 of the Code of Virginia ("Va. Code") and, therefore, does not require approval pursuant to Va. Code § 56-46.1 B or a CPCN from the Commission. Because this work is not a component of the proposed Rebuild Project, the costs associated with this work are not included in the total Rebuild Project costs.

wooden steel tower structures and on some wooden H-frame or 3-pole structures that are approaching the end of their useful life based on industry standards, which are 35–55 years for wood structures and 40-60 years for COR-TEN® steel structures.

5. The Rebuild Project is also needed to comply with mandatory NERC Reliability standards. The 2026 PJM Interconnection, L.L.C. ("PJM") Regional Transmission Expansion Plan ("RTEP") Analysis identified that an N-1-1 loss of Lines #252 and #2157 between Fredericksburg and Cranes Corner Substation will drop more than 300 megawatts ("MW") of load in the Fredericksburg to Possum Point transmission corridor ("F2PPC"), resulting in a NERC criteria violation. To mitigate the potential violation, a new 230 kV source is required in the corridor to split the load. The proposed solution, which was awarded to Dominion Energy Virginia through PJM's 2021 competitive Reliability Open Window, is to convert Line #29 from 115 kV to 230 kV operation. The Rebuild Project implements this proposed solution from Aquia Harbour Station to Possum Point Station by rebuilding Line #29 utilizing current 230 kV standards.

6. Finally, the Rebuild Project is needed so that the Company can continue to provide reliable service for the significant load growth anticipated in the area. In 2023, the Company received multiple Delivery Point ("DP") requests in the transmission corridor between the Company's Fredericksburg Substation and Possum Point Station associated with new data center developments. The Company's Load-Serving Entity ("Dom LSE" or "Dominion Distribution") submitted DP requests to either interconnect or evaluate the feasibility of interconnection for at least ten new substations in the F2PPC. Dom LSE also received customer load requests that would necessitate (i) 13 new substations in the corridor south of Fredericksburg Substation and (ii) three new substations east of the F2PPC. To

accommodate this rapidly growing load, the Company proposes to rebuild the following lines in the corridor—Lines #29, #252, and #2083—on double circuit monopole structures.[5] In addition, to optimize space in the right-of-way for an additional circuit, the Company proposes to relocate and rebuild Line #568 on single circuit monopole structures approximately 50 feet to the east.

7. By replacing the single circuit structures for Lines #29, #252, and #2083 with double circuit structures during the corridor's scheduled rebuild, the Company will be able to accommodate imminent load growth. Without the additional circuits installed as part of the Rebuild Project, the Company would have to replace some or all of these facilities in the near term to add transmission lines to support regional growth. Moreover, installing new conductors as part of the Rebuild Project allows the Company to reduce costs, outages, and impacts to environmental, historical, and cultural resources. The ability to energize a future 230 kV circuit to accommodate the significant load growth preserves the option to address future reliability issues and is consistent with prudent utility planning for the future.

8. Except for the 0.2 mile segment of Lines #29 and #252 between Structure #29/1835 (#252/5568) and Fuller Road Substation, and the 0.1 mile segment west of Fuller Road Substation, the Rebuild Project, spanning approximately 24.5 miles, will primarily be located on existing transmission line right-of-way or on Company-owned property.[6] Given the availability of existing rights-of-way and the statutory preference to use of existing rights-of-way, and because additional costs and environmental impacts would be associated with the acquisition and construction of new

[5] Lines #29, #252, and #2083 currently use single circuit structures.

[6] For a complete discussion of the additional 0.2 mile of 50-foot right-of-way and 0.1 mile of 67-foot right-of-way, see Section II.A.4 of the Appendix.

rights-of-way, the Company did not consider any alternate routes requiring new rights-of-way for this Rebuild Project.

9. The desired in-service target date for the Rebuild Project is January 31, 2029. The Company estimates it will take approximately 46 months after a final order from the State Corporation Commission ("Commission") for detailed engineering, materials procurement, permitting, real estate, and construction of the Rebuild Project. Accordingly, to support this estimated construction timeline and construction plan, the Company respectfully requests a final order by February 28, 2025. Should the Commission issue a final order by February 28, 2025, the Company estimates that construction should begin in March 2026 with the Rebuild Project to be completed by the in-service target date of January 31, 2029. This schedule is contingent upon obtaining the necessary permits and careful coordination of outages, the latter of which may be particularly challenging due to the amount of new load growth, rebuilds, and new builds scheduled to occur in this load area. Dates may need to be adjusted based on permitting delays or design modifications to comply with additional agency requirements identified during the permitting application process, as well as the ability to schedule outages, and unpredictable delays due labor shortages or materials/supply issues. Based on the Rebuild Project's complexity, there may be delays with procurement of materials.

10. Any adjustments to the Rebuild Project schedule resulting from these or similar challenges could necessitate a minimum of a six- to twelve-month delay in the targeted in-service date. Accordingly, for purposes of judicial economy, the Company requests that the Commission issue a final order approving both a desired in-service target date (*i.e.*, December 31, 2029) and an authorization sunset date (*i.e.*, January 31, 2030) for energization of the Rebuild Project.

11. In addition, the Company is actively monitoring regulatory changes and requirements associated with the Northern Long Eared Bat ("NLEB") and how it could potentially impact construction timing associated with time of year restrictions ("TOYRs"). The U.S. Fish and Wildlife Service ("USFWS") previously indicated that it planned to issue final NLEB guidance to replace the interim guidance by April 1, 2024; however, the interim guidance has been extended by USFWS until late summer 2024. In the meantime, the USFWS issued several draft guidance documents for public review and comment. The Company actively is tracking updates from the USFWS with respect to the final guidance. Once issued, the Company plans to review and follow the final guidance to the extent it applies to the Company's projects. Until the final guidance is issued, the Company will continue following the interim guidance. For projects that may require additional coordination, the Company will coordinate with the USFWS. The Company is also continuing to track potential regulatory changes associated with the potential up-listing of the Tricolored bat ("TCB"). On September 14, 2022, the USFWS published the proposed rule to the Federal Register to list the TCB as endangered under the Endangered Species Act ("ESA"). On April 1, 2024, the USFWS issued draft guidance for the NLEB and TCB for public review and comment. The USFWS also recently extended its Final Rule issuance target from September 2023 to September 2024. The Company is actively tracking this ruling and evaluating the effects of potential outcomes on Company projects' permitting, construction, and in-service dates, including electric transmission projects.

12. The estimated conceptual cost of the Rebuild Project is approximately $205.5 million (in 2024 dollars).

13. The proposed Rebuild Project will afford the best means of meeting the continuing need for reliable service while reasonably minimizing adverse impact on the scenic, environmental, and historic assets of the area.

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 notified 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 Mark R. Gill, Rebecca A. O'Neal, Brian Obermeier, and Blair Parks filed with this Application.

18. Because this Application seeks approval to rebuild existing lines primarily within existing right-of-way or Company-owned property, the Company respectfully requests, in the interest of judicial economy, that the Commission issue an Order for Notice and Comment setting forth a procedural schedule in this proceeding without a scheduled 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. An Order for Notice and Comment will still allow the Company, Commission Staff, and any interested parties that join the proceeding to develop a complete record without prejudice, as Commission Staff or any party may file with the Commission a request for hearing.

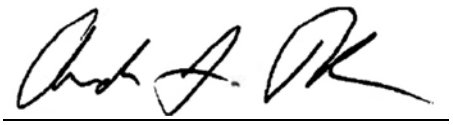
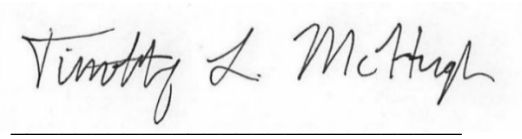
WHEREFORE, Dominion Energy Virginia respectfully requests that the Commission:

a) direct that notice of this Application be given as required by Va. Code § 56-46.1;

b) approve pursuant to Va. Code § 56-46.1 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, Va. Code §§ 56-265.1, *et seq.*, by February 28, 2025, if possible.

VIRGINIA ELECTRIC AND POWER COMPANY

By:  

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Counsel for Virginia Electric and Power Company

August 14, 2024

COMMONWEALTH OF VIRGINIA
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APPLICATION OF

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FOR APPROVAL AND CERTIFICATION
OF ELECTRIC FACILITIES

Aquia Harbour – Possum Point
Lines #29, #252, #2083, and #568 Rebuild

Application No. 339

Appendix

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

Case No. PUR-2024-00142

Filed: August 14, 2024

TABLE OF CONTENTS

EXECUTIVE SUMMARY

In order to: (a) maintain the structural integrity and reliability of the networked transmission system; (b) resolve identified violations of the mandatory North American Electric Reliability Corporation ("NERC") Reliability Standards; and (c) provide for future load growth in the Woodbridge Load Area, Virginia Electric and Power Company ("Dominion Energy Virginia" or the "Company") proposes, in Stafford County, Prince William County, and the City of Fredericksburg, to rebuild its existing transmission corridor between Fredericksburg Substation and Possum Point Switching Station[1] by:

(i) Rebuilding, primarily within existing right-of-way or on Company-owned property, approximately 11.4 miles of the existing Fredericksburg-Possum Point 115 kilovolt ("kV") Line #29[2] on double circuit monopole structures utilizing current 230 kV standards, from the Company's existing Aquia Harbour Switching Station[3] ("Aquia Harbour Station") to Structure #29/1850, and then 0.5 mile from Structure #29/1850 to the Company's existing Possum Point Station 230 kV switchyard.

(ii) Removing approximately 0.6 mile of 115 kV Line #29 from Structure #29/1850 to the Possum Point Station 115 kV switchyard.

(iii) Rebuilding a 0.2 mile segment of Line #29, between Structure #29/1835 and the Company's existing Fuller Road Substation, using an additional 50 feet of right-of-way.

(iv) Rebuilding, primarily within existing right-of-way or on Company-owned property, approximately 11.4 miles of the existing Aquia Harbour-Possum Point 230 kV Line #252, on double circuit monopole structures utilizing current 230 kV standards, from Aquia Harbour Station to Structure #252/5583, and then 0.5 mile from Structure #252/5583 to the Company's Possum Point Station 230 kV switchyard.

(v) Rebuilding a 0.2 mile segment of Line #252 between Structure #252/5568 and Fuller Road Substation using an additional 50 feet of right-of-way. [4]

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[1] The Possum Point Switching Station is located on the Company's Possum Point Power Station parcel and contains the 115 kV and 230 kV switchyards (the "Possum Point Switching Station" or "Possum Point Station").

[2] The segments of Line #29 that will be rebuilt as part of the Rebuild Project will be renamed to Line #2309.

[3] This Appendix discusses two different facilities with similar names: the Aquia Harbour Switching Station and the Aquia Substation. Both are discussed in detail in Section I.C.

[4] The Company further proposes to rebuild the existing 0.1 mile segment of Lines #252 and #29 northwest of Fuller Road Substation using additional right-of-way that increases linearly to form a triangular area of additional right-of-way. Starting at Structure #252/5566 (#29/1833), there is no additional right-of-way. As Lines #252 and #29 travel east, the right-of-way will expand to include up to an additional 67 feet of width at the eastern edge of Mars Station Road.

(vi) Relocating and rebuilding, entirely within existing right-of-way or on Company-owned property, approximately 6.8 miles of the existing Ladysmith-Possum Point 500 kV Line #568 on single circuit monopole structures, between Aquia Harbour Station and Possum Point Station.

(vii) Rebuilding, entirely within existing right-of-way or on Company-owned property, approximately 0.7 mile of 230 kV Fredericksburg-Birchwood Non-Utility Generator ("NUG") Line #2083 on double circuit monopole structures (with vacant arms) between the Company's Fredericksburg Substation and Mary Washington Boulevard and Hospital Drive ("Hospital Junction"), located within the City of Fredericksburg.

(collectively, the "Rebuild Project").[5]

The proposed Rebuild Project is necessary for three primary reasons.

Compliance with the Company's Mandatory Planning Criteria

The Rebuild Project will replace aging infrastructure that is at the end of its service life to comply with the Company's mandatory electric transmission planning criteria (the "Planning Criteria"), thereby enabling the Company to maintain the overall long-term reliability of its transmission system. Specifically, Lines #29 and Line #252 between Aquia Harbour Station and Possum Point Station 115 kV and 230 kV switchyards were constructed in in 1978 mostly on wooden steel tower structures and on some wooden H-frame or 3-pole structures that are approaching the end of their useful life based on industry standards, which are 35–55 years for wood structures and 40-60 years for COR-TEN® steel structures.

Compliance with Mandatory NERC Reliability Standards

The proposed Rebuild Project is also needed to comply with mandatory NERC Reliability

[5] The Rebuild Project is the second phase of the work the Company plans to undertake as described in its Application filed on March 14, 2024, in Case No. PUR-2024-00035, *Application of Virginia Electric and Power Company for Approval and Certification of Electric Facilities: Fredericksburg-Aquia Harbour Lines #29, #2104, and #2157 Partial Rebuild*.
The Company will also perform work associated with the Rebuild Project at the Fredericksburg, Cranes Corner, Aquia, Ladysmith, and Fuller Road Substations, and Possum Point and Aquia Harbour Stations. This work, while not included as part of the Rebuild Project, is discussed in Section II.C (the Cranes Corner work is discussed immediately below).
Additionally, the Company intends to add one backbone structure outside of the Company's Cranes Corner Substation in the existing right-of-way to maximize capacity and minimize line crossings in the corridor. Finally, the Company intends to install approximately 0.3 mile of a new 115 kV line starting at the Fuller Road Substation to feed Marine Corps Base Quantico ("MCBQ") once the entire corridor has been uprated to 230 kV. The Company's work associated with the relocation of the backbone structure at Cranes Corner Substation and the new 0.3 mile 115 kV line to feed MCBQ are not components of the Rebuild Project. The Company considers this work to qualify as an "ordinary extension[] or improvement[] in the usual course of business (*i.e.*, "ordinary course") pursuant to § 56-265.2 A 1 of the Code of Virginia ("Va. Code") and, therefore, does not require approval pursuant to Va. Code § 56-46.1 B or a CPCN from the Commission. Because this work is not a component of the proposed Rebuild Project, the costs associated with this work are not included in the total Rebuild Project costs.

standards.

The 2026 PJM Interconnection, L.L.C. ("PJM") Regional Transmission Expansion Plan ("RTEP") Analysis identified that an N-1-1 loss of Lines #252 (Aquia Harbour-Possum Point) and #2157 (Fredericksburg-Cranes Corner) will drop more than 300 megawatts ("MW") of load in the Fredericksburg to Possum Point transmission corridor ("F2PPC"), resulting in a NERC criteria violation. To mitigate the potential violation, a new 230 kV source is required in the corridor to split the load. The proposed solution, which was awarded to Dominion Energy Virginia through PJM's 2021 competitive Reliability Open Window, is to convert Line #29 from 115 kV to 230 kV operation. The Rebuild Project implements this proposed solution from Aquia Harbour Station to Possum Point Station by rebuilding Line #29 utilizing current 230 kV standards. The Rebuild Project, together with the filing referenced in footnote 5, will rebuild the entire Line #29 and convert it to 230 kV standards.

Significant Anticipated Load Growth

Finally, the Rebuild Project is needed so that the Company can continue to provide reliable service for the significant load growth anticipated in the area. In 2023, the Company received multiple Delivery Point ("DP") requests in the transmission corridor between the Company's Fredericksburg Substation and Possum Point Station associated with new data center developments. The Company's Load-Serving Entity ("Dom LSE" or "Dominion Distribution") submitted DP requests to either interconnect or evaluate the feasibility of interconnection for at least ten new substations in the F2PPC. Dom LSE also received customer load requests that would necessitate (i) 13 new substations in the corridor south of Fredericksburg Substation and (ii) three new substations east of the F2PPC.

To accommodate this rapidly growing load, the Company proposes to rebuild the following lines in the corridor—Lines #29, #252, and #2083—on double circuit monopole structures.[6] The Company proposes to rebuild Line #568 on single circuit monopole structures approximately 50 feet to the east to collocate Lines #29 and #252 on the same series of double circuit monopole structures. Together, these actions will optimize space within the corridor for the addition of two new 230 kV circuits on a parallel series of double circuit monopole structures. The Company intends to install new conductors for the two additional circuits parallel to Lines #29 and #252, but will not energize the new conductors until the rebuild of the entire corridor between Fredericksburg Substation and Possum Point Station is complete.

By replacing the single circuit structures for Lines #29, #252, and #2083 with double circuit structures during construction of the Rebuild Project, the Company will be able to accommodate imminent load growth. Without the additional circuits installed as part of the Rebuild Project, the Company would have to replace some or all of these facilities in the near term to add transmission lines to support regional growth. Moreover, installing new conductors as part of the Rebuild Project allows the Company to reduce costs, outages, and impacts to environmental, historical, and cultural resources. The ability to energize a future 230 kV circuit to accommodate the significant load growth preserves the option to address future reliability issues and is consistent with prudent

[6] Lines #29, #252, and #2083 currently use single circuit structures.

utility planning for the future.

Except for the 0.2 mile segment of Lines #29 and 252 between Structure #29/1835 (#252/5568) and Fuller Road Substation, and the 0.1 mile segment west of Fuller Road Substation, the Rebuild Project will be located within existing transmission line rights-of-way or on Company-owned property.[7] Because of the availability of existing rights-of-way and the statutory preference given to use of existing rights-of-way, and because of the additional costs and environmental impacts that would be associated with the acquisition and construction of new rights-of-way, the Company did not consider any alternate routes requiring new rights-of-way for this Rebuild Project.

The estimated conceptual cost of the Rebuild Project is approximately $205.5 million (in 2024 dollars).[8]

The desired in-service target date for the Rebuild Project is January 31, 2029. The Company estimates it will take approximately 46 months after a final order from the State Corporation Commission ("Commission") for detailed engineering, materials procurement, permitting, real estate, and construction of the Rebuild Project. Accordingly, to support this estimated construction timeline and construction plan, the Company respectfully requests a final order by February 28, 2025. Should the Commission issue a final order by February 28, 2025, the Company estimates that construction should begin in March 2026 with the Rebuild Project to be completed by the in-service target date of January 31, 2029. This schedule is contingent upon obtaining the necessary permits and careful coordination of outages, the latter of which may be particularly challenging due to the amount of new load growth, rebuilds, and new builds scheduled to occur in this load area. Dates may need to be adjusted based on permitting delays or design modifications to comply with additional agency requirements identified during the permitting application process, as well as the ability to schedule outages, and unpredictable delays due labor shortages or materials/supply issues. Based on the Rebuild Project's complexity, there may be delays with procurement of materials.

Any adjustments to the Rebuild Project schedule resulting from these or similar challenges could necessitate a minimum of a six- to twelve-month delay in the targeted in-service date. Accordingly, for purposes of judicial economy, the Company requests that the Commission issue a final order approving both a desired in-service target date (*i.e.*, January 31, 2029) and an authorization sunset date (*i.e.*, January 31, 2030) for energization of the Rebuild Project.

In addition, the Company is actively monitoring regulatory changes and requirements associated with the Northern Long Eared Bat ("NLEB") and how it could potentially impact construction timing associated with time of year restrictions ("TOYRs"). The U.S. Fish and Wildlife Service ("USFWS") previously indicated that it planned to issue final NLEB guidance to replace the interim guidance by April 1, 2024; however, the interim guidance has been extended by USFWS

[7] The Company will need approximately 6.5 acres of land to install the new approximately 0.3 mile 115 kV circuit to feed MCBQ from the Fuller Road Substation. As discussed above, this work is not included as part of the Rebuild Project, and the Company considers it to qualify as an "ordinary extension[] or improvement[] in the usual course of business (*i.e.*, "ordinary course") pursuant to § 56-265.2 A 1 of the Code of Virginia ("Va. Code") and, therefore, does not require approval pursuant to Va. Code § 56-46.1 B or a CPCN from the Commission.

[8] The cost of the work associated with the Fredericksburg, Cranes Corner, Aquia, Ladysmith, and Fuller Road Substations, and Possum Point and Aquia Harbour Stations, is approximately $96.8 million (in 2024 dollars).

until late summer 2024. In the meantime, the USFWS issued several draft guidance documents for public review and comment. The Company actively is tracking updates from the USFWS with respect to the final guidance. Once issued, the Company plans to review and follow the final guidance to the extent it applies to the Company's projects. Until the final guidance is issued, the Company will continue following the interim guidance. For projects that may require additional coordination, the Company will coordinate with the USFWS.

The Company is also continuing to track potential regulatory changes associated with the potential up-listing of the Tricolored bat ("TCB"). On September 14, 2022, the USFWS published the proposed rule to the Federal Register to list the TCB as endangered under the Endangered Species Act ("ESA"). On April 1, 2024, the USFWS issued draft guidance for the NLEB and TCB for public review and comment. The USFWS also recently extended its Final Rule issuance target from September 2023 to September 2024. The Company is actively tracking this ruling and evaluating the effects of potential outcomes on Company projects' permitting, construction, and in-service dates, including electric transmission projects.

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 proposed Rebuild Project is necessary to: (a) maintain the structural integrity and reliability of the networked transmission system; (b) resolve identified violations of the mandatory North American Electric Reliability Corporation ("NERC") Reliability Standards; and (c) provide for future load growth in the area. See Attachment I.A.1 for an overview map of the 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, Northern Virginia Electric Cooperative, 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 retail customers in North Carolina (collectively, the "Dom Zone"). The Company needs to be able to maintain the overall, long-term reliability of its transmission system to meet its customers' evolving power needs in the future.

Dominion Energy Virginia is part of PJM Interconnection L.L.C. ("PJM"), the regional transmission organization that provides service to a large portion of the eastern United States. PJM currently is 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 165,563 MW for summer peak demand, of which Dominion Energy Virginia's load portion was approximately 19,256 MW. On July 28, 2023, the Company set a record high of 21,993 MW for summer peak demand. On December 24, 2022, the Company set a winter and all-time record demand of 22,189 MW. Based on the 2024 PJM load forecast, the Dominion Energy Zone is expected to grow with average growth rates of 5.6% summer and 5.1% winter over the next 10 years compared to the PJM average of 1.7% and 2.0% 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.[9]

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 of approximately $1.3 million per day per violation.

PJM's Regional Transmission Expansion Plan ("RTEP") is the culmination of an annual transmission planning process, approved by FERC, which includes extensive analysis of the electric transmission system to determine any needed improvements.[10] 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.[11] 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"). PJM's generation deliverability test for reliability analysis ensures the transmission system is capable of delivering the aggregate system generating capacity at peak load with all firm transmission service modeled. Generation deliverability is a critical system condition test that is part of the PJM reliability standards and, thus, also is required to be satisfied by NERC Reliability Standards.

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, Reliability-First Corporation, SERC Reliability Corporation, PJM, and TOs; (ii) network upgrades

[9] *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.

[10] 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.

[11] *See* PJM Manual 14B, Attachment D: PJM Reliability Planning Criteria.

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; (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, the PJM Board does not provide formal approval for such projects. As discussed in more detail below, certain components of the Rebuild Project are classified as a baseline project resolving system reliability criteria violations, and other aspects of the Rebuild Project are classified as supplemental. See Section I.J for a discussion of the PJM process as it relates to this Rebuild Project.

Need for the Rebuild Project

The proposed Rebuild Project is needed to maintain the structural integrity and reliability of the networked transmission system; to comply with mandatory NERC Reliability Standards; and to provide for future load growth in the Woodbridge Load Area, which is generally defined as the area which includes, roughly, all of Prince William and Stafford Counties, eastern Fauquier County, southern Loudoun County, and the City of Fredericksburg. For purposes of the Rebuild Project, the load area of interest is the Fredericksburg to Possum Point Corridor (or "F2PPC") which, as its name implies, is the electric transmission corridor between the Company's Fredericksburg Substation to the south and its Possum Point Substation to the north. As discussed in Section I.C and depicted in Attachment I.G.1, the F2PPC contains one 230 kV source, comprised of multiple 230 kV lines in series, and one 115 kV source, feeding the various substations between the Fredericksburg and Possum Point terminals. The area served by the substations in the F2PPC is defined, generally, as the area in Stafford County paralleling Interstate 95, north of the Rappahannock River, east to the Potomac River and west along Route 17 to Hartwood Road. It also includes the areas, both north and south, around Stafford Regional Airport, as well as the area around Garrisonville Substation, north to Marine Corps Base Quantico ("MCBQ") in Stafford County and the Town of Quantico and MCBQ in Prince William County.

The following is a discussion of each Rebuild Project driver, which were developed to address: (1) aging infrastructure that is at the end of its service life based on the Company's mandatory Planning Criteria, (2) an overload identified in the PJM RTEP Summer 2026 Generator Deliverability study to comply with mandatory NERC Reliability Standards, and (3) future load growth anticipated in the area.

Compliance with the Company's Mandatory Planning Criteria

The Company has created a plan to address its end-of-life facilities, 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. 115 kV Line #29 travels for approximately 24.5 miles between Fredericksburg Substation and Possum Point Stations and serves approximately 452 customers. 230 kV Line #252 travels for

approximately 11.9 miles between Aquia Harbour Station and Possum Point Station and serves approximately 3,800 customers.

The Rebuild Project will rebuild approximately 11.9 miles of 115 kV Line #29 and 230 kV Line #252 between Aquia Harbour Station and the Possum Point Station 230kV switchyard, and also 0.6 mile of 115 kV Line #29 between structure #29/1850 and Possum Point Station 115 kV switchyard, utilizing 230 kV standards. These segments of Line #29 and Line #252 were constructed in 1978 mostly on wooden steel tower structures and some wooden H-frame or 3-pole structures, which are nearing their end-of-life.

Section C.2.9 of the Planning Criteria addresses electric transmission infrastructure approaching its end of life:[12]

> 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 Virginia Transmission Planning Criteria. The infrastructure to be evaluated under this end-of-life criteria are all transmission lines 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 Energy Virginia standards or employing an alternative solution to ensure the Dominion Energy Virginia transmission system satisfies all applicable reliability criteria.

[12] The Company's Transmission Planning Criteria (effective January 1, 2024) can be found in Attachment 1 of the Company's Facility Interconnection Requirements ("FIR") document, which is available online at https://cdn-dominionenergy-prd-001.azureedge.net/-/media/pdfs/virginia/parallel-generation/facility-connection-requirements.pdf.

Effective March 24, 2020, the Company updated its Planning Criteria so that infrastructure to be evaluated under end-of-life criteria changed from "all transmission lines at 69 kV and above" to "all regional transmission lines operated at 500 kV and above." The remaining transmission lines between 100 kV and 500 kV are evaluated under the Company's Attachment M-3 End-of-Life Planning Criteria. The latest version of this criteria was presented at the December 13, 2023, PJM Sub-Regional RTEP meeting. See Attachment I.A.2 for updated slides presented by the Company at that meeting. As discussed in Attachment I.A.2, end-of-life projects between 100 kV and 500 kV are classified as supplemental projects. The process, however, for determining that an asset has reached its end of life remains the same; therefore, the Company continues to use the criteria evaluation process outlined in Section C.2.9 of the Planning Criteria.

The Company submitted the Rebuild Project in accordance with the PJM RTEP process to address the end-of-life criteria.

1. Facility is nearing, or has already passed, its end of life.

The Company proposes to rebuild approximately 11.9 miles of existing 115 kV transmission Line #29 between Aquia Harbour Station and Possum Point Station 230 kV switchyard and approximately 11.9 miles of existing 230 kV Line #252 between Aquia Harbour Station and the Possum Point Station 230 kV switchyard, located primarily within the existing right-of-way or on Company-owned property, to current 230 kV standards with minimum summer emergency ratings of 1,573 MVA. The Company will expand its existing right of way by approximately 50 feet between Structure #252/5568 (Structure #29/1835) and Fuller Road Substation to rebuild a 0.2 mile segment of Lines #29 and 252. These sections of Lines #29 and #252 were constructed in 1978 mostly on wooden steel tower structures and some wooden H-frame or 3-pole structures and have 2-bundled 721 ACAR conductors with a 3#6 Alumoweld static wire and 12-fibers Fiber Optic Ground Wire; and an existing summer rating of 360 MVA and 720 MVA, respectively. Industry guidelines indicate equipment life for: wood structures is 35-55 years, COR-TEN® steel structures is 40-60 years, conductor and connectors are 40-60 years, and porcelain insulators is 50 years. The structures supporting these segments of Lines #29 and #252 are approaching their end of life, driving the Company's need to rebuild the line.

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

Regarding the second metric of the Company's Planning Criteria addressing end of life, Line #29 provides service to approximately 452 customers. Addressing aging infrastructure through the Rebuild Project will support the Company's ability to continue providing reliable transmission service to these customers.

The need to rebuild these segments of Line #29 and Line #252 was first presented to the PJM stakeholders at the Transmission Expansion Advisory Committee

("TEAC") Meeting on August 10, 2021. The proposed solution to rebuild Lines #29 and #252 was presented at the October 5, 2021, TEAC Meeting. This section of the Rebuild Project was presented as an end-of-life rebuild project with a proposed solution to rebuild the approximately 11.9 mile segment to current (at the time) 230 kV standards. Attachments I.A.3 and I.A.4 include the slides that were initially presented at the TEAC meetings. The project was issued supplemental upgrade identification number "s2705" by PJM.

Line #252 is the source for Aquia Substation and Fuller Road Substation which serve approximately 3,374 and 424 customers, respectively. Addressing aging infrastructure through the Rebuild Project will support the Company's ability to continue providing reliable transmission service to these customers.

In summary, the Rebuild Project will replace aging infrastructure at the end of its service life to comply with the Company's mandatory Planning Criteria, thereby enabling the Company to maintain the overall long-term reliability of its transmission system.

Compliance with Mandatory NERC Reliability Standards

PJM's reliability analysis of the summer 2026 RTEP model has identified that an N-1-1 loss of Lines #252 and #2157 will drop more than 300 MW of load in the F2PPC transmission corridor, resulting in a NERC criteria violation. To mitigate the potential violation, a new 230 kV source is required in the corridor to split the load. The proposed solution, which was awarded to Dominion Energy Virginia through PJM's 2021 competitive Reliability Open Window, is to convert Line #29 from 115 kV to 230 kV operation.

The Rebuild Project was issued baseline upgrade identification number "b3694" by PJM and first presented to the PJM stakeholders at the TEAC Meeting on November 02, 2021, and again on November 30, 2021. Attachments I.A.5 and I.A.6 include the slides that were presented at the TEAC Meetings. Additionally, Attachment I.A.7 includes the pertinent excerpts from the PJM Staff White Paper of TEAC Recommendations to the PJM Board, where the project was approved by the Board of Managers at its February 16, 2022, meeting.

Significant Load Growth

As described previously, the Rebuild Project is in the F2PPC of the Company's Woodbridge Load Area. The portion of the F2PPC in Stafford County, which represents approximately two-thirds of the overall transmission corridor total (the City of Fredericksburg is approximately 5% and Prince William County is approximately 28%) has experienced increased interest from data center developers since approximately 2022. Dom LSE submitted DP requests to either interconnect or evaluate the feasibility and develop a plan to interconnect at least ten new substations in the Stafford portion of the F2PPC load area, six of which are associated with the proposed Stafford Technology Park. Additionally, Dom LSE

and Rappahannock Electric Cooperative ("REC") have submitted an additional 16 DP requests in areas east and south of the Company's Fredericksburg Substation which are expected to impact the F2PPC.

Based on the load growth described above and in Section I.C, the Company determined that rebuilding Lines #29 and #252 on double circuit monopole structures and installing additional circuits/conductors as part of the Rebuild Project will provide significant cost savings, compared to rebuilding the Lines on double circuit-capable structures and subsequently installing the additional circuits in the future. The conceptual Need for additional circuits/conductors in the F2PP Corridor was first presented to the PJM stakeholders at the TEAC Meeting on April 30, 2024, with an Operational Flexibility driver. Attachment I.A.8 includes the "Need" slides that were presented at that meeting. Attachment I.A.9 includes the proposed "Solution" slides that will be presented at the August 6, 2024, TEAC Meeting. The Solution slide contains a one-line diagram that shows the currently submitted/approved projects in the F2PP Corridor and the additional work required to accommodate the additional circuits being proposed as part of Rebuild Project. Once PJM has performed their Do-No-Harm analysis on the proposed Operational Flexibility Solution and determined that no harm is created, they will issue a supplemental ("s") number. Pending comments from the stakeholders, the Solution will be submitted to the Local Plan for integration into PJM's Regional Transmission Expansion Plan ("RTEP").

Rebuilding Lines #29 and #252 also requires rebuilding a small portion of 230 kV Line #2083 (0.7 mile) between Fredericksburg Substation and Hospital Junction. This work is needed so Lines #29 and #252 can terminate at the Fredericksburg Substation without unnecessary line crossings near Fredericksburg Substation.

Line #2083 will be rebuilt on double circuit monopole structures with vacant arms. Additionally, rebuilding Line #2083 on a double circuit monopole will allow for future expansion when necessary. Relocating and rebuilding a portion of Line #568 is also needed to accommodate the rebuild of Lines #29 and #252 on double circuit monopole structures. This will allow the Company to satisfy the growing demand for electricity in the F2PPC while minimizing the need to rework customer interconnections, reducing outage durations, minimizing environmental impacts, and prudently reducing overall costs as compared to retroactively installing double circuit monopole structures as part of a future project.

In summary, the Rebuild Project is needed to: (a) comply with the Company's mandatory Planning Criteria; (b) comply with mandatory NERC Reliability standards; and (c) allow the Company to continue providing reliable service based on the significant load growth anticipated in the area.

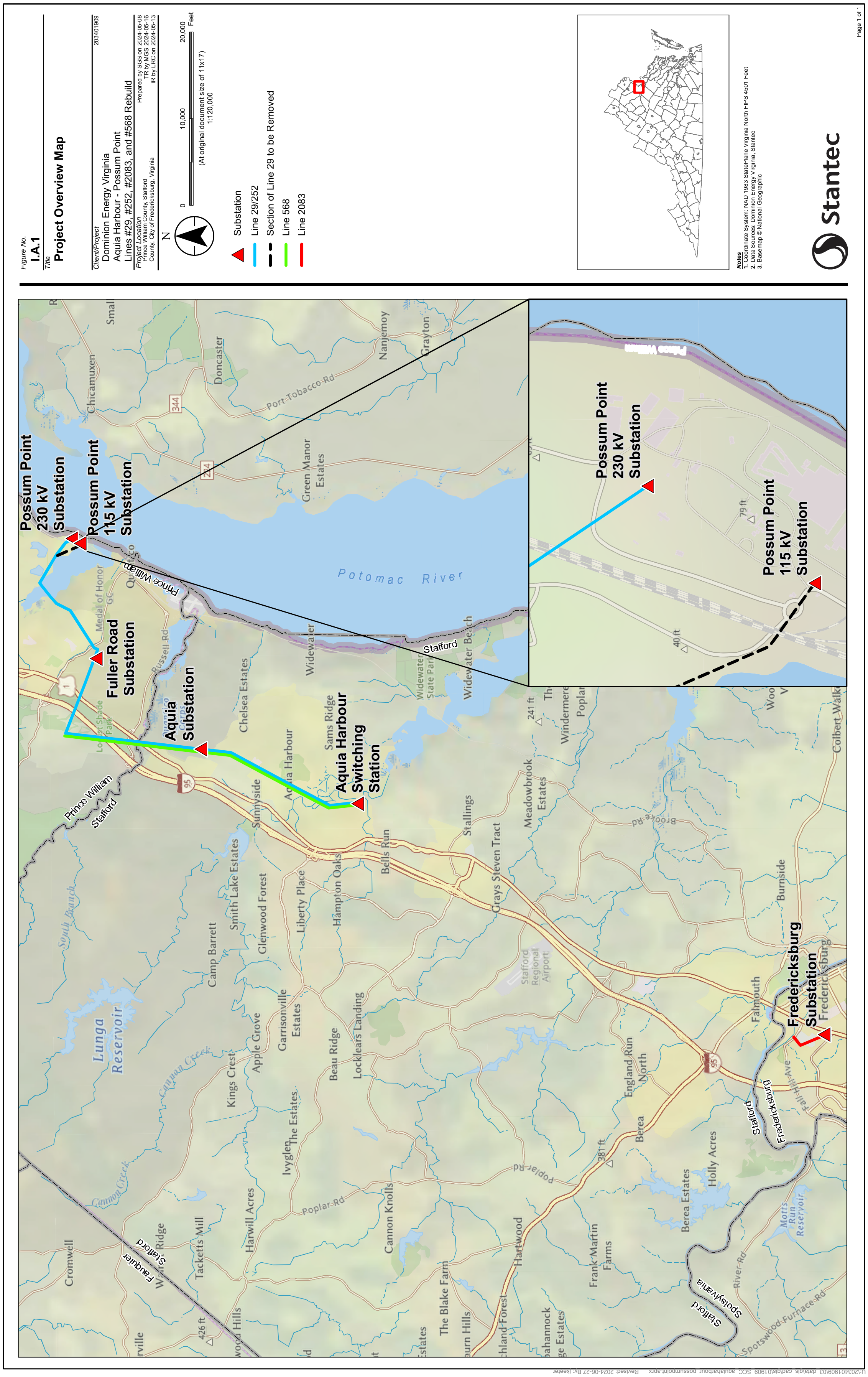
Figure No.
I.A.1
Title
Project Overview Map
Client/Project
203401909
Dominion Energy Virginia
Aquia Harbour - Possum Point
Lines #29, #252, #2083, and #568 Rebuild
Project Location
Prince William County, Stafford County, City of Fredericksburg, Virginia
Prepared by SGS on 2024-05-08
TR by MGS 2024-05-16
IR by LRC on 2024-05-13
N
0
10,000
20,000
Feet
(At original document size of 11x17)
1:120,000
Substation
Line 29/252
Section of Line 29 to be Removed
Line 568
Line 2083
Notes
1. Coordinate System: NAD 1983 StatePlane Virginia North FIPS 4501 Feet
2. Data Sources: Dominion Energy Virginia, Stantec
3. Basemap © National Geographic
Stantec
Page 1 of 1
Possum Point 230 kV Substation
Possum Point 115 kV Substation
Fuller Road Substation
Aquia Substation
Aquia Harbour Switching Station
Fredericksburg Substation
Potomac River
Prince William
Stafford
Fauquier
Fredericksburg
Spotsylvania
Lunga Reservoir
Motts Run Reservoir
Stafford Regional Airport
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Dominion Energy

PJM Southern Sub-Regional RTEP Meeting

Planning Assumptions

Planning Criteria and Assumptions

- PJM Assumptions Apply
- All analysis and solutions must satisfy
  - NERC TPL standards
  - PJM Planning Criteria in Attachment D & G of PJM Manual 14B
  - Dominion Energy's Facility Interconnection Requirements
    - Requirements to connect to Dominion's Transmission system
    - Attachment 1 – Dominion's FERC Form 715 Planning Criteria
    - Attachment 3 – Generation Interconnection Protection Requirements
    - Attachment 4 – Generator Ride-Through Requirements
    - Attachment 5 – Generator Interconnection Data Communication and Data Exchange Requirements
  - Supplemental Project Drivers as Described Below
- PJM and Dominion validate each other's study results to ensure solutions resolve specific need and create no other harm to system
- Proposed solutions are presented
  - TEAC for facilities 230 kV and above
  - Southern Sub-regional for facilities below 230 kV

Dominion Energy's FERC Form 715 End of Life Planning Criteria

- 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, including our ability to serve local load.
- Projects approved by PJM under this criteria are classified as baseline
- Detailed discussion on the End of Life criteria can be found in Attachment 1, section C.2.9 of Dominion Energy's Facility Interconnection Requirements document
- All other asset management of transmission infrastructure is covered by the M-3 Supplemental process
- The Appendix lists transmission lines expected to be evaluated using the FERC Form No. 715 End of Life criteria in the 2024 RTEP cycle

Supplemental Project Drivers

Summary of Supplemental Project Drivers

I. Customer Service	• Service to new and existing customers. Interconnect new customer load. Address distribution load growth, customer outage exposure, equipment loading
II. Equipment Material Condition, Performance and Risk	• Degraded equipment performance, material condition, obsolescence, equipment failure, employee and public safety and environmental impact • Substation Assets, Transmission Line Assets, Transmission Transformers
III. Operational Flexibility and Efficiency	• Optimizing system configuration, equipment duty cycles and restoration capability, minimize outages
IV. Infrastructure Resilience	• Improve system ability to anticipate, absorb, adapt to, and/or rapidly recover from a potentially disruptive event, including severe weather, geo-magnetic disturbances, electromagnetic pulses, physical and cyber security challenges, critical infrastructure reduction.
V. Other	• Meet objectives not included in other definitions

II. Equipment Material Condition, Performance and Risk

- Degraded equipment performance, material condition, obsolescence, equipment failure, employee and public safety and environmental impact
- Substation Assets, Transmission Line Assets, Transmission Transformers

Equipment Material Condition, Performance and Risk

- End of Life
  - Transmission Lines operated at or above 100 kV and below 500 kV
  - Transformers with high-side operated at or above 100 kV
- Other Asset Management

  Types of equipment assessed include but not limited to:
  - Transmission Lines below 100 kV
  - Line Components (not part of EOL Criteria)
  - Transformers below 100 kV
  - Breakers
  - Circuit Switchers
  - Reactors
  - Capbanks
  - Wave Traps
  - Relaying
  - Switches
  - Bus Work, Leads
  - FACTS Devices

Equipment Material Condition, Performance and Risk

Project Drivers

- EOL and Asset Management projects include the replacement, modification, upgrade or addition of transmission equipment for the following purposes:
  - Replacement of equipment due to eminent failure
  - Safety concerns
  - Compliance (internal and external)
  - Reliability
  - Operating Flexibility
  - Obsolescence
  - Other

Dominion Energy's Attachment M-3 End of Life Planning Criteria for Transmission Lines

- Infrastructure to be evaluated under this end-of-life criteria are all transmission lines operated at or above 100kV and below 500 kV
- Projects must satisfy the following two decision point 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, including our ability to serve local load.
- Projects will be classified as supplemental

Transmission Line Facilities

Project Development Process

- All project requests and inputs are reviewed
- Records of inspections, component failures, refurbishments/repairs, tower loading studies, COR-TEN corrosion studies and other relevant information are reviewed
- Field sampling and inspections are performed
- Perform analysis to determine condition of individual lines and a ranking to support remediation

Transmission Line Components

Project Development Process

- Industry typical “expected” service life are considered:
  - Steel structures 40 to 60 years
  - Conductors 60 years
  - Connectors 40 to 60 years
  - Insulators (Porcelain/Glass) 50 years+ (Polymer) 30 years
  - Fiber 30 years
  - Wood 55 years with maintenance
- However, the actual service life is dependent upon many variables and ongoing inspection to evaluate condition is the best determinant of end of service life.

Dominion Supplemental Projects

Transmission Expansion Advisory Committee
August 10, 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-2021-0058

Process Stage: Need Meeting 8/10/2021

Project Driver: Equipment Material Condition, Performance and Risk

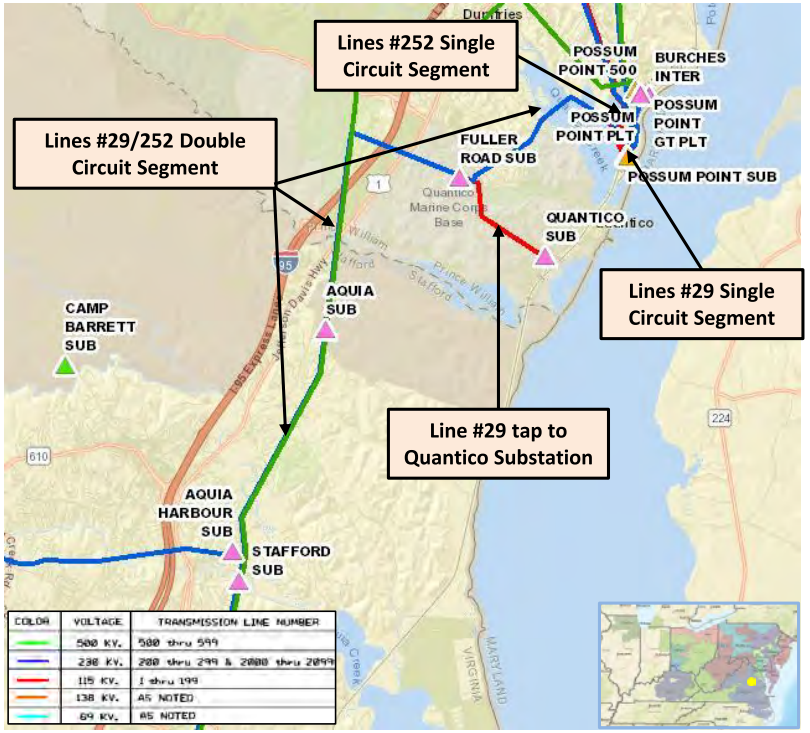
Specific Assumption References:

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

Problem Statement:

Dominion Energy has identified the need to rebuild approximately 12.0 miles of 115kV Line #29 and 230kV Line #252 between Aquia Harbor to Possum Point and the approximately 1.7 miles of 115kV tap line to Quantico Substation based on the Company's End of Life Criteria.

- Lines #29 and #252 were mostly constructed on double circuit CORTEN steel structures in 1978. The 115kV tap line to Quantico Substation was constructed on wood structures in 1978.
- A recent field inspection indicated continued degradation of structures where steel members are delaminating and cracking, and wood structures are showing woodpecker damage.
- Industry guidelines indicate equipment life for wood structures is 35-55 years, conductor and connectors are 40-60 years, and porcelain insulators are 50 years. A 50-year cycle for CORTEN steel structures is often cited.
- Line #29 is the only feed to the customers at Quantico Substation.



Appendix

High level M-3 Meeting Schedule

Assumptions

Activity	Timing
Posting of TO Assumptions Meeting information	20 days before Assumptions Meeting
Stakeholder comments	10 days after Assumptions Meeting

Needs

Activity	Timing
TOs and Stakeholders Post Needs Meeting slides	10 days before Needs Meeting
Stakeholder comments	10 days after Needs Meeting

Solutions

Activity	Timing
TOs and Stakeholders Post Solutions Meeting slides	10 days before Solutions Meeting
Stakeholder comments	10 days after Solutions Meeting

Submission of Supplemental Projects & Local Plan

Activity	Timing
Do No Harm (DNH) analysis for selected solution	Prior to posting selected solution
Post selected solution(s)	Following completion of DNH analysis
Stakeholder comments	10 days prior to Local Plan Submission for integration into RTEP
Local Plan submitted to PJM for integration into RTEP	Following review and consideration of comments received after posting of selected solutions

Revision History

07/30/2021 – V1 – Original version posted to pjm.com.

08/04/2021 – V2 – Removed slides 11 and 12 (Solution for DOM-2021-0025)

Dominion Supplemental Projects

Transmission Expansion Advisory Committee
October 5, 2021

Solution Slides

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

Need Number: DOM-2021-0058

Process Stage: Solution Meeting 10/05/2021

Project Driver: Equipment Material Condition, Performance and Risk

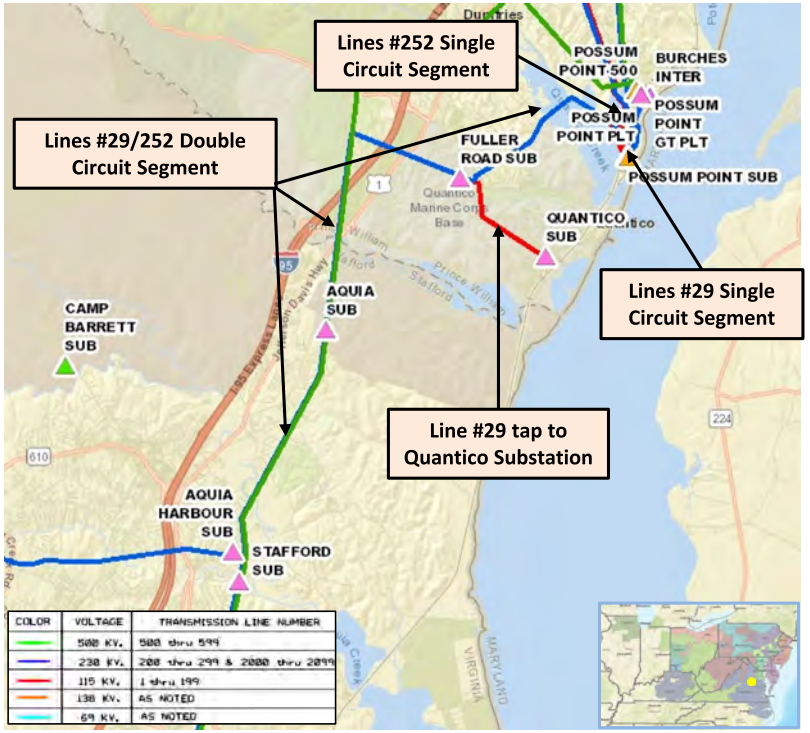
Specific Assumption References:

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

Problem Statement:

Dominion Energy has identified the need to rebuild approximately 12.0 miles of 115kV Line #29 and 230kV Line #252 between Aquia Harbour Switching Station to Possum Point and the approximately 1.7 miles of 115kv tap line to Quantico Substation based on the Company's End of Life Criteria.

- Lines #29 and #252 were mostly constructed on double circuit CORTEN steel structures in 1978. The 115 kV tap line to Quantico Substation was constructed on wood structures in 1978.
- A recent field inspection indicated continued degradation of structures where steel members are delaminating and cracking, and wood structures are showing woodpecker damages.
- Industry guidelines indicate equipment life for wood structures is 35-55 years, conductor and connectors are 40-60 years, and porcelain insulators are 50 years. A 50-year cycle for CORTEN steel structures is often cited.
- Line #29 is the only feed to the customers at Quantico Substation.



Dominion Transmission Zone: Supplemental Line #29 and Line #252 EOL Rebuild

Need Number: DOM-2021-0058

Process Stage: Solutions Meeting 10/05/2021

Proposed Solution:

- Using current 230kV standards and a minimum summer emergency rating of 1047 MVA, wreck and rebuild approximately 12 miles of double circuit Lines #252 and #29 from Aquia Harbour Switching Station to Possum Point.
- At Possum Point, upgrade the wave trap on Line #252 to 3000A.
- At Aquia Substation, upgrade the Line #252 switches and leads to 3000A.
- At Aquia Harbour Switching Station, upgrade the Line #252 wave trap and a circuit breaker switch to 3000A.

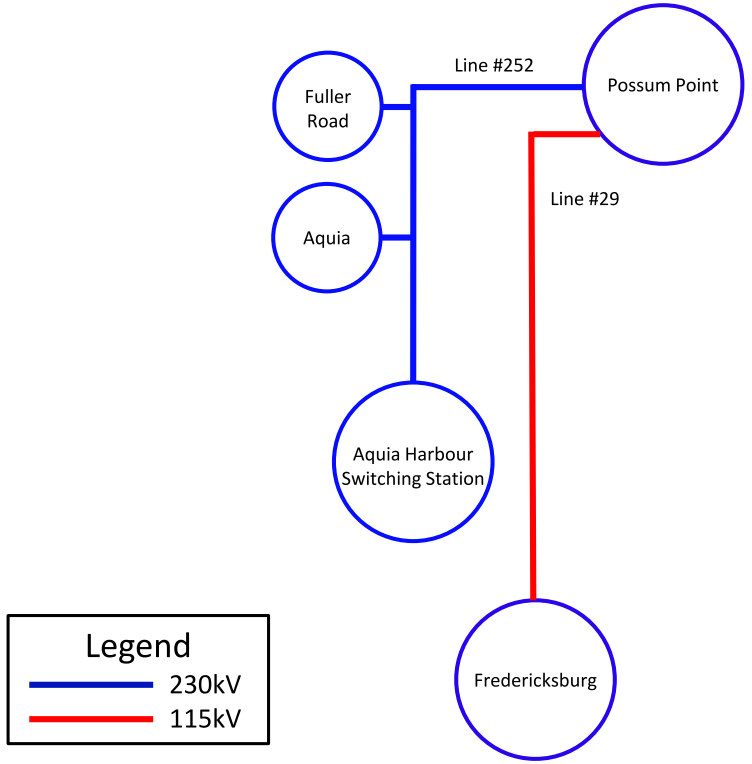
Estimated Project Cost: $38.0 M

Alternatives Considered:
No feasible alternatives

Projected In-service Date: 06/01/2026

Project Status: Engineering

Model: 2025 RTEP



Appendix

High level M-3 Meeting Schedule

Assumptions

Activity	Timing
Posting of TO Assumptions Meeting information	20 days before Assumptions Meeting
Stakeholder comments	10 days after Assumptions Meeting

Needs

Activity	Timing
TOs and Stakeholders Post Needs Meeting slides	10 days before Needs Meeting
Stakeholder comments	10 days after Needs Meeting

Solutions

Activity	Timing
TOs and Stakeholders Post Solutions Meeting slides	10 days before Solutions Meeting
Stakeholder comments	10 days after Solutions Meeting

Submission of Supplemental Projects & Local Plan

Activity	Timing
Do No Harm (DNH) analysis for selected solution	Prior to posting selected solution
Post selected solution(s)	Following completion of DNH analysis
Stakeholder comments	10 days prior to Local Plan Submission for integration into RTEP
Local Plan submitted to PJM for integration into RTEP	Following review and consideration of comments received after posting of selected solutions

Revision History

09/22/2021 – V1 – Original version posted to pjm.com.

10/4/2021 – V2 – Correction on slide 6.

Reliability Analysis Update

Aaron Berner, Senior Manager

Transmission Expansion Advisory Committee
Tuesday, November 2, 2021

First Read

Baseline Reliability Projects

Dominion Transmission Zone: Baseline Fredericksburg/Carson/Hopewell Area

Process Stage: First Read

Criteria: Generator Deliverability, FERC Form 715 (C.2.1.3 Critical Stress Case) & N-1

Assumption Reference: 2026 RTEP assumption

Model Used for Analysis: 2026 RTEP cases

Proposal Window Exclusion: None

Problem Statement:

In the 2026 RTEP summer case:

Fredericksburg (Group 1: N2-SLD1, N2-SLD2, GD-S16, GD-S467, DOM-T5)

- 230kV Line #2104 Cranes Corner to Stafford is overloaded for a single and breaker contingency under Generator Deliverability and is also overloaded under Dominion stress case criteria.
- Load loss of 307 MW under N-1-1.

Carson (Group 2: GD-S465, GD-S39)

- Carson 500/230kV transformer #2 is overloaded for a breaker contingency under Generator Deliverability.
- 230kV Line #249 Carson to Chaparral is overloaded for a single contingency under Generator Deliverability.

Hopewell (Group 3: GD-S18, GD-S33, GD-S436)

- 230kV Line #211 is overloaded for a single contingency under Generator Deliverability.
- 230kV Line #228 is overloaded for a single and breaker contingency under Generator Deliverability.

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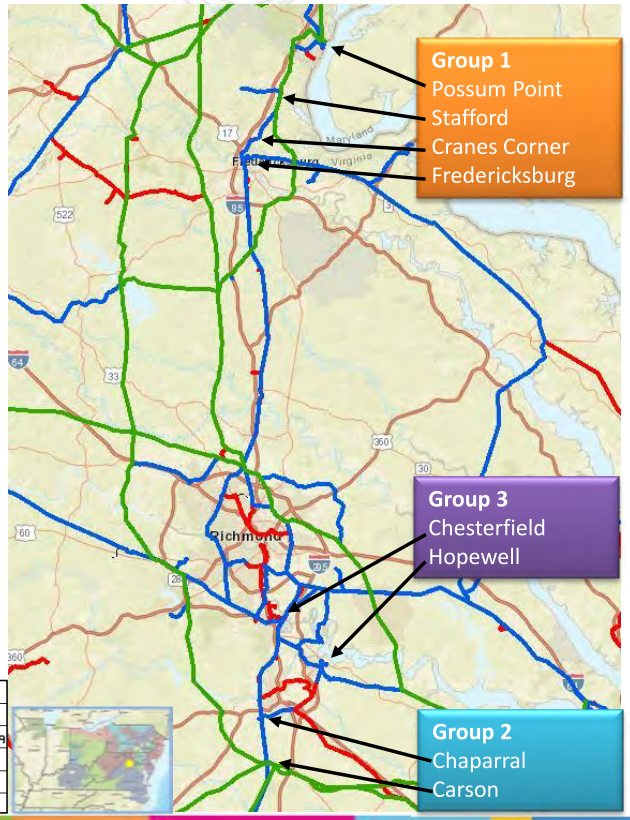

COLOR	VOLTAGE	TRANSMISSION LINE NUMBER
	500 KV.	500 thru 599
	230 KV.	200 thru 299 & 2000 thru 2099
	115 KV.	1 thru 199
	138 KV.	AS NOTED
	69 KV.	AS NOTED

Dominion Transmission Zone: Baseline Fredericksburg/Carson/Hopewell Area

Existing Facility Rating:

Area	Branch	SN/SE/WN/WE (MVA)
Fredericksburg	6CRANES – 6STAFORD 230kV	722/722/914/914
Carson	8CARSON – 6CARSON 500kV	928.1/961.6/1192.8/1238.1
Carson	6CARSON – 6CHAPARRAL T 230kV	595/595/659/659
Carson	6LOCKS – 6CHAPARRAL T 230kV	595/595/659/659
Carson	6LOCKS – 3HARROWG 115kV	147/147/185/185
Hopewell	6HOPEWLL – 6CHESTF A 230kV	478/478/606/606
Hopewell	6HOPEWLL – 6CHESTF B 230kV	478/478/606/606

As part of the 2021 RTEP Window #1, the following project was proposed to address violations at Fredericksburg, Carson and Hopewell:

Proposal ID	Proposing Entity	Upgrade Description	Upgrade Cost ($M)
224	Dominion	**Fredericksburg**: Convert 115kV Line #29 to 230 kV; Reconductor 230kV Line #2104 Cranes Corner to Aquia Harbor. Feed Quantico via Fuller Road Substation **Carson**: Energize Carson 500/230kV Tx#1; Reconductor 230kV Line #249 Carson to Locks; Partial Rebuild 115kV Line #100 Locks to Harrowgate **Hopewell**: Partial rebuild 2.9 miles of double circuit 230kV Lines #211/228	93.412

Continued on next slide….

Dominion Transmission Zone: Baseline Fredericksburg/Carson/Hopewell Area

Proposed Solution: Proposal #2021_1-224

Fredericksburg

- Convert Line #29 Aquia Harbor to Possum Point to 230 kV (Extended Line #2104) and swap Line #2104 and converted Line #29 at Aquia Harbor backbone termination. Upgrade terminal equipment at Possum Point to terminate converted Line 29 (now extended Line #2104). (Line #29 from Fredericksburg to Aquia Harbor is being rebuilt under baseline b2981 to 230kV standards.) **Estimated cost: $9.386M**

- Upgrade Aquia Harbor terminal equipment to not limit 230kV Line #9281 conductor rating. **Estimated cost: $0.631M**

- Upgrade Fredericksburg terminal equipment by rearranging 230 kV bus configuration to terminate converted Line 29 (now becoming 9281). The project will add a new breaker at the 230kV bay and reconfigure line termination of 230kV Lines #2157, #2090, and #2083. **Estimated cost: $2.725M**

- Reconductor/rebuild approximately 7.6 miles of 230kV Line #2104 Cranes Corner – Stafford to achieve a summer rating of 1047 MVA[(1)]. Reconductor/rebuild approximately 0.34 miles of 230kV Line #2104 Stafford – Aquia Harbor to achieve a summer rating of 1047 MVA. Upgrade terminal equipment at Cranes Corner to not limit the new conductor rating. **Estimated cost: $19.596M**

- Upgrade wave trap and line leads at 230kV Line #2090 Ladysmith CT terminal to achieve 4000A rating. **Estimated cost: $0.152M**

- Upgrade Fuller Road substation to feed Quantico substation via 115 kV radial line. Install four breaker ring and break 230kV Line #252 into two new lines: 1) #252 between Aquia Harbor to Fuller Road and 2) #9282 between Fuller Road and Possum Point. Install a 230/115 kV transformer which will serve Quantico substation. **Estimated cost: $24.159M**

(1) This portion of the project will be addressed by baseline b3321 as it overlaps the violation associated with the deactivation of Morgantown 1 and 2 presented at the 8/31 TEAC.

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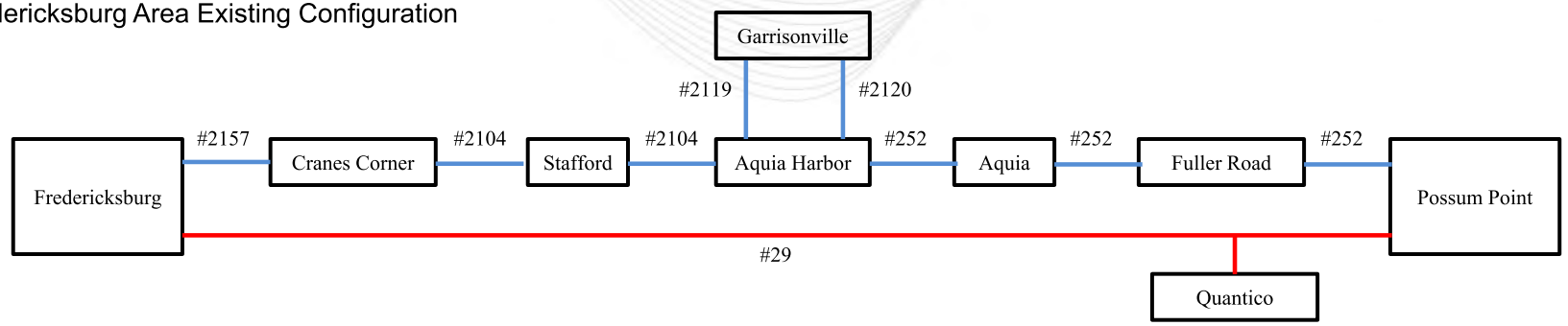
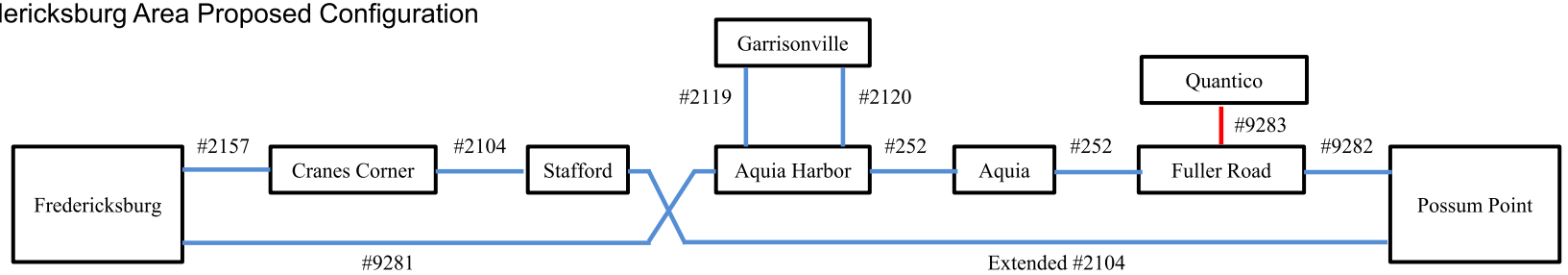
Dominion Transmission Zone: Baseline
Fredericksburg/Carson/Hopewell Area

Fredericksburg Area Existing Configuration



Fredericksburg Area Proposed Configuration



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SME/Presenter:
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Aaron.Berner@pjm.com

Reliability Analysis Update

Member Hotline

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custsvc@pjm.com

Revision History

Version No.	Date	Description
1	10/28/2021	• Original slides posted
2	10/29/2021	• Added slides 7, 8, 9, and 10, plus made a date correction on slide #6
3	11/1/2021	• Corrected slide 13 header information
4	11/4/2021	• Corrected transformer # on slide 8 (Lawrence 230/69 kV 220-4)
5	11/9/2021	• Corrected FG#s on slide 58
6	11/15/2021	• Corrected preliminary facility ratings on slide 42
7	12/13/2021	• Slide #16, changed the 2nd “Required IS date” to “Projected IS date”

Reliability Analysis Update

Aaron Berner, Senior Manager

Transmission Expansion Advisory Committee

Tuesday, November 30, 2021

2021 RTEP Proposal Window

Second Review

Baseline Reliability Projects

Dominion Transmission Zone: Baseline Fredericksburg/Carson/Hopewell Area

Process Stage: Second Review

Criteria: Generator Deliverability, FERC Form 715 (C.2.1.3 Critical Stress Case) & N-1

Assumption Reference: 2026 RTEP assumption

Model Used for Analysis: 2026 RTEP cases

Proposal Window Exclusion: None

Problem Statement:

In the 2026 RTEP summer case:

Fredericksburg (Group 1: N2-SLD1, N2-SLD2, GD-S16, GD-S467, DOM-T5)

- 230kV Line #2104 Cranes Corner to Stafford is overloaded for a single and breaker contingency under Generator Deliverability and is also overloaded under Dominion stress case criteria.
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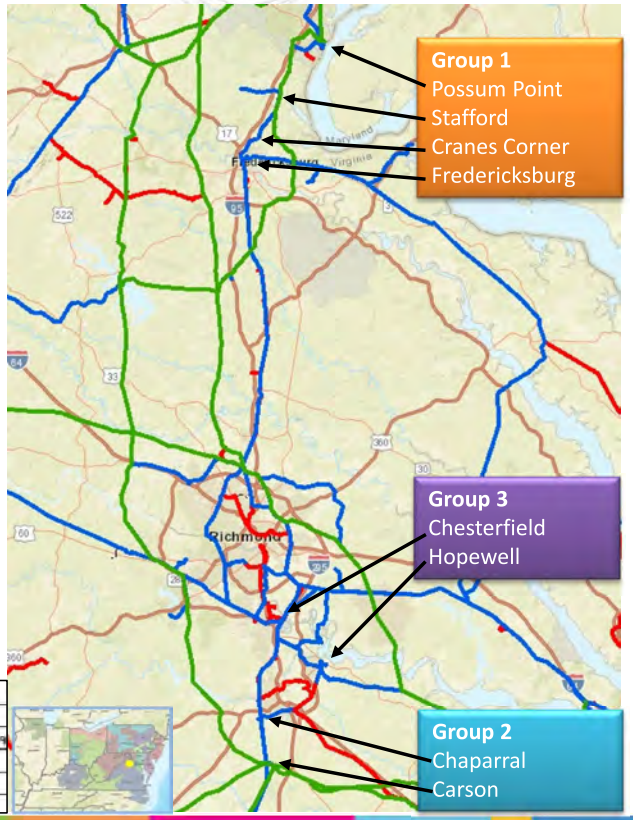

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Existing Facility Rating:

Area	Branch	SN/SE/WN/WE (MVA)
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Carson	6CARSON – 6CHAPARRAL T 230kV	595/595/659/659
Carson	6LOCKS – 6CHAPARRAL T 230kV	595/595/659/659
Carson	6LOCKS – 3HARROWG 115kV	147/147/185/185
Hopewell	6HOPEWLL – 6CHESTF A 230kV	478/478/606/606
Hopewell	6HOPEWLL – 6CHESTF B 230kV	478/478/606/606

As part of the 2021 RTEP Window #1, the following project was proposed to address violations at Fredericksburg, Carson and Hopewell:

Proposal ID	Proposing Entity	Upgrade Description	Upgrade Cost ($M)
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Continued on next slide….

Dominion Transmission Zone: Baseline Fredericksburg/Carson/Hopewell Area

Recommended Solution: Proposal #2021_1-224

Fredericksburg

- Convert Line #29 Aquia Harbor to Possum Point to 230 kV (Extended Line #2104) and swap Line #2104 and converted Line #29 at Aquia Harbor backbone termination. Upgrade terminal equipment at Possum Point to terminate converted Line 29 (now extended Line #2104). (Line #29 from Fredericksburg to Aquia Harbor is being rebuilt under baseline b2981 to 230kV standards.) **Estimated cost: $9.386M (b3694.1)**

- Upgrade Aquia Harbor terminal equipment to not limit 230kV Line #9281 conductor rating. **Estimated cost: $0.631M (b3694.2)**

- Upgrade Fredericksburg terminal equipment by rearranging 230 kV bus configuration to terminate converted Line 29 (now becoming 9281). The project will add a new breaker at the 230kV bay and reconfigure line termination of 230kV Lines #2157, #2090, and #2083. **Estimated cost: $2.725M (b3694.3)**

- Reconductor/rebuild approximately 7.6 miles of 230kV Line #2104 Cranes Corner – Stafford to achieve a summer rating of 1047 MVA(1). Reconductor/rebuild approximately 0.34 miles of 230kV Line #2104 Stafford – Aquia Harbor to achieve a summer rating of 1047 MVA. Upgrade terminal equipment at Cranes Corner to not limit the new conductor rating. **Estimated cost: $19.596M (b3694.4)**

- Upgrade wave trap and line leads at 230kV Line #2090 Ladysmith CT terminal to achieve 4000A rating. **Estimated cost: $0.152M (b3694.5)**

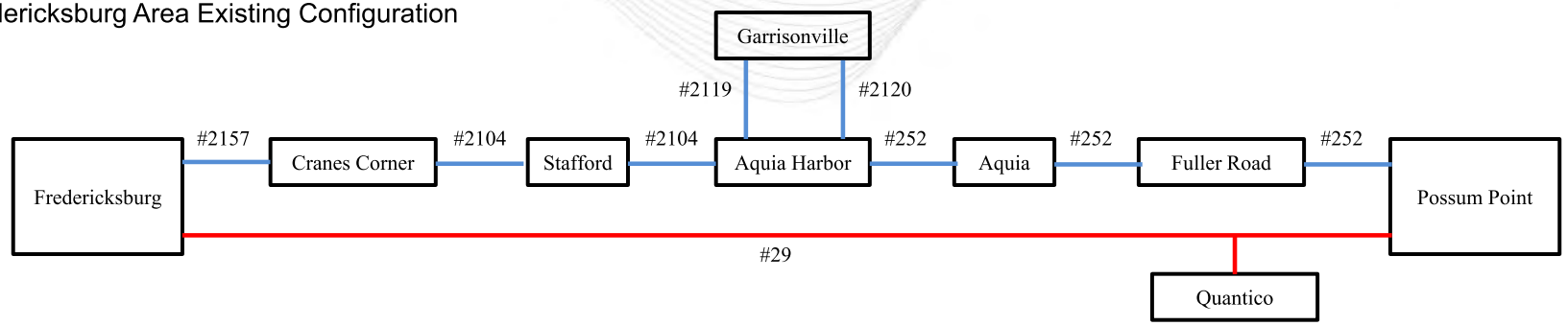
- Upgrade Fuller Road substation to feed Quantico substation via 115 kV radial line. Install four breaker ring and break 230kV Line #252 into two new lines: 1) #252 between Aquia Harbor to Fuller Road and 2) #9282 between Fuller Road and Possum Point. Install a 230/115 kV transformer which will serve Quantico substation. **Estimated cost: $24.159M (b3694.6)**

(1) This portion of the project will be addressed by baseline b3321 as it overlaps the violation associated with the deactivation of Morgantown 1 and 2 presented at the 8/31 TEAC.

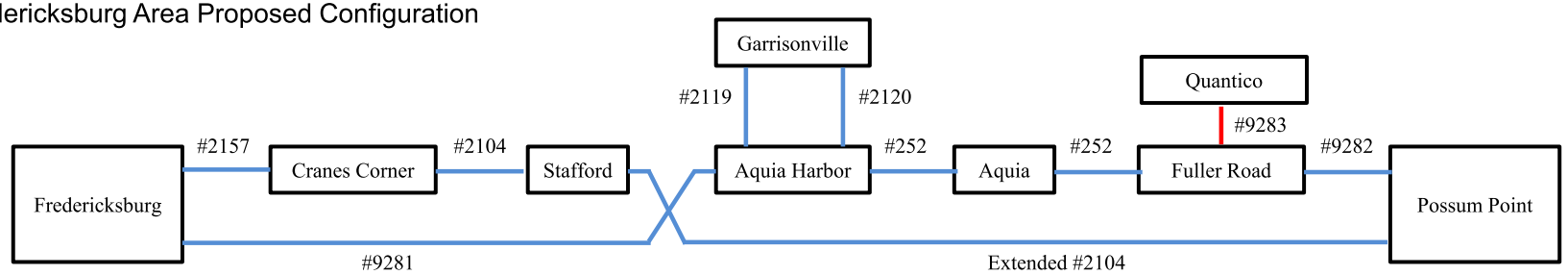
Continued on next slide….

Dominion Transmission Zone: Baseline Fredericksburg/Carson/Hopewell Area

Fredericksburg Area Existing Configuration



Fredericksburg Area Proposed Configuration



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SME/Presenter:
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Reliability Analysis Update

Member Hotline

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custsvc@pjm.com

Revision History

Version No.	Date	Description
1	11/23/2021	• Original slides posted
2	12/13/2021	• Slide #6, Changed the 2nd “Required IS date” to “Projected IS date”
3	4/27/2022	• Slide #29, Changed “Reconductor” to “Rebuild” for the 211/228 uprates in the Hopewell area.

Transmission Expansion Advisory Committee (TEAC) Recommendations to the PJM Board

PJM Staff White Paper

PJM Interconnection
February 2022

For Public Use

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Contents

I. Executive Summary

On December 8, 2021, the PJM Board of Managers approved changes to the Regional Transmission Expansion Plan (RTEP), totaling a net increase of $95.65 million for baseline projects, to resolve baseline reliability criteria violations and address changes to existing projects. The PJM Board of Managers also approved a net increase of $39.14 million for network upgrades to address new projects with signed ISAs, project scope changes and project cancellations.

Since then, PJM has identified additional baseline reliability criteria violations, and the transmission system enhancements needed to solve them, at an estimated cost of $519.37 million. Scope/cost changes to an existing project will result in a net increase of $3.54 million, and cancellation to an existing project will result in a net decrease of $7.5 million. This yields an overall RTEP net increase of $515.41 million, for which PJM recommended Board approval. With these changes, RTEP projects will total approximately $39,448.9 million since the first Board approvals in 2000.

PJM sought Reliability and Security Committee consideration and full Board approval of the RTEP baseline projects summarized in this white paper. On February 16, 2022, the Board approved the addition of RTEP baseline projects as well as other changes to the RTEP as summarized in this paper.

II. Baseline Project Recommendations

A key dimension of PJM's RTEP process is baseline reliability evaluation, which is necessary before subsequent interconnection requests can be analyzed. Baseline analysis identifies system violations to reliability criteria and standards, determines the potential to improve the market efficiency and operational performance of the system, and incorporates any public policy requirements. PJM then develops transmission system enhancements to solve identified violations and reviews them with stakeholders through the Transmission Expansion Advisory Committee (TEAC) and Subregional RTEP committees prior to submitting its recommendation to the Board. Baseline reliability transmission enhancement costs are allocated to PJM responsible customers.

III. Baseline Reliability Projects Summary

A summary of baseline projects with estimated costs equal to or greater than $10 million, as well as one operational performance driven project, is provided below. A complete listing of all recommended projects and their associated cost allocations is included in Attachment A (allocations to a single zone) and Attachment B (allocations to multiple zones). Projects with estimated costs less than $10 million typically include, by way of example, transformer replacements, line reconductoring, breaker replacements and upgrades to terminal equipment, including relay and wave trap replacements.

A. AEP Transmission Zone

- Baseline project b3353 – Allen 46 kV Station Rebuild Baseline Conversion: $16 million
- Baseline project b3348 – Dehue Area Improvements: $65.8 million
- Baseline project b3361 – Prestonsburg-Thelma 46 kV Rebuild: $33.01 million

B. APS Transmission Zone

- Baseline project b3683 – Messick Road-Ridgeley 138 kV Upgrades: $11.2 million

C. ComEd Transmission Zone

- Baseline project b3677 – LaSalle-Mazon 138 kV Rebuild: $42.06 million

D. Dominion Transmission Zone

- Baseline project b3686 – Bremo-Columbia D.P. 115 kV Switching Station: $16 million
- Baseline project b3687 – Bristers-Minnieville D.P. 115 kV Rebuild: $30 million
- Baseline project b3684 – Earleys-Kelford 115 kV Rebuid: $18.75 million
- Baseline project b3692 – Elmont-Chickahominy 500 kV Rebuild: $58.16 million
- Baseline project b3694 – Fredericksburg/Carson/Hopewell Area Improvements: $93.41 million
- Baseline project b3689 – Remington CT-Gainesville 230 kV Reconductor: $30.68 million

PJM also recommended projects totaling $79.53 million, which include a 115 kV and multiple 69 kV line rebuilds, 230 kV line reconductoring, a 345/138 kV transformer installation, 138/69/46 kV and 138/69 kV transformer replacements, capacitor bank installations, a reactor installation, circuit breaker and disconnect switch installations/replacements, and other substation and terminal equipment upgrades/replacements, whose individual cost estimates are less than $10 million.

A more detailed description of the larger-scope projects that PJM recommended to the Board is provided below.

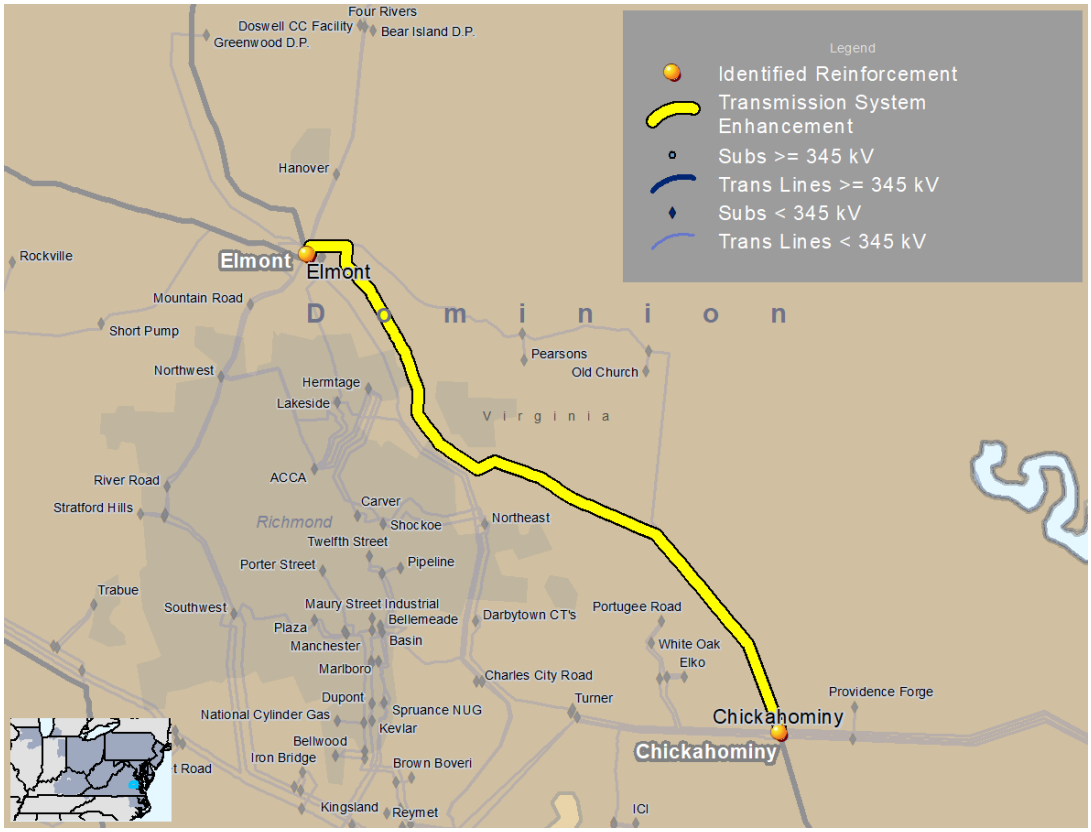
E. Baseline Reliability Project Details

Baseline Project b3353: Allen 46 kV Station Rebuild Baseline Conversion

AEP Transmission Zone

In the 2026 RTEP winter case, the Stanville-Allen 46 kV line section is overloaded for multiple N-1 outage combination.

Map 9. b3692: Elmont-Chickahominy 500 kV



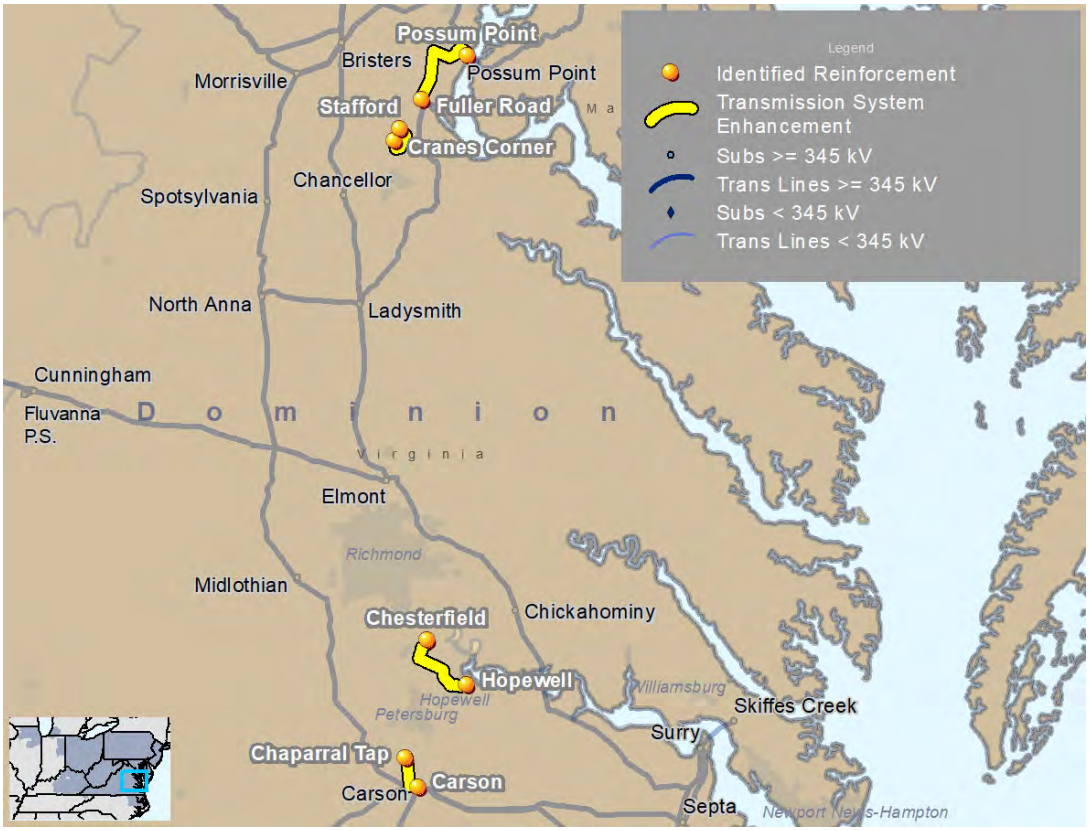
The recommended solution, solicited through the 2021 Window 1 competitive proposal process, is to rebuild approximately 27.7 miles of 500 kV transmission line from Elmont to Chickahominy with current 500 kV standards construction practices to achieve a summer rating of 4330 MVA. The estimated cost for this project is $58.16 million, with a required and projected in-service date of June 2026. The local transmission owner, Dominion, will be designated to complete this work.

Baseline Project b3694: Fredericksburg/Carson/Hopewell Area Improvements

Dominion Transmission Zone

In the 2026 RTEP summer case, in the Fredericksburg area, the Cranes Corner-Stafford 230 kV line (No. 2104) is overloaded for an N-1 and N-2 outage as well as under Dominion stress case criteria, and there is load loss of 307 MW for N-1 outage combinations. In the Carson area, the Carson 500/230 kV transformer No. 2 is overloaded for an N-2 outage, and the Carson-Chaparral 230 kV line (No. 249) is overloaded for an N-1 outage. In the Hopewell area, the Chesterfield-Hopewell 230 kV line (No. 211) is overloaded for an N-1 outage, and the Chesterfield-Hopewell 230 kV line (No. 228) is overloaded for an N-1 and N-2 outage.

Map 10. b3694: Fredericksburg/Carson/Hopewell Area Improvements



The recommended solution, solicited through the 2021 Window 1 competitive proposal process, is a comprehensive project that addresses all three areas.

In the Fredericksburg area, the project will convert 115 kV line No. 29 (Aquia Harbor-Possum Point) to 230 kV (extended line No. 2104) and swap line No. 2104 (Cranes Corner-Stafford 230 kV) and converted line No. 29 at Aquia Harbor backbone termination. The project will also upgrade terminal equipment at Possum Point, Aquia Harbor and Fredericksburg 230 kV. The project will add a new breaker at the Fredericksburg 230 kV bay and reconfigure 230 kV line terminations. Approximately 7.6 miles of 230 kV line No. 2104 (Cranes Corner-Stafford) and approximately 0.34 miles of 230 kV line No. 2104 (Stafford-Aquia Harbor) will be reconductored/rebuilt to achieve a summer rating of 1047 MVA (terminal equipment at Cranes Corner will be upgraded to not limit the new conductor rating). The project will upgrade the wave trap and line leads at 230 kV line No. 2090 Ladysmith CT terminal to achieve 4000 A rating. The Fuller Road substation will be upgraded to feed the Quantico substation via a 115 kV radial line, and a four-breaker ring will be installed to break 230 kV line No. 252 into two new lines: 1) No. 252 between Aquia Harbor to Fuller Road, and 2) No. 9282 between Fuller Road and Possum Point. A 230/115 kV transformer will also be installed, which will serve Quantico substation.

In the Carson area, the project will energize the in-service spare 500/230 kV Carson No. 1 transformer, and partially wreck and rebuild 10.34 miles of 230 kV line No. 249 (Carson-Locks) to achieve a minimum summer emergency rating of 1047 MVA (terminal equipment at Carson and Locks will be upgraded to not limit the new conductor rating). The project includes the wreck and rebuild of 5.4 miles of 115 kV line No. 100 (Locks-Harrowgate) to achieve a

AMPT Project in ATSI Transmission Zone

- Baseline project b3153 (Amherst area improvements, including construction of a greenfield 0.3 mile 138 kV double circuit line tapping the Beaver-Black River 138 kV line) is no longer needed because the single-point radial exposure criteria has been removed from the AMPT's FERC 715 Planning Criteria. Instead, the project is being resubmitted as a supplemental project. The project had an estimated cost of $7.5 million.

This change yields a net RTEP decrease of $7.5 million.

B. Scope/Cost Changes

The following scope/cost modification was recommended:

Dominion Transmission Zone

- Baseline project b2443.6 (installation of second Possum Point 500/230 kV transformer) has undergone a scope change and cost increase. The b2443.6 project was initially slated to be cancelled in 2021, as it was determined that the deficiencies were no longer present in the updated summer 2023 & 2025 RTEP cases. However, the cancellation was placed on hold due to an issue identified in the 2021 RTEP and potential for the project to be brought back if the proposal was provided to mitigate the violation. Based on what was previously submitted for b2443.6 back in 2019, there was a modest change in scope to include a wreck and rebuild of an existing line that connects the 500 kV and 230 kV Possum Point substations. Double circuit structures will be installed to carry both the new and old lines, and there is some rearrangement work in the 230 kV substation. The total cost of the project has increased from $21 million to $24.54 million, yielding an RTEP increase of $3.54 million.

This change yields a net RTEP increase of $3.54 million.

VIII. Review by the Transmission Expansion Advisory Committee (TEAC)

Project needs and recommended solutions as discussed in this report were reviewed with stakeholders during 2021 and 2022, most recently at the January 2022 TEAC meeting. Written comments were requested to be submitted to PJM to communicate any concerns with project recommendations. No comments have been received as of this white paper publication date.

IX. Cost Allocation

Cost allocations for recommended projects are shown in Attachment A (for allocation to a single zone) and Attachment B (for allocation to multiple zones).

Cost allocations are calculated in accordance with Schedule 12 of the Open Access Transmission Tariff (OATT). Baseline reliability project allocations are calculated using a distribution factor methodology that allocates cost to the load zones that contribute to the loading on the new facility. The allocations will be filed at FERC 30 days following approval by the Board.

X. Board Approval

The PJM Reliability and Security Committee is requested to endorse the changes to the RTEP proposed in this white paper, and recommended to the full Board for approval the changes to existing RTEP projects as detailed in this white paper to be included in PJM's RTEP. On February 16, 2022, the Board approved the addition of RTEP baseline projects as well as other changes to the RTEP as summarized in this paper. The RTEP is published annually on PJM's website.

Attachment A – Reliability Project Single-Zone Allocations

Upgrade ID	Description	Cost Estimate ($M)	Transmission Owner	Cost Responsibility	Required In-Service Date
b3346.1	Rebuild approximately 3.5 miles of overloaded 69 kV line between North Delphos-East Delphos-Elida Road switch. This includes approximately 1.1 miles of double circuit line that makes up a portion of the North Delphos-South Delphos 69 kV line and the North Delphos-East Delphos 69 kV line. Approximately 2.4 miles of single circuit line will also be rebuilt between the double circuit portion to East Delphos station and from East Delphos to Elida Road Switch.	$8.43	AEP	AEP	6/1/2026
b3346.2	Replace the line entrance spans at South Delphos to eliminate the overloaded 4/0 Copper and 4/0 ACSR conductor.	$0.44	AEP	AEP	6/1/2026
b3348.1	Construct a 138 kV single bus station (Tin Branch) consisting of a 138 kV box bay with a distribution transformer and 12 kV distribution bay. Two 138 kV lines will feed this station (from Logan and Sprigg stations), and distribution will have one 12 kV feed. Install two 138 kV circuit breakers on the line exits. Install 138 kV circuit switcher for the new transformer.	$5.58	AEP	AEP	11/1/2026
b3348.2	Construct a new 138/46/12 kV Argyle station to replace Dehue station. Install a 138 kV ring bus using a breaker-and-a-half configuration, with an autotransformer with a 46 kV feed and a distribution transformer with a 12 kV distribution bay. Two 138 kV lines will feed this station (from Logan and Wyoming stations). There will also be a 46 kV feed from this station to Becco station. Distribution will have two 12 kV feeds. Retire Dehue station in its entirety.	$10.00	AEP	AEP	11/1/2026
b3348.3	Bring the Logan-Sprigg #2 138 kV circuit in and out of Tin Branch station by constructing approximately 1.75 miles of new overhead double circuit 138 kV line. Double circuit T3 series lattice towers will be used along with 795,000 cm ACSR 26/7 conductor. One shield wire will be conventional 7 #8 ALUMOWELD, and one shield wire will be OPGW.	$8.58	AEP	AEP	11/1/2026

Upgrade ID	Description	Cost Estimate ($M)	Transmission Owner	Cost Responsibility	Required In-Service Date
b3687	Rebuild approximately 15.1-mile-long line segment between 115 kV line #183 Bristers and Minnieville D.P. with 2-768 ACSS and 4000 A supporting equipment from Bristers to Ox to allow for future 230 kV capability of 115 kV 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.	$30.00	Dominion	Dominion	6/1/2026
b3689.1	Reconductor approximately 24.42 miles of 230 kV line #2114 Remington CT-Elk Run-Gainesville to achieve a summer rating of 1574 MVA by fully reconductoring the line and upgrading the wave trap and substation conductor at Remington CT and Gainesville.	$28.99	Dominion	Dominion	6/1/2026
b3689.2	Replace 230 kV breakers SC102, H302, H402 and 218302 at Brambleton substation with 4000A 80 kA breakers and associated equipment including breaker leads as necessary to address breaker duty issues identified in short circuit analysis.	$1.69	Dominion	Dominion	6/1/2026
b3690	Reconductor approximately 1.07 miles of 230 kV line #2008 segment from Cub Run-Walney to achieve a summer rating of 1574 MVA. Replace line switch 200826 with a 4000A switch.	$1.93	Dominion	Dominion	6/1/2026
b3691	Reconductor approximately 1.4 miles of 230 kV line #2141 from Lakeview-Carolina to achieve a summer rating of 1047 MVA.	$1.19	Dominion	Dominion	6/1/2026
b3694.1	Convert line #29 Aquia Harbor to Possum Point to 230 kV (Extended line #2104) and swap line #2104 and converted line #29 at Aquia Harbor backbone termination. Upgrade terminal equipment at Possum Point to terminate converted line 29 (now extended line #2104). (Line #29 from Fredericksburg to Aquia Harbor is being rebuilt under baseline b2981 to 230kV standards.)	$9.39	Dominion	Dominion	6/1/2026
b3694.10	Reconductor approximately 2.9 miles of 230 kV line #211 Chesterfield-Hopewell to achieve a minimum summer emergency rating of 1046 MVA.	$4.91	Dominion	Dominion	6/1/2026
b3694.11	Reconductor approximately 2.9 miles of 230 kV line #228 Chesterfield-Hopewell to achieve a minimum summer emergency rating of 1046 MVA.	$4.91	Dominion	Dominion	6/1/2026
b3694.12	Upgrade equipment at Chesterfield substation to not limit ratings on lines 211 and 228.	$0.76	Dominion	Dominion	6/1/2026

Upgrade ID	Description	Cost Estimate ($M)	Transmission Owner	Cost Responsibility	Required In-Service Date
b3694.13	Upgrade equipment at Hopewell substation to not limit ratings on lines 211 and 228.	$1.71	Dominion	Dominion	6/1/2026
b3694.2	Upgrade Aquia Harbor terminal equipment to not limit 230 kV line #9281 conductor rating.	$0.63	Dominion	Dominion	6/1/2026
b3694.3	Upgrade Fredericksburg terminal equipment by rearranging 230 kV bus configuration to terminate converted line 29 (now becoming 9281). The project will add a new breaker at the 230 kV bay and reconfigure line termination of 230 kV lines #2157, #2090 and #2083.	$2.73	Dominion	Dominion	6/1/2026
b3694.4	Reconductor/rebuild approximately 7.6 miles of 230 kV line #2104 Cranes Corner-Stafford to achieve a summer rating of 1047 MVA(1). Reconductor/rebuild approximately 0.34 miles of 230 kV line #2104 Stafford-Aquia Harbor to achieve a summer rating of 1047 MVA. Upgrade terminal equipment at Cranes Corner to not limit the new conductor rating.	$19.60	Dominion	Dominion	6/1/2026
b3694.5	Upgrade wave trap and line leads at 230 kV line #2090 Ladysmith CT terminal to achieve 4000A rating.	$0.15	Dominion	Dominion	6/1/2026
b3694.6	Upgrade Fuller Road substation to feed Quantico substation via 115 kV radial line. Install four-breaker ring and break 230 kV line #252 into two new lines: 1) #252 between Aquia Harbor to Fuller Road and 2) #9282 between Fuller Road and Possum Point. Install a 230/115 kV transformer which will serve Quantico substation.	$24.16	Dominion	Dominion	6/1/2026
b3694.7	Energize in-service spare 500/230 kV Carson Tx#1.	$0.00	Dominion	Dominion	6/1/2026
b3694.8	Partial wreck and rebuild 10.34 miles of 230 kV line #249 Carson-Locks to achieve a minimum summer emergency rating of 1047 MVA. Upgrade terminal equipment at Carson and Locks to not limit the new conductor rating.	$15.37	Dominion	Dominion	6/1/2026
b3694.9	Wreck and rebuild 5.4 miles of 115 kV line #100 Locks-Harrowgate to achieve a minimum summer emergency rating of 393 MVA. Upgrade terminal equipment at Locks and Harrowgate to not limit the new conductor rating and perform line #100 Chesterfield terminal relay work.	$9.10	Dominion	Dominion	6/1/2026
b3697	Replace station conductor and metering inside Whitpain and Plymouth substations to increase the ratings of the 220-13/220-14 Whitpain-Plymouth 230 kV line facilities.	$0.62	PECO	PECO	6/1/2025

Dominion Supplemental Projects

Transmission Expansion Advisory Committee
April 30, 2024

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 Operational Flexibility and Efficiency

Need Number: DOM-2024-0035

Process Stage: Need Meeting 04/30/2024

Project Driver: Operational Flexibility and Efficiency

Specific Assumption References:

See details on Operational Flexibility and Efficiency in Dominion's Planning Assumptions presented in December 2023.

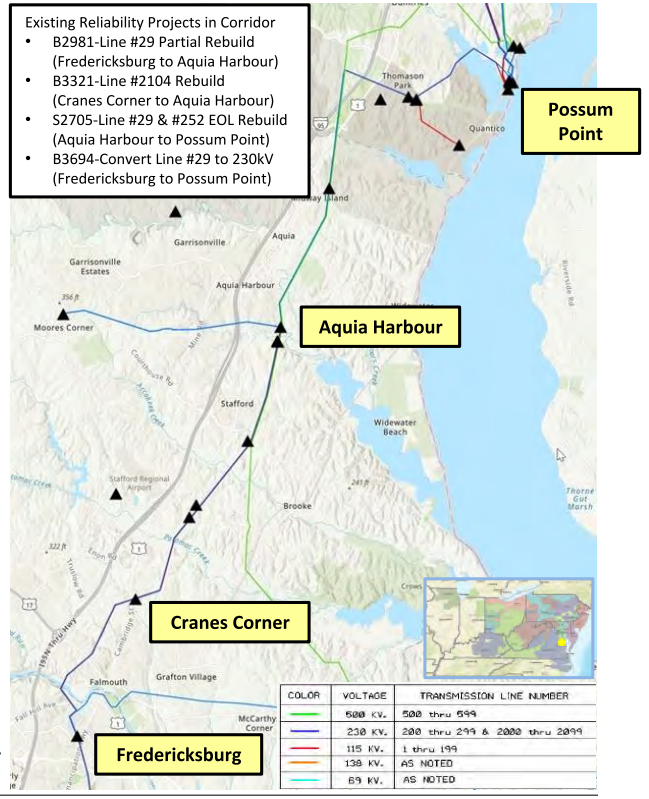
Problem Statement (page 1 of 2):

Multiple projects have been developed to address reliability violations in the Fredericksburg to Possum Point corridor, resulting in a majority of the corridor being rebuilt over the next 3-4 years so that two, 230kV transmission lines will be available to support existing network flows and to interconnect new customer load. These include baseline projects b2981, b3321, b3694 and supplemental project s2705. There is a need to reevaluate options to maximize use of the existing ROW and the planned upgrades while minimizing chances of wreck and rebuild work in the near future.

Delivery Point (DP) Requests for thirteen new substations to serve data center load in the corridor have been submitted by DEV Distribution and are in various stages of evaluation/development. Load projections for the DP's currently indicate over 1700 MW of new load by year 2029, growing to over 3000 MW by year 2032.

Additionally, in the corridor south of Fredericksburg Substation, DP Requests for fourteen new substations have been received with projected loads exceeding 2000 MW by year 2029 and 3000 MW by year 2032.

Without diverse transmission sources to serve the new substations, it is anticipated that initial facility interconnections with the two, 230kV transmission lines will have to be reworked as additional transmission lines are required in the corridor to address new reliability violations. This is expected to result in customer interconnection delays, increased outage durations, and increased overall cost.



Dominion Transmission Zone: Supplemental Operational Flexibility and Efficiency

Need Number: DOM-2024-0035

Process Stage: Need Meeting 04/30/2024

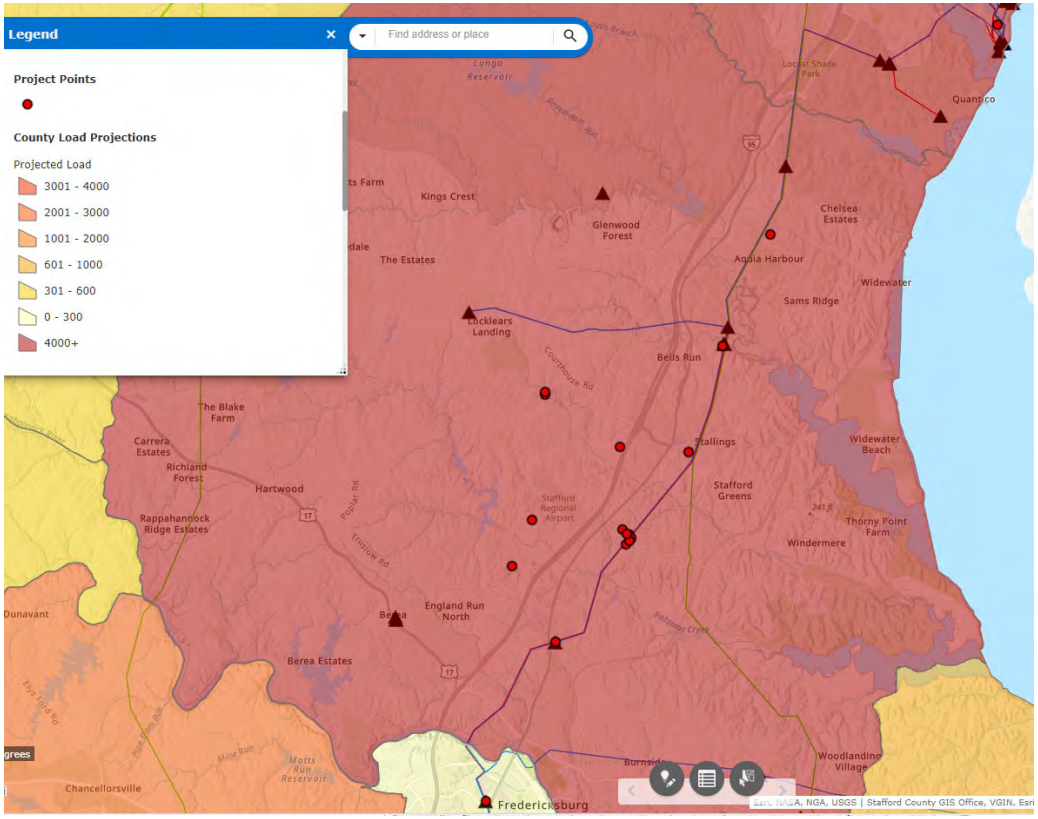
Project Driver: Operational Flexibility and Efficiency

Specific Assumption References:

See details on Operational Flexibility and Efficiency in Dominion's Planning Assumptions presented in December 2023.

Problem Statement (page 2 of 2):

	A	B	E	G	R	X
5	Need Presented 04/30/2024 TEAC					
6	Need Previously Presented				MW	MW
7	DOM#	Project Name	Connect	Type	2029	2032
8	2023-18	Spartan Sub	5/2/2025	DP	110	110
9	2023-35	Caboose Sub	6/1/2026	DP	84	140
10	n/a	Widewater Sub	1/1/2027	EO	0	77
11	2024-28	Shady Hill	4/4/2027	DP	175	175
12	2024-05	Centreport Sub	7/1/2027	DP	136	136
13	2023-56	Alto Sub	7/1/2027	DP	213	213
14	2024-06	Woodcutters Sub	1/1/2028	DP	250	1000
15	2024-07	Surveyors	1/1/2028	DP	300	300
16	2024-29	Soprano Sub	4/1/2028	DP	116	255
17	2023-34	Freight Sub	8/5/2028	DP	40	140
18	2024-08	Baritone Sub	10/1/2028	DP	32	183
19	2024-34	Opera Sub	10/1/2029	DP	0	242
20	n/a	Classical Sub	7/1/2030	EO	0	155
21	2023-24	Locomotive Sub	11/4/2031	DP	116	255
22	n/a	Tenor Sub	7/1/2032	EO	0	6
23	2024-30	Mountain View Sub	4/1/2026	DP	181	181
24						
25				TOTAL	1753	3568



Appendix

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High level M-3 Meeting Schedule

Assumptions

Activity	Timing
Posting of TO Assumptions Meeting information	20 days before Assumptions Meeting
Stakeholder comments	10 days after Assumptions Meeting

Needs

Activity	Timing
TOs and Stakeholders Post Needs Meeting slides	10 days before Needs Meeting
Stakeholder comments	10 days after Needs Meeting

Solutions

Activity	Timing
TOs and Stakeholders Post Solutions Meeting slides	10 days before Solutions Meeting
Stakeholder comments	10 days after Solutions Meeting

Submission of Supplemental Projects & Local Plan

Activity	Timing
Do No Harm (DNH) analysis for selected solution	Prior to posting selected solution
Post selected solution(s)	Following completion of DNH analysis
Stakeholder comments	10 days prior to Local Plan Submission for integration into RTEP
Local Plan submitted to PJM for integration into RTEP	Following review and consideration of comments received after posting of selected solutions

Revision History

04/19/2024– V1 – Original version posted to pjm.com

04/30/2024– V2 – Corrected date in footer.

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Dominion Supplemental Projects

Transmission Expansion Advisory Committee
August 6, 2024

Solutions

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 Operational Flexibility and Efficiency

Need Number: DOM-2024-0035
Process Stage: Solution Meeting 08/06/2024
Previously Presented: Need Meeting 04/30/2024
Project Driver: Operational Flexibility and Efficiency

Specific Assumption References:

See details on Operational Flexibility and Efficiency in Dominion's Planning Assumptions presented in December 2023.

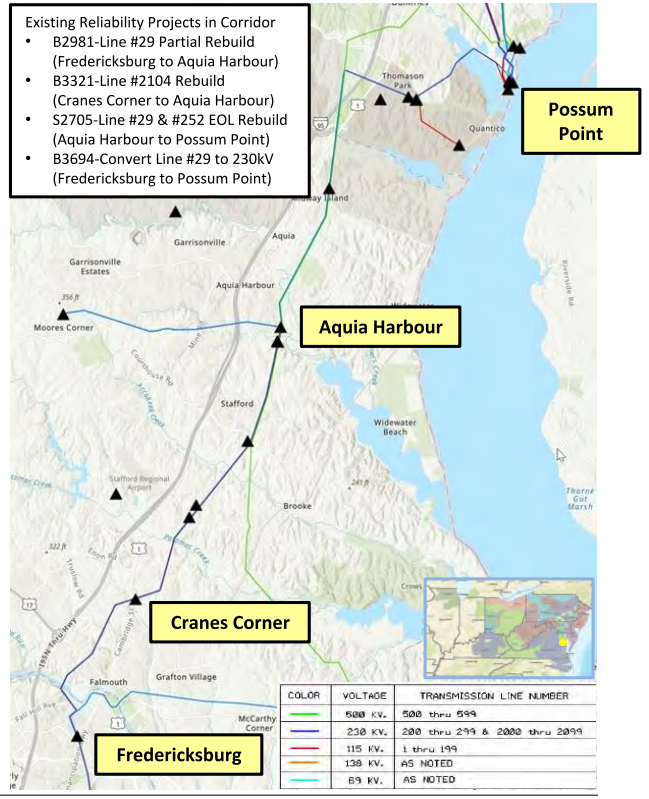
Problem Statement:

Multiple projects have been developed to address reliability violations in the Fredericksburg to Possum Point corridor, resulting in a majority of the corridor being rebuilt over the next 3-4 years so that two, 230kV transmission lines will be available to support existing network flows and to interconnect new customer load.

Delivery Point (DP) Requests for thirteen new substations to serve data center load in the corridor have been submitted by DEV Distribution and are in various stages of evaluation/development. Load projections for the DP's currently indicate over 1700 MW of new load by year 2029, growing to over 3000 MW by year 2032.

Additionally, in the corridor south of Fredericksburg Substation, DP Requests for fourteen new substations have been received with projected loads exceeding 2000 MW by year 2029 and 3000 MW by year 2032.

Without diverse transmission sources to serve the new substations, it is anticipated that initial facility interconnections with the two, 230kV transmission lines will have to be reworked as additional transmission lines are required in the corridor to address new reliability violations. This is expected to result in customer interconnection delays, increased outage durations, and increased overall cost.



Dominion Transmission Zone: Supplemental Operational Flexibility and Efficiency

Need Number: DOM-2024-0035
Process Stage: Solution Meeting 08/06/2024
Previously Presented: Need Meeting 04/30/2024
Project Driver: Operational Flexibility and Efficiency

Specific Assumption References:

See details on Operational Flexibility and Efficiency in Dominion's Planning Assumptions presented in December 2023.

Problem Statement (continued):

	A	B	E	G	R	X
5	Need Presented 04/30/2024 TEAC					
6	Need Previously Presented				MW	MW
7	DOM#	Project Name	Connect	Type	2029	2032
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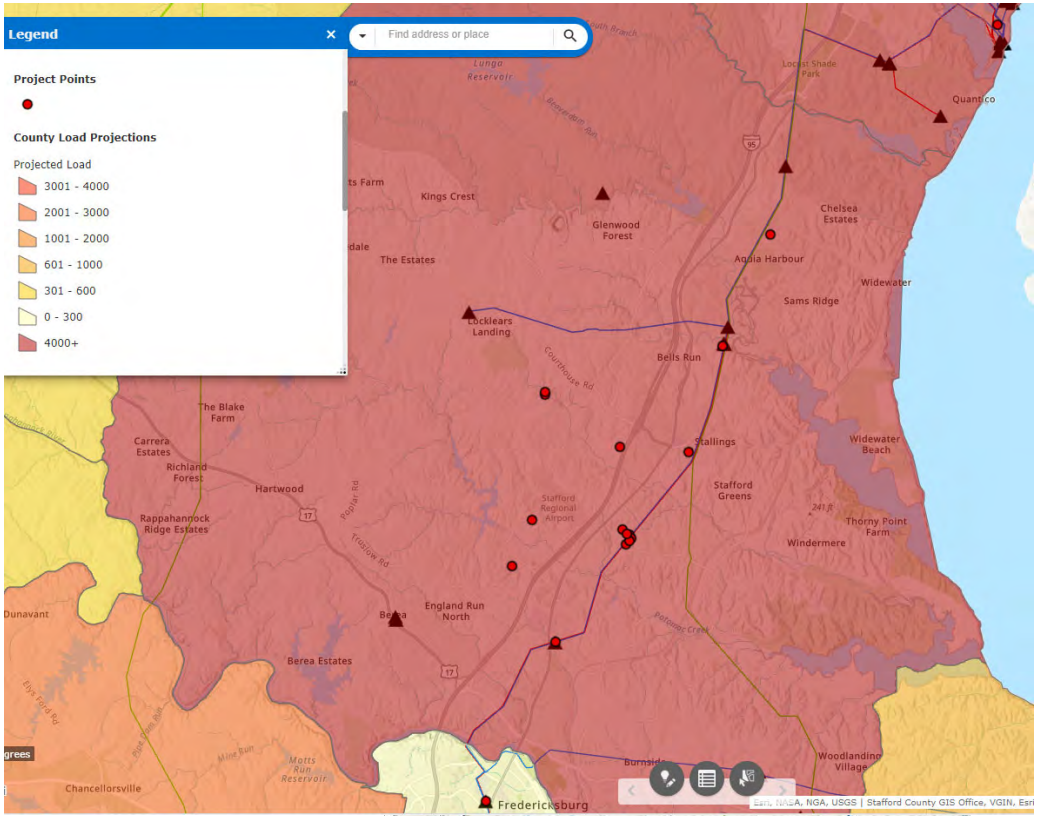
23	2024-30	Mountain View Sub	4/1/2026	DP	181	181
24						
25				TOTAL	1753	3568



Dominion Transmission Zone: Supplemental

Fredericksburg to Possum Corridor – Add 3rd and 4th 230kV Lines

Need Number: DOM-2024-0035
Process Stage: Solutions Meeting 08/06/2024

Proposed Solution:

- Construct Allman Switching Station north of existing Fredericksburg Substation, to accommodate ten, 230kV line terminals (six north, four south) in five strings of a breaker-and-a-half arrangement. GIS equipment will be utilized due to limited space.
- Rebuild Line #2157 approx. 4.5 miles, Allman to Cranes Corner, with double-circuit structures and a minimum summer conductor rating of 1573 MVA.
- Rebuild Line #2083 approx. 0.7 miles, Allman to Hospital Jct, with double-circuit structures and a minimum summer conductor rating of 1573 MVA.
- Expand Cranes Corner Sub to accommodate a new backbone for line re-alignment.
- Construct a 2nd 230kV double-circuit pole line approx. 12 miles, Aquia Harbour to Possum Point. Approximately 41 lattice structures (~7.1 miles) of adjacent 500kV Line #568 will be replaced with monopole structures to accommodate the new 230kV double-circuit structures in the corridor.
- Install two additional 230kV lines in the corridor, with a minimum summer rating of 1573 MVA, by utilizing the vacant arm positions on the double-circuit structures that will be created by rebuilding the existing single-circuit structures from Fredericksburg to Aquia Harbour and the new double-circuit structures from Aquia Harbour to Possum Point.
- Reconfigure the 230kV terminals at Possum Point to accommodate the two new line terminations.

Estimated Project Cost: $180.0M ($120.0M T-Line; $60.0M Substation)

Alternatives Considered:
The intent of this project is to facilitate the orderly expansion of Dominion's transmission system by introducing new 230kV sources into the Fredericksburg to Possum Point corridor that will support the projected load growth and maximize the use of existing right-of-way. No alternatives outside of the existing corridor were developed.

Projected In-service Date: 06/01/2029

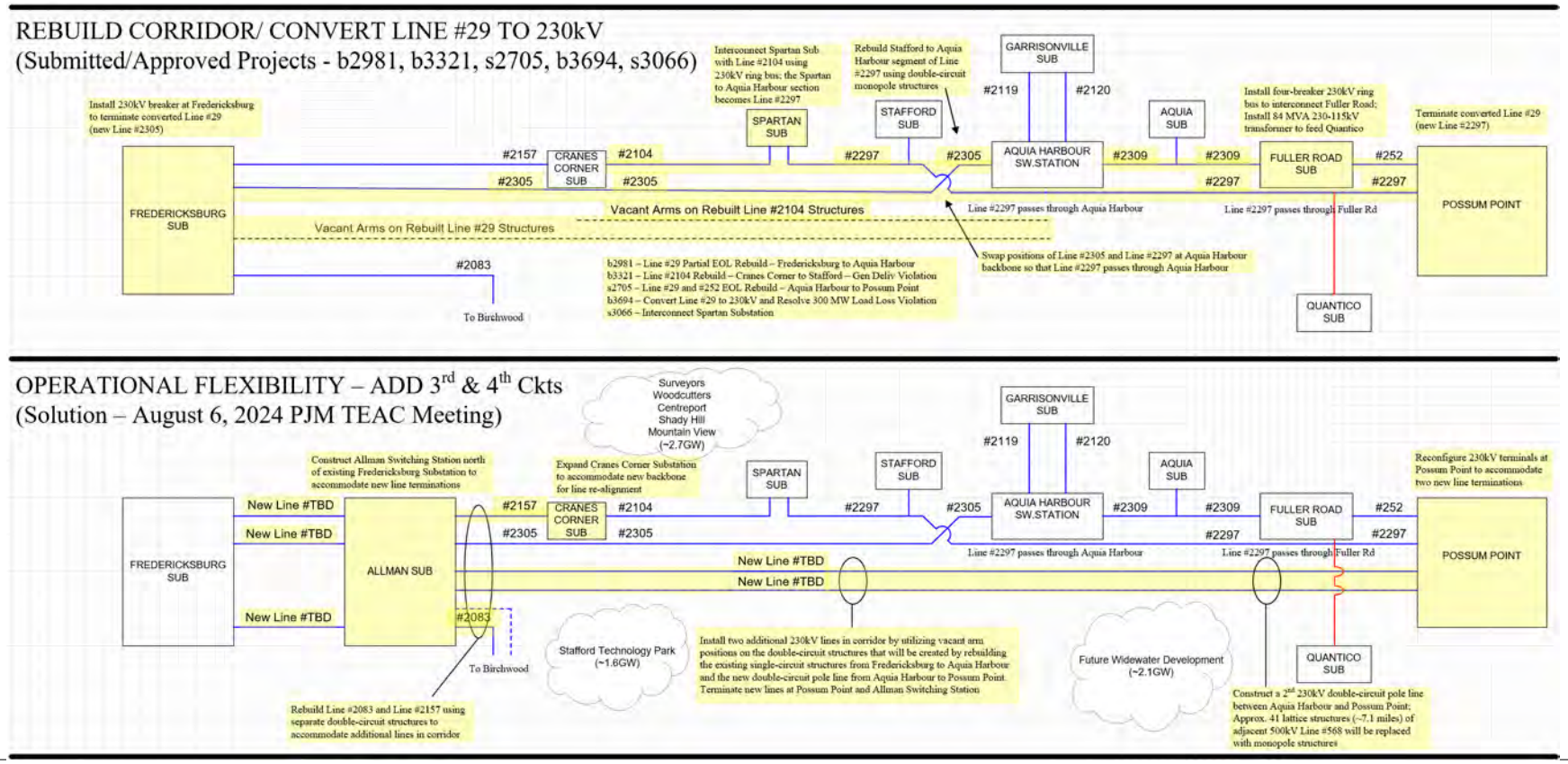
Project Status: Conceptual

Model: 2029 RTEP

Bubble Diagrams on Next Page

Dominion Transmission Zone: Supplemental

Fredericksburg to Possum Corridor – Add 3rd and 4th 230kV Lines



Appendix

High level M-3 Meeting Schedule

Assumptions

Activity	Timing
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Stakeholder comments	10 days after Assumptions Meeting

Needs

Activity	Timing
TOs and Stakeholders Post Needs Meeting slides	10 days before Needs Meeting
Stakeholder comments	10 days after Needs Meeting

Solutions

Activity	Timing
TOs and Stakeholders Post Solutions Meeting slides	10 days before Solutions Meeting
Stakeholder comments	10 days after Solutions Meeting

Submission of Supplemental Projects & Local Plan

Activity	Timing
Do No Harm (DNH) analysis for selected solution	Prior to posting selected solution
Post selected solution(s)	Following completion of DNH analysis
Stakeholder comments	10 days prior to Local Plan Submission for integration into RTEP
Local Plan submitted to PJM for integration into RTEP	Following review and consideration of comments received after posting of selected solutions

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Revision History

07/26/2024– V1 – Original version posted to pjm.com

I. NECESSITY FOR THE PROPOSED PROJECT

B. [1] 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.). [2] 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. [3] 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. [4] Provide a list of those facilities that are not yet in service.

Response: [1] Engineering Justification for the Project

For a detailed description of the engineering justification of the proposed Rebuild Project, see Section I.A.

[2] Known Future Projects

Significant future load growth is expected in the service area. The F2PPC has been experiencing increased interest from data center developers since approximately 2022 and Dom LSE has submitted ten DP requests to either begin or study interconnection for projects with a projected load of close to 600 MW by 2028 and 3,000 MW by 2032. Dom LSE also received customer load requests for (i) 13 new substations in the corridor south of Fredericksburg Substation and (ii) three new substations east of the F2PPC, with a combined projected load of over 2,700 MW by 2028 and over 5,200 MW by 2032.

Future projects dependent on this project are listed in Attachments I.A.8 and I.A.9.

[3] Planning Studies

The reliability studies conducted for this Rebuild Project and the study results are described in Section I.A.

[4] Facilities List

All approved PJM RTEP projects and associated generators are included in the 2026 RTEP model as based on PJM RTEP Protocols.

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: As described in Section I.A, the F2PPC Load Area is generally defined as containing one 230 kV source, which consists of three sequential 230 kV lines, and one 115 kV source, feeding the various substations between the Fredericksburg and Possum Point terminals. The area served by the substations in the F2PPC is defined, generally, as the area in Stafford County paralleling Interstate 95, north of the Rappahannock River, east to the Potomac River and west along Route 17 to Hartwood Road. It also includes the areas, both north and south, around Stafford Regional Airport, as well as the area around Garrisonville Substation, north to MCBQ in Stafford County and the Town of Quantico and MCBQ in Prince William County. Attachment I.G.1 shows the portion of the Company's transmission system in the area of the Rebuild Project. The full F2PPC area is described in detail below; however, the scope of the Rebuild Project is only between Aquia Harbour Station and Possum Point Station.

Fredericksburg to Possum Point Corridor ("F2PPC")

Fredericksburg to Cranes Corner

The existing electric transmission corridor between the Company's Fredericksburg Substation and Possum Point Station switchyard is approximately 24.5 miles long. For approximately 0.7 mile heading roughly north from Fredericksburg Substation, the corridor contains two 230 kV lines on double circuit, weathering steel monopole structures – Line #2157 (Fredericksburg-Cranes Corner) and Line #2083 (Fredericksburg-Birchwood NUG). The corridor also contains one 115 kV line on single circuit, two-pole wooden H-frame structures – Line #29 (Fredericksburg-Possum Point). Up to the point where the corridor reaches Hospital Junction, Line #2157 is on the west side of the corridor, Line #2083 is in the middle, and Line #29 is on the east side of the corridor. Just after crossing Mary Washington Boulevard, Line #29 crosses under Lines #2083 and #2157 as the corridor splits and Line #2083 heads roughly east toward Birchwood NUG while Line #2157 and Line #29 continue roughly north, each on single circuit, two-pole wooden H-frame structures for approximately 3.8 miles to Cranes Corner Substation, with Line #2157 on the east side of the corridor and Line #29 on the west side. (Note: approximately 0.8 mile north of Hospital Junction, the transmission corridor crosses the Rappahannock River, leaving the City of Fredericksburg and crossing into Stafford County)

At Cranes Corner Substation, Line #29 continues past the substation while Line #2157 terminates into a 230 kV breaker and leaves the substation as Line #2104 (Cranes Corner-Aquia Harbour). There are two 230-34.5 kV distribution transformers, 45 MVA Transformer #1 and 75 MVA Transformer #2, that feed a total of approximately 15,983 customers from six 34.5 kV distribution circuits.

Approximately 0.7 mile roughly northeast of Cranes Corner Substation, the corridor makes a more northerly turn at which point Line #29 crosses under Line #2104 ("Cranes Crossing") and the lines switch positions as they continue to travel north, with Line #29 on the east side of the corridor and Line #2104 on the west. Also, approximately 0.3 mile north of Cranes Crossing on the west side of the right-of-way is the Dogwood Air Park, an aviation-oriented residential community surrounding a 4000-foot runway, bounded by the transmission corridor to the east and Route 1 to the west.

Cranes Corner to Aquia Harbor

Approximately 2.1 miles further north in the corridor from Cranes Crossing is the future Stafford Technology Park ("STP") data center development which will be developed on both sides of the Line #2104/Line #29 corridor and is discussed further in the Future Projects section.

Continuing north approximately 2.3 miles from the STP development is another data center development, Spartan, which is located on the west side of the Line #2104/Line #29 corridor and was discussed in Section I.B above.

On the east side of the corridor at the Spartan development, 500 kV Line #568 (Ladysmith-Possum) enters the right-of-way on single circuit lattice towers and continues north on the east side of the corridor with Line #2104 on the west side and Line #29 in the middle.

Approximately 2.6 miles north of where Line #568 enters the corridor at the Spartan development, Stafford Substation is tapped from Line #2104, on the west side of the right-of-way. Stafford Substation consists of two 230-34.5 kV distribution transformers, 84 MVA Transformer #1 and 75 MVA Transformer #2, that feed a total of approximately 18,924 customers from six 34.5 kV distribution circuits.

Continuing approximately 0.3 mile north of Stafford Substation to Aquia Harbour Station, Line #568 bypasses Aquia Harbour Station on the east side of the corridor while Line #29 passes through Aquia Harbour Station by utilizing the upper position of the double circuit backbone within the station. Line #2104 terminates in the lower position of the double circuit backbone at Aquia Harbour Station where it drops into a line terminal created by "normally closed" tie-breaker 2104T2119 and "normally open" tie-breaker 252T2104. On the other side of the double circuit backbone at Aquia Harbour Station, Line #252 (Aquia Harbour-Possum Point)

terminates into the double circuit backbone where it drops into a line terminal created by "normally closed" tie-breaker 252T2120 and the previously mentioned "normally open" tie-breaker 252T2104.

Lines #2119 and #2120 are both underground 230 kV lines that loop in-and-out approximately 5.8 miles from Aquia Harbour Station to Garrisonville Substation.

At Garrisonville Substation, Lines #2119 and #2120 terminate in a 230kV four-breaker ring bus that is the source for two 230 kV 50-100 MVAR variable shunt reactors, as well as two 230-34.5 kV distribution transformers, 84 MVA Transformer #1 and 84 MVA Transformer #2, that feed a total of approximately 7,457 customers from four 34.5 kV distribution circuits.

Leaving Aquia Harbour Station to the north, Line #252 and Line #29 share double circuit lattice towers with Line #252 on the west side of the tower and Line #29 on the east side of the tower (but in the middle position within the corridor since Line #568 occupies the eastern side of the right-of-way).

Approximately 3.8 miles north of Aquia Harbour Station is Aquia Substation which is tapped from Line #252 and located within the MCBQ. There is a single 230 kV -34.5 kV, 33.6 MVA distribution transformer that feeds about 3,374 customers from a single 34.5 kV distribution circuit.

Aquia Harbour to Possum Point/MCBQ

Continuing north past Aquia Substation for approximately 1.4 miles, the corridor crosses Route 1 at the North Branch Chopawamsic Creek and enters Prince William County. The three lines (Lines #252, #29, and #568) continue in the corridor together for approximately 1.6 miles, traversing Locust Shade Park, Interstate 95, and the eastern edge of Quantico National Cemetery before Line #252 and Line #29 turn east by crossing under Line #568 between structures 568/38 and 568/39 ("Cemetery Junction").

At Cemetery Junction, Line #568 continues north for approximately 0.8 miles before turning east and continuing for approximately 5.5 miles to the 500 kV switchyard at Possum Point Power Station. Line #252 and Line #29 continue east from Cemetery Junction (crossing back over I-95 and Rt. 1) on shared double circuit lattice towers for approximately 1.8 miles to Fuller Road Substation, with Line #252 on the north side of the tower and Line #29 on the south side of the tower.

At Fuller Road Substation, Line #252 is tapped as the source while Line #29 passes through the substation without touching any structures. There is a single 230 kV - 34.5 kV, 33.6 MVA distribution transformer that feeds about 424 customers from two 34.5 kV distribution circuits.

Approximately 0.2 miles east of Fuller Road Substation, Lines #252 and #29 turn northeast at Structure #252/5568 (#29/1835) ("Quantico Tap") and continue for approximately 2.7 miles to Structure #252/5583 (#29/1850) where they split, with Line #252 continuing approximately 0.5 miles on predominately single circuit, two-pole H-frame structures to the 230 kV switchyard at Possum Point Station, and Line #29 continuing approximately 0.7 miles on predominately single circuit, two-pole H-frame structures to the 115 kV switchyard at Possum Point Station.

At the Quantico Tap, Line #29 continues as a radial for approximately 1.7 miles on single circuit, two-pole wooden H-frame structures to Quantico Substation.

At Quantico Substation, there are two 115 kV-13.2 kV distribution transformers, 22.4 MVA Transformer #1 and 22.4 MVA Transformer #2, that feed approximately 450 customers, including MCBQ, from three 13.2 kV distribution circuits.

Projected Load Growth

Attachment I.C.1 shows the five-year summer and winter historical peaks (coincident with the system peak) for the existing substations in the F2PPC, while Attachment I.C.2 and Attachment I.C.3 show the summer and winter projected loads, respectively.

Projected loads from the 16 additional DP requests discussed in Section 1.A are shown in Attachment I.C.4. The projections from the new DP requests are estimated to drive the F2PPC total direct-connected load to close to 600 MW by 2028 and 3,000 MW by 2032. Additionally, in the corridor south of Fredericksburg Substation, the Company received DP Requests for 13 new substations to serve the growing data center load. The projected new load is estimated to be over 2,600 MW by 2028 and over 4,700 MW by 2032. Further, east of the F2PPC, Dom LSE submitted DP requests for three new substations with projected loads over 100 MW by 2028 and over 500 MW by 2032. These 26 DP requests (ten in the F2PPC, 13 south, three east) represent additional load projections of over approximately 3,000 MW in 2028 and over approximately 7,800 MW in 2032. Due to volume of DP requests, the Company is still working to model the impacts of this unprecedented load growth; however, given the reliability upgrades that have already been identified in the F2PPC, the Company's strategy to maximize the number of lines that can fit into the existing rights-of-way by rebuilding existing single circuit structures with double circuit structures, utilizing current 230 kV standards with a minimum normal summer rating of 1,573 MVA, is prudent utility practice.

Completing the Rebuild Project by rebuilding Lines #29, #252, #2083 and #568, including Lines #29, #252, #2083 on double circuit monopole structures, will enable the Company to maintain reliable service to accommodate the significant load growth anticipated in this area of the Company's transmission system as discussed in Section I.A. In addition, existing Lines #29 and #252 cannot continue to adequately serve the needs of the Company and its customers because of the

aging infrastructure on both lines and overloading issues on Line #252, as discussed in Section I.A.

The Company has created a plan to address its end-of-life facilities, 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 in-service date for the Rebuild Project is January 31, 2029, which reflects the need confirmed by industry guidelines and balanced against the timeline for permitting, construction, and obtaining necessary outages.

Attachment I.C.1 - Historical Summer and Winter Loads in the F2PPC

SUMMER LOADS	Historical MW (Coincident with System Peak)				
Date	7/20/2019	7/20/2020	8/12/2021	8/9/2022	7/28/2023
Quantico TX#1	n/a	7.4	7.2	7.5	6.5
Quantico TX#2	n/a	7.4	7.2	7.5	6.5
Aquia TX#1	28.5	25.6	28.9	24.5	23.5
Cranes Corner TX#1	37.3	19.5	19.6	38.2	37.4
Cranes Corner TX#2	44.4	56.6	56.3	41.7	46.2
Garrisonville TX#1	43.1	48.1	46.6	47.4	44.8
Stafford TX#1	59.0	62.6	59.9	60.9	59.9
Stafford TX#2	46.9	52.6	48.1	48.6	49.2
Fuller Road TX#1	7.3	13.4	11.8	12.6	12.3
TOTAL	**266.5**	**293.2**	**285.6**	**288.9**	**286.3**

WINTER LOADS	Historical MW (Coincident with System Peak)				
Date	1/31/2019	1/21/2020	1/29/2021	1/27/2022	12/24/2022
Quantico TX#1	n/a	4.9	4.4	4.7	7.8
Quantico TX#2	n/a	4.9	4.4	4.7	0.2
Aquia TX#1	26.7	22.5	21.9	23.9	23.4
Cranes Corner TX#1	40.9	16.1	16.2	39.3	43.2
Cranes Corner TX#2	45.0	41.3	43.0	41.6	44.8
Garrisonville TX#1	56.4	44.1	44.1	54.0	56.9
Stafford TX#1	64.3	51.6	50.4	58.8	61.9
Stafford TX#2	57.2	42.1	41.5	50.6	56.4
Fuller Road TX#1	9.0	7.9	7.6	8.1	7.1
TOTAL	**299.5**	**235.4**	**233.5**	**285.7**	**301.7**

Attachment I.C.2 - Projected Summer Loads in the F2PPC

	SUMMER LOADS	Projected MW									
	Year (August)	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033
EXISTING LOADS	Quantico TX#1	6.5	6.5	6.5	6.5	6.5	6.5	6.5	6.5	6.5	6.5
	Quantico TX#2	6.5	6.5	6.5	6.5	6.5	6.5	6.5	6.5	6.5	6.5
	Aquia TX#1	23.5	23.5	23.5	23.5	23.5	23.5	23.5	23.5	23.5	23.5
	Cranes Corner TX#1	37.4	37.4	37.4	37.4	37.4	37.4	37.4	37.4	37.4	37.4
	Cranes Corner TX#2	52.2	47.9	47.9	47.9	47.9	47.9	47.9	47.9	47.9	47.9
	Garrisonville TX#1	44.8	44.8	44.8	44.8	44.8	44.8	44.8	44.8	44.8	44.8
	Stafford TX#1	59.9	59.9	59.9	59.9	59.9	59.9	59.9	59.9	59.9	59.9
	Stafford TX#2	49.2	49.2	49.2	49.2	49.2	49.2	49.2	49.2	49.2	49.2
	Fuller Road TX#1	12.3	12.3	12.3	12.3	12.3	12.3	12.3	12.3	12.3	12.3
PROPOSED LOADS	Spartan	18.1	28.9	71.5	71.5	71.5	71.5	71.5	71.5	71.5	71.5
	Widewater*	0.0	0.0	0.0	0.0	0.0	0.0	0.0	22.0	66.0	121.0
	Centreport	0.0	0.0	0.0	4.0	48.0	136.0	136.0	136.0	136.0	136.0
	Alto	0.0	0.0	0.0	32.0	66.0	213.0	213.0	213.0	213.0	213.0
	Woodcutters	0.0	0.0	0.0	0.0	100.0	250.0	350.0	800.0	1300.0	1300.0
	Baritone	0.0	0.0	0.0	0.0	0.0	32.0	111.0	183.0	183.0	183.0
	Classical*	0.0	0.0	0.0	0.0	0.0	0.0	8.0	60.0	155.0	175.0
	Opera	0.0	0.0	0.0	0.0	0.0	0.0	54.0	170.0	242.0	255.0
	Tenor*	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	6.0	66.0
	Soprano	0.0	0.0	0.0	0.0	18.0	116.0	219.0	255.0	255.0	255.0
	Total EXISTING	292.3	288.0	288.0	288.0	288.0	288.0	288.0	288.0	288.0	288.0
	Total PROPOSED	18.1	28.9	71.5	107.5	303.5	818.5	1162.5	1910.5	2627.5	2775.5
	Total OVERALL	**310.4**	**316.9**	**359.5**	**395.5**	**591.5**	**1106.5**	**1450.5**	**2198.5**	**2915.5**	**3063.5**

* = "Engineering Only" DP Request

Attachment I.C.3 - Projected Winter Loads in the F2PPC

	WINTER LOADS	Projected MW									
	Year (February)	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033
EXISTING LOADS	Quantico TX#1	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
	Quantico TX#2	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
	Aquia TX#1	23.4	23.4	23.4	23.4	23.4	23.4	23.4	23.4	23.4	23.4
	Cranes Corner TX#1	43.2	43.2	43.2	43.2	43.2	43.2	43.2	43.2	43.2	43.2
	Cranes Corner TX#2	44.8	50.8	44.6	44.6	44.6	44.6	44.6	44.6	44.6	44.6
	Garrisonville TX#1	56.9	56.9	56.9	56.9	56.9	56.9	56.9	56.9	56.9	56.9
	Stafford TX#1	61.9	61.9	61.9	61.9	61.9	61.9	61.9	61.9	61.9	61.9
	Stafford TX#2	56.4	56.4	56.4	56.4	56.4	56.4	56.4	56.4	56.4	56.4
	Fuller Road TX#1	7.1	7.1	7.1	7.1	7.1	7.1	7.1	7.1	7.1	7.1
PROPOSED LOADS	Spartan	0.0	18.0	33.7	64.9	64.9	64.9	64.9	64.9	64.9	64.9
	Widewater*	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	22.0	66.0
	Centreport	0.0	0.0	0.0	4.0	48.0	136.0	136.0	136.0	136.0	136.0
	Alto	0.0	0.0	0.0	32.0	66.0	213.0	213.0	213.0	213.0	213.0
	Woodcutters	0.0	0.0	0.0	0.0	100.0	250.0	350.0	800.0	1300.0	1300.0
	Baritone	0.0	0.0	0.0	0.0	0.0	32.0	111.0	183.0	183.0	183.0
	Classical*	0.0	0.0	0.0	0.0	0.0	0.0	8.0	60.0	155.0	175.0
	Opera	0.0	0.0	0.0	0.0	0.0	0.0	54.0	170.0	242.0	255.0
	Tenor*	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	6.0	66.0
	Soprano	0.0	0.0	0.0	0.0	18.0	116.0	219.0	255.0	255.0	255.0
	Total EXISTING	301.7	307.7	301.5	301.5	301.5	301.5	301.5	301.5	301.5	301.5
	Total PROPOSED	0.0	18.0	33.7	100.9	296.9	811.9	1155.9	1881.9	2576.9	2713.9
	Total OVERALL	**301.7**	**325.7**	**335.2**	**402.4**	**598.4**	**1113.4**	**1457.4**	**2183.4**	**2878.4**	**3015.4**

* = "Engineering Only" DP Request

Attachment I.C.4 - Proposed New Loads East and South of the F2PPC

LOADS (East)	Projected MW									
Year	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033
Caboose	0.0	0.0	6.0	30.0	84.0	84.0	84.0	12.0	140.0	180.0
Freight	0.0	0.0	0.0	0.0	2.0	40.0	90.0	120.0	140.0	160.0
Locomotive	0.0	0.0	0.0	0.0	18.0	116.0	219.0	255.0	255.0	255.0
Total PROPOSED	0.0	0.0	6.0	30.0	104.0	240.0	393.0	387.0	535.0	595.0

* = "Engineering Only" DP Request

LOADS (South)	Projected MW									
Year	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033
New Post	0.0	66.0	99.0	237.0	237.0	237.0	237.0	237.0	237.0	237.0
River View	0.0	7.0	47.0	108.0	108.0	108.0	108.0	108.0	108.0	108.0
Caroline County*	0.0	5.0	20.0	50.0	100.0	200.0	300.0	400.0	500.0	600.0
Hunters Ridge	0.0	55.0	171.0	400.0	600.0	600.0	800.0	800.0	800.0	800.0
Belvedere	0.0	0.0	92.0	210.0	285.0	285.0	285.0	285.0	285.0	285.0
Slayden Creek	0.0	0.0	5.0	92.0	210.0	210.0	210.0	210.0	210.0	210.0
Matta	0.0	0.0	33.0	83.0	149.0	210.0	281.0	352.0	462.0	572.0
Hickory Ridge*	0.0	0.0	146.0	146.0	290.0	290.0	290.0	290.0	290.0	290.0
Ruther Glen	0.0	0.0	170.0	170.0	338.0	338.0	338.0	548.0	548.0	548.0
Carmel Church	0.0	0.0	18.0	80.0	125.0	187.0	299.0	299.0	299.0	299.0
Falling Creek	0.0	0.0	0.0	0.0	5.0	92.0	210.0	210.0	210.0	210.0
Tidewater	0.0	0.0	0.0	0.0	0.0	92.0	210.0	285.0	285.0	285.0
Kettler Crossroads*	0.0	0.0	0.0	81.0	189.0	297.0	400.0	450.0	500.0	550.0
Total PROPOSED	0.0	133.0	801.0	1657.0	2636.0	3146.0	3968.0	4474.0	4734.0	4994.0

* = "Engineering Only" DP Request

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.

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: Feasible Project Alternatives

The Company did not identify alternatives to PJM for the Rebuild Project because there is no alternative that can satisfy the Rebuild Project's three primary drivers, which are to: (a) maintain the structural integrity and reliability of the networked transmission system; (b) resolve identified violations of the mandatory NERC Reliability Standards; and (c) provide for future load growth in the area.[13]

Analysis of Demand-Side Resources

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 an analysis of demand-side resources ("DSM") as 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, PJM and the Company have identified a need for the proposed Rebuild Project based on the need to maintain the overall long-term reliability of its transmission system and to comply with mandatory NERC Reliability Standards.[14] Notwithstanding, when performing an analysis based on PJM's 50/50 load forecast, there is no adjustment in load for DR programs 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 has been bid previously into PJM's capacity 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 eliminate the need for the Rebuild Project. As reflected in Attachments I.C.1–I.C.3, the highest annual projected peak load over the next 10 years in the F2PPC is projected to total approximately 3,000 MW (including future planned stations). By way of comparison, statewide, the Company achieved demand savings of 276.5 MW (net) / 350.0 MW (gross) from its DSM programs in 2023.

[13] See Section I.A.

[14] 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 approximately 0.6 mile segment of Line #29 from Structure #252/5583 (#29/1850) to the Possum Point Station 115 kV switchyard will be removed when Line #29 is converted to 230 kV operation.

Between Aquia Harbour Station and Possum Point Station, a total of 65 double circuit lattice steel tower structures will be removed from Lines #29 and Line #252. These lines are currently supported on and share the same double circuit latticed steel tower structures. Additionally, one single circuit 3-pole guyed wood structure, four single circuit H-frame wood structures, and two single circuit latticed steel frame structures will be removed from Line #29 only. Furthermore, two single circuit 3-pole guyed wood structures and three single circuit H-frame wood structures will be removed from Line #252 only.

The Company will replace these structures with 101 230 kV tubular pole structures consisting of 74 double circuit V-String suspension structures and 24 double circuit double dead-end ("DDE") structures, three single circuit pole DDE structures, all constructed of weathering steel. Furthermore, the Company is also adding a total of 101 230 kV tubular pole structures parallel to the rebuilt Line #29 and Line #252 in the same corridor to add two future circuits. These structures are comprised of 26 double circuit DDE structures and 75 double circuit V-String suspension structures.

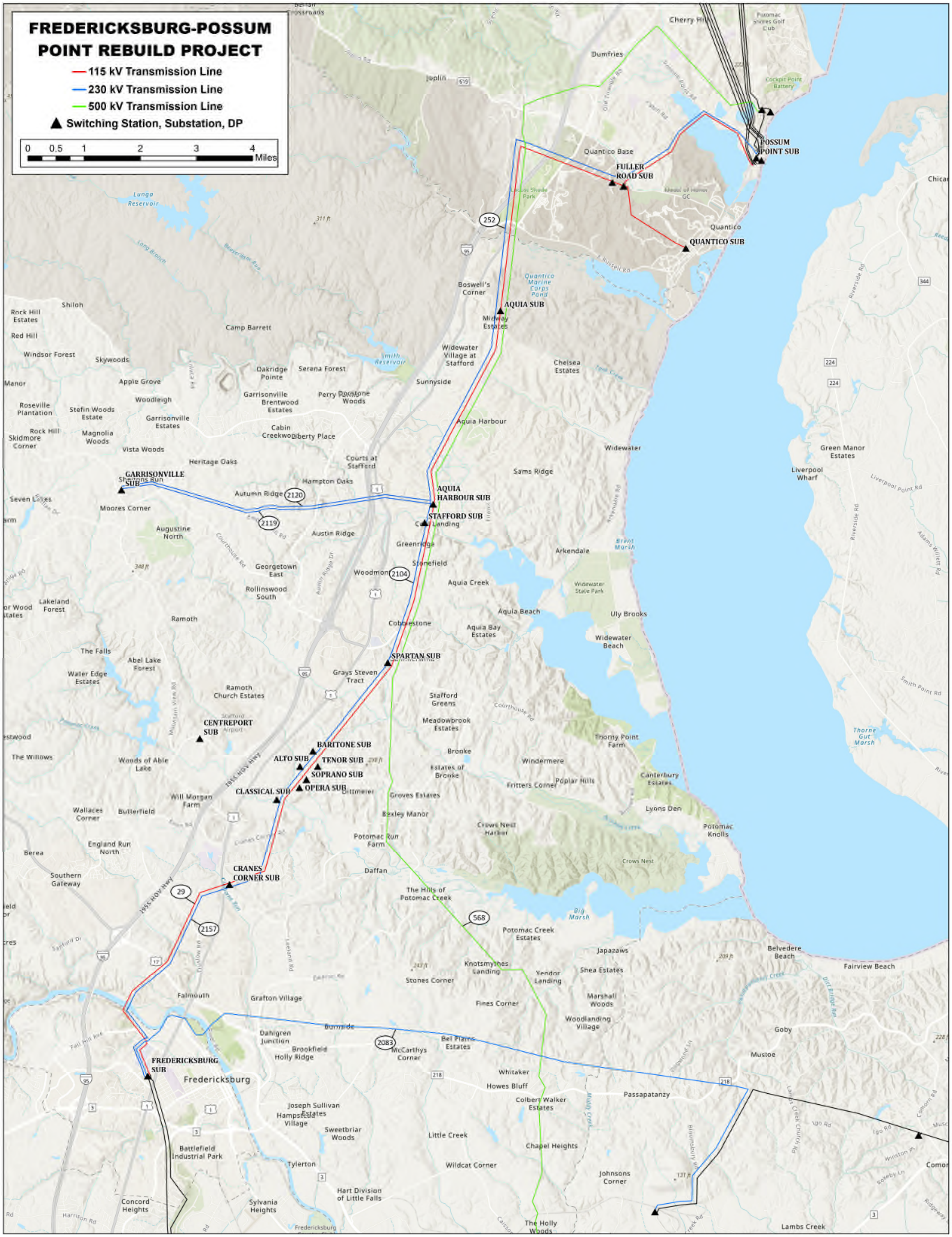
Between Aquia Harbour Station and Cemetery Junction, 39 single circuit 500 kV steel lattice towers will be removed from Line #568. The Company will replace these structures with 40 500 kV single circuit steel pole structures, comprised of ten single circuit DDE structures and 30 single circuit V-String suspension structures.

The new construction will optimize the number of lines that can fit in the right-of-way to serve the significant load growth anticipated in the area.

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.


FREDERICKSBURG-POSSUM POINT REBUILD PROJECT
115 kV Transmission Line
230 kV Transmission Line
500 kV Transmission Line
Switching Station, Substation, DP
0 0.5 1 2 3 4 Miles
POSSUM POINT SUB
FULLER ROAD SUB
QUANTICO SUB
AQUIA SUB
GARRISONVILLE SUB
AQUIA HARBOUR SUB
STAFFORD SUB
SPARTAN SUB
CENTREPORT SUB
BARITONE SUB
ALTO SUB
TENOR SUB
SOPRANO SUB
OPERA SUB
CLASSICAL SUB
CRANES CORNER SUB
FREDERICKSBURG SUB
Fredericksburg
Dumfries
Quantico Base
Quantico
Joplin
Cherry Hill
Cockpit Point Battery
Lunga Reservoir
Smith Reservoir
Quantico Marine Corps Pond
Boswell's Corner
Midway Estates
Widewater Village at Stafford
Sunnyside
Aquia Harbour
Chelsea Estates
Widewater
Sams Ridge
Arkendale
Aquia Creek
Aquia Beach
Aquia Bay Estates
Widewater Beach
Uly Brooks
Widewater State Park
Brent Marsh
Camp Barrett
Shiloh
Rock Hill Estates
Red Hill
Windsor Forest
Skywoods
Apple Grove
Woodleigh
Roseville Plantation
Stefin Woods Estate
Garrisonville Estates
Rock Hill
Skidmore Corner
Magnolia Woods
Vista Woods
Heritage Oaks
Oakridge Pointe
Serena Forest
Garrisonville Brentwood Estates
Cabin Creekwood
Liberty Place
Courts at Stafford
Hampton Oaks
Autumn Ridge
Moores Corner
Seven Lakes
Augustine North
Austin Ridge
Greenridge
Stonefield
Woodmont
Georgetown East
Rollinswood South
Lakeland Forest
Ramoth
Cobblestone
The Falls
Abel Lake Forest
Water Edge Estates
Ramoth Church Estates
Grays Steven Tract
Stafford Greens
Meadowbrook Estates
Brooke
Estates of Brooke
Windermere
Thorny Point Farm
Fritters Corner
Poplar Hills
Canterbury Estates
Lyons Den
Potomac Knolls
Crows Nest Harbor
Crows Nest
Big Marsh
The Willows
Woods of Able Lake
Will Morgan Farm
Wallaces Corner
Butterfield
England Run North
Berea
Southern Gateway
Groves Estates
Bexley Manor
Potomac Run Farm
Daffan
The Hills of Potomac Creek
Potomac Creek Estates
Japazaws
Belvedere Beach
Fairview Beach
Knotsmythes Landing
Yendor Landing
Shea Estates
Stones Corner
Fines Corner
Marshall Woods
Woodlanding Village
Falmouth
Grafton Village
Burnside
Dahlgren Junction
Brookfield
Holly Ridge
McCarthys Corner
Bel Plains Estates
Goby
Mustoe
Whitaker
Howes Bluff
Passapatanzy
Colbert Walker Estates
Chapel Heights
Little Creek
Wildcat Corner
Johnsons Corner
Joseph Sullivan Estates
Hampstead Village
Sweetbriar Woods
Battlefield Industrial Park
Tylerton
Hart Division of Little Falls
Concord Heights
Sylvania Heights
The Holly Woods
Lambs Creek
Green Manor Estates
Liverpool Wharf
Thorne Gut Marsh
252
2120
2119
2104
29
2157
568
2083
218

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 target date for the Rebuild Project is January 31, 2029. The Company estimates it will take approximately 46 months after a final order from the Commission for detailed engineering, materials procurement, permitting, real estate, and construction of the Rebuild Project. Accordingly, to support this estimated construction timeline and construction plan, the Company respectfully requests a final order by February 28, 2025. Should the Commission issue a final order by February 28, 2025, the Company estimates that construction should begin in March 2026 with the Rebuild Project to be completed by the in-service target date of January 31, 2029. This schedule is contingent upon obtaining the necessary permits and careful coordination of outages, the latter of which may be particularly challenging due to the amount of new load growth, rebuilds, and new builds scheduled to occur in this load area. Dates may need to be adjusted based on permitting delays or design modifications to comply with additional agency requirements identified during the permitting application process, as well as the ability to schedule outages, and unpredictable delays due labor shortages or materials/supply issues. Based on the Rebuild Project's complexity, there may be delays with procurement of materials.

Any adjustments to the Rebuild Project schedule resulting from these or similar challenges could necessitate a minimum of a six- to twelve-month delay in the targeted in-service date. Accordingly, for purposes of judicial economy, the Company requests that the Commission issue a final order approving both a desired in-service target date (*i.e.*, January 31, 2029) and an authorization sunset date (*i.e.*, January 31, 2030) for energization of the Project.

In addition, the Company is actively monitoring regulatory changes and requirements associated with the Northern Long Eared Bat ("NLEB") and how it could potentially impact construction timing associated with time of year restrictions ("TOYRs"). The U.S. Fish and Wildlife Service ("USFWS") previously indicated that it planned to issue final NLEB guidance to replace the interim guidance by April 1, 2024; however, the interim guidance has been extended by USFWS until late summer 2024. In the meantime, the USFWS issued several draft guidance documents for public review and comment. The Company actively is tracking updates from the USFWS with respect to the final guidance. Once issued, the Company plans to review and follow the final guidance to the extent it applies to the Company's projects. Until the final guidance is issued, the Company will continue following the interim guidance. For projects that may require additional coordination, the Company will coordinate with the USFWS.

The Company is also continuing to track potential regulatory changes associated with the potential up-listing of the Tricolored bat ("TCB"). On September 14, 2022, the USFWS published the proposed rule to the Federal Register to list the

TCB as endangered under the Endangered Species Act ("ESA"). On April 1, 2024, the USFWS issued draft guidance for the NLEB and TCB for public review and comment. The USFWS also recently extended its Final Rule issuance target from September 2023 to September 2024. The Company is actively tracking this ruling and evaluating the effects of potential outcomes on Company projects' permitting, construction, and in-service dates, including electric transmission projects.

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 $205.5 million (in 2024 dollars).[15]

For the reasons discussed in Section I.A, the Company rejected the option to rebuild without the proposed double circuit structures on Lines #29, #252, and #2083.

[15] The cost of the work associated with the work at the Fredericksburg, Cranes Corner, Fuller Road, Ladysmith, and Aquia Substations and Aquia Harbour and Possum Point Stations is approximately $96.8 million (in 2024 dollars). The Company considers this work and the associated costs separate from the Rebuild Project.

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 proposed need for the EOL rebuild of Lines #29 and #252 between Aquia Harbour Station and Possum Point Station was first presented to the PJM stakeholders at the TEAC Meeting on August 10, 2021. The proposed solution for the rebuild of these lines was presented at the October 5, 2021, TEAC Meeting. Attachments I.A.3 and I.A.4 contain the Need and Solution slides, respectively, which were presented at the TEAC Meetings. Subsequently, PJM assigned supplemental identification number "s2705" to the rebuild of Lines #29 and #252 between Aquia Harbour and Possum Point. Coupled with baseline upgrade project "b2981" (which proposes to rebuild Line #29 from Fredericksburg to Aquia Harbour and was approved by the PJM Board at its February 13, 2018, meeting as an EOL project (proposed in Company filing PUR-2024-00035)), Line #29 will be rebuilt to 230kV standards for the entirety between Fredericksburg Substation and Possum Point Station.

Additionally, to resolve a potential 300 MW load-loss violation of mandatory NERC reliability standards, the conversion of Line #29 to 230kV operation was approved by the PJM Board at its February 16, 2022, TEAC Meeting as a baseline upgrade, and assigned the identification number "b3694." Attachments I.A.5, I.A.6, and I.A.7 contain the slides presented by PJM (first pass and second pass) and the Board Approval, respectively.

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

I. NECESSITY FOR THE PROPOSED PROJECT

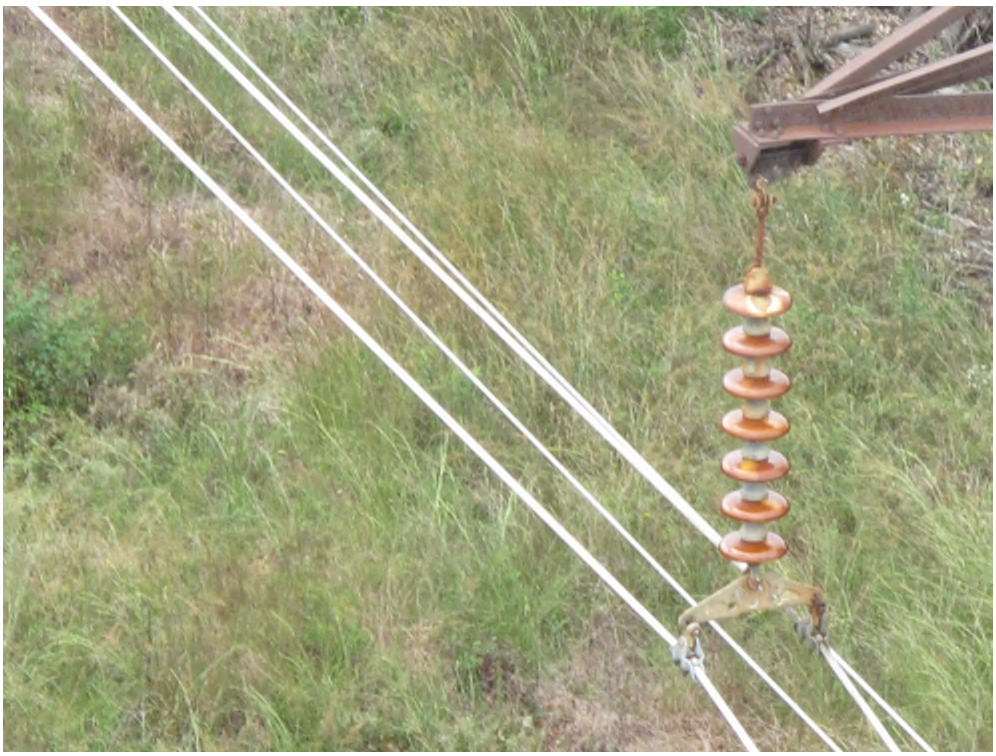
K. If the need for the proposed project is due in part to reliability issues and the proposed project is a rebuild of an existing transmission line(s), provide five years of outage history for the line(s), including for each outage the cause, duration and number of customers affected. Include a summary 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.

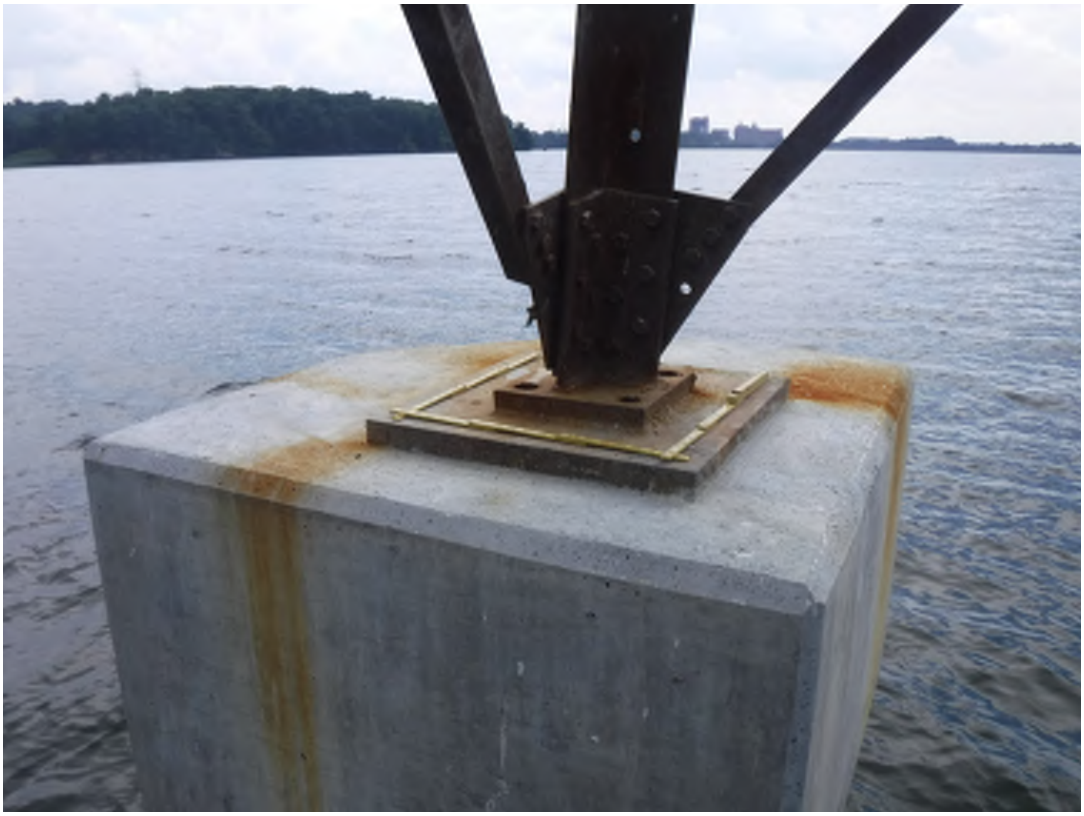
Response: Not applicable. The need for the Rebuild Project is not driven by outage history, but rather by the need to maintain reliable service for the load growth anticipated in the area, to replace transmission infrastructure nearing end of life, and to address projected overloading issues. See Sections I.A and I.C.

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 photographs of the deterioration of structures on Lines #29 and #252. Section I.A provides further detail on the condition of these deteriorating structures. See Attachment I.L.2 for sample inspection records of Lines #29 and #252.





Line 29 and 252

Line 29 and 252

Line 29 and 252

OUTSTANDING NOTIFICATIONS -LINE 29 & 252

NOTIFICATION	LINE/STR	CAUSE GROUP	CAUSE CODE	CAUSE TEXT	NOTIF. DATE	REPORTED BY
-	252/5519, 29/1786	Insulator Conductor	Wire Position L,M,R,T,B	M	10/26/2020	TIM0032
-	252/5519, 29/1786	Insulator Conductor	Broken- L=Leave, R=Replace	L	10/26/2020	
-	252/5519, 29/1786	Insulator Conductor	Cond Insulator- Other=	Chipped bell	10/26/2020	
-	252/5519, 29/1786	Insulator Conductor	(H) Hot End / (C) Cold End	C	10/26/2020	
-	252/5538, 29/1805	Insulator Conductor	Wire Position L,M,R,T,B	B	10/28/2020	TIM0032
-	252/5538, 29/1805	Insulator Conductor	Broken- L=Leave, R=Replace	L	10/28/2020	
-	252/5538, 29/1805	Insulator Conductor	Cond Insulator- Other=	Chipped bell	10/28/2020	TIM0032
-	252/5538, 29/1805	Insulator Conductor	(H) Hot End / (C) Cold End	C	10/28/2020	
-	252/5556	Foundation	Foundation Other=	24 Fiberglass breakers need replaced	3/30/2017	JEREMY3
-	252/5556	Foundation	Foundation Other=	need 12 ladders	3/30/2017	
-	252/5556	Guy	Guy Other=	Fuzzy breakers	10/28/2020	TIM0032
-	252/5573, 29/1840	Insulator Conductor	Wire Position L,M,R,T,B	T #5, M #7, B #4	4/10/2017	TIM0032
-	252/5573, 29/1840	Insulator Conductor	(H) Hot End / (C) Cold End	C, #, #7	4/10/2017	
-	252/5573, 29/1840	Insulator Conductor	Broken- L=Leave, R=Replace	Replace #5, #7, #4	4/10/2017	
-	252/5573, 29/1840	Insulator Conductor	(H) Hot End / (C) Cold End	H, #4	4/10/2017	
-	252/5573, 29/1840	Insulator Conductor	Wire Position L,M,R,T,B	B,M	4/10/2017	
-	252/5573, 29/1840	Insulator Conductor	Broken- L=Leave, R=Replace	L	4/10/2017	
-	252/5573, 29/1840	Insulator Conductor	(H) Hot End / (C) Cold End	H/C	4/10/2017	
-	252/5574, 29/1841	Insulator Conductor	Wire Position L,M,R,T,B	Bottom phase/left sub	10/20/2020	TIM0032
-	252/5574, 29/1841	Insulator Conductor	Cond Insulator- Other=	Chipped	10/20/2020	
-	252/5574, 29/1841	Insulator Conductor	(H) Hot End / (C) Cold End	H	10/20/2020	
-	252/5579, 29/1846	Conductor	Damper(s)-L=Loose, M=Missing	M	8/11/2020	BRAND58

COMPLETED NOTIFICATIONS -LINE 29 & 252

NOTIFICATION	LINE/STR	CAUSE GROUP	CAUSE CODE	CAUSE TEXT	NOTIF. DATE	REPORTED BY
-	252/5519, 29/1786	Conductor	Wire Position L,M,R,T,B	T, R	3/29/2017	TIM0032
-	252/5519, 29/1786	Conductor	Cotter Key-BO=Backed Out, M=Mi	BO @ shoe and plate	3/29/2017	TIM0032
-	252/5521, 29/1788	Equipment Needed for Repair	ATV		1/31/2007	GARY040
-	252/5521, 29/1788	Equipment Needed for Repair	Power Wagon		1/31/2007	GARY040
-	252/5521, 29/1788	Work found during a routine PM	Work as a result of a PM Order	66667448	1/31/2007	GARY040
-	252/5521, 29/1788	Structure - Base Shoe	Base Shoe -Needs Anti-Corrosive Treatmnt	Needs A120	1/31/2007	GARY040
-	252/5522, 29/1789	Grounds	Grounds - Broken		1/31/2001	
-	252/5522, 29/1789	Structure	DO NOT USE -17-Packout- >3/4"- Location=	DAMAGED	7/5/2012	
-	252/5522, 29/1789	Structure	Str could not be inspected at this time	Structure-Str could not be inspected at	8/1/2023	JARED29
-	252/5522, 29/1789			couldn't climb active birds nest	8/1/2023	JARED29
-	252/5523, 29/1790	Structure	Environmental-Nest=	birds nest	9/2/2020	HEOAIR
-	252/5523, 29/1790	Structure	Str could not be inspected at this time	Structure-Str could not be inspected at	8/1/2023	JARED29
-	252/5523, 29/1790			couldn't climb active birds nest	8/1/2023	JARED29
-	252/5524, 29/1791	Work found during a routine PM	Work as a result of a PM Order	66798558	2/4/2008	RUSSEL8
-	252/5524, 29/1791	Insulators - Static Insulators	Static Insulators - Broken	See text	2/4/2008	RUSSEL8
-	252/5524, 29/1791	Structure	Ground Wire-M=Missing,C=Cut	C	10/26/2020	TIM0032
-	252/5525, 29/1792	Work found during a routine PM	Work as a result of a PM Order	66667448	1/31/2007	RUSSEL8
-	252/5525, 29/1792	Structure - Base Shoe	Base Shoe -Needs Anti-Corrosive Treatmnt	Access Aquia Harbour	1/31/2007	RUSSEL8
-	252/5526, 29/1793	Work found during a routine PM	Work as a result of a PM Order	66667448	1/31/2007	RUSSEL8
-	252/5526, 29/1793	Structure - Base Shoe	Base Shoe -Needs Anti-Corrosive Treatmnt	Access Aquia Harbour	1/31/2007	RUSSEL8
-	252/5527, 29/1794	Structure - Steel	Steel - Missing/Failed Bolt(s)		1/31/2001	
-	252/5527, 29/1794	Work found during a routine PM	Work as a result of a PM Order	66667448	1/31/2007	RUSSEL8
-	252/5527, 29/1794	Structure - Base Shoe	Base Shoe -Needs Anti-Corrosive Treatmnt	Access Aquia Harbour	1/31/2007	RUSSEL8
-	252/5527, 29/1794	Miscellaneous	Miscellaneous - Other	Graffiti; Ref IMG0451	1/30/2009	CBH
-	252/5528, 29/1795	Work found during a routine PM	Work as a result of a PM Order	66798558	2/4/2008	RUSSEL8
-	252/5528, 29/1795	Grounds	Grounds - Broken	Repair 1 4' solid ground	2/4/2008	RUSSEL8
-	252/5528, 29/1795	Structure	Cotter Key-BO=Backed Out, M=Missing	Backed out key middle phase yoke play on	3/13/2023	JEREMY3
-	252/5529, 29/1796	Structure - Numbers	Numbers - Missing		6/26/2004	
-	252/5529, 29/1796	Work found during a routine PM	Work as a result of a PM Order	66667448	1/31/2007	RUSSEL8
-	252/5529, 29/1796	Structure - Numbers	Numbers - Missing	Access Aquia Harbour	1/31/2007	RUSSEL8
-	252/5530, 29/1797	Structure - Numbers	Numbers - Missing		6/30/2004	
-	252/5530, 29/1797	Structure	Ground Wire-M=Missing,C=Cut	C	10/26/2020	TIM0032
-	252/5531, 29/1798	Miscellaneous	Need Anti Climb Sign		2/21/2000	
-	252/5531, 29/1798	Insulator Conductor	Cotter Key-BO=Backed Out, M=Mi	BO	2/28/2017	
-	252/5531, 29/1798	Insulator Conductor	(H) Hot End / (C) Cold End	H	2/28/2017	
-	252/5532, 29/1799	Grounds	Grounds - Broken		2/21/2000	
-	252/5532, 29/1799	Grounds	Grounds - Broken		1/31/2001	
-	252/5532, 29/1799	Work found during a routine PM	Work as a result of a PM Order	66798558	2/4/2008	RUSSEL8
-	252/5532, 29/1799	Grounds	Grounds - Broken	See text	2/4/2008	RUSSEL8
-	252/5533, 29/1800	Grounds	Grounds - Broken		2/21/2000	
-	252/5533, 29/1800	Grounds	Grounds - Broken		1/31/2001	
-	252/5533, 29/1800	Structure	Leg Number= 1,2,3,or4	F, A	6/3/2010	MASTEC
-	252/5533, 29/1800	Structure - Base Shoe	Base Shoe - Corroded-Thin / Necking		6/3/2010	MASTEC
-	252/5534, 29/1801	Miscellaneous	Need Anti Climb Sign		2/21/2000	
-	252/5534, 29/1801	Structure - Steel	Steel - Excess Packout	Halfway up tower	6/3/2010	MASTEC
-	252/5534, 29/1801			Completed 10.16.15 per K. Geis	6/3/2010	MASTEC
-	252/5534, 29/1801	Structure - Base Shoe	Base Shoe - Corroded-Thin / Necking		6/3/2010	MASTEC
-	252/5534, 29/1801	Structure	Leg Number= 1,2,3,or4	F	6/3/2010	MASTEC
-	252/5535, 29/1802	Miscellaneous	Need Anti Climb Sign		2/21/2000	
-	252/5535, 29/1802	Structure - Base Shoe	Base Shoe - Corroded-Thin / Necking		6/3/2010	MASTEC
-	252/5535, 29/1802	Structure - Steel	Steel - Missing/Failed Bolt(s)		6/3/2010	MASTEC
-	252/5535, 29/1802	Structure	Leg Number= 1,2,3,or4	M	6/3/2010	MASTEC
-	252/5535, 29/1802	Grounds	Grounds - Broken		6/3/2010	MASTEC
-	252/5536, 29/1803	Miscellaneous	Need Anti Climb Sign		2/21/2000	
-	252/5536, 29/1803	Structure - Base Shoe	Base Shoe - Corroded-Thin / Necking		6/3/2010	MASTEC
-	252/5536, 29/1803	Braces - Knee Brace	Knee Brace Bolt Failure		6/3/2010	MASTEC
-	252/5536, 29/1803	Braces - Knee Brace	Defective Knee Brace	Bent Brace on bottom	6/3/2010	MASTEC
-	252/5537, 29/1804	Structure - Base Shoe	Base Shoe -Needs Anti-Corrosive Treatmnt		1/31/2001	
-	252/5537, 29/1804	Work found during a routine PM	Work as a result of a PM Order	66667448	2/5/2007	RUSSEL8
-	252/5537, 29/1804	Equipment Needed for Repair	ATV	Rt 611 - Rd Xing	2/5/2007	RUSSEL8
-	252/5537, 29/1804	Structure - Base Shoe	Base Shoe -Needs Anti-Corrosive Treatmnt	A120	2/5/2007	RUSSEL8
-	252/5537, 29/1804	Work found during a routine PM	Work as a result of a PM Order	66667448	2/5/2007	RUSSEL8
-	252/5537, 29/1804	Equipment Needed for Repair	ATV	Rt 611 - Rd Xing	2/5/2007	RUSSEL8
-	252/5537, 29/1804	Grounds	Grounds - Broken		2/5/2007	RUSSEL8
-	252/5538, 29/1805	Work found during a routine PM	Work as a result of a PM Order	66667448	2/5/2007	RUSSEL8
-	252/5538, 29/1805	Equipment Needed for Repair	ATV	Rt 611	2/5/2007	RUSSEL8
-	252/5538, 29/1805	Structure - Numbers	Numbers - Faded	Install new #s on both sides - see TEXT	2/5/2007	RUSSEL8
-	252/5538, 29/1805	Structure	Ground Wire-M=Missing,C=Cut	Broken	2/8/2023	JARED29
-	252/5540, 29/1807	Structure - Numbers	Aerial Number Faded		6/30/2004	
-	252/5541, 29/1808	Structure - Steel	Steel - Excess Packout		5/7/2010	MASTEC
-	252/5541, 29/1808			Completed 11.17.15 per K. Geis	5/7/2010	MASTEC
-	252/5541, 29/1808	Structure	Leg Number= 1,2,3,or4	F	5/7/2010	MASTEC
-	252/5541, 29/1808	Static Wire	Clevis Twisted		5/7/2010	MASTEC
-	252/5541, 29/1808	Insulator Conductor	Cotter Key-BO=Backed Out, M=Mi	M	5/7/2010	MASTEC
-	252/5541, 29/1808	Hardware	Hardware - Cotter Key Backed Out		5/7/2010	MASTEC
-	252/5541, 29/1808	Hardware	Hardware - Cotter Key Missing		5/7/2010	MASTEC
-	252/5542, 29/1809	Work found during a routine PM	Work as a result of a PM Order	66667448	2/5/2007	RUSSEL8
-	252/5542, 29/1809	Equipment Needed for Repair	ATV	Rt 660	2/5/2007	RUSSEL8
-	252/5542, 29/1809	Structure - Base Shoe	Base Shoe -Needs Anti-Corrosive Treatmnt	A120	2/5/2007	RUSSEL8
-	252/5542, 29/1809	Structure - Bolts on Shelf Gain	Bolts on Shelf Gain - Bent		5/7/2010	MASTEC
-	252/5542, 29/1809	Grounds	Grounds - Broken	All legs	5/7/2010	MASTEC
-	252/5542, 29/1809	Structure	Ground Wire-M=Missing,C=Cut	C	10/28/2020	TIM0032
-	252/5543, 29/1810	Grounds	Grounds - Broken		2/21/2000	
-	252/5543, 29/1810	Grounds	Grounds - Broken	see Comments	1/31/2001	
-	252/5543, 29/1810	Structure - Foundation	Foundation - Cut Vines / Underbrush	Vines	7/26/2006	CBH
-	252/5543, 29/1810	Structure - Numbers	Numbers - Missing		2/5/2007	RUSSEL8
-	252/5543, 29/1810	Work found during a routine PM	Work as a result of a PM Order	66667448	2/5/2007	RUSSEL8
-	252/5543, 29/1810	Work found during a routine PM	Work as a result of a PM Order	66667448	2/5/2007	RUSSEL8
-	252/5543, 29/1810	Structure - Base Shoe	Base Shoe -Needs Anti-Corrosive Treatmnt		2/5/2007	RUSSEL8
-	252/5543, 29/1810	Work found during a routine PM	Work as a result of a PM Order	66667448	2/5/2007	RUSSEL8
-	252/5543, 29/1810	Grounds	Grounds - Broken		2/5/2007	RUSSEL8
-	252/5543, 29/1810	Structure - Steel	Steel - Excess Packout		5/7/2010	MASTEC
-	252/5543, 29/1810			Completed 10.16.15 per K. Geis	5/7/2010	MASTEC
-	252/5543, 29/1810	Structure	Brace Other=	Bird Droppings	5/7/2010	MASTEC
-	252/5544, 29/1811	Miscellaneous	Need Anti Climb Sign		2/21/2000	
-	252/5544, 29/1811	Work found during a routine PM	Work as a result of a PM Order	66667448	2/5/2007	RUSSEL8
-	252/5544, 29/1811	Equipment Needed for Repair	ATV	Rt 660 - Rd Xing	2/5/2007	RUSSEL8
-	252/5544, 29/1811	Structure - Base Shoe	Base Shoe -Needs Anti-Corrosive Treatmnt	A120	2/5/2007	RUSSEL8
-	252/5544, 29/1811	Structure - Steel	Steel - Excess Packout		5/7/2010	MASTEC
-	252/5544, 29/1811			Completed 9.28.15 per K Geis	5/7/2010	MASTEC
-	252/5544, 29/1811	Structure	Leg Number= 1,2,3,or4	F	5/7/2010	MASTEC
-	252/5544, 29/1811	Structure	Structure Other=	Piece of broken steel	9/18/2018	
-	252/5544, 29/1811	Structure	Member- C=Cracked,S=Split,CH=Chipped	Structure-Member- C=Cracked,S=Split,CH=C	10/28/2020	TIM0032
-	252/5544, 29/1811	Structure	Ground Wire-M=Missing,C=Cut	C	10/28/2020	TIM0032
-	252/5545, 29/1812	Structure - Numbers	Aerial Number Faded		6/30/2004	
-	252/5545, 29/1812	Work found during a routine PM	Work as a result of a PM Order	66667448	2/5/2007	RUSSEL8
-	252/5545, 29/1812	Structure - Base Shoe	Base Shoe -Needs Anti-Corrosive Treatmnt	"See Text"	2/5/2007	RUSSEL8
-	252/5545, 29/1812	Equipment Needed for Repair	ATV		2/5/2007	RUSSEL8
-	252/5545, 29/1812	Structure	Missing Alum-Location=		12/13/2012	
-	252/5547, 29/1814	Grounds	Grounds - Broken		2/21/2000	
-	252/5547, 29/1814	Grounds	Grounds - Broken	see Comments	1/30/2001	
-	252/5547, 29/1814	Work found during a routine PM	Work as a result of a PM Order	66667448	2/5/2007	RUSSEL8
-	252/5547, 29/1814	Equipment Needed for Repair	ATV	Access Rt. 1	2/5/2007	RUSSEL8
-	252/5547, 29/1814	Structure - Base Shoe	Base Shoe -Needs Anti-Corrosive Treatmnt	A120	2/5/2007	RUSSEL8
-	252/5547, 29/1814	Work found during a routine PM	Work as a result of a PM Order	66667448	2/5/2007	RUSSEL8
-	252/5547, 29/1814	Equipment Needed for Repair	ATV	Access Rt. 1	2/5/2007	RUSSEL8
-	252/5547, 29/1814	Grounds	Grounds - Broken	2 broken	2/5/2007	RUSSEL8
-	252/5547, 29/1814	Static Wire / Warning Spheres	Static Wire - Warning Sphere Defective	Has fallen on ground; REF IMG0452	1/30/2009	CBH
-	252/5547, 29/1814	Insulator Conductor	Pins- BO=Backed Out, D=Damaged	BO	2/28/2017	
-	252/5547, 29/1814	Insulator Conductor	(H) Hot End / (C) Cold End	H	2/28/2017	
-	252/5547, 29/1814	Structure	Ground Wire-M=Missing,C=Cut	Broken	2/8/2023	JARED29
-	252/5549, 29/1816	Insulator Conductor	Cotter Key-BO=Backed Out, M=Mi	BO at yoke plate	8/11/2011	CBH
-	252/5550, 29/1817	Structure - Base Shoe	Base Shoe -Needs Anti-Corrosive Treatmnt		2/21/2000	
-	252/5550, 29/1817	Structure - Base Shoe	Base Shoe -Needs Anti-Corrosive Treatmnt	see Comments	1/30/2001	
-	252/5550, 29/1817	Work found during a routine PM	Work as a result of a PM Order	66667448	2/5/2007	RUSSEL8
-	252/5550, 29/1817	Equipment Needed for Repair	ATV	Access Russell Rd - QMB	2/5/2007	RUSSEL8
-	252/5550, 29/1817	Structure - Base Shoe	Base Shoe -Needs Anti-Corrosive Treatmnt	shovel silt off 1 footer & apply A120	2/5/2007	RUSSEL8
-	252/5550, 29/1817	Structure	Bolt-B=Broke,NM=Nut Miss,BM=Bolt Miss	Missing	2/8/2023	JARED29
-	252/5550, 29/1817	Structure	Brace Other=	Steel needs bolt	2/8/2023	JARED29
-	252/5552, 29/1819	Conductor	Cotter Key-BO=Backed Out, M=Mi	Bo @ yoke plate	3/30/2017	JEREMY3
-	252/5552, 29/1819	Conductor	Wire Position L,M,R,T,B	B	3/30/2017	JEREMY3
-	252/5553, 29/1820	Structure	Warning Light(s)	A	10/9/2012	
-	252/5553, 29/1820	Structure	Ground Wire-M=Missing,C=Cut	Broken	2/8/2023	JARED29
-	252/5554, 29/1821	Grounds	Grounds - Broken		2/22/2000	
-	252/5554, 29/1821	Guys	Guys - Needs Guard		1/29/2001	

-	252/5554, 29/1821	Structure - Wood or Concrete	Structure - Major Woodpecker Hole / Hole		1/29/2001	RACHEO6
-	252/5554, 29/1821	Conductor	Wire Position L,M,R,T,B	M, outside shoe	3/30/2017	JEREMY3
-	252/5554, 29/1821	Conductor	Cotter Key-BO=Backed Out, M=Mi	BO	3/30/2017	JEREMY3
-	252/5554, 29/1821	Conductor	Cotter Key-BO=Backed Out, M=Mi	Bo @ yoke plate	3/30/2017	JEREMY3
-	252/5554, 29/1821	Conductor	Wire Position L,M,R,T,B	B	3/30/2017	JEREMY3
-	252/5555, 29/1822	Work found during a routine PM	Work as a result of a PM Order	66667749	2/5/2007	RUSSEL8
-	252/5555, 29/1822	Equipment Needed for Repair	ATV	Quantico Cemetary	2/5/2007	RUSSEL8
-	252/5555, 29/1822	Structure - Base Shoe	Base Shoe -Needs Anti-Corrosive Treatmnt	A120	2/5/2007	RUSSEL8
-	252/5556	Guys	Guys - Damaged Fiber Glass Breaker		4/15/1999	
-	252/5556	Work found during a routine PM	Work as a result of a PM Order	66667749	2/5/2007	RUSSEL8
-	252/5556	Guys	Guys - Damaged Fiber Glass Breaker		2/5/2007	RUSSEL8
-	252/5556	Guys	Guys - Needs Guard	see TEXT	2/5/2007	RUSSEL8
-	252/5556	Guys	Guy Buried		2/5/2007	RUSSEL8
-	252/5556	Pole Position	2nd Pole From Left	dig out 1 middle pole	2/5/2007	RUSSEL8
-	252/5556	Guys	Guys - Other	key backed out	11/17/2020	MELI055
-	252/5558, 29/1825	Structure - Steel	Steel - Missing/Failed Bolt(s)		2/22/2000	
-	252/5558, 29/1825	Structure - Steel	Steel - Missing/Failed Bolt(s)	see Comments	1/29/2001	
-	252/5558, 29/1825	Insulator Conductor	Cotter Key-BO=Backed Out, M=Mi	Non standard Installation	2/28/2017	
-	252/5558, 29/1825	Insulator Conductor	(H) Hot End / (C) Cold End	H	2/28/2017	
-	252/5559, 29/1826	Insulators - Static Insulators	Static Insulators - Broken		2/22/2000	
-	252/5559, 29/1826	Insulators - Static Insulators	Static Insulators - Broken	see Comments	1/29/2001	
-	252/5560, 29/1827	Structure - Base Shoe	Base Shoe -Needs Anti-Corrosive Treatmnt	A120 - Rt. 1	2/5/2007	RUSSEL8
-	252/5560, 29/1827	Work found during a routine PM	Work as a result of a PM Order	66667749	2/5/2007	RUSSEL8
-	252/5561, 29/1828	Structure - Base Shoe	Base Shoe -Needs Anti-Corrosive Treatmnt		2/22/2000	
-	252/5561, 29/1828	Structure - Base Shoe	Base Shoe -Needs Anti-Corrosive Treatmnt	see Comments	1/29/2001	
-	252/5561, 29/1828	Structure - Foundation	Foundation - Cut Vines / Underbrush	Vines	7/26/2006	CBH
-	252/5561, 29/1828	Structure - Base Shoe	Base Shoe -Needs Anti-Corrosive Treatmnt	A120 - Rt. 1	2/5/2007	RUSSEL8
-	252/5561, 29/1828	Work found during a routine PM	Work as a result of a PM Order	66667749	2/5/2007	RUSSEL8
-	252/5562, 29/1829	Grounds	Grounds - Broken	see Comments	8/26/2004	
-	252/5562, 29/1829	Grounds	Grounds - Broken		2/22/2000	
-	252/5562, 29/1829	Grounds	Grounds - Broken		1/29/2001	
-	252/5562, 29/1829	Structure - Base Shoe	Base Shoe -Needs Anti-Corrosive Treatmnt	A120; Dig out 1 footer (QMB school)	2/5/2007	RUSSEL8
-	252/5562, 29/1829	Work found during a routine PM	Work as a result of a PM Order	66667749	2/5/2007	RUSSEL8
-	252/5562, 29/1829	Insulator Static	Broken- L=Leave, R=Replace		2/28/2017	
-	252/5563, 29/1830	Grounds	Grounds - Broken	see Comments	8/26/2004	
-	252/5563, 29/1830	Grounds	Grounds - Broken		2/22/2000	
-	252/5563, 29/1830	Grounds	Grounds - Broken		1/29/2001	
-	252/5563, 29/1830	Static Wire / Warning Spheres	Static Wire - Other	Static line craddle out of plum	1/30/2009	CBH
-	252/5563, 29/1830	Structure	Corrosion-Severe-Location=	BO	2/8/2011	RICKEY8
-	252/5563, 29/1830	Structure	Cotter Key Location=	put ground rods for structure	7/16/2014	
-	252/5564, 29/1831	Grounds	Grounds - Broken	see Comments	8/26/2004	
-	252/5564, 29/1831	Grounds	Grounds - Broken		1/29/2001	
-	252/5564, 29/1831	Grounds	Grounds - Broken		2/22/2000	
-	252/5564, 29/1831	Structure - Steel	Missing Steel		2/22/2000	RACHEO6
-	252/5564, 29/1831	Structure	Cotter Key Location=	put ground rods for structure	7/16/2014	
-	252/5565, 29/1832	Structure	Cotter Key Location=	put ground rods for structure	7/16/2014	
-	252/5566, 29/1833	Structure	Cotter Key Location=	put ground rods for structure	7/16/2014	
-	252/5566A	Insulator Static	Cotter Key-BO=Backed Out, M=Mi	BO	4/10/2017	CHRI376
-	252/5567, 29/1834	Structure	Cotter Key Location=	put ground rods for structure	7/16/2014	
-	252/5568, 29/1, 29/1835	Structure - Base Shoe	Base Shoe -Needs Anti-Corrosive Treatmnt	Need A120 - Q.M.B.	2/5/2007	RUSSEL8
-	252/5568, 29/1, 29/1835	Work found during a routine PM	Work as a result of a PM Order	66667749	2/5/2007	RUSSEL8
-	252/5568, 29/1, 29/1835	Structure	Cotter Key Location=	put ground rods for structure	7/16/2014	
-	252/5568, 29/1, 29/1835	Conductor	Conductor Other =	Install fault indicator	7/18/2019	
-	252/5570, 29/1837	Work found during a routine PM	Work as a result of a PM Order	66667449	2/7/2007	RUSSEL8
-	252/5570, 29/1837	Grounds	Grounds - Broken	Repair 2 broken grds. Fuller Heights Rd.	2/7/2007	RUSSEL8
-	252/5570, 29/1837	Insulator Conductor	Cotter Key-BO=Backed Out, M=Mi	M	8/11/2011	
-	252/5570, 29/1837	Insulator Conductor	Wire Position L,M,R,T,B	Top left yoke plate	8/11/2011	
-	252/5571, 29/1838	Insulator Conductor	Cotter Key-BO=Backed Out, M=Mi	BO	2/8/2011	RICKEY8
-	252/5571, 29/1838	Insulator Conductor	Wire Position L,M,R,T,B	M- at shoe on yoke	2/8/2011	RICKEY8
-	252/5572, 29/1839			See text	12/22/2008	CBH
-	252/5572, 29/1839	Environmental Concerns	Environmental - Osprey Nest	Birds nest on structure	12/22/2008	CBH
-	252/5572, 29/1839	Insulator Conductor	Wire Position L,M,R,T,B	T	10/20/2020	TIM0032
-	252/5572, 29/1839	Insulator Conductor	Cotter Key-BO=Backed Out, M=Mi	BO at 1st. Bell and "Y" socket	10/20/2020	TIM0032
-	252/5572, 29/1839	Insulator Conductor	(H) Hot End / (C) Cold End	H	10/20/2020	TIM0032
-	252/5573, 29/1840				9/12/1994	
-	252/5573, 29/1840	Grounds	Grounds - Broken		2/23/2000	
-	252/5573, 29/1840	Grounds	Grounds - Broken	see Comments	1/29/2001	
-	252/5573, 29/1840	Miscellaneous	Need Anti Climb Sign		1/29/2001	RACHEO6
-	252/5573, 29/1840				7/26/2006	CBH
-	252/5573, 29/1840	Phase Position	Right		7/26/2006	CBH
-	252/5573, 29/1840	Phase Position	Top and Bottom		7/26/2006	CBH
-	252/5573, 29/1840	Phase Position	Middle	1 Broken Bell	2/7/2007	RUSSEL8
-	252/5573, 29/1840	Phase Position	Top	2 Broken Bells	2/7/2007	RUSSEL8
-	252/5573, 29/1840	Phase Position	Bottome	1Broken Bell	2/7/2007	RUSSEL8
-	252/5573, 29/1840	Work found during a routine PM	Work as a result of a PM Order	66667449	2/7/2007	RUSSEL8
-	252/5573, 29/1840			"See Text"	2/7/2007	RUSSEL8
-	252/5573, 29/1840	Insulator Conductor	Broken- L=Leave, R=Replace		8/11/2011	
-	252/5573, 29/1840	Insulator Conductor	Wire Position L,M,R,T,B	1 ,2 3&4 from cold end	8/11/2011	
-	252/5573, 29/1840	Insulator Conductor	Wire Position L,M,R,T,B	T #5, M #7, B #4	4/10/2017	TIM0032
-	252/5573, 29/1840	Insulator Conductor	(H) Hot End / (C) Cold End	C, #, #7	4/10/2017	TIM0032
-	252/5573, 29/1840	Insulator Conductor	Broken- L=Leave, R=Replace	Replace #5, #7, #4	4/10/2017	TIM0032
-	252/5573, 29/1840	Insulator Conductor	(H) Hot End / (C) Cold End	H, #4	4/10/2017	TIM0032
-	252/5573, 29/1840	Structure	Structure Other=	Needs climbed	2/7/2023	JARED29
-	252/5574, 29/1841	Structure - Numbers	Numbers - Missing	see Comments	8/26/2004	
-	252/5574, 29/1841	Structure - Numbers	Numbers - Missing		1/29/2001	
-	252/5574, 29/1841	Structure - Base Shoe	Base Shoe -Needs Anti-Corrosive Treatmnt		1/29/2001	RACHEO6
-	252/5574, 29/1841	Grounds	Grounds - Broken		2/23/2000	RACHEO6
-	252/5575, 29/1842	Structure - Base Shoe	Base Shoe -Needs Anti-Corrosive Treatmnt		2/23/2000	
-	252/5575, 29/1842	Structure - Base Shoe	Base Shoe -Needs Anti-Corrosive Treatmnt	see Comments	1/29/2001	
-	252/5575, 29/1842			See text	12/22/2008	CBH
-	252/5576, 29/1843	Structure	Ground Wire-M=Missing,C=Cut	Structure-Ground Wire-M=Missing,C=Cut	2/7/2023	BRAND58
-	252/5577, 29/1844	Work found during a routine PM	Work as a result of a PM Order	66667449	2/7/2007	RUSSEL8
-	252/5577, 29/1844	Structure - Base Shoe	Base Shoe -Needs Anti-Corrosive Treatmnt	Need A120, Access Cabin Rd.	2/7/2007	RUSSEL8
-	252/5578, 29/1845	Work found during a routine PM	Work as a result of a PM Order	66667449	2/7/2007	RUSSEL8
-	252/5578, 29/1845	Structure - Steel	Steel - Missing/Failed Bolt(s)	"See Text"	2/7/2007	RUSSEL8
-	252/5578, 29/1845	Equipment Needed for Repair	Boat		2/7/2007	RUSSEL8
-	252/5578, 29/1845	Foundation	Foundation Other=	additional inspection	8/24/2016	
-	252/5578, 29/1845	Foundation	Foundation Other=	rehab	12/20/2016	
-	252/5579, 29/1846	Foundation	Foundation Other=	additional inspection	8/24/2016	
-	252/5579, 29/1846	Foundation	Foundation Other=	rehab	12/20/2016	
-	252/5580, 29/1847	Structure - Base Shoe	Base Shoe -Needs Anti-Corrosive Treatmnt	apply A120	2/8/2007	RUSSEL8
-	252/5580, 29/1847	Work found during a routine PM	Work as a result of a PM Order	66667449	2/8/2007	RUSSEL8
-	252/5580, 29/1847	Work found during a routine PM	Work as a result of a PM Order	66667449	2/8/2007	RUSSEL8
-	252/5580, 29/1847	Structure - Foundation	Foundation - Cut Vines / Underbrush	"See Text"	2/8/2007	RUSSEL8
-	252/5580, 29/1847	Conductor	Damaged	possible	7/1/2012	
-	252/5581, 29/1848	Conductor	Damaged	possible	7/1/2012	
-	252/5582, 29/1849	Structure - Base Shoe	Base Shoe - Corroded-Thin / Necking		2/8/2007	RUSSEL8
-	252/5582, 29/1849	Work found during a routine PM	Work as a result of a PM Order	66667449	2/8/2007	RUSSEL8
-	252/5582, 29/1849	Work found during a routine PM	Work as a result of a PM Order	66667449	2/8/2007	RUSSEL8
-	252/5582, 29/1849	Structure - Base Shoe	Base Shoe -Needs Anti-Corrosive Treatmnt	"See Text"	2/8/2007	RUSSEL8
-	252/5582, 29/1849	Environmental Concerns	Environmental - Osprey Nest	Nest; See IMG 0460	1/30/2009	CBH
-	252/5583, 29/1850	Environmental Concerns	Environmental - Osprey Nest		1/25/2001	
-	252/5583, 29/1850	Environmental Concerns	Environmental - Osprey Nest	Found 1/30/09; CBH Routine Patrol	1/25/2001	
-	252/5583, 29/1850	Miscellaneous	Miscellaneous - Other	See IMG 0459	1/25/2001	
-	252/5583, 29/1850	Environmental Concerns	Environmental - Osprey Nest	Found again 4/28/2009, by CBH	1/25/2001	
-	252/5583, 29/1850	Work found during a routine PM	Work as a result of a PM Order	66667449	2/8/2007	RUSSEL8
-	252/5583, 29/1850	Structure - Base Shoe	Base Shoe -Needs Anti-Corrosive Treatmnt	apply A120	2/8/2007	RUSSEL8
-	252/5583, 29/1850	Work found during a routine PM	Work as a result of a PM Order	66667449	2/8/2007	RUSSEL8
-	252/5583, 29/1850	Grounds	Grounds - Broken	Repair 1 ground Possum Pt. Rd	2/8/2007	RUSSEL8
-	252/5584	Steel Pole	Ground Wire-M=Missing,C=Cut	Steel Pole-Ground Wire-M=Missing,C=Cut	2/7/2023	BRAND58
-	252/5585	Wood Pole	Ground Wire-M=Missing,C=Cut	Both grounds broken	3/24/2017	BRAND58
-	252/5585	Wood Pole	Ground Wire-M=Missing,C=Cut	Both grounds cut	6/30/2020	JARED29
10120245	29/1823	Structure - Numbers	Numbers - Missing		2/22/2000	
10120246	29/1823	Structure - Numbers	Numbers - Missing	see Comments	1/29/2001	
10293013	29/1823	Hardware	Hardware - Other	Top of pole not grounded - no pole grd.	2/5/2007	RUSSEL8
10293013	29/1823	Work found during a routine PM	Work as a result of a PM Order	66667749	2/5/2007	RUSSEL8
10293013	29/1823	Equipment Needed for Repair	ATV	Quantico Cemetary	2/5/2007	RUSSEL8

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 existing Rebuild Project transmission corridor is approximately 12.4 miles between Aquia Harbour Station and Possum Point Station; and approximately 0.7 miles between Fredericksburg Substation and Hospital Junction.

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, which includes existing linear utilities paralleled by the existing transmission line corridor. The Rebuild Project is entirely located within existing transmission line right-of-way or on Company-owned property with the exception of the 0.2 mile of additional 50 foot right-of-way required between existing Structure #252/5568 (#29/1835) and Fuller Road Substation; and the 0.1 mile of additional 67 foot right-of-way west of Fuller Road Substation.

The Company will make the digital Geographic Information Systems ("GIS") shape file available to interested persons upon request to counsel for the Company.

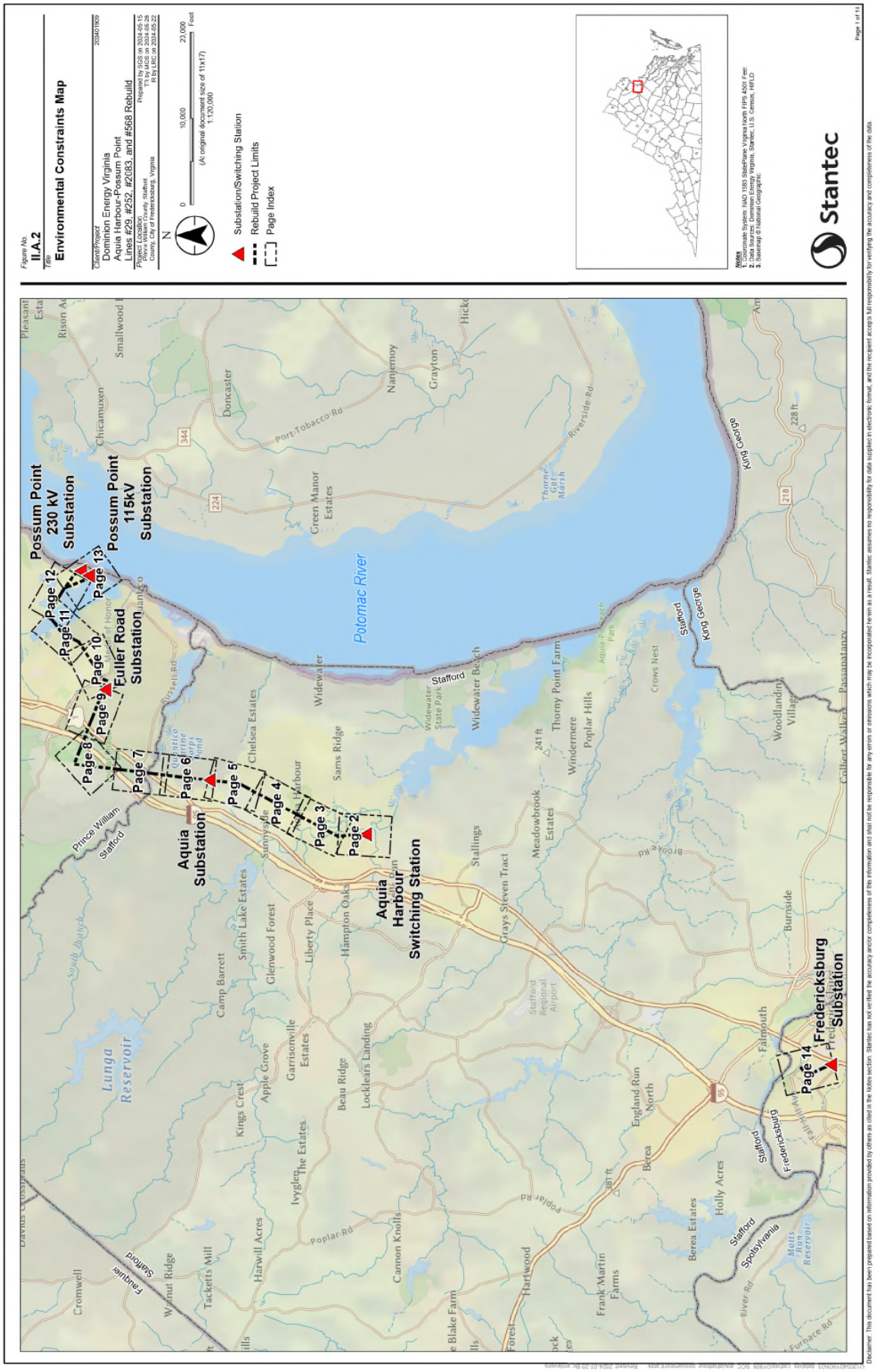


Figure No.
II.A.2
Title
Environmental Constraints Map
Client/Project
Dominion Energy Virginia
Aquia Harbour-Possum Point
Lines #29, #252, #2083, and #568 Rebuild
Project Location
Prince William County, Stafford
County, City of Fredericksburg, Virginia
Prepared by SGS on 2024-05-15
TR by MDB on 2024-06-28
RTE by LMC on 2024-07-22
N
0
10,000
20,000
Feet
(At original document size of 11x17)
1:120,000
Substation/Switching Station
Rebuild Project Limits
Page Index
Possum Point 230 kV Substation
Possum Point 115kV Substation
Fuller Road Substation
Aquia Substation
Aquia Harbour Switching Station
Fredericksburg Substation
Page 2
Page 3
Page 4
Page 5
Page 6
Page 7
Page 8
Page 9
Page 10
Page 11
Page 12
Page 13
Page 14
Potomac River
Lunga Reservoir
Notes
1. Coordinate System: NAD 1983 StatePlane Virginia North FIPS 4501 Feet
2. Data Sources: Esri Virginia, Stantec, U.S. Census, HIFLD
3. Basemap © National Geographic
Stantec
Page 1 of 14
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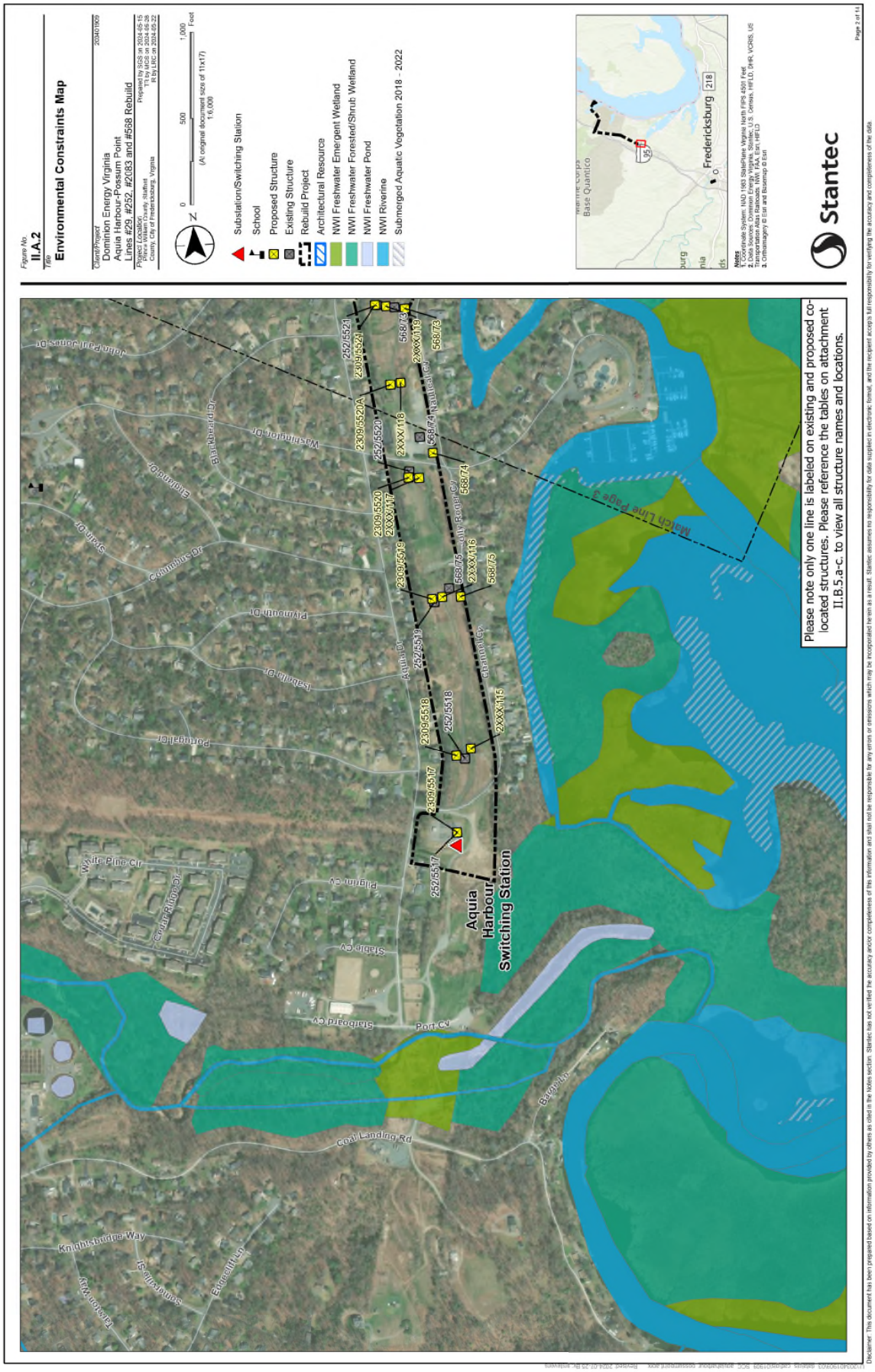
Figure No.
II.A.2
Title
Environmental Constraints Map
Client/Project
Dominion Energy Virginia
Aquia Harbour-Possum Point
Lines #29, #252, #2083 and #568 Rebuild
Project Location
Prince William County, Stafford
County, City of Fredericksburg, Virginia
Prepared by SGS on 2024-05-15
TR by MDS on 2024-06-26
IR by LKG on 2024-07-22
0
500
1,000 Feet
(At original document size of 11x17)
1:6,000
N
Substation/Switching Station
School
Proposed Structure
Existing Structure
Rebuild Project
Architectural Resource
NWI Freshwater Emergent Wetland
NWI Freshwater Forested/Shrub Wetland
NWI Freshwater Pond
NWI Riverine
Submerged Aquatic Vegetation 2018 - 2022
Base Quantico
Fredericksburg
218
Notes
1. Coordinate System: NAD 1983 StatePlane Virginia North FIPS 4501 Feet
2. Data Sources: Dominion Energy Virginia; Stantec; U.S. Census, HIFLD, DHR, VCRIS, US Transportation Atlas Railroads, NWI, FAA, Esri, HIFLD
3. Orthoimagery © Esri and Bluesnap © Esri
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Aquia Harbour Switching Station
Please note only one line is labeled on existing and proposed co-located structures. Please reference the tables on attachment II.B.5.a-c. to view all structure names and locations.
Match Line Page 3
Page 2 of 14
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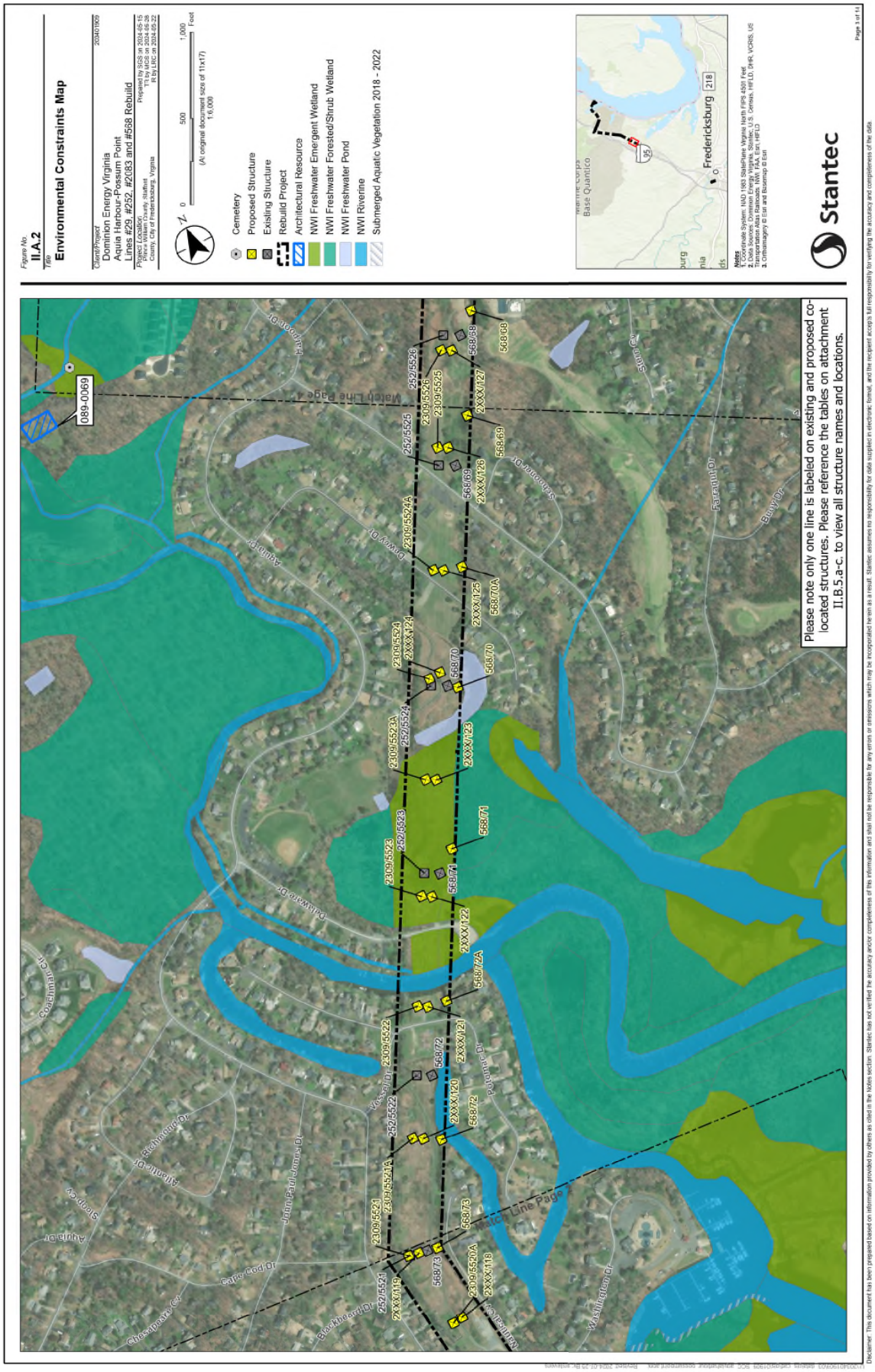
Figure No.
II.A.2
Title
Environmental Constraints Map
Client/Project
Dominion Energy Virginia
Aquia Harbour-Possum Point
Lines #29, #252, #2083 and #568 Rebuild
Project Location
Prince William County, Stafford
County, City of Fredericksburg, Virginia
Prepared by SGS on 2024-08-15
TR by MCB on 2024-08-28
IR by LKC on 2024-09-22
0
500
1,000
Feet
(At original document size of 11x17)
1:6,000
Cemetery
Proposed Structure
Existing Structure
Rebuild Project
Architectural Resource
NWI Freshwater Emergent Wetland
NWI Freshwater Forested/Shrub Wetland
NWI Freshwater Pond
NWI Riverine
Submerged Aquatic Vegetation 2018 - 2022
Marine Corps Base Quantico
Fredericksburg
95
218
Notes
1. Coordinate System: NAD 1983 StatePlane Virginia North FIPS 4501 Feet
2. Data Sources: Dominion Energy Virginia, Stantec, U.S. Census, HIFLD, DHR, VCRIS, US Transportation Atlas Railroads, NWI, FAA, Esri, HIFLD
3. Orthoimagery © Esri and Bluesnap © Esri
Stantec
Please note only one line is labeled on existing and proposed co-located structures. Please reference the tables on attachment II.B.5.a-c. to view all structure names and locations.
089-0069
Match Line Page 2
Match Line Page 1
2309/5526
2309/5525
2309/5524A
2309/5524
2309/5523A
2309/5523
2309/5522
2309/5522A
2309/5521
2309/5520A
252/5526
252/5525
252/5524A
252/5524
252/5523A
252/5523
252/5522
252/5522A
252/5521
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2XXX/126
2XXX/125
2XXX/124
2XXX/123
2XXX/122
2XXX/121
2XXX/120
2XXX/119
2XXX/118
568/69
568/70
568/70A
568/71
568/71A
568/72
568/72A
568/73
568/73A
568/68
Page 1 of 14
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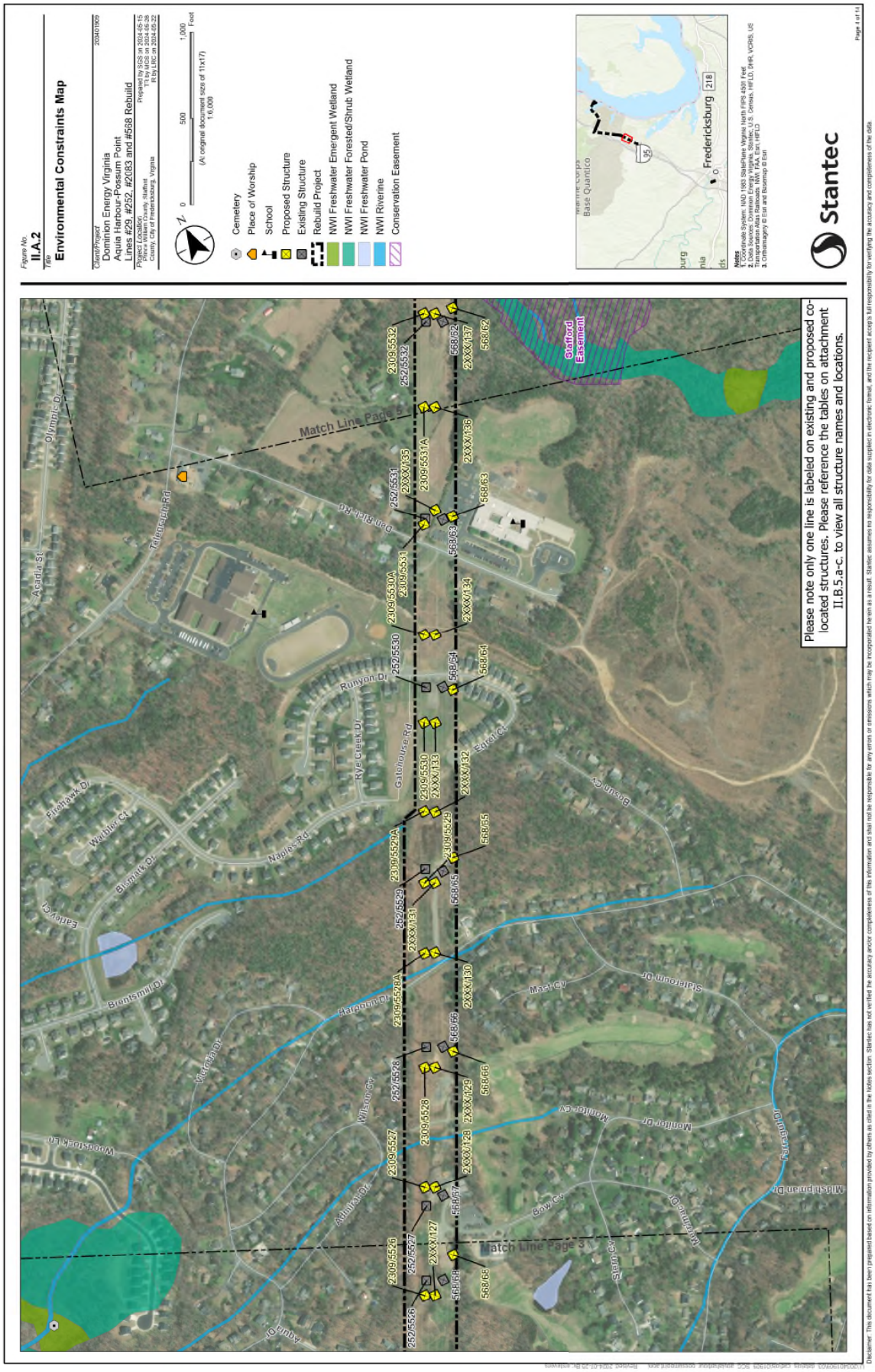
Figure No.
II.A.2
Title
Environmental Constraints Map
Client/Project
Dominion Energy Virginia
Aquia Harbour-Possum Point
Lines #29, #252, #2083 and #568 Rebuild
Project Location
Prince William County, Stafford
County, City of Fredericksburg, Virginia
Prepared by SGS on 2024-08-15
TR by MDS on 2024-08-28
IR by LKC on 2024-09-22
0
500
1,000 Feet
(At original document size of 11x17)
1:6,000
Cemetery
Place of Worship
School
Proposed Structure
Existing Structure
Rebuild Project
NWI Freshwater Emergent Wetland
NWI Freshwater Forested/Shrub Wetland
NWI Freshwater Pond
NWI Riverine
Conservation Easement
Base Quantico
Fredericksburg
Stafford Easement
Match Line Page 2
Match Line Page 3
Please note only one line is labeled on existing and proposed co-located structures. Please reference the tables on attachment II.B.5.a-c. to view all structure names and locations.
Stantec

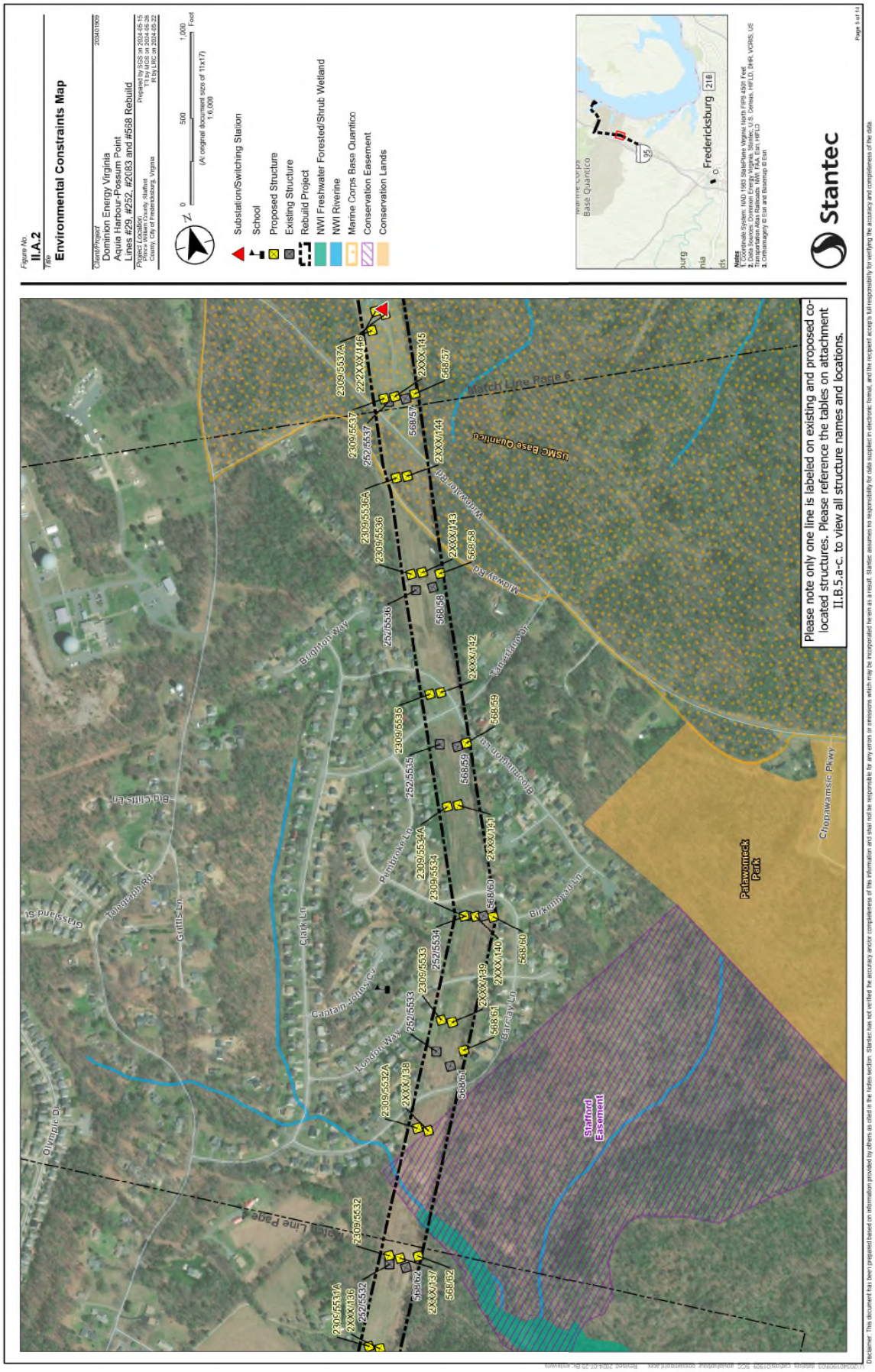
Figure No.
II.A.2
Title
Environmental Constraints Map
Client/Project
Dominion Energy Virginia
Aquia Harbour-Possum Point
Lines #29, #252, #2083 and #568 Rebuild
Project Location
Prince William County, Stafford
County, City of Fredericksburg, Virginia
Prepared by SGS on 2024-08-15
TR by MCS on 2024-08-26
IR by LKG on 2024-08-22
0
500
1,000
Feet
(At original document size of 11x17)
1:6,000
Substation/Switching Station
School
Proposed Structure
Existing Structure
Rebuild Project
NWI Freshwater Forested/Shrub Wetland
NWI Riverine
Marine Corps Base Quantico
Conservation Easement
Conservation Lands
Base Quantico
Fredericksburg
Please note only one line is labeled on existing and proposed co-located structures. Please reference the tables on attachment II.B.5.a-c. to view all structure names and locations.
Match Line Page 6
Match Line Page 5
USMC Base Quantico
Pataworneck Park
Stanford Easement
Chopawamsic Pkwy
Stantec

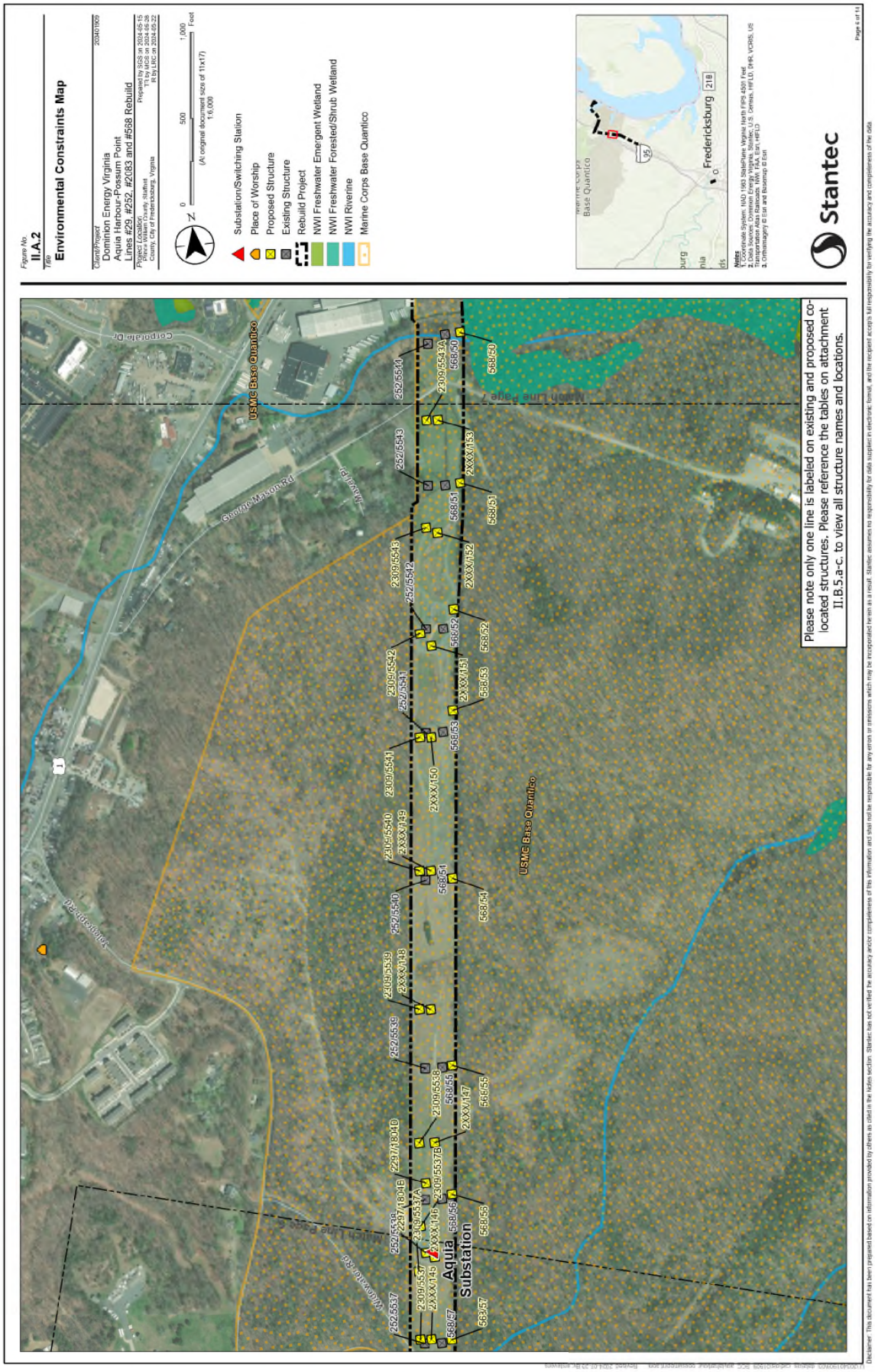
Figure No.
II.A.2
Title
Environmental Constraints Map
Client/Project
Dominion Energy Virginia
Aquia Harbour-Possum Point
Lines #29, #252, #2083 and #568 Rebuild
Project Location
Prince William County, Stafford
County, City of Fredericksburg, Virginia
Prepared by SGS on 2024-08-15
TR by MCS on 2024-08-26
RTE by LKG on 2024-08-22
0
500
1,000
Feet
(At original document size of 11x17)
1:6,000
Substation/Switching Station
Place of Worship
Proposed Structure
Existing Structure
Rebuild Project
NWI Freshwater Emergent Wetland
NWI Freshwater Forested/Shrub Wetland
NWI Riverine
Marine Corps Base Quantico
Aquia Substation
USMC Base Quantico
Please note only one line is labeled on existing and proposed co-located structures. Please reference the tables on attachment II.B.5.a-c. to view all structure names and locations.
Fredericksburg
Stantec

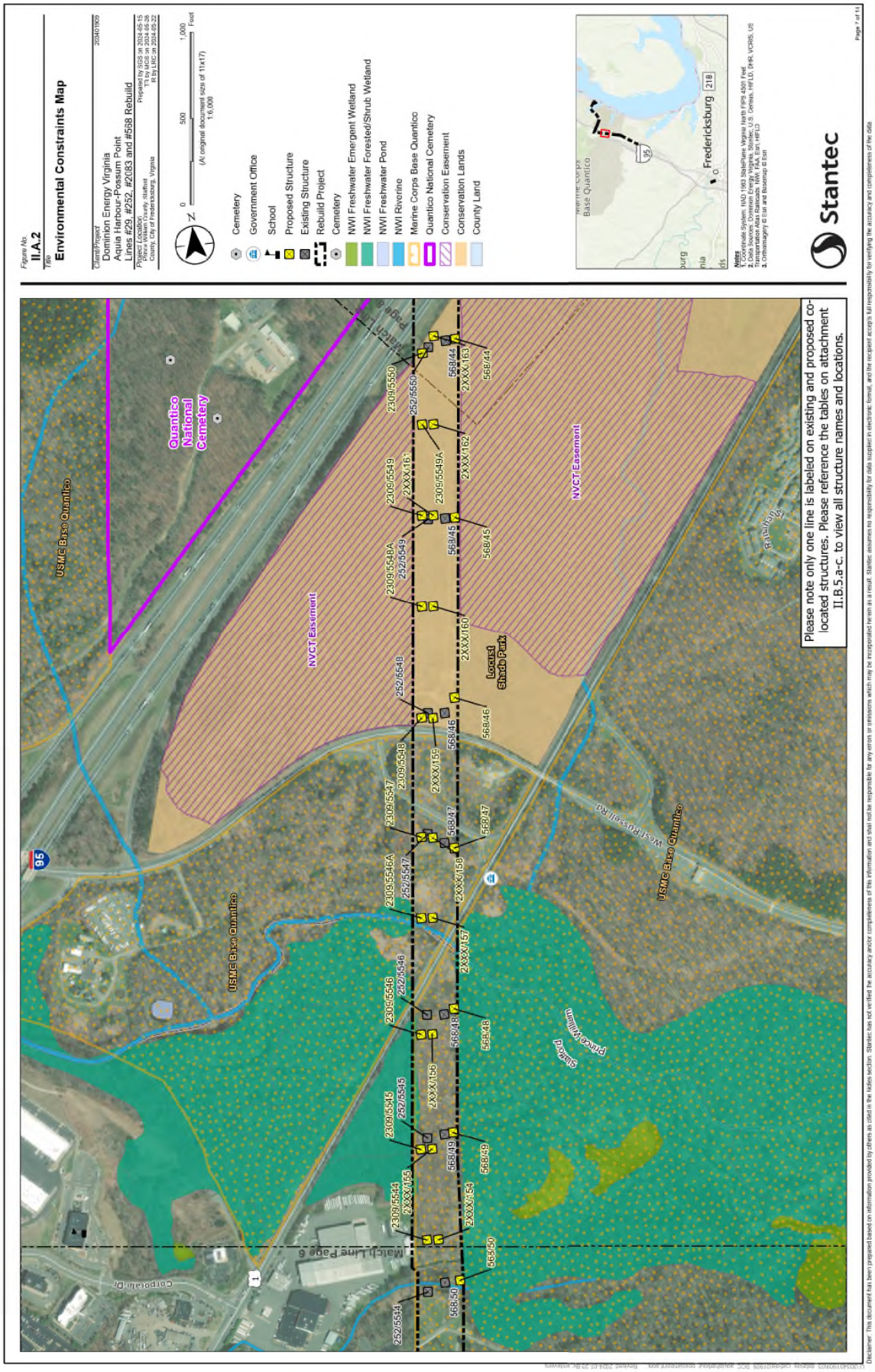
Figure No.
II.A.2
Title
Environmental Constraints Map
Client/Project
Dominion Energy Virginia
Aquia Harbour-Possum Point
Lines #29, #252, #2083 and #568 Rebuild
20340909
Project Location
Prince William County, Stafford County, City of Fredericksburg, Virginia
Prepared by SGS on 2024-08-15
TR by MCB on 2024-08-26
IR by LKG on 2024-09-22
0
500
1,000
Feet
(At original document size of 11x17)
1:6,000
Cemetery
Government Office
School
Proposed Structure
Existing Structure
Rebuild Project
Cemetery
NWI Freshwater Emergent Wetland
NWI Freshwater Forested/Shrub Wetland
NWI Freshwater Pond
NWI Riverine
Marine Corps Base Quantico
Quantico National Cemetery
Conservation Easement
Conservation Lands
County Land
Base Quantico
Fredericksburg
Notes
1. Coordinate System: NAD 1983 StatePlane Virginia North FIPS 4501 Feet
2. Data Sources: Dominion Energy Virginia; Stantec; U.S. Census, HIFLD, DHR, VCRIS, US Transportation Atlas Railroads; NWI; FAA; Esri; HIFLD
3. Orthoimagery © Esri and Basemap © Esri
Stantec
Please note only one line is labeled on existing and proposed co-located structures. Please reference the tables on attachment II.B.5.a-c. to view all structure names and locations.
Quantico National Cemetery
USMC Base Quantico
NVCT Easement
Locust Shade Park
Prince William Forest
Page 7 of 11

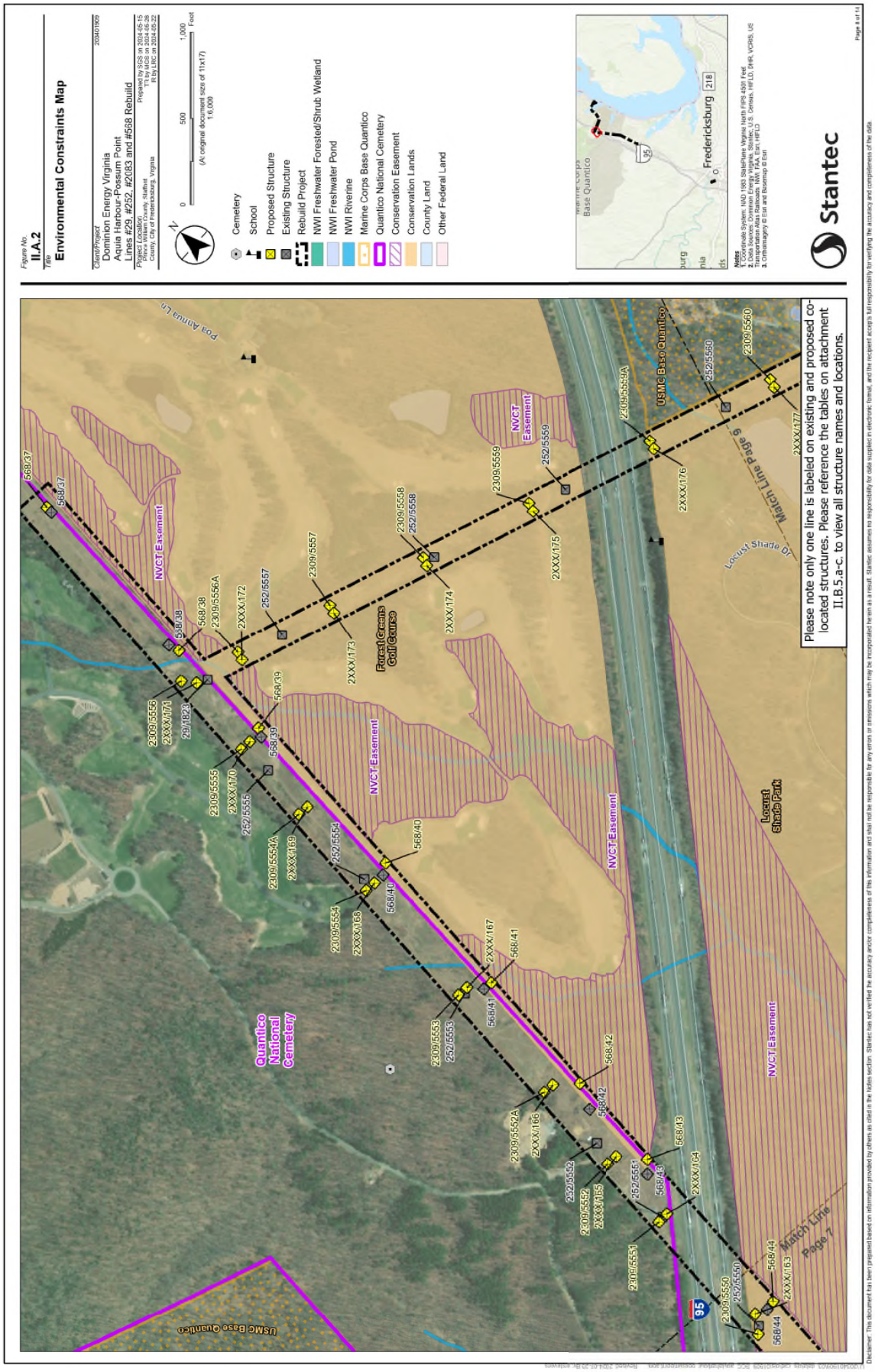
Figure No.
II.A.2
Title
Environmental Constraints Map
Client/Project
Dominion Energy Virginia
Aquia Harbour-Possum Point
Lines #29, #252, #2083 and #568 Rebuild
Project Location
Prince William County, Stafford
County, City of Fredericksburg, Virginia
20240909
Prepared by SGS on 2024-08-15
TR by MDB on 2024-08-28
RTE by LKC on 2024-09-22
0
500
1,000
Feet
(At original document size of 11x17)
1:6,000
Cemetery
School
Proposed Structure
Existing Structure
Rebuild Project
NWI Freshwater Forested/Shrub Wetland
NWI Freshwater Pond
NWI Riverine
Marine Corps Base Quantico
Quantico National Cemetery
Conservation Easement
Conservation Lands
County Land
Other Federal Land
Base Quantico
Fredericksburg
218
95
Notes
1. Coordinate System: NAD 1983 StatePlane Virginia North FIPS 4501 Feet
2. Data Sources: Dominion Energy Virginia, Stantec, U.S. Census, HIFLD, DHR, VCRIS, US Transportation Atlas Railroads, NWI, FAA, Esri, HIFLD
3. Orthoimagery © Esri and Basemap © Esri
Stantec
Page 8 of 14
Please note only one line is labeled on existing and proposed co-located structures. Please reference the tables on attachment II.B.5.a-c. to view all structure names and locations.
Match Line Page 9
Match Line Page 7
Locust Shade Park
Quantico National Cemetery
USMC Base Quantico
Forest Greens Golf Course
NVCT Easement
Locust Shade Dr
Poa Annua Ln
568/37
568/38
568/39
568/40
568/41
568/42
568/43
568/44
2309/5556
2XXX/171
29/1822
2309/5556A
2XXX/172
252/5557
2309/5557
2XXX/173
2309/5558
252/5558
2XXX/174
2309/5559
252/5559
2XXX/175
2309/5559A
2XXX/176
252/5560
2309/5560
2XXX/177
2309/5555
2XXX/170
252/5555
2309/5554A
2XXX/169
252/5554
2309/5554
2XXX/168
2309/5553
252/5553
2XXX/167
2309/5552A
2XXX/166
252/5552
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252/5551
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2XXX/164
252/5550
2309/5550
2XXX/163

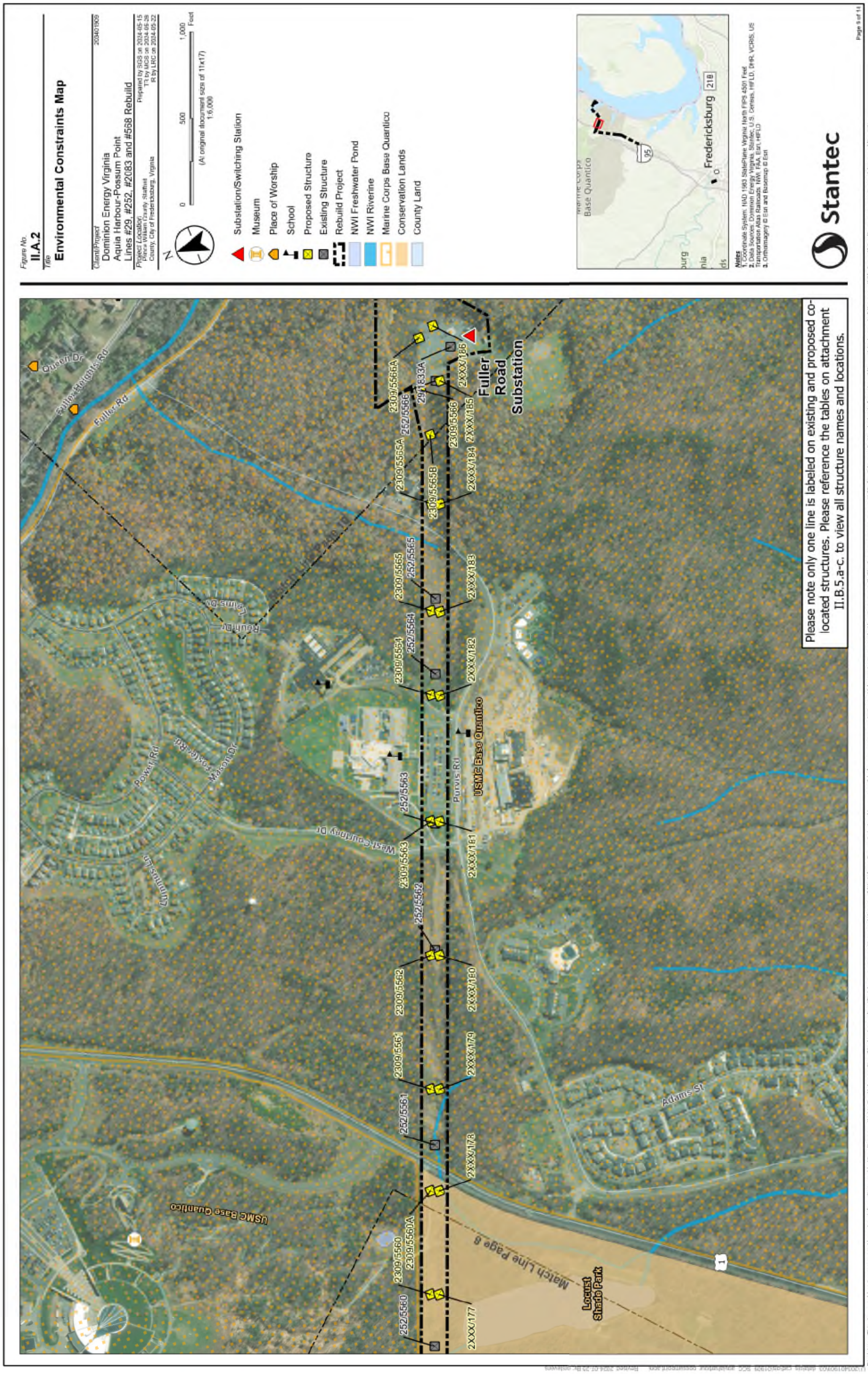
Figure No.
II.A.2
Title
Environmental Constraints Map
Client/Project
203401909
Dominion Energy Virginia
Aquia Harbour-Possum Point
Lines #29, #252, #2083 and #568 Rebuild
Project Location
Prince William County, Stafford County, City of Fredericksburg, Virginia
Prepared by SGS on 2024-05-15
TR by MGS on 2024-05-28
R by LRC on 2024-05-22
0
500
1,000
Feet
(At original document size of 11x17)
1:6,000
Substation/Switching Station
Museum
Place of Worship
School
Proposed Structure
Existing Structure
Rebuild Project
NWI Freshwater Pond
NWI Riverine
Marine Corps Base Quantico
Conservation Lands
County Land
Base Quantico
95
Fredericksburg
218
Notes
1. Coordinate System: NAD 1983 StatePlane Virginia North FIPS 4501 Feet
2. Data Sources: Dominion Energy Virginia, Stantec, U.S. Census, HIFLD, DHR, VCRIS, US Transportation Atlas Railroads, NWI, FAA, Esri, HIFLD
3. Orthoimagery © Esri and Basemap © Esri
Stantec
Page 9 of 14
Queen Dr
Fuller Heights Rd
Fuller Rd
Rouh Dr
Lomis Dr
Power Rd
Foster Rd
Mason Dr
Lummus Ln
West Country Dr
Purvis Rd
USMC Base Quantico
Adams St
Match Line Page 8
Locust Shade Park
Fuller Road Substation
2309/5566A
252/5566
29/1833A
2309/5566
2XXX/186
2XXX/185
2309/5565A
2309/5565B
2XXX/184
2309/5565
252/5565
2XXX/183
2309/5564
252/5564
2XXX/182
252/5563
2309/5563
2XXX/181
252/5562
2309/5562
2XXX/180
2309/5561
2XXX/179
252/5561
2XXX/178
2309/5560
2309/5560A
252/5560
2XXX/177
Please note only one line is labeled on existing and proposed co-located structures. Please reference the tables on attachment II.B.5.a-c. to view all structure names and locations.
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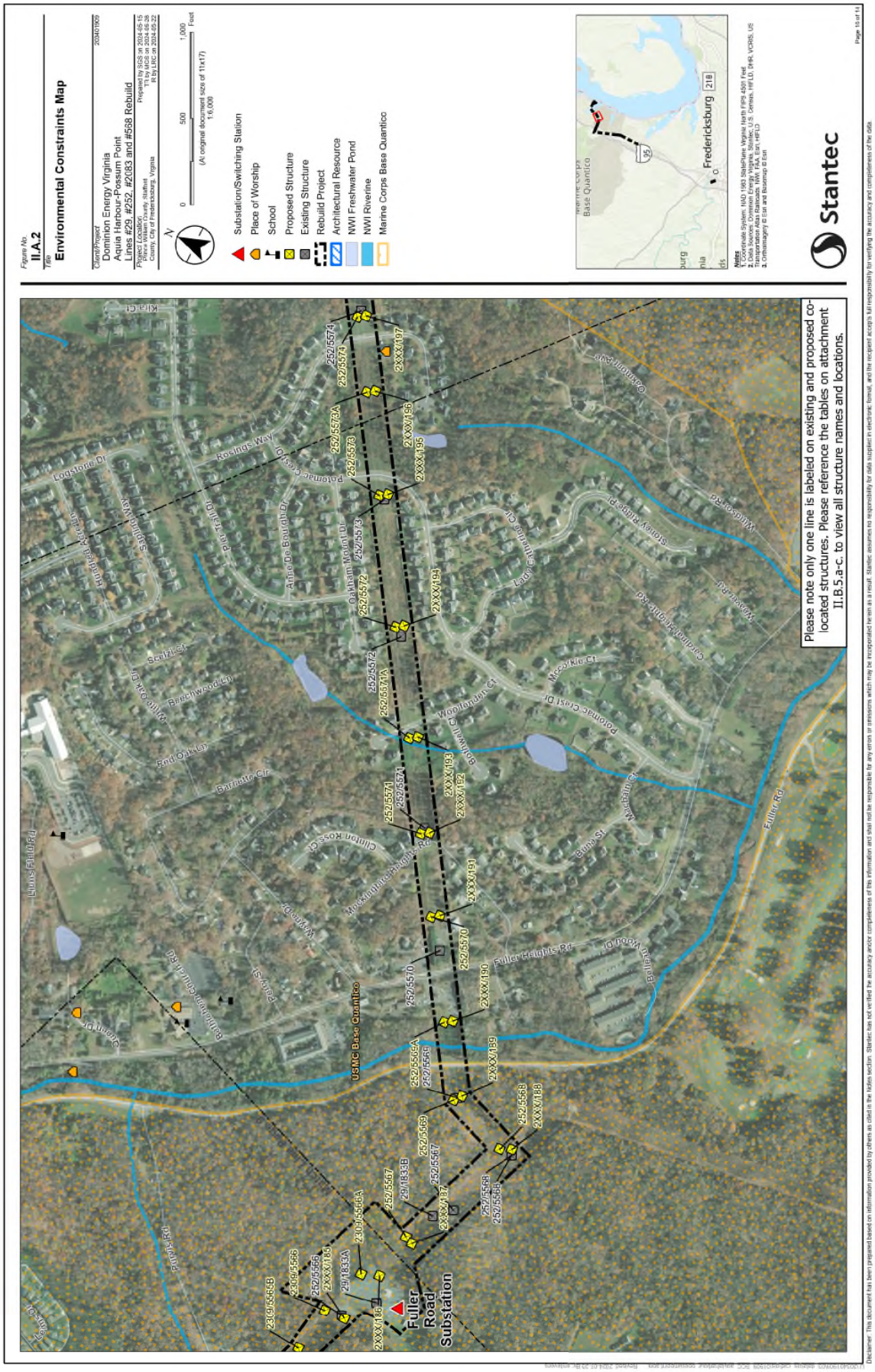
Figure No.
II.A.2
Title
Environmental Constraints Map
Client/Project
Dominion Energy Virginia
Aquia Harbour-Possum Point
Lines #29, #252, #2083 and #568 Rebuild
Project Location
Prince William County, Stafford
County, City of Fredericksburg, Virginia
Prepared by SIGS on 2024-05-15
TT by MCS on 2024-06-26
KTs by LKG on 2024-07-22
0
500
1,000
Feet
(At original document size of 11x17)
1:6,000
Substation/Switching Station
Place of Worship
School
Proposed Structure
Existing Structure
Rebuild Project
Architectural Resource
NWI Freshwater Pond
NWI Riverine
Marine Corps Base Quantico
Fredericksburg
Please note only one line is labeled on existing and proposed co-located structures. Please reference the tables on attachment II.B.5.a-c. to view all structure names and locations.
Fuller Road Substation
USMC Base Quantico
Stantec

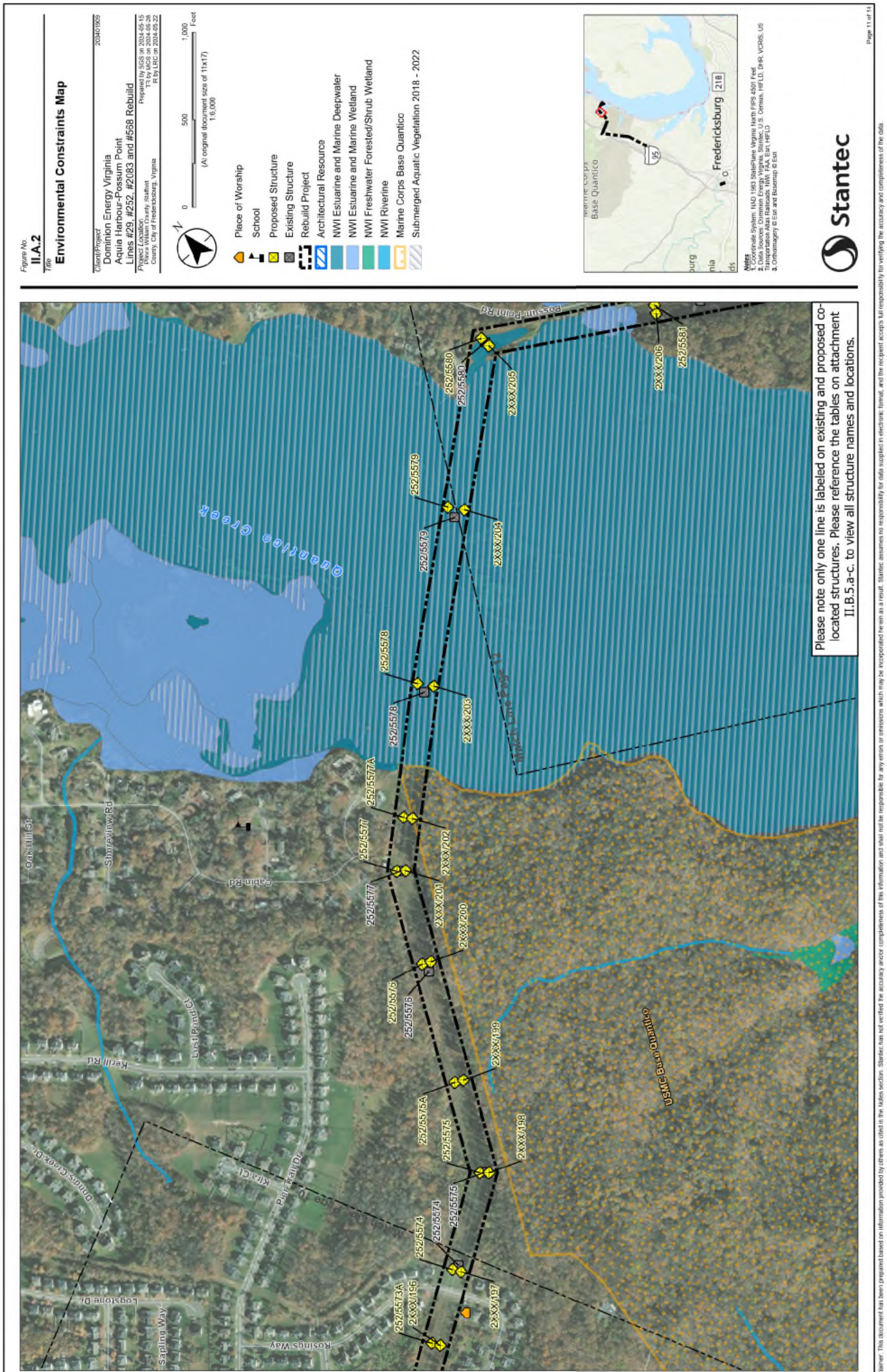
Figure No.
II.A.2
Title
Environmental Constraints Map
Client/Project
203401909
Dominion Energy Virginia
Aquia Harbour-Possum Point
Lines #29, #252, #2083 and #568 Rebuild
Project Location
Prince William County, Stafford County, City of Fredericksburg, Virginia
Prepared by SGS on 2024-05-15
TR by MCS on 2024-05-28
R by LRC on 2024-05-22
0
500
1,000
Feet
(At original document size of 11x17)
1:6,000
Place of Worship
School
Proposed Structure
Existing Structure
Rebuild Project
Architectural Resource
NWI Estuarine and Marine Deepwater
NWI Estuarine and Marine Wetland
NWI Freshwater Forested/Shrub Wetland
NWI Riverine
Marine Corps Base Quantico
Submerged Aquatic Vegetation 2018 - 2022
Base Quantico
95
Fredericksburg
218
Notes
1. Coordinate System: NAD 1983 StatePlane Virginia North FIPS 4501 Feet
2. Data Sources: Dominion Energy Virginia, Stantec, U.S. Census, HIFLD, DHR, VCRIS, US Transportation Atlas Railroads, NWI, FAA, Esri, HIFLD
3. Orthoimagery © Esri and Basemap © Esri
Stantec
Page 11 of 14
Please note only one line is labeled on existing and proposed co-located structures. Please reference the tables on attachment II.B.5.a-c. to view all structure names and locations.
Quantico Creek
Possum Point Rd
USMC Base Quantico
Oak Hill St
Shoreview Rd
Cabin Rd
Lost Pond Ct
Kerill Rd
Kita Ct
Pier Hall Dr
Logstone Dr
Sapling Way
Rosings Way
252/5573A
2XXX/196
2XXX/197
252/5574
252/5575
252/5575A
2XXX/198
2XXX/199
252/5576
2XXX/200
2XXX/201
252/5577
252/5577A
2XXX/202
252/5578
2XXX/203
252/5579
2XXX/204
252/5580
2XXX/205
2XXX/206
252/5581
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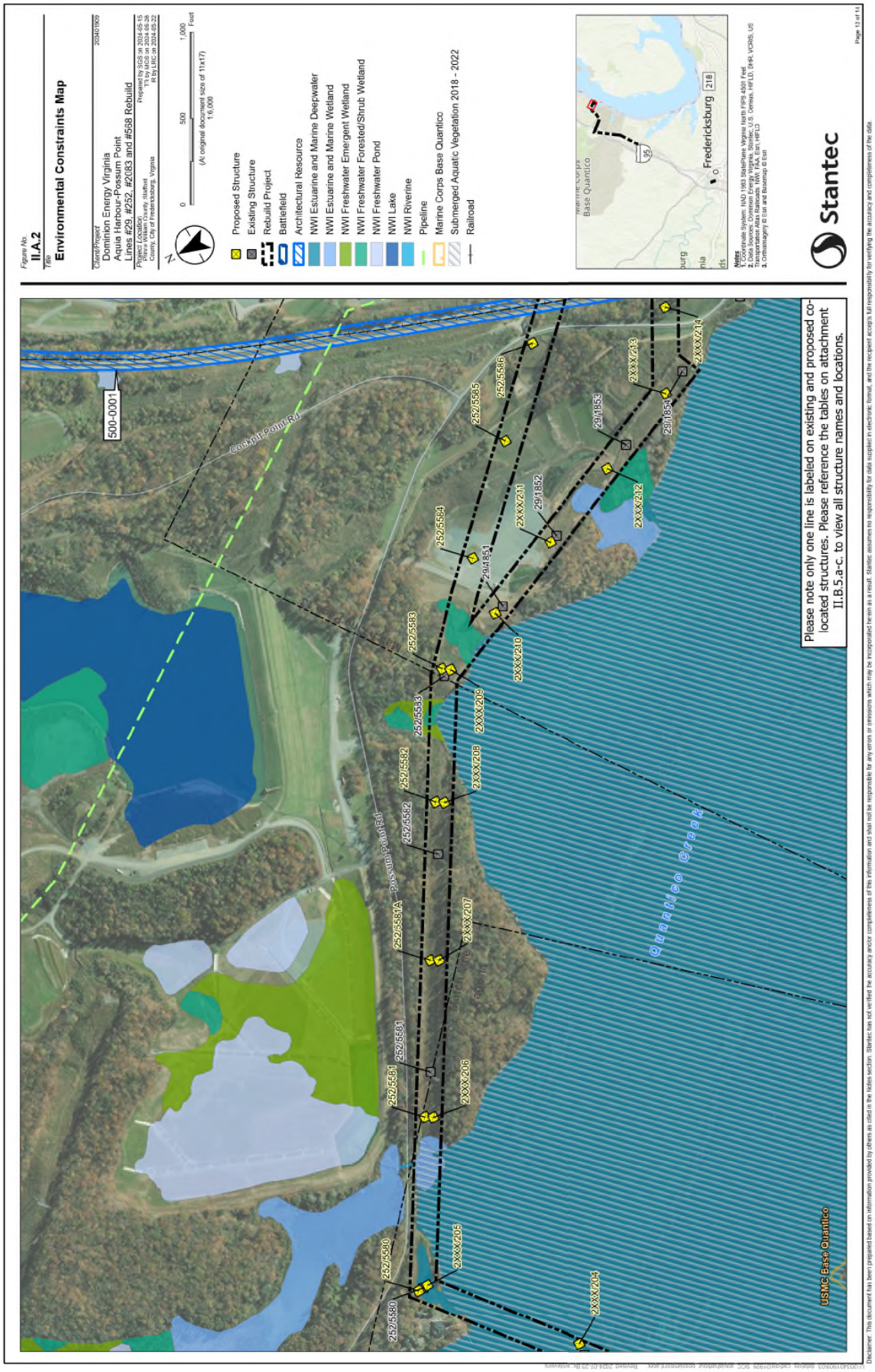
Figure No.
II.A.2
Title
Environmental Constraints Map
Client/Project
Dominion Energy Virginia
Aquia Harbour-Possum Point
Lines #29, #252, #2083 and #568 Rebuild
20240909
Project Location
Prince William County, Stafford
County, City of Fredericksburg, Virginia
Prepared by SGS on 2024-09-15
TR by MCS on 2024-09-26
KTN by LKG on 2024-09-27
0
500
1,000
Feet
(At original document size of 11x17)
1:6,000
Proposed Structure
Existing Structure
Rebuild Project
Battlefield
Architectural Resource
NWI Estuarine and Marine Deepwater
NWI Estuarine and Marine Wetland
NWI Freshwater Emergent Wetland
NWI Freshwater Forested/Shrub Wetland
NWI Freshwater Pond
NWI Lake
NWI Riverine
Pipeline
Marine Corps Base Quantico
Submerged Aquatic Vegetation 2018 - 2022
Railroad
Marine Corps Base Quantico
95
Fredericksburg
218
Notes
1. Coordinate System: NAD 1983 StatePlane Virginia North FIPS 4501 Feet
2. Data Sources: Dominion Energy Virginia; Stantec; U.S. Census, HIFLD, DHR, VCRIS, US Transportation Atlas Railroads, NWI, FAA, Esri, HIFLD
3. Orthoimagery © Esri and Blueinap © Esri
Stantec
500-0001
Cockpit Point Rd
Possum Point Rd
252/5580
252/5581
252/5581A
252/5582
252/5583
252/5584
252/5585
252/5586
2XXX/204
2XXX/205
2XXX/206
2XXX/207
2XXX/208
2XXX/209
2XXX/210
2XXX/211
2XXX/212
2XXX/213
2XXX/214
291/851
291/852
291/853
291/854
Quantico Creek
USMC Base Quantico
Please note only one line is labeled on existing and proposed co-located structures. Please reference the tables on attachment II.B.5.a-c. to view all structure names and locations.
Page 13 of 14
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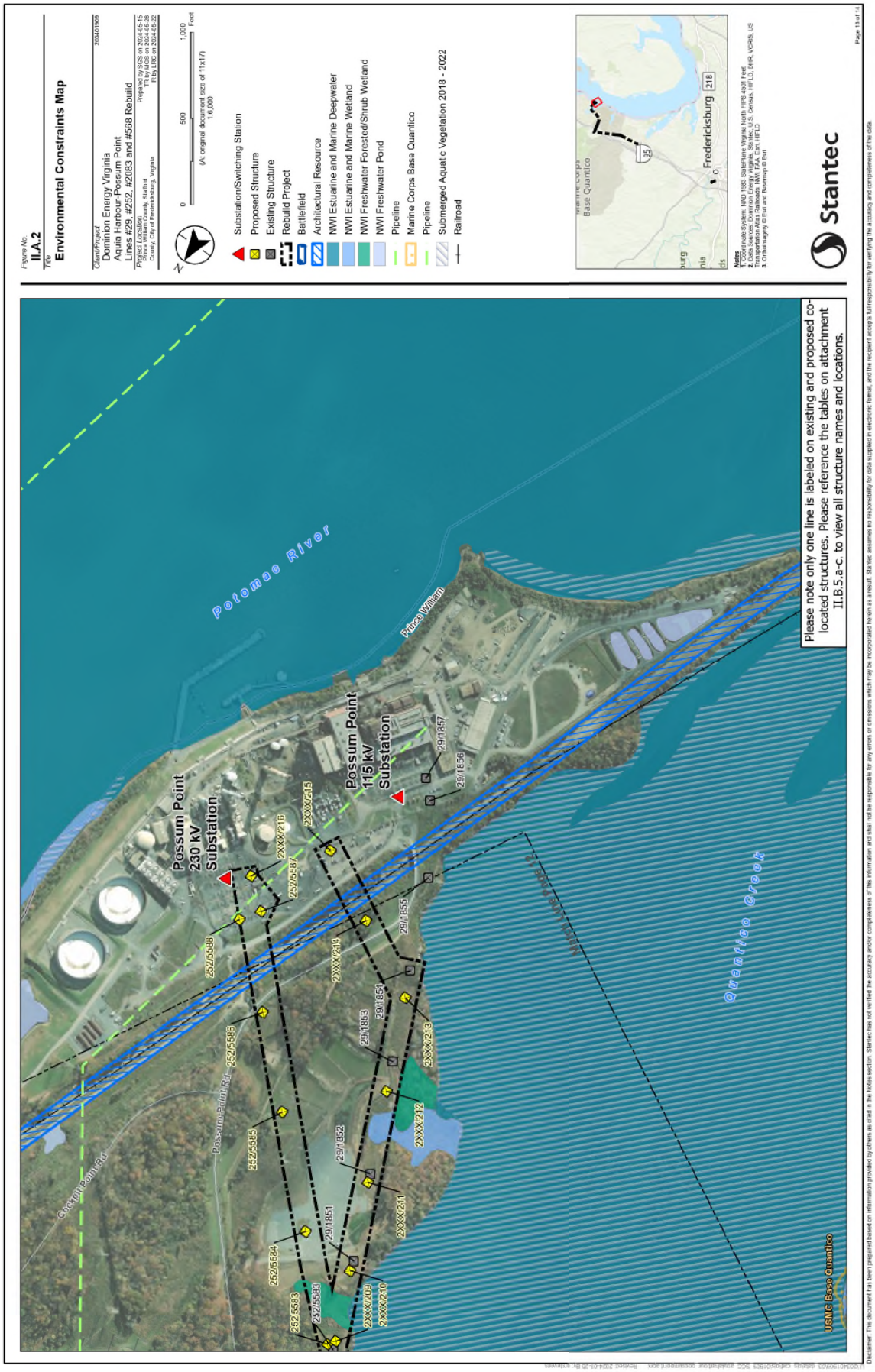
Figure No.
II.A.2
Title
Environmental Constraints Map
Client/Project
Dominion Energy Virginia
Aquia Harbour-Possum Point
Lines #29, #252, #2083 and #568 Rebuild
20240909
Project Location
Prince William County, Stafford County, City of Fredericksburg, Virginia
Prepared by SGS on 2024-08-15
TR by MCB on 2024-08-28
RS by LKG on 2024-09-22
0
500
1,000
Feet
(At original document size of 11x17)
1:6,000
N
Substation/Switching Station
Proposed Structure
Existing Structure
Rebuild Project
Battlefield
Architectural Resource
NWI Estuarine and Marine Deepwater
NWI Estuarine and Marine Wetland
NWI Freshwater Forested/Shrub Wetland
NWI Freshwater Pond
Pipeline
Marine Corps Base Quantico
Pipeline
Submerged Aquatic Vegetation 2018 - 2022
Railroad
Marine Corps Base Quantico
95
Fredericksburg
218
Notes
1. Coordinate System: NAD 1983 StatePlane Virginia North FIPS 4501 Feet
2. Data Sources: Dominion Energy Virginia; Sanborn; U.S. Census, HIFLD, DHR, VCRIS, US Transportation Atlas Railroads, NWI, FAA, Esri, HIFLD
3. Orthoimagery © Esri and Biosimap © Esri
Stantec
Page 13 of 14
Potomac River
Prince William
Possum Point 230 kV Substation
Possum Point 115 kV Substation
Possum Point Rd
Cockpit Point Rd
Quantico Creek
USMC Base Quantico
252/5584
252/5583
252/5585
252/5586
252/5588
252/5587
2XXX/216
2XXX/215
2XXX/214
2XXX/213
2XXX/212
2XXX/211
2XXX/209
2XXX/210
29/1851
29/1852
29/1853
29/1854
29/1855
29/1856
29/1857
Please note only one line is labeled on existing and proposed co-located structures. Please reference the tables on attachment II.B.5.a-c. to view all structure names and locations.
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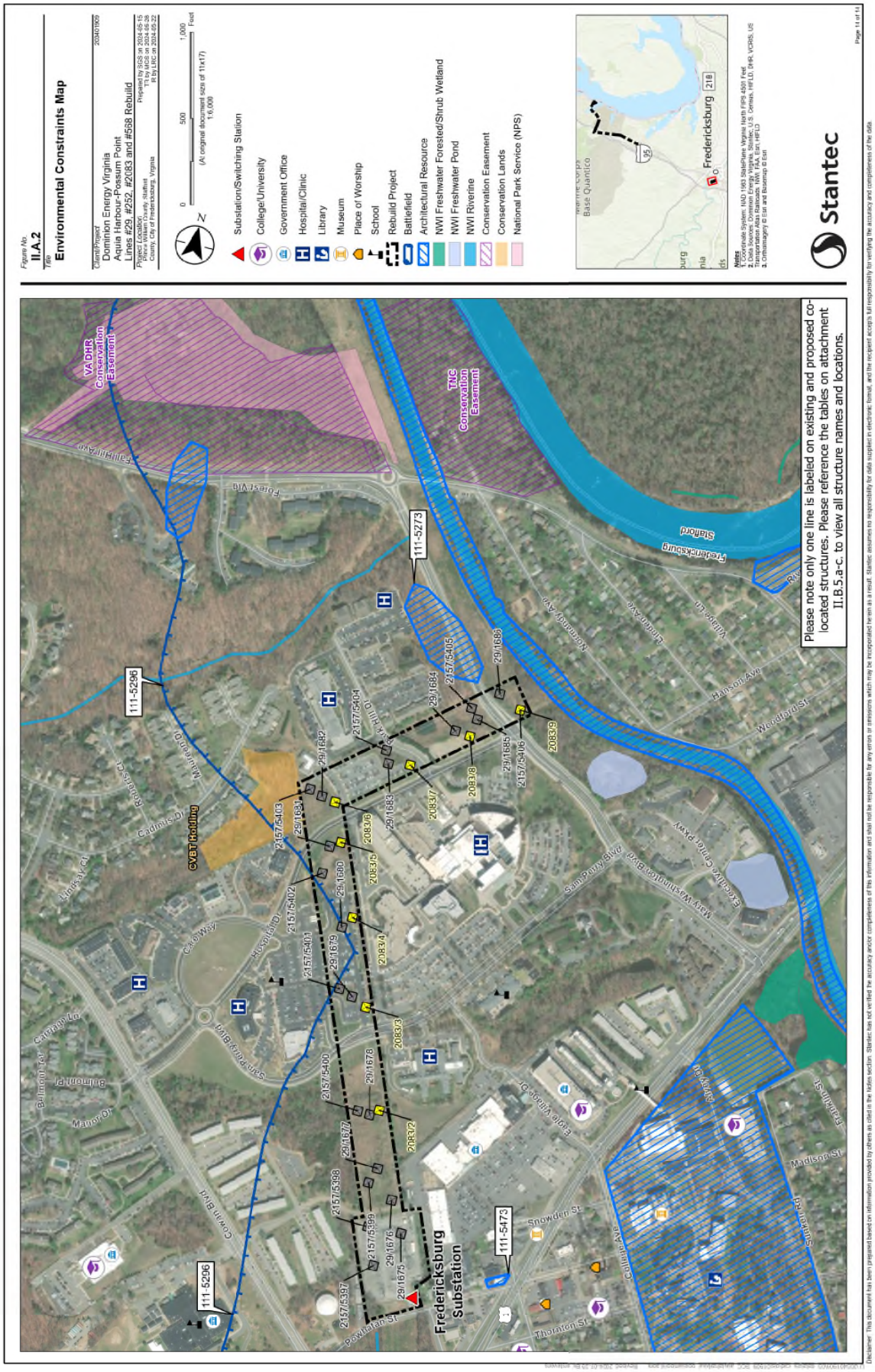


Figure No.
II.A.2
Title
Environmental Constraints Map
Client/Project
Dominion Energy Virginia
Aquia Harbour-Possum Point
Lines #29, #252, #2083 and #568 Rebuild
Project Location
Prince William County, Stafford County, City of Fredericksburg, Virginia
Substation/Switching Station
College/University
Government Office
Hospital/Clinic
Library
Museum
Place of Worship
School
Rebuild Project
Battlefield
Architectural Resource
NWI Freshwater Forested/Shrub Wetland
NWI Freshwater Pond
NWI Riverine
Conservation Easement
Conservation Lands
National Park Service (NPS)
VA DHR Conservation Easement
TNC Conservation Easement
CVBT Holding
Fredericksburg Substation
111-5296
111-5273
111-5473
Please note only one line is labeled on existing and proposed co-located structures. Please reference the tables on attachment II.B.5.a-c. to view all structure names and locations.
Fredericksburg
Stantec

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: The Rebuild Project is located within existing rights-of-way or on Company-owned property with the exception of the 0.2 mile of 50 feet of additional right-of-way required between existing Structure #252/5568 (#29/1835) and Fuller Road Substation. The limited space in the corridor is due to existing underground and overhead distribution lines and fiber cables within the right-of-way corridor from Fuller Road Substation. To maintain adequate distance from these facilities, additional right-of-way is needed.

The Company proposes rebuilding the existing 0.1 mile segment northwest of the Fuller Road Substation, requiring additional right-of-way. Starting at Structure #252/5566 (#29/1833), there is no additional right-of-way. As Lines #252 and #29 travel east, the right-of-way will expand to include an additional 67 feet of width at the eastern edge of Mars Station Road. This design aims to minimize lateral loading and line angle on the proposed substation frame structure. To achieve this, the alignment of the last structure before reaching the substation will shift north, necessitating additional right-of-way for proper clearances.

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:

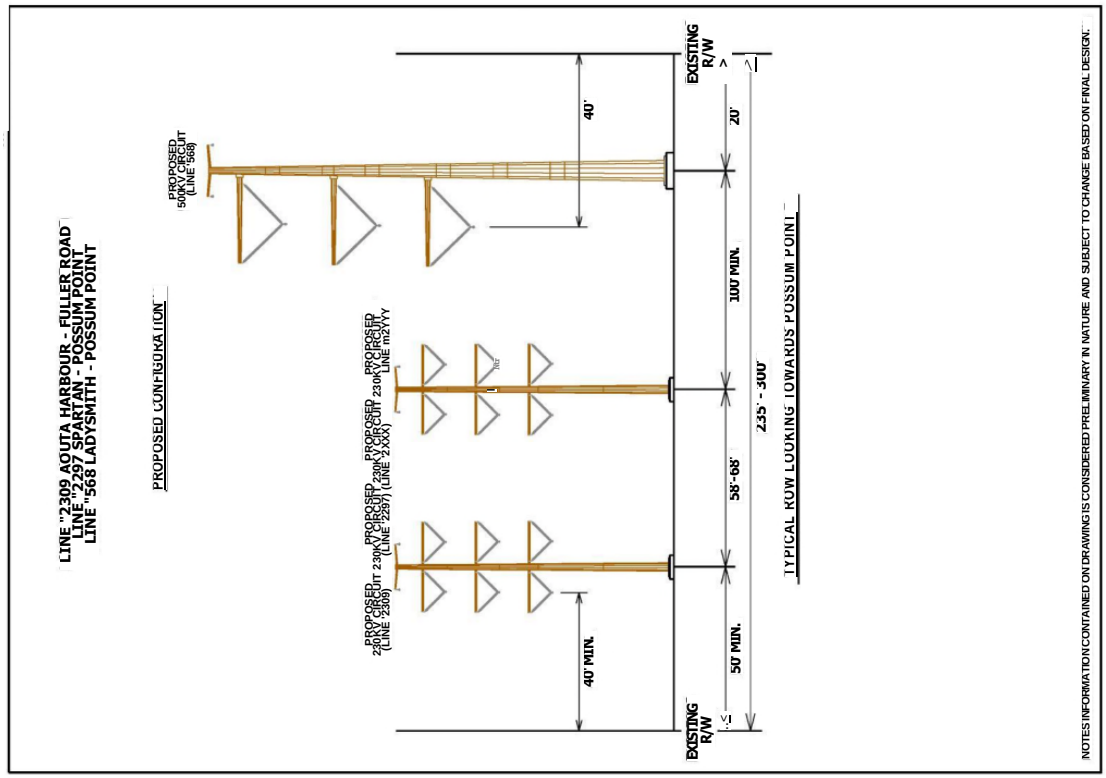
a. ROW width for each cross section drawing;

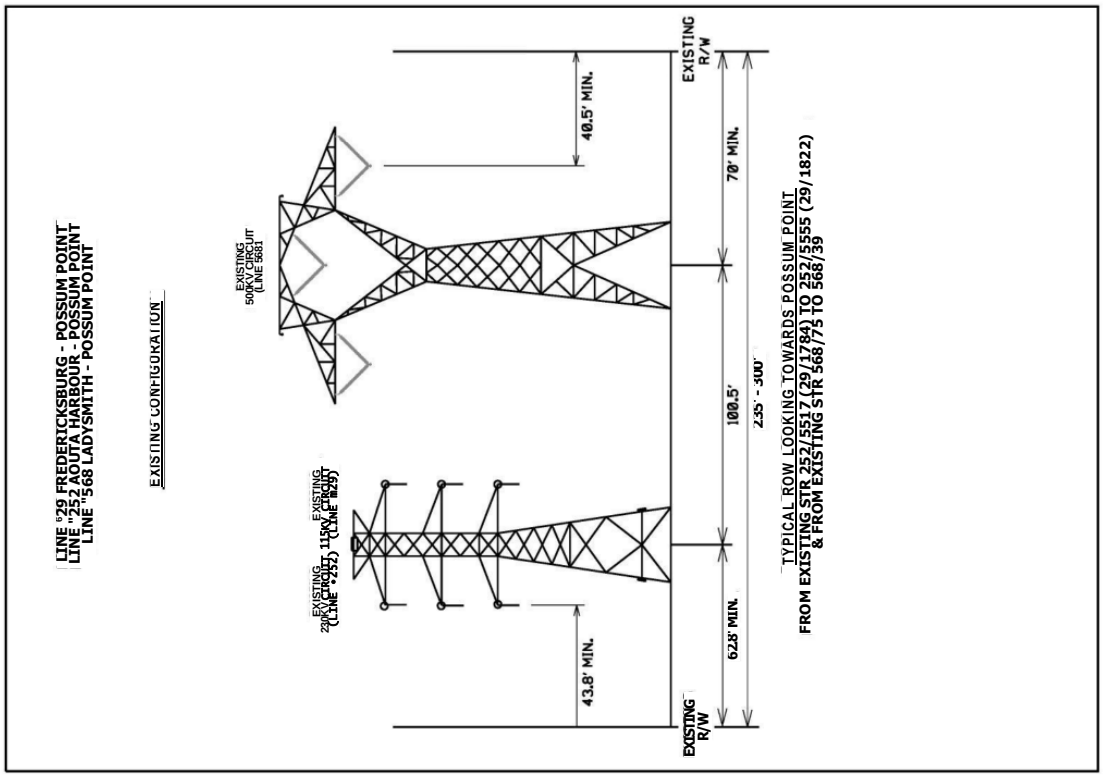
b. Lateral distance between the conductors and edge of ROW;

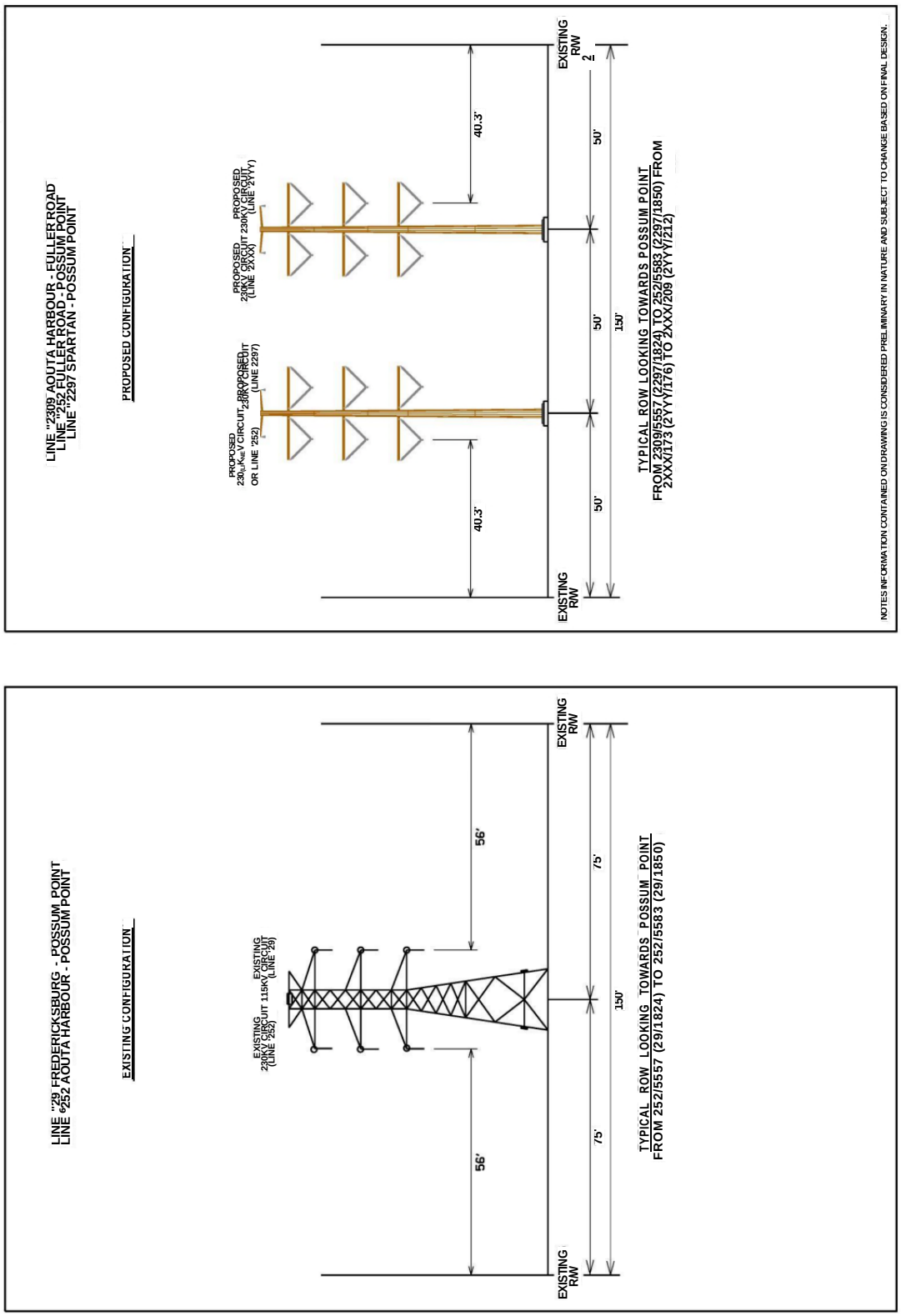
c. Existing utility facilities on the ROW; and

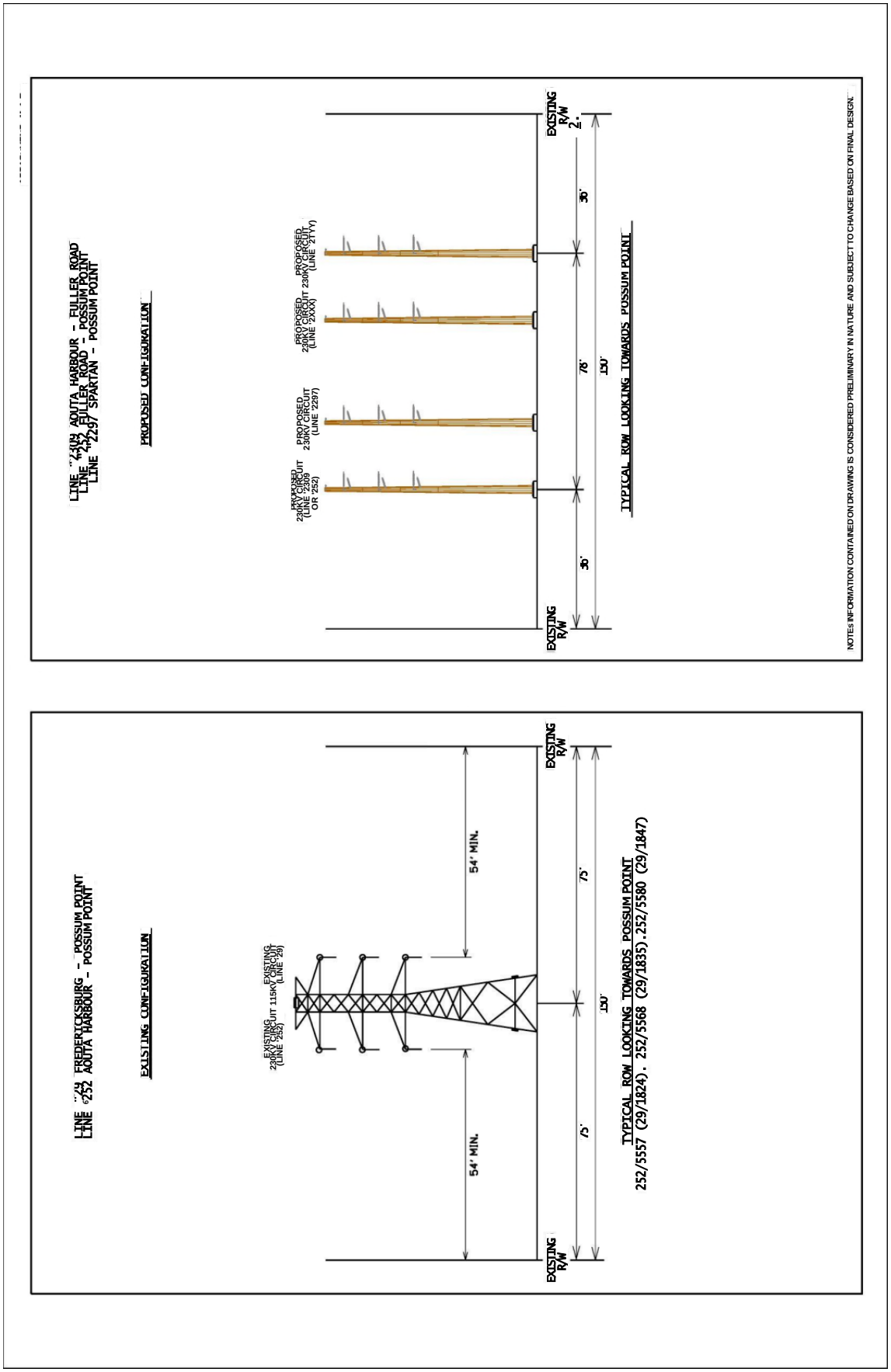
d. For lines being rebuilt in existing ROW, provide all of the above (i) as it currently exists, and (ii) as it will exist at the conclusion of the proposed project.

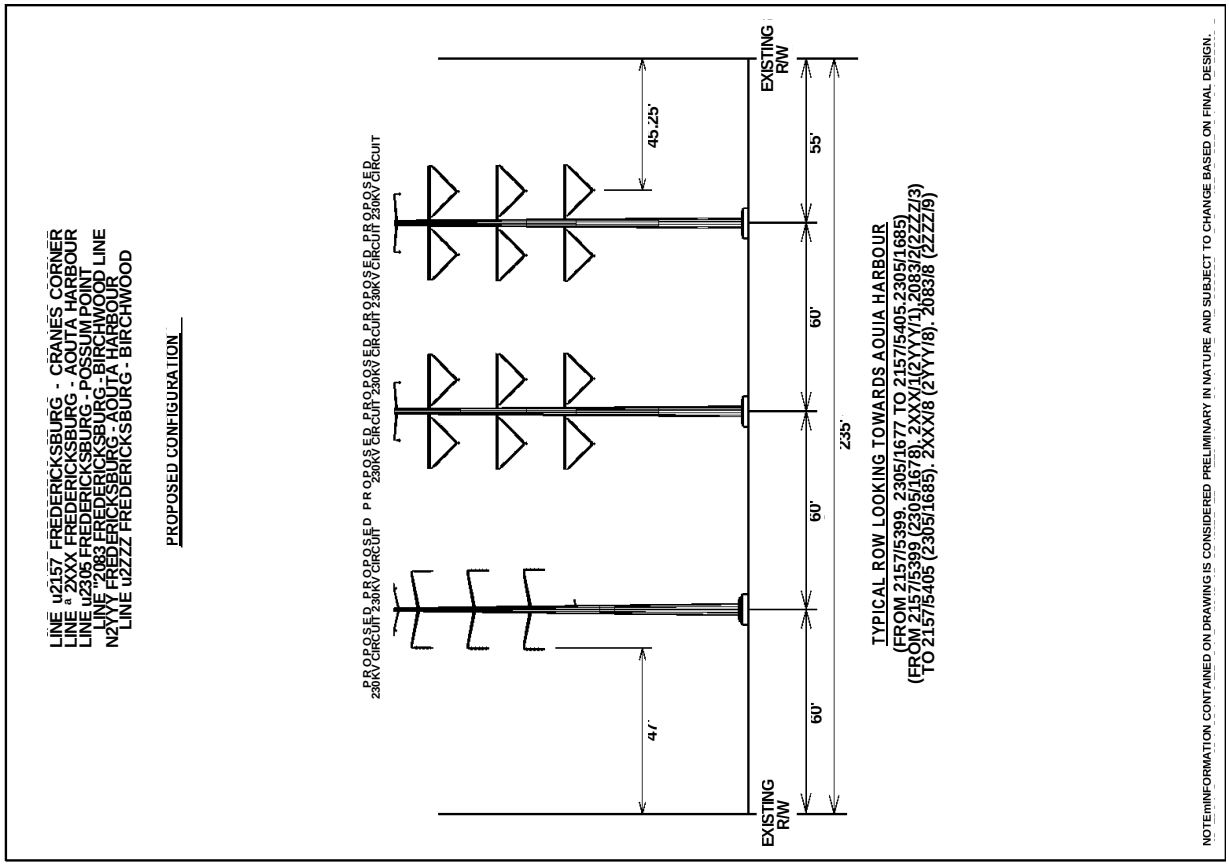
Response: See Attachments II.A.5.a-d.

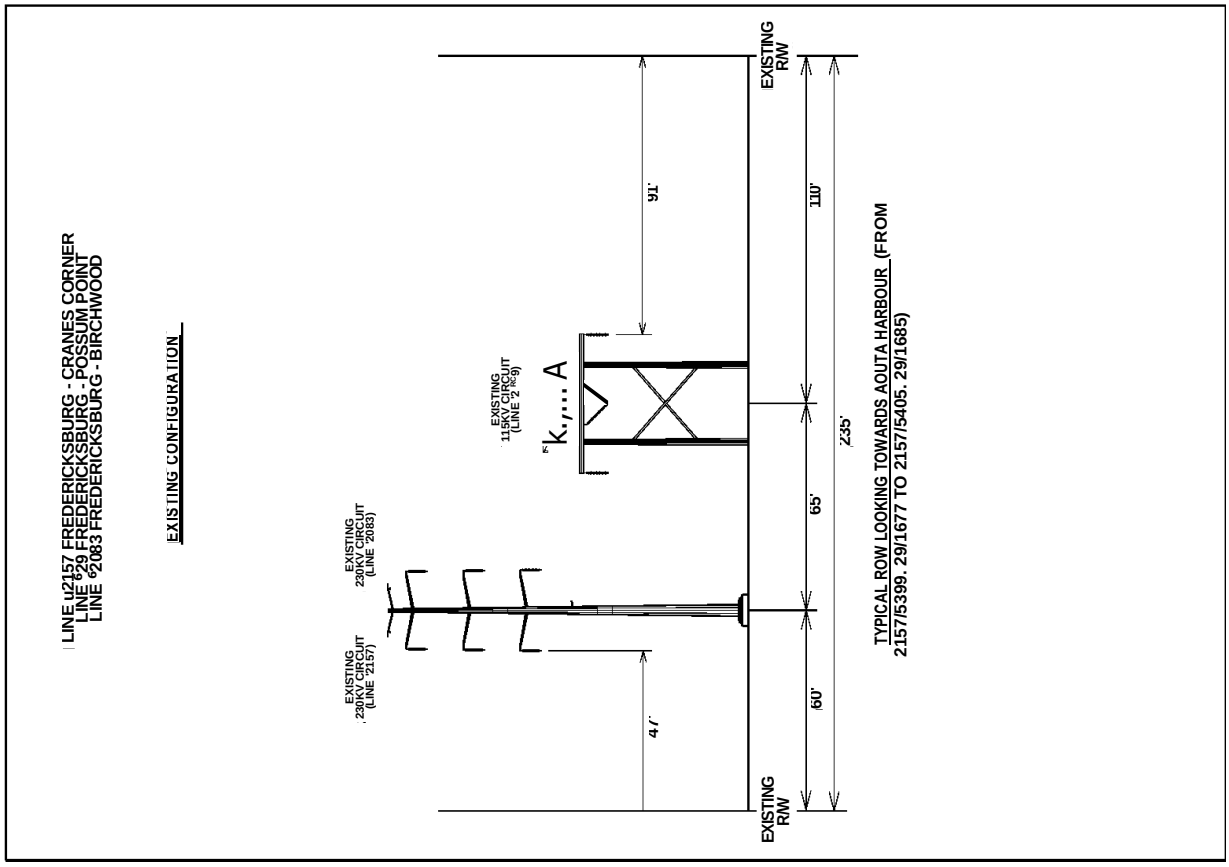

LINE #2309 AQUIA HARBOUR - FULLER ROAD
LINE #2297 SPARTAN - POSSUM POINT
LINE #568 LADYSMITH - POSSUM POINT
PROPOSED CONFIGURATION
PROPOSED 500KV CIRCUIT (LINE 568)
PROPOSED 230KV CIRCUIT (LINE 2309)
PROPOSED 230KV CIRCUIT (LINE 2297) (LINE 2XXX)
PROPOSED 230KV CIRCUIT LINE m2YY
40'
40' MIN.
50' MIN.
58'-68'
100' MIN.
235' - 300'
20'
EXISTING R/W
TYPICAL ROW LOOKING TOWARDS POSSUM POINT
NOTES:INFORMATION CONTAINED ON DRAWING IS CONSIDERED PRELIMINARY IN NATURE AND SUBJECT TO CHANGE BASED ON FINAL DESIGN.


LINE #29 FREDERICKSBURG - POSSUM POINT
LINE #252 AQUIA HARBOUR - POSSUM POINT
LINE #568 LADYSMITH - POSSUM POINT
EXISTING CONFIGURATION
EXISTING 230KV CIRCUIT (LINE #252)
EXISTING 115KV CIRCUIT (LINE #29)
EXISTING 500KV CIRCUIT (LINE 568)
43.8' MIN.
40.5' MIN.
62.8' MIN.
100.5'
70' MIN.
235' - 300'
EXISTING R/W
TYPICAL ROW LOOKING TOWARDS POSSUM POINT
FROM EXISTING STR 252/5517 (29/1784) TO 252/5555 (29/1822)
& FROM EXISTING STR 568/75 TO 568/39


LINE "2309 AOUTA HARBOUR - FULLER ROAD
LINE "252 FULLER ROAD - POSSUM POINT
LINE "2297 SPARTAN - POSSUM POINT
PROPOSED CONFIGURATION
PROPOSED 230kV CIRCUIT (LINE 2XXX)
PROPOSED 230kV CIRCUIT (LINE 2YYY)
PROPOSED 230kV CIRCUIT (LINE 2297)
OR LINE "252)
40.3'
50'
50'
150'
EXISTING R/W
EXISTING R/W
TYPICAL ROW LOOKING TOWARDS POSSUM POINT
FROM 2309/5557 (2297/1824) TO 252/5583 (2297/1850) FROM
2XXX/173 (2YYY/176) TO 2XXX/209 (2YYY/212)
NOTES INFORMATION CONTAINED ON DRAWING IS CONSIDERED PRELIMINARY IN NATURE AND SUBJECT TO CHANGE BASED ON FINAL DESIGN.
LINE "29 FREDERICKSBURG - POSSUM POINT
LINE "252 AOUTA HARBOUR - POSSUM POINT
EXISTING CONFIGURATION
EXISTING 230kV CIRCUIT (LINE 252)
EXISTING 115kV CIRCUIT (LINE 29)
56'
75'
150'
EXISTING R/W
EXISTING R/W
TYPICAL ROW LOOKING TOWARDS POSSUM POINT
FROM 252/5557 (29/1824) TO 252/5583 (29/1850)


LINE #2103 AQUTA HARBOUR - FULLER ROAD
LINE #252 FULLER ROAD - POSSUM POINT
LINE #2297 SPARTAN - POSSUM POINT
PROPOSED CONFIGURATION
PROPOSED 230KV CIRCUIT (LINE #2309 OR 252)
PROPOSED 230KV CIRCUIT (LINE #2297)
PROPOSED 230KV CIRCUIT (LINE #2XXX)
PROPOSED 230KV CIRCUIT (LINE #2YY)
EXISTING R/W
EXISTING R/W
30'
70'
150'
30'
TYPICAL ROW LOOKING TOWARDS POSSUM POINT
NOTES: INFORMATION CONTAINED ON DRAWING IS CONSIDERED PRELIMINARY IN NATURE AND SUBJECT TO CHANGE BASED ON FINAL DESIGN.
LINE #2104 FREDERICKSBURG - POSSUM POINT
LINE #252 AQUTA HARBOUR - POSSUM POINT
EXISTING CONFIGURATION
EXISTING 230KV CIRCUIT (LINE #252)
EXISTING 115KV CIRCUIT (LINE #29)
54' MIN.
54' MIN.
EXISTING R/W
EXISTING R/W
75'
75'
150'
TYPICAL ROW LOOKING TOWARDS POSSUM POINT
252/5557 (29/1824). 252/5568 (29/1835).252/5580 (29/1847)


LINE u2157 FREDERICKSBURG - CRANES CORNER
LINE ª 2XXX FREDERICKSBURG - AQUTA HARBOUR
LINE u2305 FREDERICKSBURG - POSSUM POINT
LINE "2083 FREDERICKSBURG -BIRCHWOOD LINE
N2YYY FREDERICKSBURG - AQUTA HARBOUR
LINE u2ZZZ FREDERICKSBURG - BIRCHWOOD
PROPOSED CONFIGURATION
PROPOSED PROPOSED PROPOSED PROPOSED PROPOSED PROPOSED
230KV CIRCUIT 230KV CIRCUIT 230KV CIRCUIT 230KV CIRCUIT 230KV CIRCUIT 230KV CIRCUIT
41'
45.25'
EXISTING R/W
60'
60'
60'
55'
235'
TYPICAL ROW LOOKING TOWARDS AQUIA HARBOUR
(FROM 2157/5399, 2305/1677 TO 2157/5405.2305/1685)
(FROM 2157/5399 (2305/1678), 2XXX/1(2YYY/1), 2083/2(2ZZZ/3)
TO 2157/5405 (2305/1685), 2XXX/8 (2YYY/8), 2083/8 (2ZZZ/9)
NOTEmINFORMATION CONTAINED ON DRAWING IS CONSIDERED PRELIMINARY IN NATURE AND SUBJECT TO CHANGE BASED ON FINAL DESIGN.


LINE u2157 FREDERICKSBURG - CRANES CORNER
LINE "29 FREDERICKSBURG - POSSUM POINT
LINE "2083 FREDERICKSBURG - BIRCHWOOD
EXISTING CONFIGURATION
EXISTING 230KV CIRCUIT (LINE "2157)
EXISTING 230KV CIRCUIT (LINE "2083)
EXISTING 115KV CIRCUIT (LINE 2"8/9)
41'
91'
EXISTING R/W
60'
65'
110'
235'
TYPICAL ROW LOOKING TOWARDS AQUTA HARBOUR (FROM
2157/5399. 29/1677 TO 2157/5405. 29/1685)

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 Company obtained several easements along the existing right-of-way of the Rebuild Project corridor for initial construction of Lines #29 and #252 in late 1940s and early1950s. The Company obtained several easements along the existing right-of-way of the Rebuild Project corridor for initial construction of Line #568 in 1927. The Company obtained most of easements along the existing right-of-way of the Rebuild Project corridor for initial construction of Line #2083 in 1956. New right-of-way will be required for approximately 0.2 mile east and 0.1 mile west of Fuller Road Substation.

See Attachment II.A.6 for conservation easements in the vicinity of the Rebuild Project, and Section 2.L of the DEQ Supplement for a discussion of potential conservation easements. Conservation easements were established after the existing transmission corridor has been established.

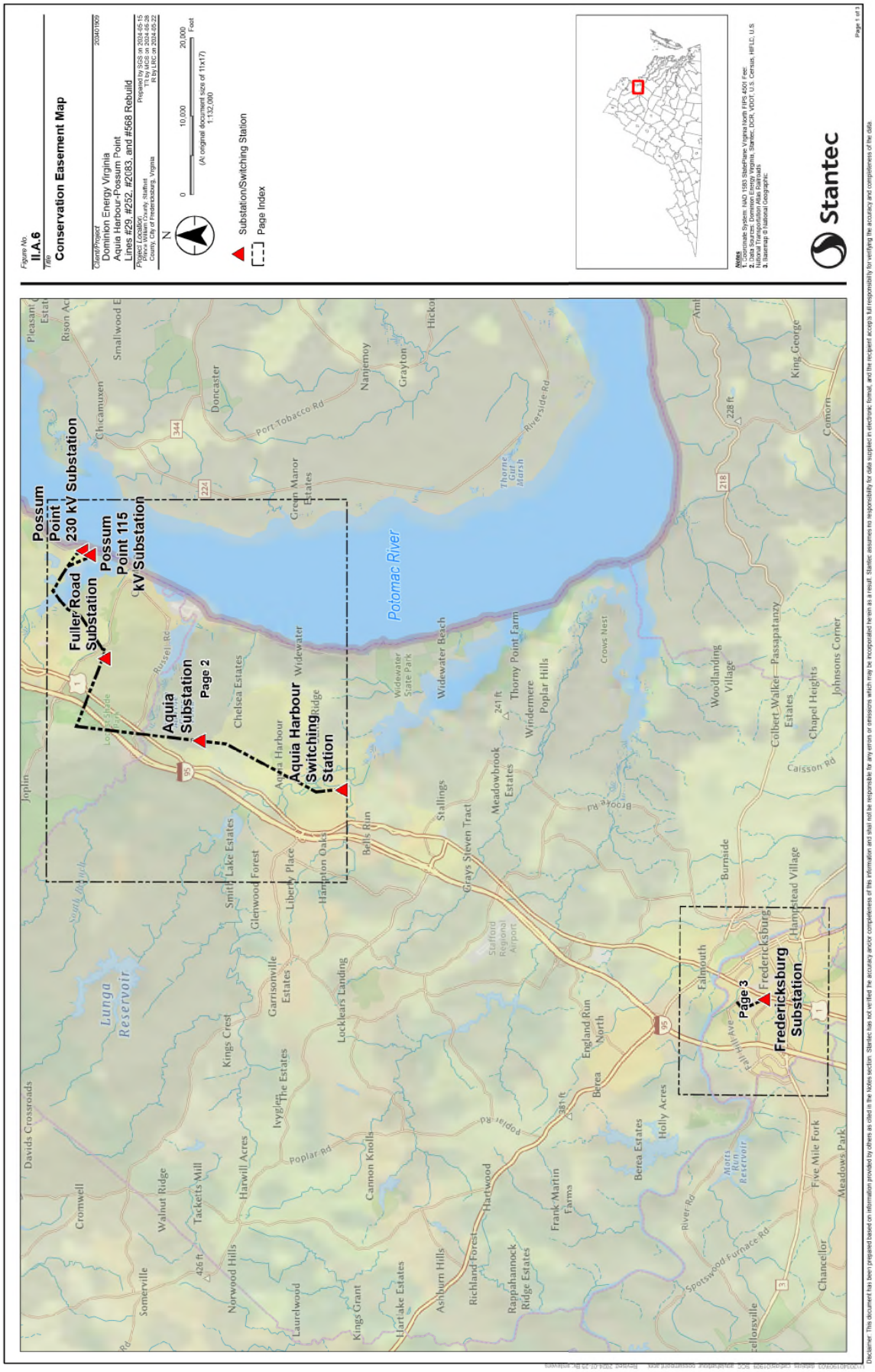


Figure No.
II.A.6
Title
Conservation Easement Map
Client/Project
Dominion Energy Virginia
Aquia Harbour-Possum Point
Lines #29, #252, #2083, and #568 Rebuild
20240909
Project Location
Prince William County, Stafford
County, City of Fredericksburg, Virginia
Prepared by SIGS on 2024-05-15
TR by MDB on 2024-06-28
IR by LMC on 2024-07-22
N
0
10,000
20,000
Foot
(At original document size of 11x17)
1:132,000
Substation/Switching Station
Page Index
Possum Point 230 kV Substation
Possum Point 115 kV Substation
Fuller Road Substation
Aquia Substation
Page 2
Aquia Harbour Switching Station
Fredericksburg Substation
Page 3
Potomac River
Lunga Reservoir
Notes
1. Coordinate System: NAD 1983 StatePlane Virginia North FIPS 4501 Feet
2. Data Sources: Esri, HERE, Garmin, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), (c) OpenStreetMap contributors, and the GIS User Community, Esri, HERE, Garmin, (c) OpenStreetMap contributors, and the GIS User Community, Esri, HERE, Garmin, SafeGraph, GeoTechnologies, Inc, METI/NASA, USGS, Bureau of Land Management, EPA, NPS, US Census Bureau, USDA, USFWS, Esri, HERE, Garmin, INCREMENT P, Esri, HERE, Garmin, INCREMENT P, U.S. Census, HIFLD, U.S. National Transportation Atlas Railroads
3. Basemap @ National Geographic
Stantec
Page 1 of 3
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.

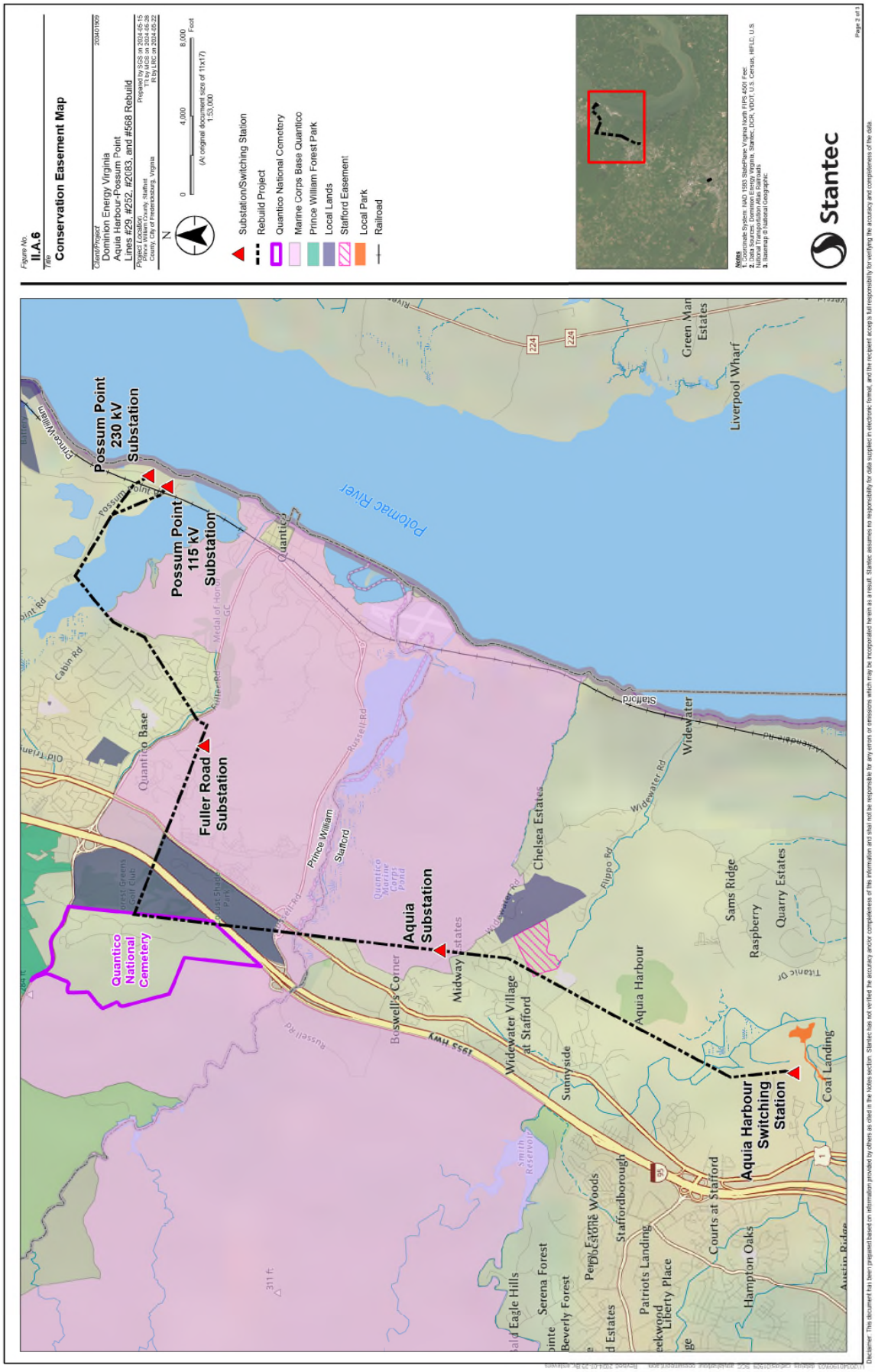


Figure No.
II.A.6
Title
Conservation Easement Map
Client/Project
Dominion Energy Virginia
Aquia Harbour-Possum Point
Lines #29, #252, #2083, and #568 Rebuild
Project Location
Prince William County, Stafford
County, City of Fredericksburg, Virginia
Prepared by SGS on 2024-05-15
TR by MGS on 2024-06-28
RS by LKC on 2024-07-22
N
0
4,000
8,000
Feet
(At original document size of 11x17)
1:33,000
Substation/Switching Station
Rebuild Project
Quantico National Cemetery
Marine Corps Base Quantico
Prince William Forest Park
Local Lands
Stafford Easement
Local Park
Railroad
Possum Point 230 kV Substation
Possum Point 115 kV Substation
Fuller Road Substation
Aquia Substation
Aquia Harbour Switching Station
Quantico National Cemetery
Potomac River
Quantico Base
Quantico Marine Corps Base
Liverpool Wharf
Green Manor Estates
Chelsea Estates
Widewater
Widewater Village at Stafford
Midway Estates
Sunnyside
Aquia Harbour
Sams Ridge
Raspberry
Quarry Estates
Courts at Stafford
Hampton Oaks
Staffordborough
Patriots Landing
Liberty Place
Serena Forest
Beverly Forest
Eagle Hills
Coal Landing
Boswell's Corner
Stafford
Prince William
Russell Rd
Widewater Rd
Rippo Rd
Cabin Rd
Possum Point Rd
Old Trail
Smith Reservoir
Notes
1. Coordinate System: NAD 1983 StatePlane Virginia North FIPS 4501 Feet
2. Data Sources: Esri, Maxar, Earthstar Geographics, and the GIS User Community, Stantec, USDA, USGS, US Census, HIFLD, U.S. National Transportation Atlas Railroads
3. Basemap @ National Geographic
Stantec
Page 2 of 3
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.

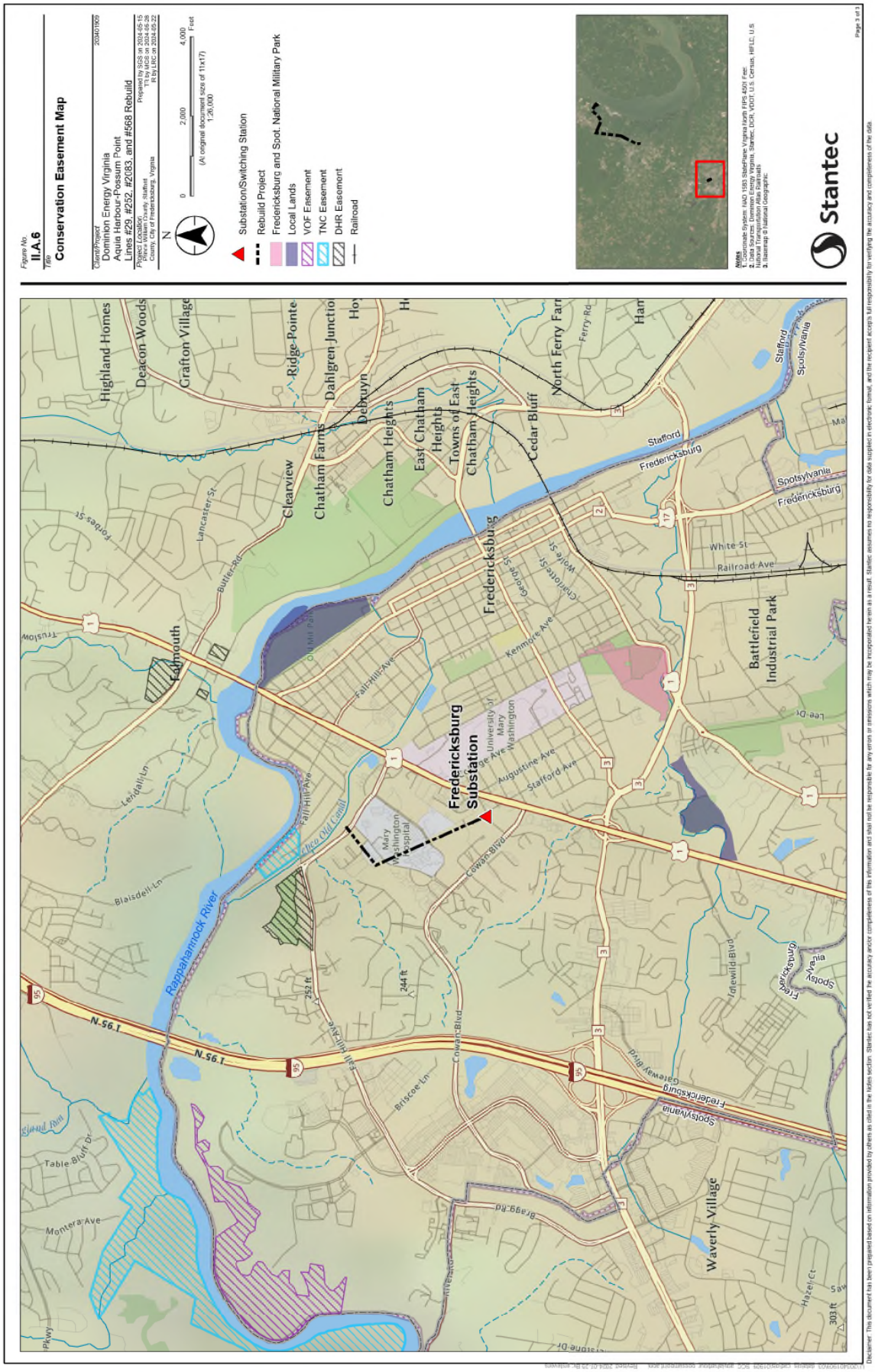


Figure No.
II.A.6
Title
Conservation Easement Map
Client/Project
Dominion Energy Virginia
Aquia Harbour-Possum Point
Lines #29, #252, #2083, and #568 Rebuild
Project Location
Prince William County, Stafford County, City of Fredericksburg, Virginia
Prepared by SGS on 2024-05-15
TR by MOB on 2024-06-28
RS by LKC on 2024-07-22
N
0
2,000
4,000
Feet
(At original document size of 11x17)
1:24,000
Substation/Switching Station
Rebuild Project
Fredericksburg and Spot. National Military Park
Local Lands
VOF Easement
TNC Easement
DHR Easement
Railroad
Notes
1. Coordinate System: NAD 1983 StatePlane Virginia North FIPS 4501 Feet
2. Data Sources: Esri, TomTom, Garmin, Foursquare, FAO, METI/NASA, USGS, Bureau of Land Management, Esri, HERE, Garmin, (c) OpenStreetMap contributors, and the GIS User Community, Sources: Esri, Maxar, Earthstar Geographics, and the GIS User Community, Esri, HERE, Garmin, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), (c) OpenStreetMap contributors, and the GIS User Community, Esri, HERE, Garmin, SafeGraph, GeoTechnologies, Inc, METI/NASA, USGS, Bureau of Land Management, Esri, HERE, U.S. National Transportation Atlas Railroads
3. Basemap @ National Geographic
Stantec
Page 3 of 3
Highland Homes
Deacon Woods
Crafton Village
Ridge-Pointe
Dahlgren Junctio
Clearview
Chatham Farms
Debruyn
Chatham Heights
East Chatham Heights
Towns of East Chatham Heights
Cedar Bluff
North Ferry Farm
Ferry Rd
Stafford
Fredericksburg
Spotsylvania
Fredericksburg
Forbes St
Lancaster St
Butler Rd
Clearview
Chatham Farms
Chatham Heights
Fredericksburg
George St
Charlotte St
Wolfe St
Kenmore Ave
Fall Hill Ave
Old Mill Park
Eskmouth
Trustow
White St
Railroad Ave
Battlefield Industrial Park
Lee Dr
University of Mary Washington
Augustine Ave
Stafford Ave
Fredericksburg Substation
Mary Washington Hospital
Old Canal
Fall Hill Ave
Cowan Blvd
Lefdall Ln
Blaisdell Ln
Rappahannock River
N-S6.1
95
252 ft
244 ft
Briscoe Ln
Brass Rd
Table Bluff Dr
Montera Ave
Parkway
Waverly Village
Hazel Ct
303 ft
Fredericksburg Gateway Blvd
Gateway Blvd
Spotsylvania
Free Bridge
Spotsylvania
Stafford
Fredericksburg

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 majority of the existing transmission line corridor subject to the Rebuild Project, which ranges from 150 to 300 feet wide, currently is maintained for operation of the existing transmission facilities. However, 0.2 mile of additional right-of-way is needed east of Fuller Road Substation, and a 0.1 mile wedge of additional right-of-way is required west of Fuller Road Substation. Additionally, approximately 65 feet of the Company's western edge of the right-of-way is unmaintained between Aquia Harbour Station and Aquia Substation but will be required for the Rebuild Project. The Company intends to clear any forestland within new right-of-way and remove any trees encroaching into the existing right-of-way as part of the Rebuild Project.

The trees within newly cleared right-of-way will be cut to be no more than three inches above ground level and no grubbing of roots or stumps will occur, except as needed to install structure foundations. Tree removal within wetland areas and within 100 feet of streams will be accomplished by hand or from equipment placed upon mats. Cut trees from the cleared right-of-way will be limbed and either removed from the right-of-way or mulched and chipped into upland areas. Care will be taken not to leave debris in streams or wetland areas that may cause an impediment to the flow of water. No mulching will occur in wetlands. Erosion control devices will be used where applicable on an ongoing basis, as appropriate, during all clearing and construction activities.

Trimming of tree limbs along the edge of the right-of-way may be conducted to support construction activities for the Rebuild Project. 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 also be cut to be no more than three inches above ground level, limbed, and will remain where felled. No grubbing of roots or stumps will occur. 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 or from equipment placed on mats in wetland areas and within 100 feet of streams, if applicable. Care will be taken not to leave debris in streams or wetland areas that may cause an impediment to the flow of water. No mulching will occur in wetlands.

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 General Erosion

and Sedimentation Control Specifications for the Construction and Maintenance of Electric Transmission Lines that is approved yearly by the Virginia Department of Environmental Quality ("DEQ"). Time of year and weather conditions may affect when permanent stabilization takes place.

In addition to the clearing required within new right-of-way at Fuller Road Substation and encroachments into existing right-of-way between Aquia Harbour Station and Aquia Substation, limited clearing or limbing may be required to accommodate construction access. Clearing will be done in accordance with the Company's Integrated Vegetation Management Plan ("IVMP") practice with no grabbing of roots or stump materials. The remainder of the existing right-of-way is currently cleared and maintained.

The 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/or 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 lines;
- Will not restrict future line design flexibility; and
- Will not permanently interfere with future construction.

Subject to the terms of the easement, examples of typical permitted uses include but are not limited to:

- Agriculture;
- Hiking Trails;
- Fences;
- Perpendicular Road Crossings;
- Perpendicular Utility Crossings;
- Residential Driveways; and
- 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 the existing right-of-way. This approach generally minimizes impacts on the natural and human environments. This approach also is consistent with FERC Guideline #1 (included as Attachment 1 to these Guidelines), which states that existing rights-of-way should be given priority when adding new transmission facilities, and §§ 56-46.1 and 56-529 of the Code of Virginia, which promote the use of existing rights-of-way for new transmission facilities.

The Rebuild Project is located in existing right-of-way or on Company-owned property, with the exception of a small area (0.2 mile) between Fuller Road Substation and existing Structure #252/5568 (#29/1835) where the Company will need to expand its right of way by approximately 50 feet, and a small area (0.1 mile) northwest of the Fuller Road Substation. Because 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 where existing right-of-way is sufficient.

The existing right-of-way crosses the easements and facilities listed in Section II.A.6 and as depicted on Attachment II.A.6.

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: The Company plans to rebuild the corridor in a manner that minimizes outage durations on Lines #29, #252, #568, and #2083. Assuming that the Commission issues a final order by February 28, 2025, the Company will commence access and foundation construction in the first quarter of 2026.

The Company plans to use the newly built additional circuits as temporary circuits for Line #29 and Line #252 during construction. This will require installing temporary jumpers to connect existing lines to the newly installed additional circuits. Doing so will reduce the outage durations on the lines and allow for segments of the lines to be wrecked and rebuilt during the PJM peak seasons without necessitating an outage. Thus, the Company has submitted outages to support the construction sequence as outlined below:

Season	Work to Be Completed
Spring 2026	• Install foundations, single circuit structures, and conductor to relocate Line #568 to the east side of the corridor during March through June shoulder season outage. • Install foundations, double circuit monopole structures, and conductor for new third and fourth 230 kV circuits. • Install temporary configuration between Lines #252 and #29 and newly installed double circuit structures. • Wreck and rebuild Line #2083 on double circuit monopoles with one vacant arm between Fredericksburg Substation and Hospital Junction.
Summer 2026	• Wreck and rebuild deenergized Lines #252 and #29 between installed temporary configuration without any outages. • Install foundations where clearances allow to facilitate installation of Line #568 and additional third/fourth 230 kV circuit structures and conductor during next outage season.
Fall 2026	• Remove temporary configuration on Lines #252 and #29. • Install remaining foundations, single circuit structures, and conductor to relocate Line #568 to the east side of the corridor during September through December shoulder season outage. • Install foundations, double circuit monopole structures, and conductor for new third and fourth 230 kV circuits.

Season	Work to Be Completed
	• Install temporary configuration between Lines #252 and #29 and newly installed double circuit structures.
Winter 2026	• Wreck and rebuild deenergized Lines #252 and #29 between installed temporary configuration without outage. • Install temporary configuration on Line #29 to keep MCBQ energized during Fuller Road Substation work without outage.
Spring 2027	• Remove temporary configuration on Lines #252 and #29. • Wreck Line #252 between Structure #252/5518 and Fuller Road Substation and rebuild on double circuit monopoles. • Wreck Line #29 between Structure #29/1785 and the Quantico Tap. Rebuild on double circuit monopoles.
Summer 2027	• Install all equipment and matting to facilitate crossing of Quantico Creek during next outage.
Fall 2027	• Wreck Line #29 between the Quantico Tap and Possum Point Station. Rebuild on double circuit monopoles. • Wreck Line #252 between the Quantico Tap and Possum Point Station. Rebuild on double circuit monopoles.
Winter 2027	• Continue to wreck Line #29 between the Quantico Tap and Possum Point Station. Rebuild on double circuit monopoles. • Continue to wreck Line #252 between the Quantico Tap and Possum Point Station. Rebuild on double circuit monopoles.
Spring 2028	• Remove all previously installed temporary configurations and jumpers. • Clear, grade and prepare ROW between Fuller Road Substation and future attachment point, Structure #29/3 for 115 kV feed to Quantico Substation.
Winter 2028	• Finalize all Fuller Road Substation work, energize four 230 kV lines.

This work schedule is subject to final engineering and is contingent upon obtaining necessary outages, the latter of which may be particularly challenging due to the amount of new load growth, rebuilds, and new builds scheduled to occur in this load area.

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: As noted in Section II.A.9, Attachment 1 of these Guidelines provides 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 almost entirely within the existing transmission corridor, as discussed in Section II.A.9.

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, the Rebuild Project is consistent with Guideline #2 (where practical, rights-of-way should avoid sites listed on the National Register of Historic Places. See Section III.A for a discussion of the Stage I Pre-Application Analysis prepared by Stantec, which is included with the DEQ Supplement as Attachment 2.I.2. The Company will coordinate with the Virginia Department of Historic Resources ("VDHR") through review of the Stage I Pre-Application Analysis regarding these initial findings.

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 applicant should contact the agencies early in the planning process). See Section III.B 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 transmission line rights-of-way, constructing facilities and maintaining rights-of-way after construction. Moreover, secondary uses of rights-of-way that are consistent with the safe maintenance and operation of facilities are permitted.

II. DESCRIPTION OF THE PROPOSED PROJECT

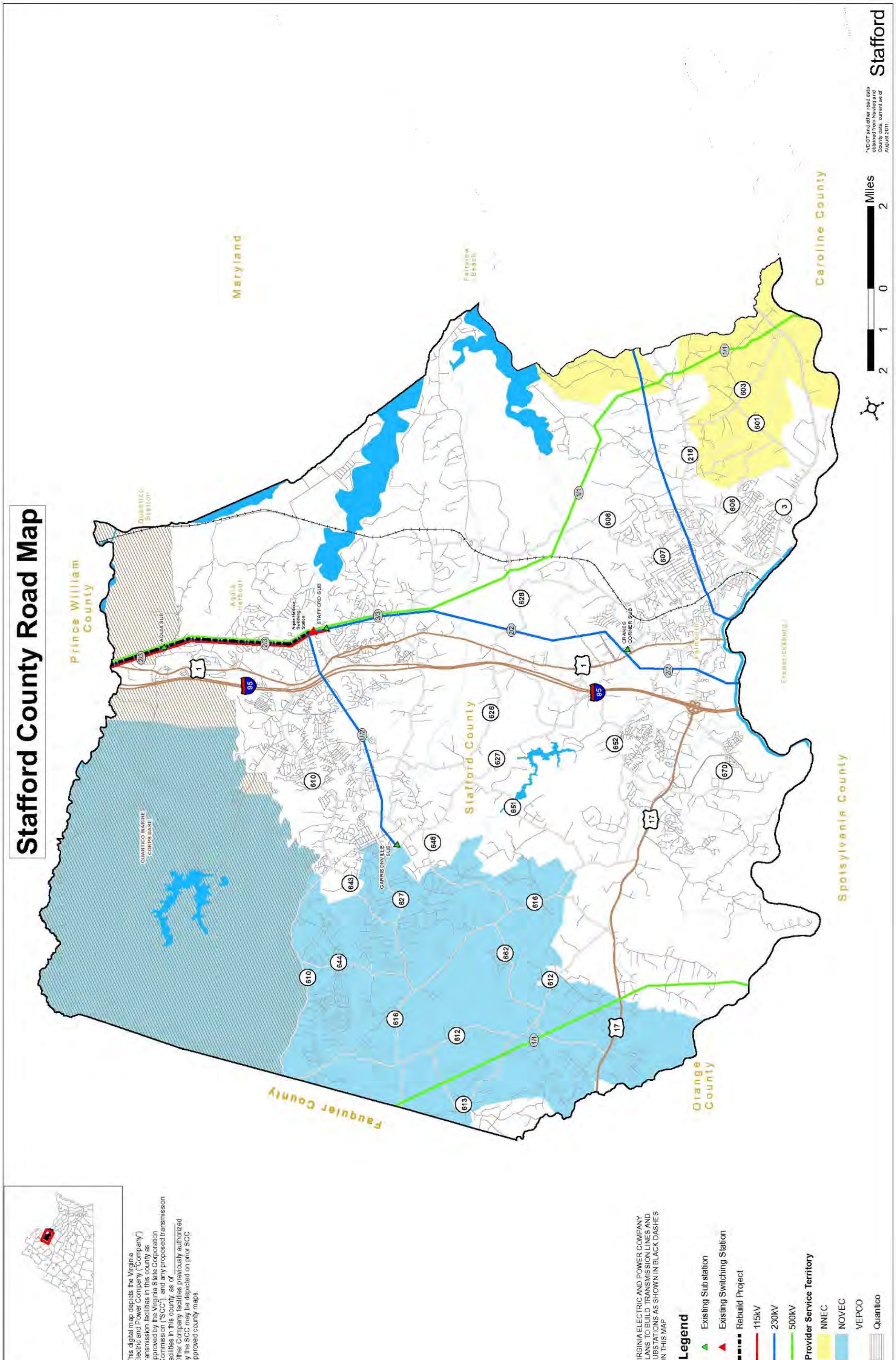
A. Right-of-way ("ROW")

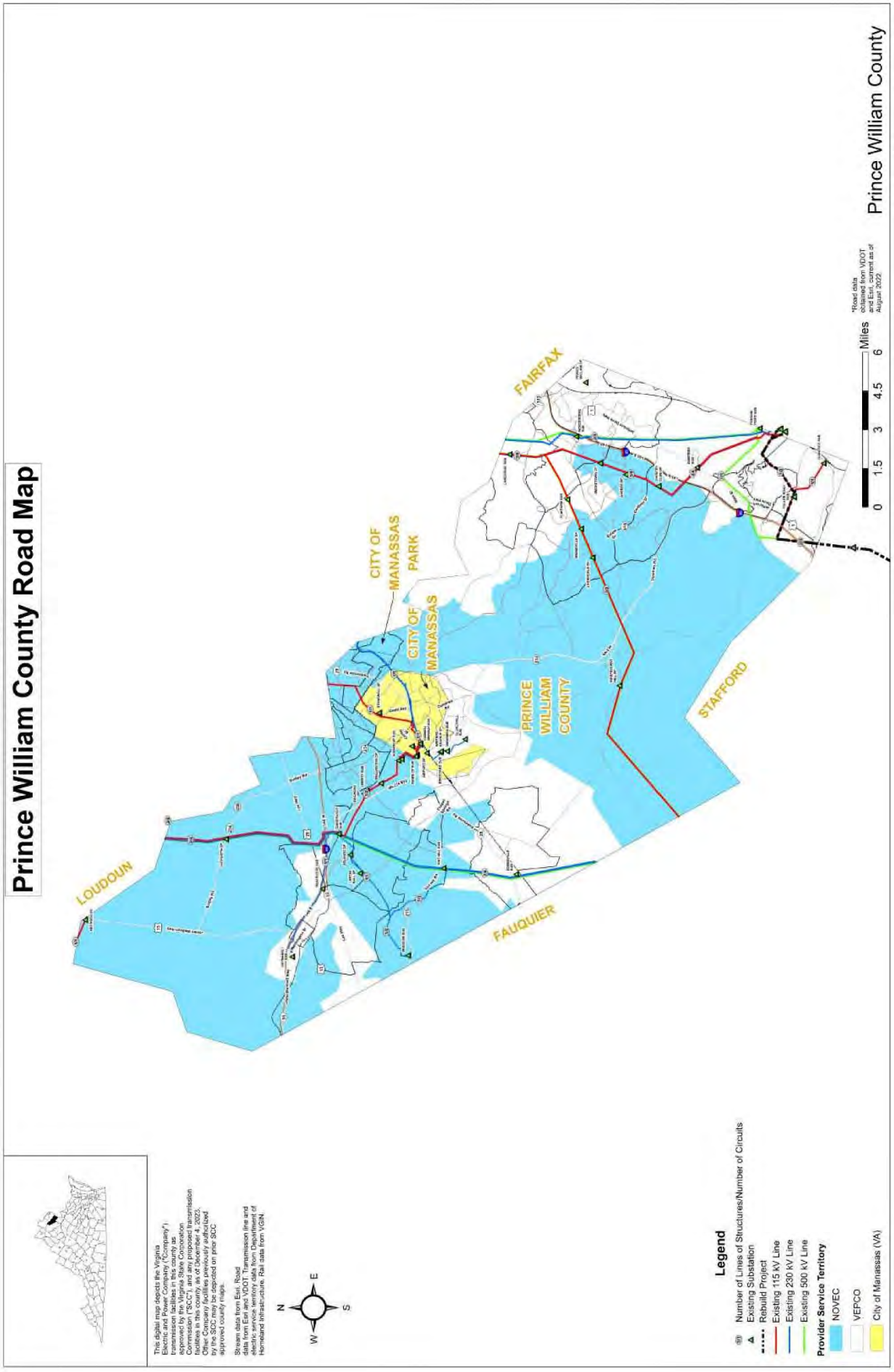
12. a. Detail counties and localities through which the line will pass. If any portion of the line will be located outside of the Applicant's certificated service area: (1) identify each electric utility affected; (2) state whether any affected electric utility objects to such construction; and (3) identify 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 crosses through Stafford County for approximately 5.1 miles, Prince William County for 6.7 miles, and the City of Fredericksburg for 0.7 mile. The Rebuild Project is located entirely within the Company's service territory.

b. Electronic versions of Virginia Department of Transportation ("VDOT") "General Highway Map" for Stafford County, Prince William County, and the City of Fredericksburg have been marked as required and will be made available with the Application. Reduced copies of the map are provided as Attachment II.A.12.b.


Stafford County Road Map
Prince William County
Maryland
Fairview Beach
Caroline County
Spotsylvania County
Orange County
Fauquier County
Stafford County
Quantico Station
Aquia Harbour
Fredericksburg
Falmouth
QUANTICO MARINE CORPS BASE
AQUIA SUB
Aquia Harbour Switching Station
STAFFORD SUB
GARRISONVILLE SUB
CRANES CORNER SUB
1
95
17
3
218
601
603
606
607
608
610
612
613
616
626
627
628
643
644
648
651
652
662
670
1/1
1/2
2/2
2/3
3/3
0 1 2 Miles
*VDOT and other road data obtained from Navteq and County data, current as of August 2011.
Stafford
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 ______ 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.
Legend
Existing Substation
Existing Switching Station
Rebuild Project
115kV
230kV
500kV
Provider Service Territory
NNEC
NOVEC
VEPCO
Quantico


Prince William County Road Map
LOUDOUN
FAIRFAX
CITY OF MANASSAS PARK
CITY OF MANASSAS
PRINCE WILLIAM COUNTY
STAFFORD
FAUQUIER
Legend
Number of Lines of Structures/Number of Circuits
Existing Substation
Rebuild Project
Existing 115 kV Line
Existing 230 kV Line
Existing 500 kV Line
Provider Service Territory
NOVEC
VEPCO
City of Manassas (VA)
N
E
S
W
0 1.5 3 4.5 6
Miles
*Road data obtained from VDOT and Esri, current as of August 2022
Prince William County

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: Line #29 will be designed to current 230 kV standards. No voltage upgrades are anticipated. The bundled 768.2 ACSS/TW/HS conductors will have a transfer capability of 1,573 MVA. Line #29 will be rebuilt on double circuit monopole structures.

Line #252 will be designed to current 230 kV standards. No voltage upgrades are anticipated. The bundled 768.2 ACSS/TW/HS conductors will have a transfer capability of 1,573 MVA. Line #252 will be rebuilt on double circuit monopole structures.

Line #2083 will be designed to 230 kV standards with no anticipated voltage upgrade. The bundled 768.2 ACSS/TW/HS conductors will have a transfer capability of 1,573 MVA. Line #2083 will be rebuilt on double circuit monopole structures.

Line #568 will be designed to current 500 kV standards with no anticipated voltage upgrade. Line #568 will be rebuilt on single circuit monopole structures. The proposed bundled 3-1351.5 ACSR (45/7) conductor will have a transfer capability of 4,356 MVA.

The additional double circuit will be designed to current 230 kV standards. No voltage upgrades are anticipated. The bundled 768.2 ACSS/TW/HS conductors will have a transfer capability of 1,573 MVA. These future lines will be constructed on double circuit monopole structures.

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: Lines #29, #252, and #2083 will have bundled two 768.2 ACSS/TW/HS conductors, which is a Company standard for new 230 kV construction. Line #568 will have bundled triple 1351.5 ACSR (45/7) conductors, which is also a Company standard.

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;

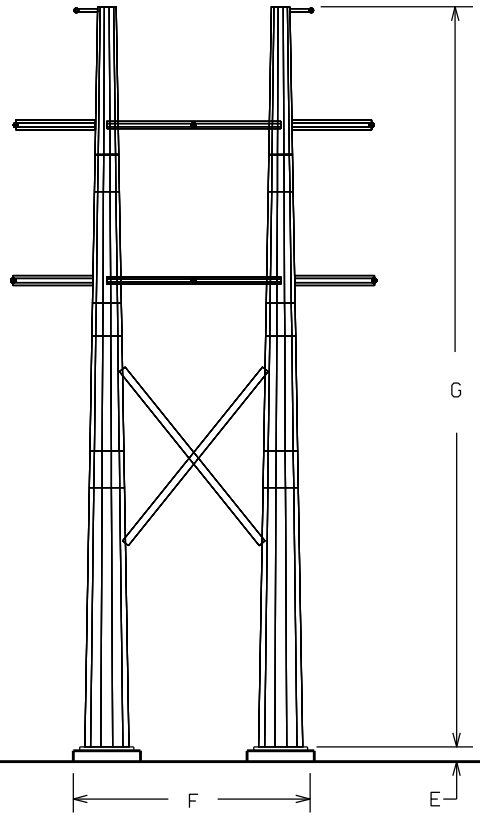
h. the maximum, minimum and average structure heights;

i. the average span length; and

j. the minimum conductor-to-ground clearances under maximum operating conditions.

Response: See Attachments II.B.3.a – II.B.3.o.

230KV LINE #2309 AQUIA HARBOUR - FULLER ROAD
230KV LINE #2297 AQUIA HARBOUR - POSSUM POINT



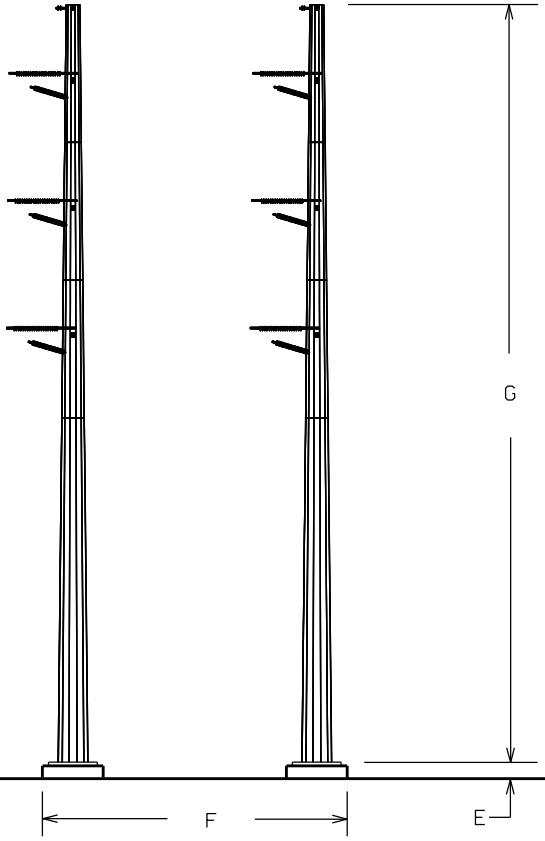
DOUBLE CIRCUIT DEADEND H-FRAME STRUCTURE

A. MAPPING OF THE ROUTE:	SEE ATTACHMENT II.B.5
B. RATIONALE FOR STRUCTURE TYPE:	MAINTAINS FLAT CONFIGURATION AT THE SUBSTATION INTERFACE FLAT CONFIGURATION FACILITATES FUTURE CROSSINGS & SWITCH INSTALLATION OPTIONS
C. LENGTH OF R/W (STRUCTURE QTY):	0.26 MILES (2)
D. STRUCTURE MATERIAL: RATIONAL FOR MATERIAL:	WEATHERING STEEL TO MATCH MATERIAL FINISH OF EXISTING STRUCTURES
E. FOUNDATION MATERIAL: AVERAGE FOUNDATION REVEAL:	CONCRETE SEE NOTE 2
F. AVERAGE WIDTH AT BASE:	29.5', 6' DIAMETER FOUNDATION (SEE NOTE 3)
G. MINIMUM STRUCTURE HEIGHT: MAXIMUM STRUCTURE HEIGHT: AVERAGE STRUCTURE HEIGHT:	100' 100' 100'
H. AVERAGE SPAN LENGTH (RANGE):	689' (683' - 695') (WIND SPAN)
I. MINIMUM CONDUCTOR-TO-GROUND:	25.5' (AT MAXIMUM OPERATING TEMPERATURE)

NOTE:

1. INFORMATION CONTAINED ON DRAWING IS PRELIMINARY IN NATURE AND SUBJECT TO CHANGE DURING FINAL DESIGN.
2. MINIMUM FOUNDATION REVEAL SHALL BE 1.5'
3. FINAL FOUNDATION DIAMETER SHALL BE BASED UPON FINAL ENGINEERING.
4. STRUCTURE HEIGHTS ARE MEASURED FROM THE STRUCTURE CENTERLINE.

230KV LINE #2309 AQUIA HARBOUR - FULLER ROAD
230KV LINE #2297 AQUIA HARBOUR - POSSUM POINT
230KV LINE #252 FULLER ROAD - POSSUM POINT



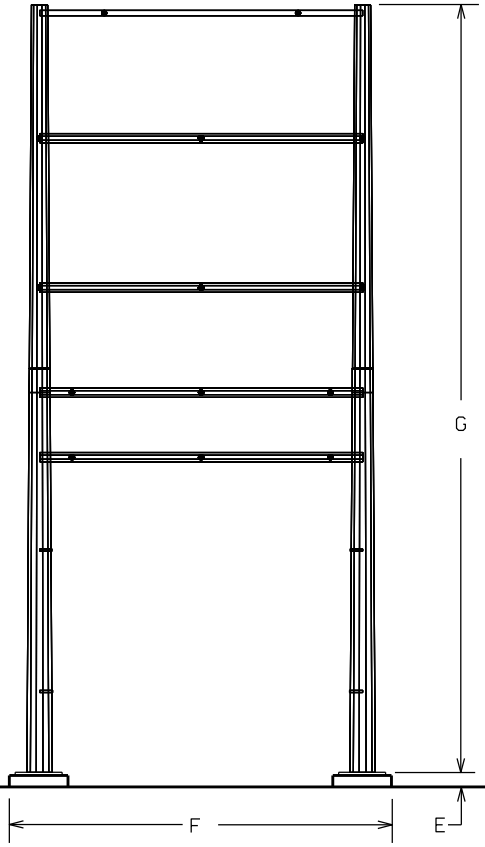
DOUBLE CIRCUIT DEADEND 2-POLE STRUCTURE

A. MAPPING OF THE ROUTE:	SEE ATTACHMENT II.B.5
B. RATIONALE FOR STRUCTURE TYPE:	ACCOMODATES EFFICIENT USE R/W, REDUCES BLOWOUT FOOTPRINT. MOST SUITABLE FOR HEAVY ANGLES AND INTERFACE WITH DELIVERY POINTS.
C. LENGTH OF R/W (STRUCTURE QTY):	0.75 MILES (6)
D. STRUCTURE MATERIAL: RATIONAL FOR MATERIAL:	WEATHERING STEEL WEATHERING STEEL WAS SELECTED FOR ITS CORROSION RESISTANCE, ENVIRONMENTAL SUSTAINABILITY DUE TO LOW MAINTENANCE, AESTHETIC APPEAL, LOW COST AND LONGEVITY.
E. FOUNDATION MATERIAL: AVERAGE FOUNDATION REVEAL:	CONCRETE SEE NOTE 2
F. AVERAGE WIDTH AT BASE:	27'-29.5', 6' DIAMETER FOUNDATION (SEE NOTE 3)
G. MINIMUM STRUCTURE HEIGHT: MAXIMUM STRUCTURE HEIGHT: AVERAGE STRUCTURE HEIGHT:	85' 125' 109'
H. AVERAGE SPAN LENGTH (RANGE):	658' (374' - 994') (WIND SPAN)
I. MINIMUM CONDUCTOR-TO-GROUND:	25.5' (AT MAXIMUM OPERATING TEMPERATURE)

NOTE:

1. INFORMATION CONTAINED ON DRAWING IS PRELIMINARY IN NATURE AND SUBJECT TO CHANGE DURING FINAL DESIGN.
2. MINIMUM FOUNDATION REVEAL SHALL BE 1.5'
3. FINAL FOUNDATION DIAMETER SHALL BE BASED UPON FINAL ENGINEERING.
4. STRUCTURE HEIGHTS ARE MEASURED FROM THE STRUCTURE CENTERLINE.

230KV LINE #2297 AQUIA HARBOUR - POSSUM POINT
230KV LINE #2309 AQUIA HARBOUR - FULLER ROAD



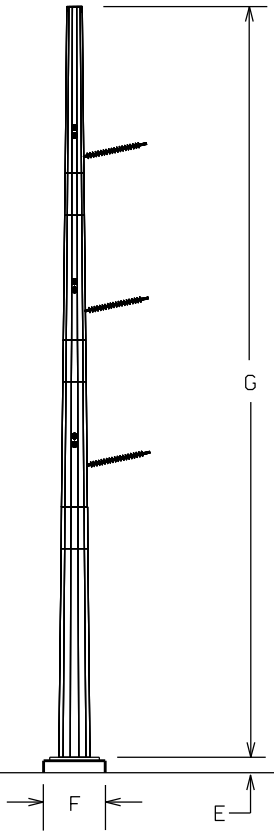
DOUBLE CIRCUIT BACKBONE STRUCTURE

A. MAPPING OF THE ROUTE:	SEE ATTACHMENT II.B.5
B. RATIONALE FOR STRUCTURE TYPE:	MAINTAINS FLAT CONFIGURATION AT THE SUBSTATION INTERFACE
C. LENGTH OF R/W (STRUCTURE QTY):	0.16 MILES (3)
D. STRUCTURE MATERIAL: RATIONAL FOR MATERIAL:	GALVANIZED STEEL GALVANIZED STEEL WAS SELECTED TO MATCH EXISTING GALVANIZED STRUCTURES INSIDE SUBSTATIONS.
E. FOUNDATION MATERIAL: AVERAGE FOUNDATION REVEAL:	CONCRETE SEE NOTE 2
F. AVERAGE WIDTH AT BASE:	46', 6' DIAMETER FOUNDATION (SEE NOTE 3)
G. MINIMUM STRUCTURE HEIGHT: MAXIMUM STRUCTURE HEIGHT: AVERAGE STRUCTURE HEIGHT:	95' 95' 95'
H. AVERAGE SPAN LENGTH (RANGE):	278' (222' - 319') (WIND SPAN)
I. MINIMUM CONDUCTOR-TO-GROUND:	25.5' (AT MAXIMUM OPERATING TEMPERATURE)

NOTE:

1. INFORMATION CONTAINED ON DRAWING IS PRELIMINARY IN NATURE AND SUBJECT TO CHANGE DURING FINAL DESIGN.
2. MINIMUM FOUNDATION REVEAL SHALL BE 1.5'
3. FINAL FOUNDATION DIAMETER SHALL BE BASED UPON FINAL ENGINEERING.
4. STRUCTURE HEIGHTS ARE MEASURED FROM THE STRUCTURE CENTERLINE.

230KV LINE #2309 AQUIA HARBOUR - FULLER ROAD



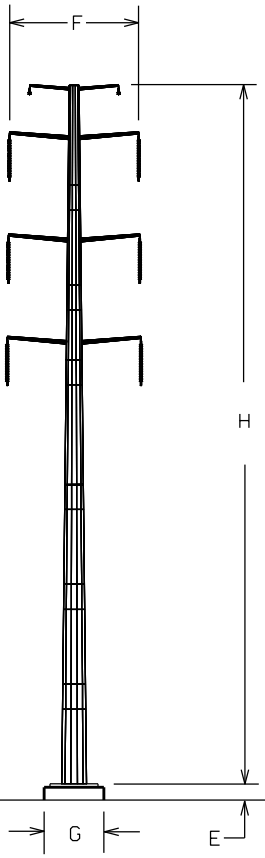
SINGLE CIRCUIT DEADEND MONOPOLE STRUCTURE

A. MAPPING OF THE ROUTE:	SEE ATTACHMENT II.B.5
B. RATIONALE FOR STRUCTURE TYPE:	ACCOMMODATES EFFICIENT USE OF R/W AND REDUCES BLOWOUT FOOTPRINT.
C. LENGTH OF R/W (STRUCTURE QTY):	0.07 MILES (3)
D. STRUCTURE MATERIAL: RATIONAL FOR MATERIAL:	WEATHERING STEEL WEATHERING STEEL WAS SELECTED FOR ITS CORROSION RESISTANCE, ENVIRONMENTAL SUSTAINABILITY DUE TO LOW MAINTENANCE, AESTHETIC APPEAL, LOW COST AND LONGEVITY.
E. FOUNDATION MATERIAL: AVERAGE FOUNDATION REVEAL:	CONCRETE SEE NOTE 2
F. AVERAGE WIDTH AT BASE:	6' DIAMETER FOUNDATION (SEE NOTE 3)
G. MINIMUM STRUCTURE HEIGHT: MAXIMUM STRUCTURE HEIGHT: AVERAGE STRUCTURE HEIGHT:	125' 145' 132'
H. AVERAGE SPAN LENGTH (RANGE):	128' (69' - 200') (WIND SPAN)
I. MINIMUM CONDUCTOR-TO-GROUND:	25.5' (AT MAXIMUM OPERATING TEMPERATURE)

NOTE:

1. INFORMATION CONTAINED ON DRAWING IS PRELIMINARY IN NATURE AND SUBJECT TO CHANGE DURING FINAL DESIGN.
2. MINIMUM FOUNDATION REVEAL SHALL BE 1.5'
3. FINAL FOUNDATION DIAMETER SHALL BE BASED UPON FINAL ENGINEERING.
4. STRUCTURE HEIGHTS ARE MEASURED FROM THE STRUCTURE CENTERLINE.

230KV LINE #2297 AQUIA HARBOUR - POSSUM POINT
230KV LINE #252 FULLER ROAD - POSSUM POINT



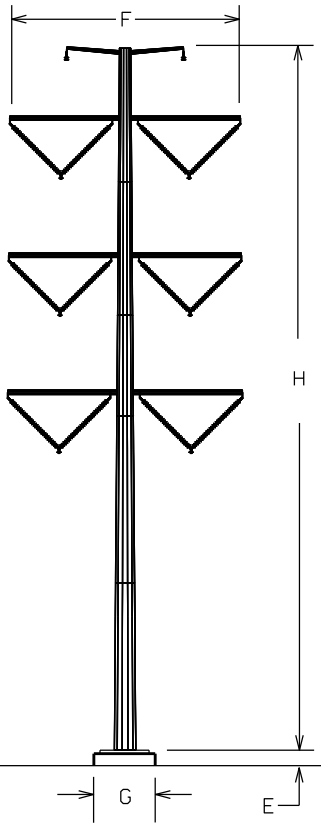
DOUBLE CIRCUIT SUSPENSION MONOPOLE STRUCTURE

A. MAPPING OF THE ROUTE:	SEE ATTACHMENT II.B.5
B. RATIONALE FOR STRUCTURE TYPE:	ACCOMODATES EFFICIENT USE R/W AND REDUCES BLOWOUT FOOTPRINT
C. LENGTH OF R/W (STRUCTURE QTY):	0.36 MILES (2)
D. STRUCTURE MATERIAL: RATIONAL FOR MATERIAL:	WEATHERING STEEL WEATHERING STEEL WAS SELECTED FOR ITS CORROSION RESISTANCE, ENVIRONMENTAL SUSTAINABILITY DUE TO LOW MAINTENANCE, AESTHETIC APPEAL, LOW COST AND LONGEVITY.
E. FOUNDATION MATERIAL: AVERAGE FOUNDATION REVEAL:	CONCRETE SEE NOTE 2
F. AVERAGE WIDTH AT CROSS ARM:	24'
G. AVERAGE WIDTH AT BASE:	6' DIAMETER FOUNDATION (SEE NOTE 3)
H. MINIMUM STRUCTURE HEIGHT: MAXIMUM STRUCTURE HEIGHT: AVERAGE STRUCTURE HEIGHT:	140' 140' 140'
I. AVERAGE SPAN LENGTH (RANGE):	950' (896' - 1003') (WIND SPAN)
J. MINIMUM CONDUCTOR-TO-GROUND:	25.5' (AT MAXIMUM OPERATING TEMPERATURE)

NOTE:

1. INFORMATION CONTAINED ON DRAWING IS PRELIMINARY IN NATURE AND SUBJECT TO CHANGE DURING FINAL DESIGN.
2. MINIMUM FOUNDATION REVEAL SHALL BE 1.5'
3. FINAL FOUNDATION DIAMETER SHALL BE BASED UPON FINAL ENGINEERING.
4. STRUCTURE HEIGHTS ARE MEASURED FROM THE STRUCTURE CENTERLINE.

230KV LINE #2297 AQUIA HARBOUR - POSSUM POINT
230KV LINE #2309 AQUIA HARBOUR - FULLER ROAD
230KV LINE #252 FULLER ROAD - POSSUM POINT



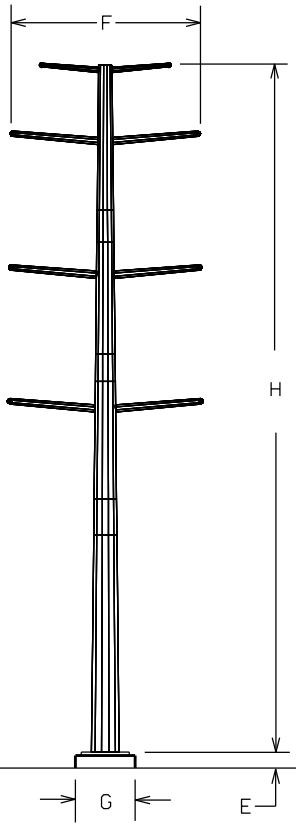
DOUBLE CIRCUIT SUSPENSION MONOPOLE STRUCTURE

A. MAPPING OF THE ROUTE:	SEE ATTACHMENT II.B.5
B. RATIONALE FOR STRUCTURE TYPE:	ACCOMMODATES EFFICIENT USE OF R/W AND REDUCES BLOWOUT FOOTPRINT.
C. LENGTH OF R/W (STRUCTURE QTY):	17.93 MILES (147)
D. STRUCTURE MATERIAL: RATIONAL FOR MATERIAL:	WEATHERING STEEL & GALVANIZED STEEL WEATHERING STEEL WAS SELECTED FOR ITS CORROSION RESISTANCE, ENVIRONMENTAL SUSTAINABILITY DUE TO LOW MAINTENANCE, AESTHETIC APPEAL, LOW COST AND LONGEVITY. GALVANIZED STEEL WAS SELECTED FOR STRUCTURES REQUIRING THE INSTALLATION OF ANTENNAS
E. FOUNDATION MATERIAL: AVERAGE FOUNDATION REVEAL:	CONCRETE SEE NOTE 2
F. AVERAGE WIDTH AT CROSS ARM:	35'
G. AVERAGE WIDTH AT BASE:	6' DIAMETER FOUNDATION (SEE NOTE 3)
H. MINIMUM STRUCTURE HEIGHT: MAXIMUM STRUCTURE HEIGHT: AVERAGE STRUCTURE HEIGHT:	100' 165' 125'
I. AVERAGE SPAN LENGTH (RANGE):	644' (407' - 985') (WIND SPAN)
J. MINIMUM CONDUCTOR-TO-GROUND:	25.5' (AT MAXIMUM OPERATING TEMPERATURE)

NOTE:

1. INFORMATION CONTAINED ON DRAWING IS PRELIMINARY IN NATURE AND SUBJECT TO CHANGE DURING FINAL DESIGN.
2. MINIMUM FOUNDATION REVEAL SHALL BE 1.5'
3. FINAL FOUNDATION DIAMETER SHALL BE BASED UPON FINAL ENGINEERING.
4. STRUCTURE HEIGHTS ARE MEASURED FROM THE STRUCTURE CENTERLINE.

230KV LINE #2297 AQUIA HARBOUR - POSSUM POINT
230KV LINE #2309 AQUIA HARBOUR - FULLER ROAD
230KV LINE #252 FULLER ROAD - POSSUM POINT



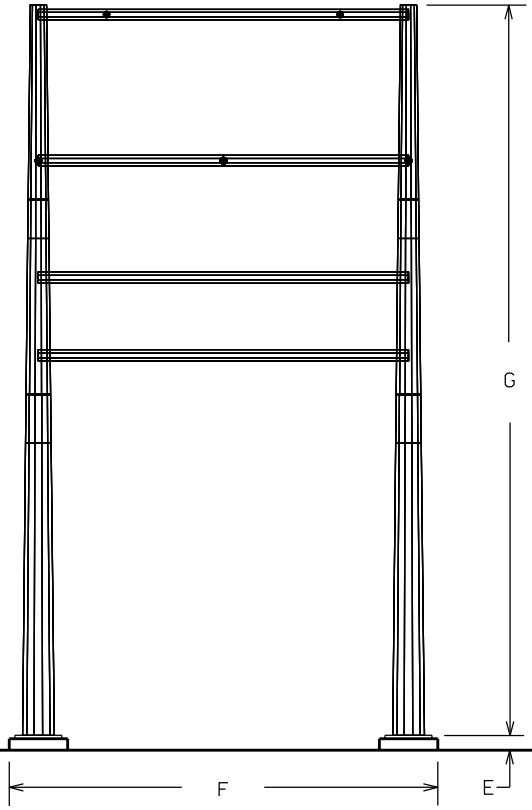
DOUBLE CIRCUIT DEADEND MONOPOLE STRUCTURE

A. MAPPING OF THE ROUTE:	SEE ATTACHMENT II.B.5
B. RATIONALE FOR STRUCTURE TYPE:	ACCOMODATES EFFICIENT USE R/W AND REDUCES BLOWOUT FOOTPRINT
C. LENGTH OF R/W (STRUCTURE QTY):	4.28 MILES (43)
D. STRUCTURE MATERIAL: RATIONAL FOR MATERIAL:	WEATHERING STEEL WEATHERING STEEL WAS SELECTED FOR ITS CORROSION RESISTANCE, ENVIRONMENTAL SUSTAINABILITY DUE TO LOW MAINTENANCE, AESTHETIC APPEAL, LOW COST AND LONGEVITY.
E. FOUNDATION MATERIAL: AVERAGE FOUNDATION REVEAL:	CONCRETE SEE NOTE 2
F. AVERAGE WIDTH AT CROSS ARM:	27' - 32'
G. AVERAGE WIDTH AT BASE:	6' DIAMETER FOUNDATION (SEE NOTE 3)
H. MINIMUM STRUCTURE HEIGHT: MAXIMUM STRUCTURE HEIGHT: AVERAGE STRUCTURE HEIGHT:	90' 185' 118'
I. AVERAGE SPAN LENGTH (RANGE):	524' (285' - 721') (WIND SPAN)
J. MINIMUM CONDUCTOR-TO-GROUND:	25.5' (AT MAXIMUM OPERATING TEMPERATURE)

NOTE:

1. INFORMATION CONTAINED ON DRAWING IS PRELIMINARY IN NATURE AND SUBJECT TO CHANGE DURING FINAL DESIGN.
2. MINIMUM FOUNDATION REVEAL SHALL BE 1.5'
3. FINAL FOUNDATION DIAMETER SHALL BE BASED UPON FINAL ENGINEERING.
4. STRUCTURE HEIGHTS ARE MEASURED FROM THE STRUCTURE CENTERLINE.

230KV LINE #2297 AQUIA HARBOUR - POSSUM POINT



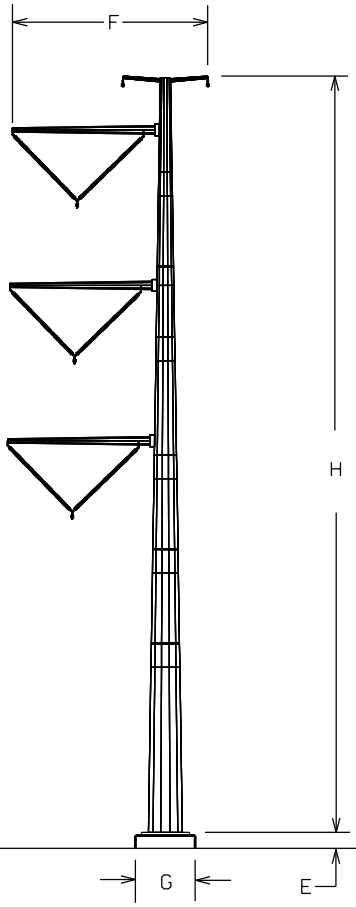
SINGLE CIRCUIT BACKBONE STRUCTURE

A. MAPPING OF THE ROUTE:	SEE ATTACHMENT II.B.5
B. RATIONALE FOR STRUCTURE TYPE:	MAINTAINS FLAT CONFIGURATION AT THE SUBSTATION INTERFACE
C. LENGTH OF R/W (STRUCTURE QTY):	0.02 MILES (1)
D. STRUCTURE MATERIAL: RATIONAL FOR MATERIAL:	GALVANIZED STEEL GALVANIZED STEEL WAS SELECTED TO MATCH EXISTING GALVANIZED STRUCTURES INSIDE SUBSTATIONS.
E. FOUNDATION MATERIAL: AVERAGE FOUNDATION REVEAL:	CONCRETE SEE NOTE 2
F. AVERAGE WIDTH AT BASE:	46', 6' DIAMETER FOUNDATION (SEE NOTE 3)
G. MINIMUM STRUCTURE HEIGHT: MAXIMUM STRUCTURE HEIGHT: AVERAGE STRUCTURE HEIGHT:	75' 75' 75'
H. AVERAGE SPAN LENGTH (RANGE):	110' (WIND SPAN)
I. MINIMUM CONDUCTOR-TO-GROUND:	25.5' (AT MAXIMUM OPERATING TEMPERATURE)

NOTE:

1. INFORMATION CONTAINED ON DRAWING IS PRELIMINARY IN NATURE AND SUBJECT TO CHANGE DURING FINAL DESIGN.
2. MINIMUM FOUNDATION REVEAL SHALL BE 1.5'
3. FINAL FOUNDATION DIAMETER SHALL BE BASED UPON FINAL ENGINEERING.
4. STRUCTURE HEIGHTS ARE MEASURED FROM THE STRUCTURE CENTERLINE.

500KV LINE #568 POSSUM POINT - LADYSMITH



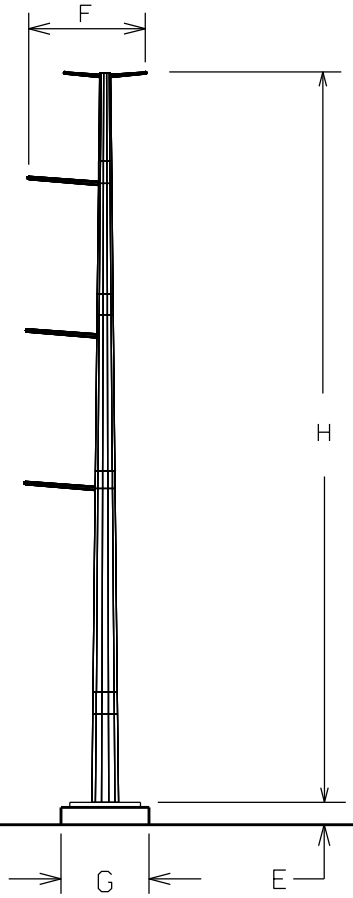
SINGLE CIRCUIT SUSPENSION MONOPOLE STRUCTURE

A. MAPPING OF THE ROUTE:	SEE ATTACHMENT II.B.5
B. RATIONALE FOR STRUCTURE TYPE:	ACCOMODATES EFFICIENT USE R/W AND REDUCES BLOWOUT FOOTPRINT
C. LENGTH OF R/W (STRUCTURE QTY):	5.2 MILES (30)
D. STRUCTURE MATERIAL: RATIONAL FOR MATERIAL:	WEATHERING STEEL WEATHERING STEEL WAS SELECTED FOR ITS CORROSION RESISTANCE, ENVIRONMENTAL SUSTAINABILITY DUE TO LOW MAINTENANCE, AESTHETIC APPEAL, LOW COST AND LONGEVITY.
E. FOUNDATION MATERIAL: AVERAGE FOUNDATION REVEAL:	CONCRETE SEE NOTE 2
F. AVERAGE WIDTH AT CROSS ARM:	42'
G. AVERAGE WIDTH AT BASE:	6' DIAMETER FOUNDATION (SEE NOTE 3)
H. MINIMUM STRUCTURE HEIGHT: MAXIMUM STRUCTURE HEIGHT: AVERAGE STRUCTURE HEIGHT:	160' 195' 179'
I. AVERAGE SPAN LENGTH (RANGE):	915' (685' - 1,214') (WIND SPAN)
J. MINIMUM CONDUCTOR-TO-GROUND:	30.9' (AT MAXIMUM OPERATING TEMPERATURE)

NOTE:

1. INFORMATION CONTAINED ON DRAWING IS PRELIMINARY IN NATURE AND SUBJECT TO CHANGE DURING FINAL DESIGN.
2. MINIMUM FOUNDATION REVEAL SHALL BE 1.5'
3. FINAL FOUNDATION DIAMETER SHALL BE BASED UPON FINAL ENGINEERING.
4. STRUCTURE HEIGHTS ARE MEASURED FROM THE STRUCTURE CENTERLINE.

500KV LINE #568 POSSUM POINT - LADYSMITH



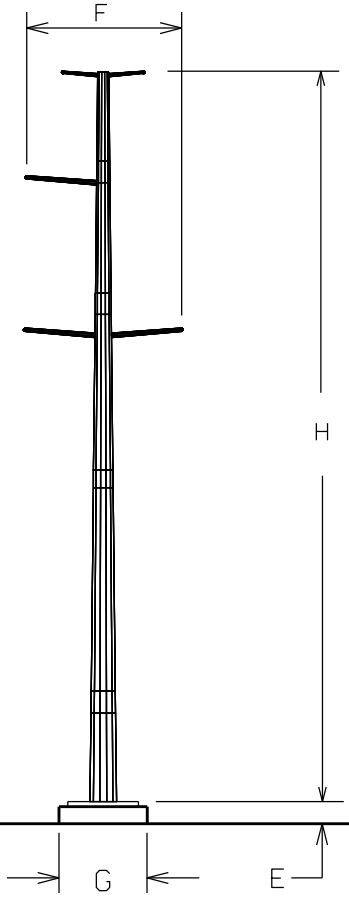
SINGLE CIRCUIT DEADEND MONOPOLE STRUCTURE

A. MAPPING OF THE ROUTE:	SEE ATTACHMENT II.B.5
B. RATIONALE FOR STRUCTURE TYPE:	ACCOMMODATES EFFICIENT USE OF R/W AND REDUCES BLOWOUT FOOTPRINT.
C. LENGTH OF R/W (STRUCTURE QTY):	0.6 MILES (7)
D. STRUCTURE MATERIAL: RATIONAL FOR MATERIAL:	WEATHERING STEEL WEATHERING STEEL WAS SELECTED FOR ITS CORROSION RESISTANCE, ENVIRONMENTAL SUSTAINABILITY DUE TO LOW MAINTENANCE, AESTHETIC APPEAL, LOW COST AND LONGEVITY.
E. FOUNDATION MATERIAL: AVERAGE FOUNDATION REVEAL:	CONCRETE SEE NOTE 2
F. AVERAGE WIDTH AT CROSS ARM:	28'
G. AVERAGE WIDTH AT BASE:	6' DIAMETER FOUNDATION (SEE NOTE 3)
H. MINIMUM STRUCTURE HEIGHT: MAXIMUM STRUCTURE HEIGHT: AVERAGE STRUCTURE HEIGHT:	160' 185' 175'
I. AVERAGE SPAN LENGTH (RANGE):	454' (297' - 560') (WIND SPAN)
J. MINIMUM CONDUCTOR-TO-GROUND:	30.9' (AT MAXIMUM OPERATING TEMPERATURE)

NOTE:

1. INFORMATION CONTAINED ON DRAWING IS PRELIMINARY IN NATURE AND SUBJECT TO CHANGE DURING FINAL DESIGN.
2. MINIMUM FOUNDATION REVEAL SHALL BE 1.5'
3. FINAL FOUNDATION DIAMETER SHALL BE BASED UPON FINAL ENGINEERING.
4. STRUCTURE HEIGHTS ARE MEASURED FROM THE STRUCTURE CENTERLINE.

500KV LINE #568 POSSUM POINT - LADYSMITH



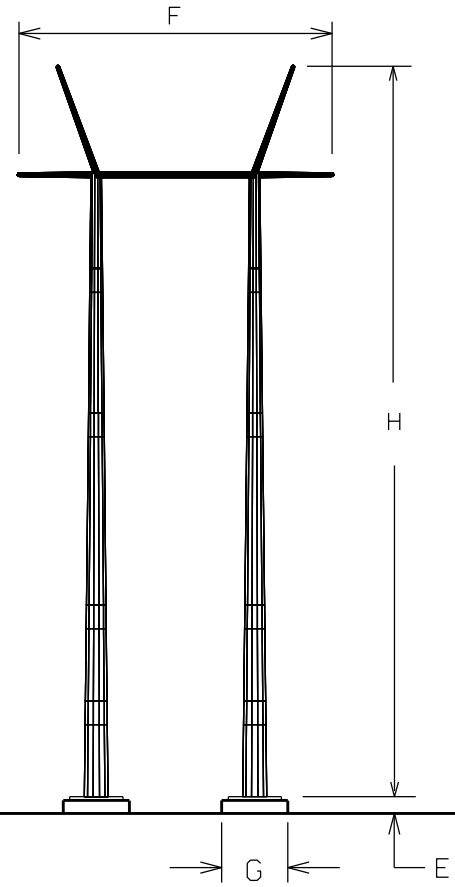
SINGLE CIRCUIT DEADEND MONOPOLE STRUCTURE

A. MAPPING OF THE ROUTE:	SEE ATTACHMENT II.B.5
B. RATIONALE FOR STRUCTURE TYPE:	ACCOMMODATES EFFICIENT USE OF R/W AND REDUCES BLOWOUT FOOTPRINT.
C. LENGTH OF R/W (STRUCTURE QTY):	0.16 MILES (1)
D. STRUCTURE MATERIAL: RATIONAL FOR MATERIAL:	WEATHERING STEEL WEATHERING STEEL WAS SELECTED FOR ITS CORROSION RESISTANCE, ENVIRONMENTAL SUSTAINABILITY DUE TO LOW MAINTENANCE, AESTHETIC APPEAL, LOW COST AND LONGEVITY.
E. FOUNDATION MATERIAL: AVERAGE FOUNDATION REVEAL:	CONCRETE SEE NOTE 2
F. AVERAGE WIDTH AT CROSS ARM:	38'
G. AVERAGE WIDTH AT BASE:	6' DIAMETER FOUNDATION (SEE NOTE 3)
H. MINIMUM STRUCTURE HEIGHT: MAXIMUM STRUCTURE HEIGHT: AVERAGE STRUCTURE HEIGHT:	180' 180' 180'
I. AVERAGE SPAN LENGTH (RANGE):	855' (WIND SPAN)
J. MINIMUM CONDUCTOR-TO-GROUND:	30.9' (AT MAXIMUM OPERATING TEMPERATURE)

NOTE:

1. INFORMATION CONTAINED ON DRAWING IS PRELIMINARY IN NATURE AND SUBJECT TO CHANGE DURING FINAL DESIGN.
2. MINIMUM FOUNDATION REVEAL SHALL BE 1.5'
3. FINAL FOUNDATION DIAMETER SHALL BE BASED UPON FINAL ENGINEERING.
4. STRUCTURE HEIGHTS ARE MEASURED FROM THE STRUCTURE CENTERLINE.

500KV LINE #568 POSSUM POINT - LADYSMITH



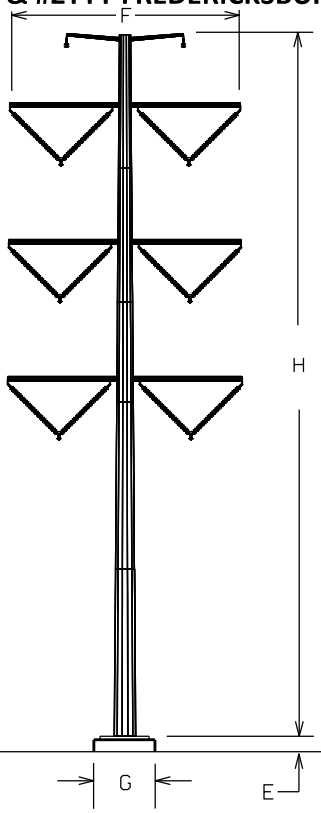
SINGLE CIRCUIT DEADEND H-FRAME STRUCTURE

A. MAPPING OF THE ROUTE:	SEE ATTACHMENT II.B.5
B. RATIONALE FOR STRUCTURE TYPE:	FACILITATES PHASE ROLL FROM VERTICAL TO FLAT AT THE INTERFACE WITH EXISTING CONDUCTOR
C. LENGTH OF R/W (STRUCTURE QTY):	0.13 MILES (2)
D. STRUCTURE MATERIAL: RATIONAL FOR MATERIAL:	WEATHERING STEEL WEATHERING STEEL WAS SELECTED FOR ITS CORROSION RESISTANCE, ENVIRONMENTAL SUSTAINABILITY DUE TO LOW MAINTENANCE, AESTHETIC APPEAL, LOW COST AND LONGEVITY.
E. FOUNDATION MATERIAL: AVERAGE FOUNDATION REVEAL:	CONCRETE SEE NOTE 2
F. AVERAGE WIDTH AT CROSS ARM:	66'
G. AVERAGE WIDTH AT BASE:	6' DIAMETER FOUNDATION (SEE NOTE 3)
H. MINIMUM STRUCTURE HEIGHT: MAXIMUM STRUCTURE HEIGHT: AVERAGE STRUCTURE HEIGHT:	125' 150' 137'
I. AVERAGE SPAN LENGTH (RANGE):	351' (320' - 381') (WIND SPAN)
J. MINIMUM CONDUCTOR-TO-GROUND:	30.9' (AT MAXIMUM OPERATING TEMPERATURE)

NOTE:

1. INFORMATION CONTAINED ON DRAWING IS PRELIMINARY IN NATURE AND SUBJECT TO CHANGE DURING FINAL DESIGN.
2. MINIMUM FOUNDATION REVEAL SHALL BE 1.5'
3. FINAL FOUNDATION DIAMETER SHALL BE BASED UPON FINAL ENGINEERING.
4. STRUCTURE HEIGHTS ARE MEASURED FROM THE STRUCTURE CENTERLINE.

230KV LINE #2157 FREDERICKSBURG - CRANES CORNER
230KV LINE #2305 FREDERICKSBURG - AQUIA HARBOUR
230KV LINE #2104 CRANES CORNER - SPARTAN
230KV LINE #2297 SPARTAN - AQUIA HARBOUR
230KV LINE #2083 & #2ZZZ FREDERICKSBURG - BIRCHWOOD
230KV LINE #2XXX & #2YYY FREDERICKSBURG - AQUIA HARBOUR



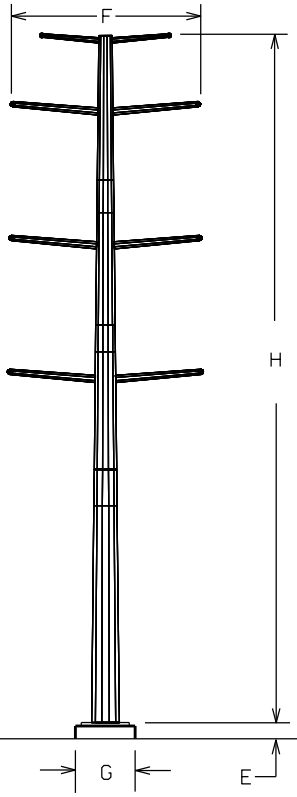
DOUBLE CIRCUIT SUSPENSION MONOPOLE STRUCTURE

A. MAPPING OF THE ROUTE:	SEE ATTACHMENT II.B.5
B. RATIONALE FOR STRUCTURE TYPE:	ACCOMMODATES EFFICIENT USE OF R/W AND REDUCES BLOWOUT FOOTPRINT.
C. LENGTH OF R/W (STRUCTURE QTY):	12.5 MILES (151)
D. STRUCTURE MATERIAL: RATIONAL FOR MATERIAL:	WEATHERING STEEL WEATHERING STEEL WAS SELECTED FOR ITS CORROSION RESISTANCE, ENVIRONMENTAL SUSTAINABILITY DUE TO LOW MAINTENANCE, AESTHETIC APPEAL, LOW COST AND LONGEVITY.
E. FOUNDATION MATERIAL: AVERAGE FOUNDATION REVEAL:	CONCRETE SEE NOTE 2
F. AVERAGE WIDTH AT CROSS ARM:	36'
G. AVERAGE WIDTH AT BASE:	6' DIAMETER FOUNDATION (SEE NOTE 3)
H. MINIMUM STRUCTURE HEIGHT: MAXIMUM STRUCTURE HEIGHT: AVERAGE STRUCTURE HEIGHT:	100' 120' 108.75'
I. AVERAGE SPAN LENGTH (RANGE):	448' (340' -524') (WIND SPAN)
J. MINIMUM CONDUCTOR-TO-GROUND:	25.5' (AT MAXIMUM OPERATING TEMPERATURE)

NOTE:

1. INFORMATION CONTAINED ON DRAWING IS PRELIMINARY IN NATURE AND SUBJECT TO CHANGE DURING FINAL DESIGN.
2. MINIMUM FOUNDATION REVEAL SHALL BE 1.5'
3. FINAL FOUNDATION DIAMETER SHALL BE BASED UPON FINAL ENGINEERING.
4. STRUCTURE HEIGHTS ARE MEASURED FROM THE STRUCTURE CENTERLINE.

230KV LINE #2157 FREDERICKSBURG - CRANES CORNER
230KV LINE #2305 FREDERICKSBURG - AQUIA HARBOUR
230KV LINE #2104 CRANES CORNER - SPARTAN
230KV LINE #2297 SPARTAN - AQUIA HARBOUR
230KV LINE #2083 & #2ZZZ FREDERICKSBURG - BIRCHWOOD
230KV LINE #2XXX & #2YYY FREDERICKSBURG - AQUIA HARBOUR



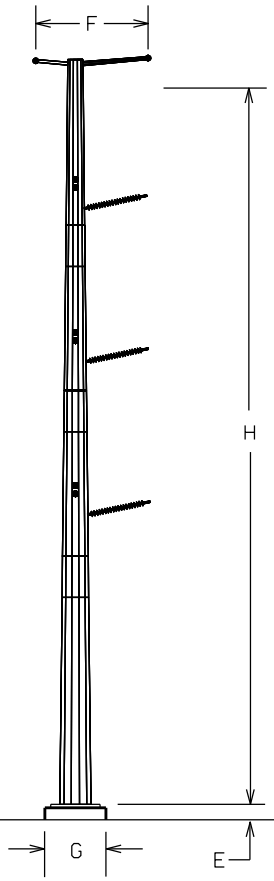
DOUBLE CIRCUIT DEADEND MONOPOLE STRUCTURE

A. MAPPING OF THE ROUTE:	SEE ATTACHMENT II.B.5
B. RATIONALE FOR STRUCTURE TYPE:	ACCOMODATES EFFICIENT USE R/W AND REDUCES BLOWOUT FOOTPRINT
C. LENGTH OF R/W (STRUCTURE QTY):	12.5 MILES (50)
D. STRUCTURE MATERIAL: RATIONAL FOR MATERIAL:	WEATHERING STEEL WEATHERING STEEL WAS SELECTED FOR ITS CORROSION RESISTANCE, ENVIRONMENTAL SUSTAINABILITY DUE TO LOW MAINTENANCE, AESTHETIC APPEAL, LOW COST AND LONGEVITY.
E. FOUNDATION MATERIAL: AVERAGE FOUNDATION REVEAL:	CONCRETE SEE NOTE 2
F. AVERAGE WIDTH AT CROSS ARM:	27'
G. AVERAGE WIDTH AT BASE:	6' DIAMETER FOUNDATION (SEE NOTE 3)
H. MINIMUM STRUCTURE HEIGHT: MAXIMUM STRUCTURE HEIGHT: AVERAGE STRUCTURE HEIGHT:	100' 115' 112'
I. AVERAGE SPAN LENGTH (RANGE):	156' (64' - 305') (WIND SPAN)
J. MINIMUM CONDUCTOR-TO-GROUND:	25.5' (AT MAXIMUM OPERATING TEMPERATURE)

NOTE:

1. INFORMATION CONTAINED ON DRAWING IS PRELIMINARY IN NATURE AND SUBJECT TO CHANGE DURING FINAL DESIGN.
2. MINIMUM FOUNDATION REVEAL SHALL BE 1.5'
3. FINAL FOUNDATION DIAMETER SHALL BE BASED UPON FINAL ENGINEERING.
4. STRUCTURE HEIGHTS ARE MEASURED FROM THE STRUCTURE CENTERLINE.

230KV LINE #2083 FREDERICKSBURG - BIRCHWOOD
230KV LINE #2YYY FREDERICKSBURG - AQUIA HARBOUR



SINGLE CIRCUIT DEADEND MONOPOLE STRUCTURE

A. MAPPING OF THE ROUTE:	SEE ATTACHMENT II.B.5
B. RATIONALE FOR STRUCTURE TYPE:	ACCOMMODATES EFFICIENT USE OF R/W AND REDUCES BLOWOUT FOOTPRINT.
C. LENGTH OF R/W (STRUCTURE QTY):	12.5 MILES (4)
D. STRUCTURE MATERIAL: RATIONAL FOR MATERIAL:	WEATHERING STEEL WEATHERING STEEL WAS SELECTED FOR ITS CORROSION RESISTANCE, ENVIRONMENTAL SUSTAINABILITY DUE TO LOW MAINTENANCE, AESTHETIC APPEAL, LOW COST AND LONGEVITY.
E. FOUNDATION MATERIAL: AVERAGE FOUNDATION REVEAL:	CONCRETE SEE NOTE 2
F. AVERAGE WIDTH AT CROSS ARM:	13'
G. AVERAGE WIDTH AT BASE:	6' DIAMETER FOUNDATION (SEE NOTE 3)
H. MINIMUM STRUCTURE HEIGHT: MAXIMUM STRUCTURE HEIGHT: AVERAGE STRUCTURE HEIGHT:	115' 115' 115'
I. AVERAGE SPAN LENGTH (RANGE):	99' (47' - 163') (WIND SPAN)
J. MINIMUM CONDUCTOR-TO-GROUND:	25.5' (AT MAXIMUM OPERATING TEMPERATURE)

NOTE:

1. INFORMATION CONTAINED ON DRAWING IS PRELIMINARY IN NATURE AND SUBJECT TO CHANGE DURING FINAL DESIGN.
2. MINIMUM FOUNDATION REVEAL SHALL BE 1.5'
3. FINAL FOUNDATION DIAMETER SHALL BE BASED UPON FINAL ENGINEERING.
4. STRUCTURE HEIGHTS ARE MEASURED FROM THE STRUCTURE CENTERLINE.

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 for existing and proposed structure locations.

The proposed approximate structure heights are from the conceptual design created to estimate the cost of the proposed Rebuild Project and are subject to change based on final engineering design. The approximate structure heights do not include foundation reveal and assume equal leg lengths based on the centerline ground elevation. The following table provides a breakdown of existing and proposed structure heights, generally grouped by segment.

Existing Structure Number Ckt. 1	Existing Structure Number Ckt. 2	Existing Structure Height (ft.)	Proposed Structure Number Ckt. 1	Proposed Structure Number Ckt. 2	Proposed Structure Height (ft)	Attachment II.B.3 Structure Type
252/5517	29/1784	95	2309/5517	2297/1784	*	II.B.3.c
252/5518	29/1785	107.5	2309/5518	2297/1785	100	II.B.3.a
252/5519	29/1786	106	2309/5519	2297/1786	120	II.B.3.f
252/5520	29/1787	126	2309/5520	2297/1787	125	II.B.3.f
-	-	-	2309/5520A	2297/1787A	120	II.B.3.f
252/5521	29/1788	117	2309/5521	2297/1788	95	II.B.3.g
-	-	-	2309/5521A	2297/1788A	120	II.B.3.f
252/5522	29/1789	131	2309/5522	2297/1789	130	II.B.3.f
252/5523	29/1790	144.5	2309/5523	2297/1790	125	II.B.3.f
-	-	-	2309/5523A	2297/1790A	125	II.B.3.f
252/5524	29/1791	105.5	2309/5524	2297/1791	100	II.B.3.f
-	-	-	2309/5524A	2297/1791A	125	II.B.3.f
252/5525	29/1792	142	2309/5525	2297/1792	155	II.B.3.f
252/5526	29/1793	110.5	2309/5526	2297/1793	135	II.B.3.f
252/5527	29/1794	107.5	2309/5527	2297/1794	145	II.B.3.f
252/5528	29/1795	106	2309/5528	2297/1795	120	II.B.3.f
-	-	-	2309/5528A	2297/1795A	120	II.B.3.g
252/5529	29/1796	106	2309/5529	2297/1796	100	II.B.3.f
-	-	-	2309/5529A	2297/1796A	135	II.B.3.f
252/5530	29/1797	127	2309/5530	2297/1797	105	II.B.3.f
-	-	-	2309/5530A	2297/1797A	120	II.B.3.f
252/5531	29/1792	142	2309/5531	2297/1798	140	II.B.3.f

Existing Structure Number Ckt. 1	Existing Structure Number Ckt. 2	Existing Structure Height (ft.)	Proposed Structure Number Ckt. 1	Proposed Structure Number Ckt. 2	Proposed Structure Height (ft)	Attachment II.B.3 Structure Type
-	-	-	2309/5531A	2297/1798A	130	II.B.3.f
252/5532	29/1799	117	2309/5532	2297/1799	110	II.B.3.f
-	-	-	2309/5532A	2297/1799A	125	II.B.3.f
252/5533	29/1800	124.5	2309/5533	2297/1800	110	II.B.3.f
252/5534	29/1801	106.5	2309/5534	2297/1801	115	II.B.3.g
-	-	-	2309/5534A	2297/1801A	120	II.B.3.f
252/5535	29/1802	133	2309/5535	2297/1802	135	II.B.3.f
252/5536	29/1803	112	2309/5536	2297/1803	130	II.B.3.f
-	-	-	2309/5536A	2297/1803A	135	II.B.3.f
252/5537	29/1804	106.5	2309/5537	2297/1804	110	II.B.3.f
-	-	-	2309/5537A	2297/1804A	120	II.B.3.g
252/5537A	-	70	2309/5537B	-	*	-
-	-	-	2297/1804B	-	145	II.B.3.d
-	-	-	2297/1804D	-	125	II.B.3.d
252/5538	29/1805	117	2309/5538	2297/1805	120	II.B.3.g
252/5539	29/1806	111.5	2309/5539	2297/1806	140	II.B.3.f
252/5540	29/1807	107.5	2309/5540	2297/1807	105	II.B.3.f
252/5541	29/1808	109	2309/5541	2297/1808	120	II.B.3.f
252/5542	29/1809	112.5	2309/5542	2297/1809	115	II.B.3.f
252/5543	29/1810	121.5	2309/5543	2297/1810	105	II.B.3.f
-	-	-	2309/5543A	2297/1810A	125	II.B.3.f
252/5544	29/1811	131.5	2309/5544	2297/1811	125	II.B.3.f
252/5545	29/1812	111	2309/5545	2297/1812	130	II.B.3.f
252/5546	29/1813	111	2309/5546	2297/1813	140	II.B.3.f
-	-	-	2309/5546A	2297/1813A	160	II.B.3.f
252/5547	29/1814	108	2309/5547	2297/1814	135	II.B.3.f
252/5548	29/1815	111.5	2309/5548	2297/1815	135	II.B.3.f
-	-	-	2309/5548A	2297/1815A	130	II.B.3.f
252/5549	29/1816	106.5	2309/5549	2297/1816	100	II.B.3.g
-	-	-	2309/5549A	2297/1816A	130	II.B.3.f
252/5550	29/1817	137	2309/5550	2297/1817	155	II.B.3.f
252/5551	29/1818	165	2309/5551	2297/1818	165	II.B.3.f
252/5552	29/1819	136.5	2309/5552	2297/1819	125	II.B.3.g
-	-	-	2309/5552A	2297/1819A	145	II.B.3.f
252/5553	29/1820	111	2309/5553	2297/1820	110	II.B.3.f
252/5554	29/1821	113.5	2309/5554	2297/1821	120	II.B.3.f

Existing Structure Number Ckt. 1	Existing Structure Number Ckt. 2	Existing Structure Height (ft.)	Proposed Structure Number Ckt. 1	Proposed Structure Number Ckt. 2	Proposed Structure Height (ft)	Attachment II.B.3 Structure Type
-	-	-	2309/5554A	2297/1821A	125	II.B.3.f
252/5555	29/1822	110	2309/5555	2297/1822	100	II.B.3.g
252/5556	29/1823	73.5	2309/5556	2297/1823	90	II.B.3.b
-	-	-	2309/5556A	2297/1823A	95	II.B.3.g
252/5557	29/1824	122	2309/5557	2297/1824	110	II.B.3.f
252/5558	29/1825	112.5	2309/5558	2297/1825	95	II.B.3.g
252/5559	29/1826	142	2309/5559	2297/1826	115	II.B.3.f
-	-	-	2309/5559A	2297/1826A	135	II.B.3.f
252/5560	29/1827	144	2309/5560	2297/1827	110	II.B.3.g
-	-	-	2309/5560A	2297/1827A	140	II.B.3.f
252/5561	29/1828	141.5	2309/5561	2297/1828	140	II.B.3.f
252/5562	29/1829	108.5	2309/5562	2297/1829	120	II.B.3.f
252/5563	29/1830	106.5	2309/5563	2297/1830	125	II.B.3.f
252/5564	29/1831	106.5	2309/5564	2297/1831	120	II.B.3.f
252/5565	29/1832	112.5	2309/5565	2297/1832	105	II.B.3.f
-	-	-	2309/5565A	2297/1832A	140	II.B.3.f
-	-	-	2309/5565B	2297/1832B	125	II.B.3.g
252/5566	29/1833	129	2309/5566	2297/1833	145	II.B.3.g
252/5566A	-	76.5	2309/5566A	2297/1833A	95	II.B.3.c
252/5567	29/1834	110.5	252/5567	2297/1834	185	II.B.3.g
252/5568	29/1835	106.5	252/5568	2297/1835	115	II.B.3.b
252/5569	29/1836	111	252/5569	2297/1836	90	II.B.3.g
-	-	-	252/5569A	2297/1836A	125	II.B.3.f
252/5570	29/1837	111.5	252/5570	2297/1837	115	II.B.3.f
252/5571	29/1838	109.5	252/5571	2297/1838	110	II.B.3.f
-	-	-	252/5571A	2297/1838A	145	II.B.3.f
252/5572	29/1839	109	252/5572	2297/1839	110	II.B.3.f
252/5573	29/1840	106.5	252/5573	2297/1840	100	II.B.3.f
-	-	-	252/5573A	2297/1840A	140	II.B.3.f
252/5574	29/1841	107	252/5574	2297/1841	120	II.B.3.f
252/5575	29/1842	119	252/5575	2297/1842	125	II.B.3.g
-	-	-	252/5575A	2297/1842A	100	II.B.3.f
252/5576	29/1843	146	252/5576	2297/1843	105	II.B.3.f
252/5577	29/1844	106.5	252/5577	2297/1844	115	II.B.3.g
-	-	-	252/5577A	2297/1844A	115	II.B.3.g
252/5578	29/1845	141.5	252/5578	2297/1845	140	II.B.3.e

Existing Structure Number Ckt. 1	Existing Structure Number Ckt. 2	Existing Structure Height (ft.)	Proposed Structure Number Ckt. 1	Proposed Structure Number Ckt. 2	Proposed Structure Height (ft)	Attachment II.B.3 Structure Type
252/5579	29/1846	141.5	252/5579	2297/1846	140	II.B.3.e
252/5580	29/1847	116.5	252/5580	2297/1847	125	II.B.3.b
252/5581	29/1848	146.5	252/5581	2297/1848	120	II.B.3.f
-	-	-	252/5581A	2297/1848A	125	II.B.3.f
252/5582	29/1849	143.5	252/5582	2297/1849	120	II.B.3.f
252/5583	29/1850	116.5	252/5583	2297/1850	105	II.B.3.g
252/5584	-	73.5	252/5584	2297/1851	155	II.B.3.f
252/5585	-	80	252/5585	2297/1852	155	II.B.3.f
252/5587	-	74	252/5586	2297/1853	120	II.B.3.g
252/5588	-	121	252/5587	-	95	II.B.3.d
-	2078/10	-	252/5588	2078/10	*	-
-	-	-	2XXX/115	2YYY/118	100	II.B.3.a
-	-	-	2XXX/116	2YYY/119	120	II.B.3.f
-	-	-	2XXX/117	2YYY/120	125	II.B.3.f
-	-	-	2XXX/118	2YYY/121	120	II.B.3.f
-	-	-	2XXX/119	2YYY/122	100	II.B.3.g
-	-	-	2XXX/120	2YYY/123	125	II.B.3.f
-	-	-	2XXX/121	2YYY/124	130	II.B.3.f
-	-	-	2XXX/122	2YYY/125	125	II.B.3.f
-	-	-	2XXX/123	2YYY/126	125	II.B.3.f
-	-	-	2XXX/124	2YYY/127	115	II.B.3.f
-	-	-	2XXX/125	2YYY/128	125	II.B.3.f
-	-	-	2XXX/126	2YYY/129	155	II.B.3.f
-	-	-	2XXX/127	2YYY/130	135	II.B.3.f
-	-	-	2XXX/128	2YYY/131	135	II.B.3.f
-	-	-	2XXX/129	2YYY/132	120	II.B.3.f
-	-	-	2XXX/130	2YYY/133	125	II.B.3.g
-	-	-	2XXX/131	2YYY/134	100	II.B.3.f
-	-	-	2XXX/132	2YYY/135	135	II.B.3.f
-	-	-	2XXX/133	2YYY/136	105	II.B.3.f
-	-	-	2XXX/134	2YYY/137	125	II.B.3.f
-	-	-	2XXX/135	2YYY/138	140	II.B.3.f
-	-	-	2XXX/136	2YYY/139	130	II.B.3.f
-	-	-	2XXX/137	2YYY/140	115	II.B.3.f
-	-	-	2XXX/138	2YYY/141	125	II.B.3.f
-	-	-	2XXX/139	2YYY/142	115	II.B.3.f

Existing Structure Number Ckt. 1	Existing Structure Number Ckt. 2	Existing Structure Height (ft.)	Proposed Structure Number Ckt. 1	Proposed Structure Number Ckt. 2	Proposed Structure Height (ft)	Attachment II.B.3 Structure Type
-	-	-	2XXX/140	2YYY/143	115	II.B.3.g
-	-	-	2XXX/141	2YYY/144	120	II.B.3.f
-	-	-	2XXX/142	2YYY/145	135	II.B.3.f
-	-	-	2XXX/143	2YYY/146	135	II.B.3.f
-	-	-	2XXX/144	2YYY/147	130	II.B.3.f
-	-	-	2XXX/145	2YYY/148	110	II.B.3.f
-	-	-	2XXX/146	2YYY/149	115	II.B.3.g
-	-	-	2XXX/147	2YYY/150	105	II.B.3.g
-	-	-	2XXX/148	2YYY/151	140	II.B.3.f
-	-	-	2XXX/149	2YYY/152	105	II.B.3.f
-	-	-	2XXX/150	2YYY/153	120	II.B.3.f
-	-	-	2XXX/151	2YYY/154	125	II.B.3.f
-	-	-	2XXX/152	2YYY/155	110	II.B.3.f
-	-	-	2XXX/153	2YYY/156	125	II.B.3.f
-	-	-	2XXX/154	2YYY/157	125	II.B.3.f
-	-	-	2XXX/155	2YYY/158	130	II.B.3.f
-	-	-	2XXX/156	2YYY/159	140	II.B.3.f
-	-	-	2XXX/157	2YYY/160	160	II.B.3.f
-	-	-	2XXX/158	2YYY/161	135	II.B.3.f
-	-	-	2XXX/159	2YYY/162	135	II.B.3.f
-	-	-	2XXX/160	2YYY/163	125	II.B.3.f
-	-	-	2XXX/161	2YYY/164	100	II.B.3.g
-	-	-	2XXX/162	2YYY/165	130	II.B.3.f
-	-	-	2XXX/163	2YYY/166	135	II.B.3.f
-	-	-	2XXX/164	2YYY/167	140	II.B.3.f
-	-	-	2XXX/165	2YYY/168	110	II.B.3.g
-	-	-	2XXX/166	2YYY/169	140	II.B.3.f
-	-	-	2XXX/167	2YYY/170	125	II.B.3.f
-	-	-	2XXX/168	2YYY/171	125	II.B.3.f
-	-	-	2XXX/169	2YYY/172	125	II.B.3.f
-	-	-	2XXX/170	2YYY/173	100	II.B.3.g
-	-	-	2XXX/171	2YYY/174	85	II.B.3.b
-	-	-	2XXX/172	2YYY/175	95	II.B.3.g
-	-	-	2XXX/173	2YYY/176	110	II.B.3.f
-	-	-	2XXX/174	2YYY/177	95	II.B.3.g
-	-	-	2XXX/175	2YYY/178	110	II.B.3.f

Existing Structure Number Ckt. 1	Existing Structure Number Ckt. 2	Existing Structure Height (ft.)	Proposed Structure Number Ckt. 1	Proposed Structure Number Ckt. 2	Proposed Structure Height (ft)	Attachment II.B.3 Structure Type
-	-	-	2XXX/176	2YYY/179	135	II.B.3.f
-	-	-	2XXX/177	2YYY/180	110	II.B.3.g
-	-	-	2XXX/178	2YYY/181	140	II.B.3.f
-	-	-	2XXX/179	2YYY/182	140	II.B.3.f
-	-	-	2XXX/180	2YYY/183	120	II.B.3.f
-	-	-	2XXX/181	2YYY/184	120	II.B.3.f
-	-	-	2XXX/182	2YYY/185	120	II.B.3.f
-	-	-	2XXX/183	2YYY/186	105	II.B.3.f
-	-	-	2XXX/184	2YYY/187	140	II.B.3.f
-	-	-	2XXX/185	2YYY/188	145	II.B.3.g
-	-	-	2XXX/186	2YYY/189	95	II.B.3.c
-	-	-	2XXX/187	2YYY/190	185	II.B.3.g
-	-	-	2XXX/188	2YYY/191	115	II.B.3.b
-	-	-	2XXX/189	2YYY/192	95	II.B.3.g
-	-	-	2XXX/190	2YYY/193	120	II.B.3.f
-	-	-	2XXX/191	2YYY/194	120	II.B.3.f
-	-	-	2XXX/192	2YYY/195	120	II.B.3.f
-	-	-	2XXX/193	2YYY/196	155	II.B.3.f
-	-	-	2XXX/194	2YYY/197	110	II.B.3.f
-	-	-	2XXX/195	2YYY/198	100	II.B.3.f
-	-	-	2XXX/196	2YYY/199	145	II.B.3.f
-	-	-	2XXX/197	2YYY/200	120	II.B.3.f
-	-	-	2XXX/198	2YYY/201	115	II.B.3.g
-	-	-	2XXX/199	2YYY/202	105	II.B.3.f
-	-	-	2XXX/200	2YYY/203	100	II.B.3.f
-	-	-	2XXX/201	2YYY/204	120	II.B.3.g
-	-	-	2XXX/202	2YYY/205	115	II.B.3.g
-	-	-	2XXX/203	2YYY/206	140	II.B.3.f
-	-	-	2XXX/204	2YYY/207	140	II.B.3.f
-	-	-	2XXX/205	2YYY/208	125	II.B.3.b
-	-	-	2XXX/206	2YYY/209	125	II.B.3.f
-	-	-	2XXX/207	2YYY/210	125	II.B.3.f
-	-	-	2XXX/208	2YYY/211	120	II.B.3.f
-	-	-	2XXX/209	2YYY/212	105	II.B.3.g
29/1851	-	56	2XXX/210	2YYY/213	105	II.B.3.f
29/1852	-	66	2XXX/211	2YYY/214	105	II.B.3.f

Existing Structure Number Ckt. 1	Existing Structure Number Ckt. 2	Existing Structure Height (ft.)	Proposed Structure Number Ckt. 1	Proposed Structure Number Ckt. 2	Proposed Structure Height (ft)	Attachment II.B.3 Structure Type
29/1853	-	68	2XXX/212	2YYY/215	105	II.B.3.f
29/1854	-	56	2XXX/213	2YYY/216	130	II.B.3.g
-	-	-	2XXX/214	2YYY/217	160	II.B.3.g
-	-	-	2XXX/215	2YYY/218	165	II.B.3.g
-	-	-	2XXX/216	2YYY/219	145	II.B.3.g
568/37	-	113.5	568/37	-	125	II.B.3.l
568/38	-	159	568/38	-	150	II.B.3.l
568/39	-	157.5	568/39	-	180	II.B.3.k
568/40	-	111	568/40	-	175	II.B.3.i
568/41	-	96.5	568/41	-	185	II.B.3.i
568/42	-	98.5	568/42	-	165	II.B.3.i
568/43	-	97	568/43	-	170	II.B.3.i
568/44	-	127.5	568/44	-	180	II.B.3.i
568/45	-	107	568/45	-	170	II.B.3.j
568/46	-	122	568/46	-	180	II.B.3.i
568/47	-	93	568/47	-	165	II.B.3.i
568/48	-	108.5	568/48	-	175	II.B.3.i
568/49	-	109	568/49	-	180	II.B.3.i
568/50	-	116.5	568/50	-	195	II.B.3.i
568/51	-	118	568/51	-	180	II.B.3.i
568/52	-	120	568/52	-	160	II.B.3.j
568/53	-	106	568/53	-	160	II.B.3.i
568/54	-	93	568/54	-	160	II.B.3.i
568/55	-	98	568/55	-	185	II.B.3.i
568/56	-	113	568/56	-	175	II.B.3.j
568/57	-	117.5	568/57	-	195	II.B.3.i
568/58	-	109.5	568/58	-	190	II.B.3.i
568/59	-	113.5	568/59	-	180	II.B.3.i
568/60	-	122.5	568/60	-	185	II.B.3.j
568/61	-	123	568/61	-	195	II.B.3.i
568/62	-	139	568/62	-	195	II.B.3.i
568/63	-	122.5	568/63	-	195	II.B.3.i
568/64	-	127	568/64	-	180	II.B.3.i
568/65	-	97.5	568/65	-	175	II.B.3.j
568/66	-	96.5	568/66	-	185	II.B.3.i
568/67	-	103.5	-	-	**	-

Existing Structure Number Ckt. 1	Existing Structure Number Ckt. 2	Existing Structure Height (ft.)	Proposed Structure Number Ckt. 1	Proposed Structure Number Ckt. 2	Proposed Structure Height (ft)	Attachment II.B.3 Structure Type
568/68	-	97	568/68	-	180	II.B.3.i
568/69	-	142.5	568/69	-	185	II.B.3.j
568/70	-	109	568/70	-	170	II.B.3.i
-	-	-	568/70A	-	185	II.B.3.i
568/71	-	134.5	568/71	-	180	II.B.3.i
568/72	-	139.5	568/72	-	170	II.B.3.i
-	-	-	568/72A	-	180	II.B.3.i
568/73	-	69.5	568/73	-	175	II.B.3.j
568/74	-	107.5	568/74	-	170	II.B.3.i
568/75	-	110	568/75	-	165	II.B.3.i
2083/1A	2090/1A		2080/1A	2090/1A	*	N/A
		N/A	2083/1B	-	115	II.B.3.n
		N/A	2083/1C	-	115	II.B.3.n
		N/A	2083/1D	-	115	II.B.3.o
		N/A	2083/2	2ZZZ/3	115	II.B.3.n
		N/A	2083/3	2ZZZ/4	120	II.B.3.m
		N/A	2083/4	2ZZZ/5	100	II.B.3.m
		N/A	2083/5	2ZZZ/6	105	II.B.3.m
		N/A	2083/6	2ZZZ/7	100	II.B.3.n
		N/A	2083/7	2ZZZ/8	110	II.B.3.m
		N/A	2083/8	2ZZZ/9	115	II.B.3.n
2157/5406	2083/9	115	2083/9	2ZZZ/10	*	N/A
Minimum		56.0			85.0	
Maximum		165.0			195.0	
Average		113.9			130.9	

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

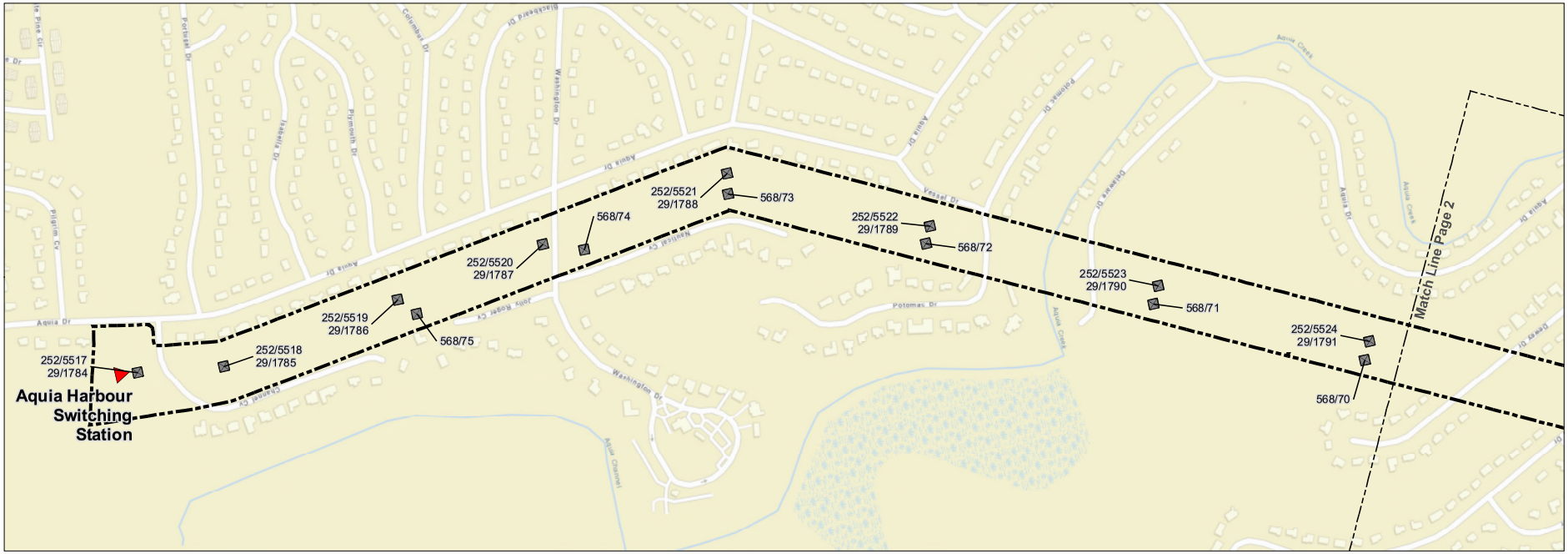
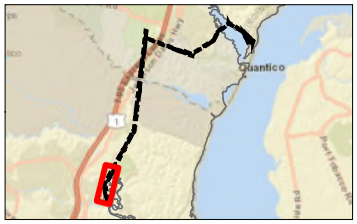


Table II.B.5a

Existing Structure Number	252/5517 29/1784	252/5518 29/1785	252/5519 29/1786	252/5520 29/1787	252/5521 29/1788	252/5522 29/1789	252/5523 29/1790	252/5524 29/1791
Existing Structure Height (ft)	95	107.5	106	126	117	131	144.5	105.5

Existing Structure Number	568/75	568/74	568/73	568/72	568/71	568/70
Existing Structure Height (ft)	110	107.5	69.5	139.5	134.5	109



Substation
Existing Structure
Project Limits

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Stantec

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Dominion Energy Virginia
Aquia Harbour - Possum Point
Lines #29, #252, #2083, and #568 Rebuild

Figure No.

Title
Existing Structures

Notes
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2. Data Sources: Dominion Energy Virginia, Stantec, U.S. Census Bureau
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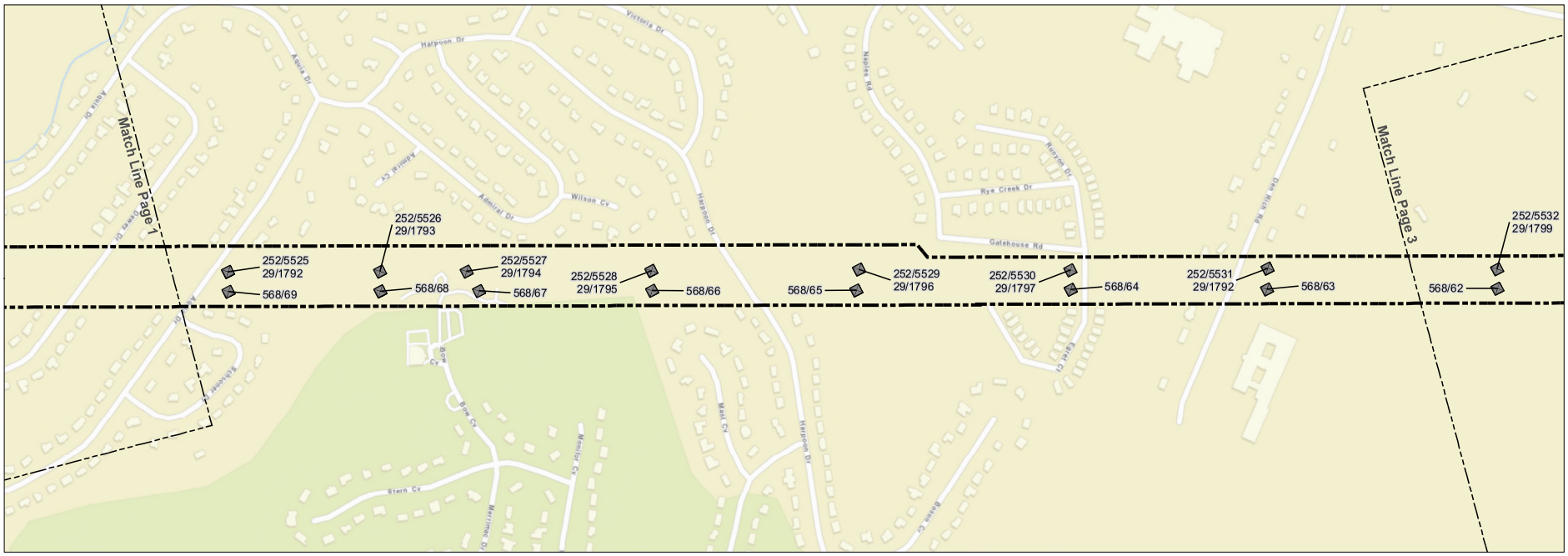
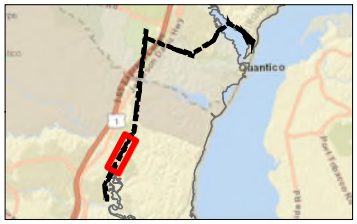


Table II.B.5a

Existing Structure Number	252/5525 29/1792	252/5526 29/1793	252/5527 29/1794	252/5528 29/1795	252/5529 29/1796	252/5530 29/1797	252/5531 29/1792	252/5532 29/1799
Existing Structure Height (ft)	142	110.5	107.5	106	106	127	142	117

Existing Structure Number	568/69	568/68	568/67	568/66	568/65	568/64	568/63	568/62
Existing Structure Height (ft)	142.5	97	103.5	96.5	97.5	127	122.5	139



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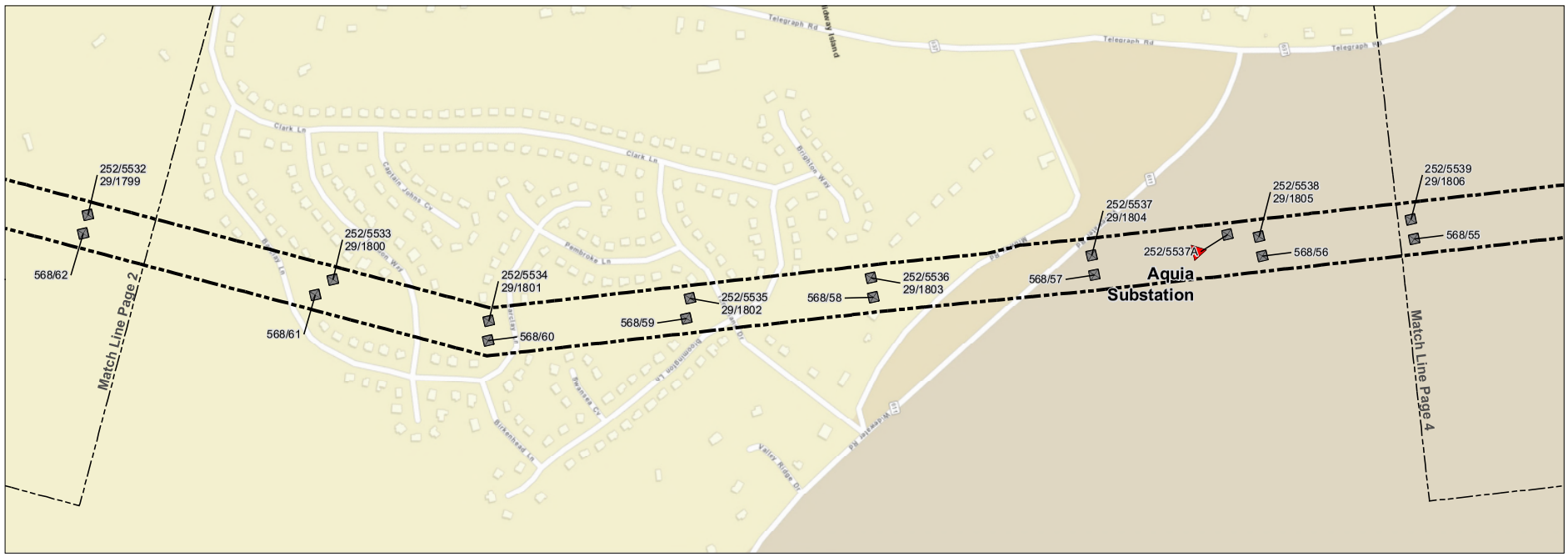
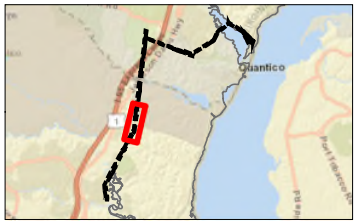


Table II.B.5a

Existing Structure Number	252/5532 29/1799	252/5533 29/1800	252/5534 29/1801	252/5535 29/1802	252/5536 29/1803	252/5537 29/1804	252/5537A	252/5538 29/1805	252/5539 29/1806
Existing Structure Height (ft)	117	124.5	106.5	133	112	106.5	70	117	111.5

Existing Structure Number	568/62	568/61	568/60	568/59	568/58	568/57	568/56	568/55
Existing Structure Height (ft)	139	123	122.5	113.5	109.5	117.5	113	98



Substation
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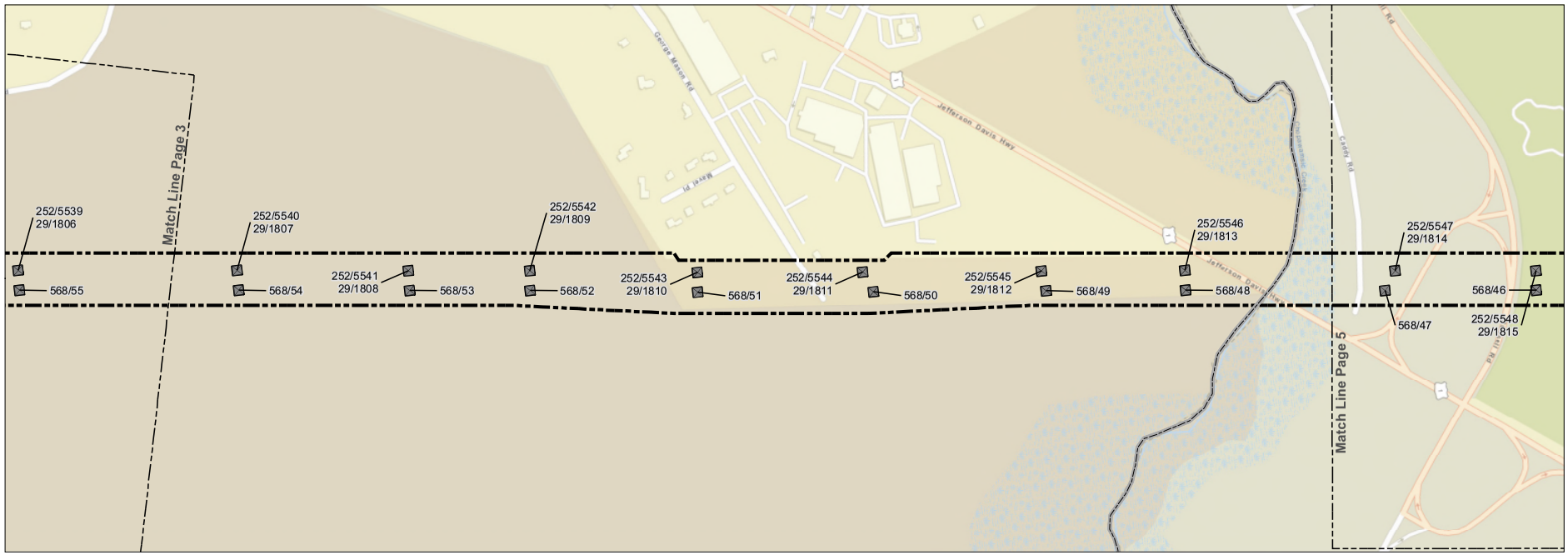
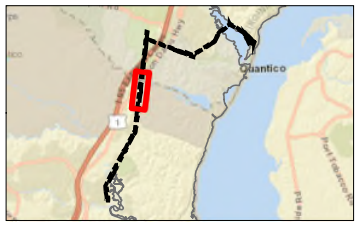


Table II.B.5a

Existing Structure Number	252/5539 29/1806	252/5540 29/1807	252/5541 29/1808	252/5542 29/1809	252/5543 29/1810	252/5544 29/1811	252/5545 29/1812	252/5546 29/1813	252/5547 29/1814	252/5548 29/1815
Existing Structure Height (ft)	111.5	107.5	109	112.5	121.5	131.5	111	111	108	111.5

Existing Structure Number	568/55	568/54	568/53	568/52	568/51	568/50	568/49	568/48	568/47	568/46
Existing Structure Height (ft)	98	93	106	120	118	116.5	109	108.5	93	122



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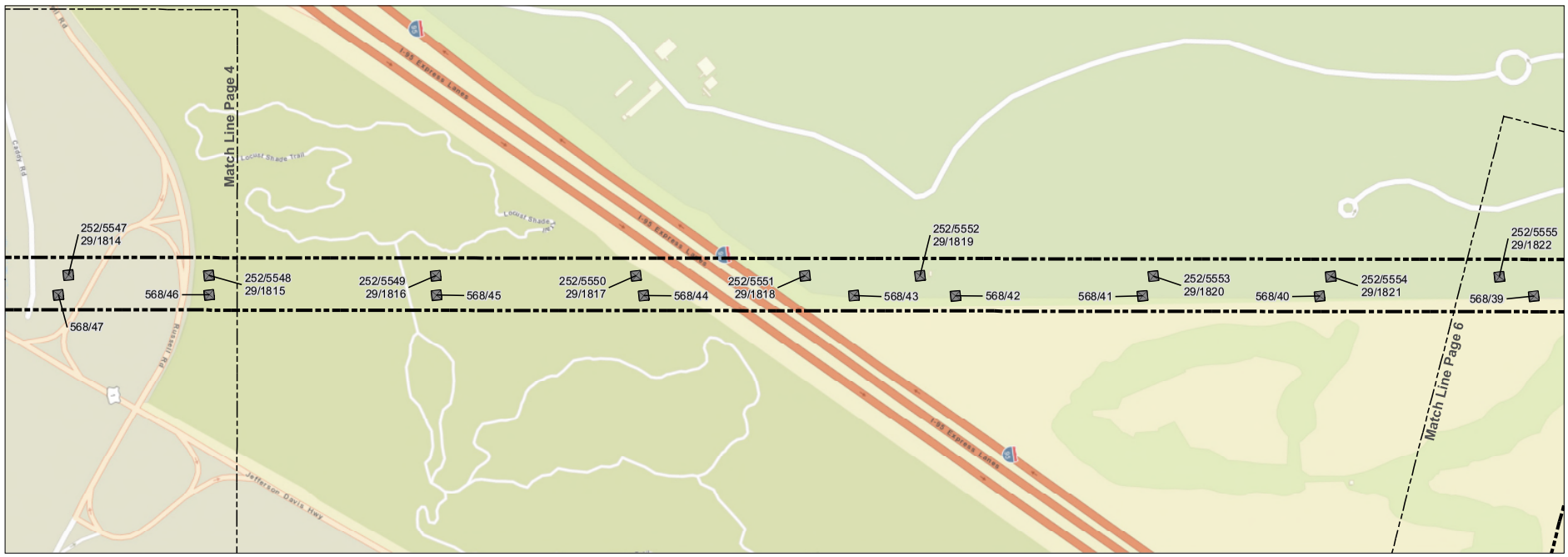
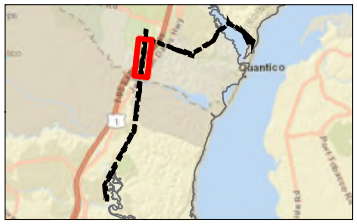


Table II.B.5a

Existing Structure Number	252/5547 29/1814	252/5548 29/1815	252/5549 29/1816	252/5550 29/1817	252/5551 29/1818	252/5552 29/1819	252/5553 29/1820	252/5554 29/1821	252/5555 29/1822
Existing Structure Height (ft)	108	111.5	106.5	137	165	136.5	111	113.5	110

Existing Structure Number	568/47	568/46	568/45	568/44	568/43	568/42	568/41	568/40	568/39
Existing Structure Height (ft)	93	122	107	127.5	97	98.5	96.5	111	157.5



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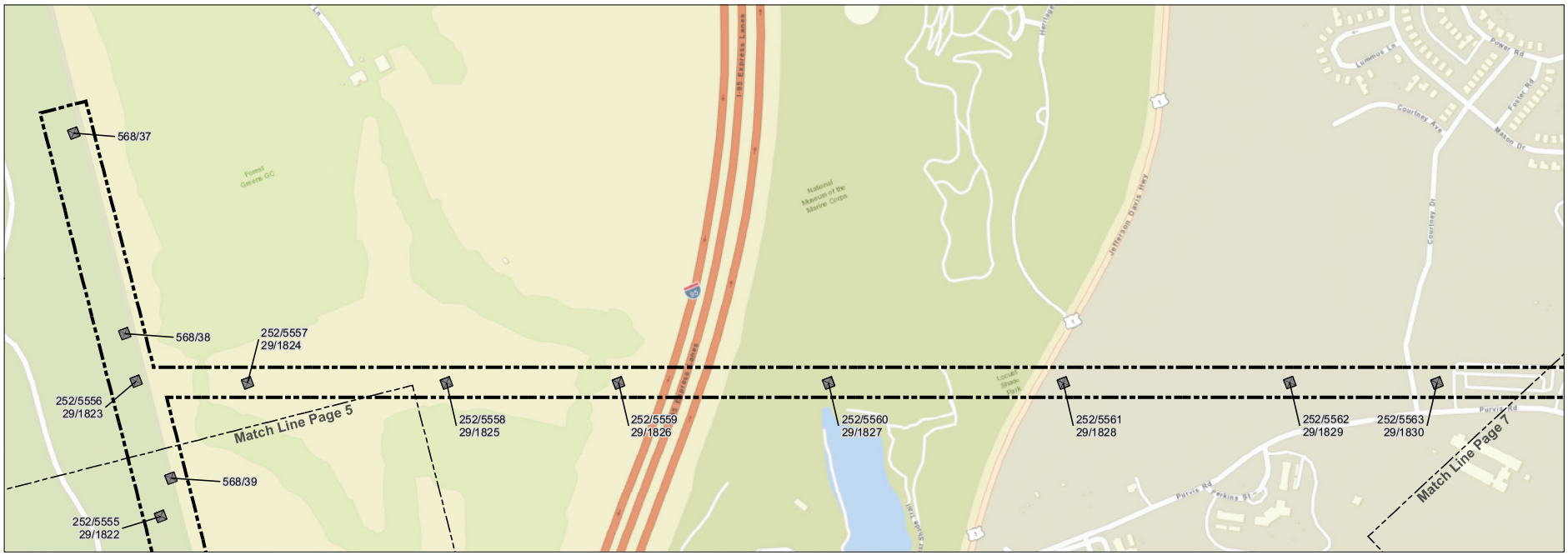
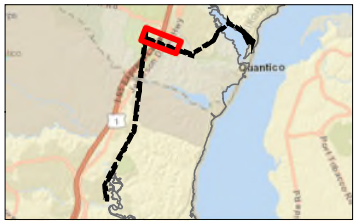


Table II.B.5a

Existing Structure Number	252/5555 29/1822	252/5556 29/1823	252/5557 29/1824	252/5558 29/1825	252/5559 29/1826	252/5560 29/1827	252/5561 29/1828	252/5562 29/1829	252/5563 29/1830
Existing Structure Height (ft)	110	73.5	122	112.5	142	144	141.5	108.5	106.5

Existing Structure Number	568/39	568/38	568/37
Existing Structure Height (ft)	157.5	159	113.5



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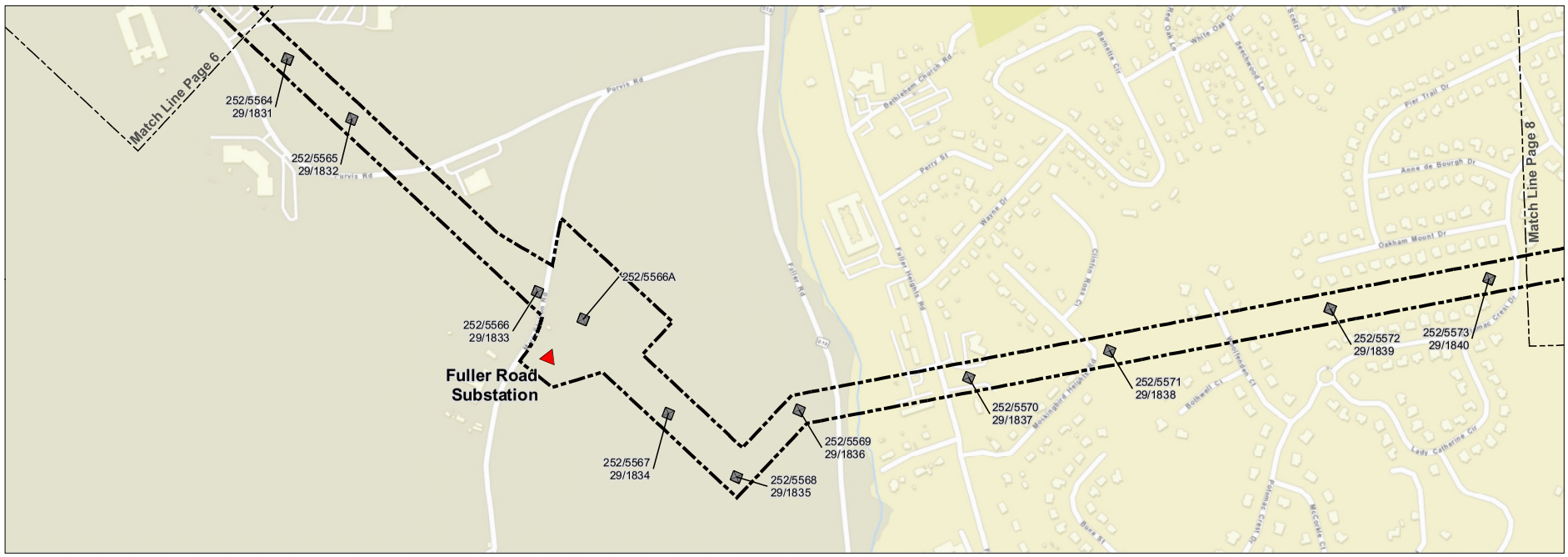

Table II.B.5a

Existing Structure Number	252/5564 29/1831	252/5565 29/1832	252/5566 29/1833	252/5566A	252/5567 29/1834	252/5568 29/1835	252/5569 29/1836	252/5570 29/1837	252/5571 29/1838	252/5572 29/1839	252/5573 29/1840
Existing Structure Height (ft)	106.5	112.5	129	76.5	110.5	106.5	111	111.5	109.5	109	106.5

Substation
Existing Structure
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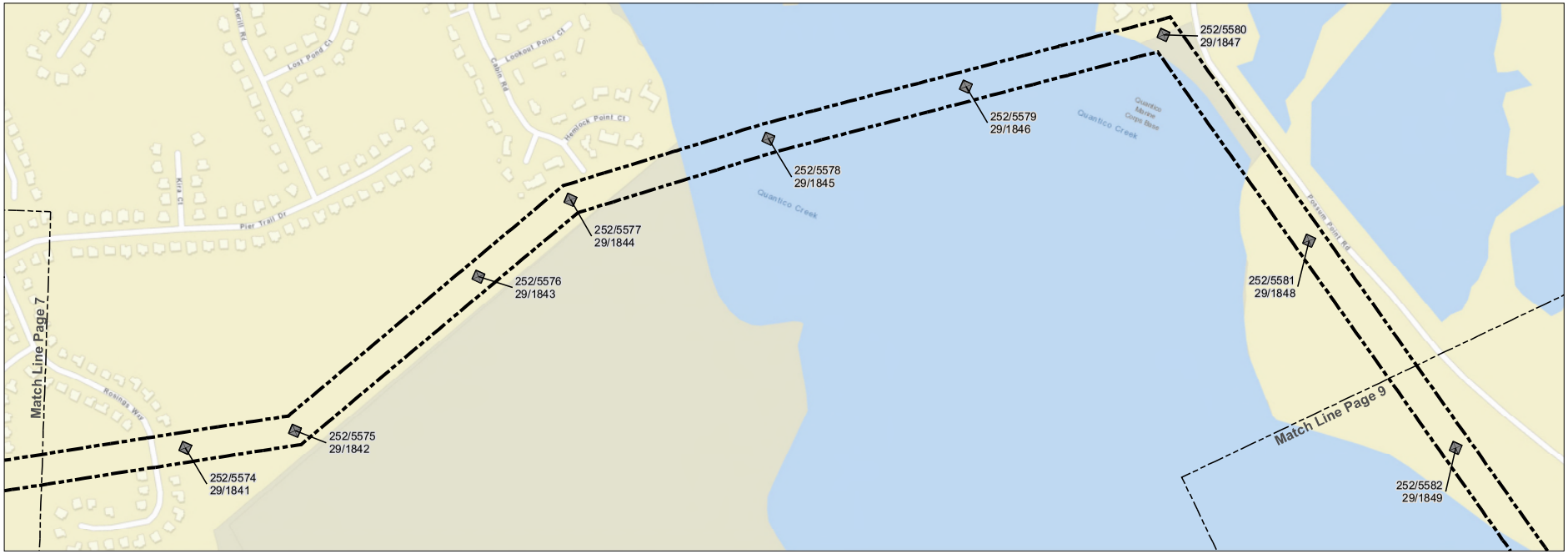

Table II.B.5a

Existing Structure Number	252/5574 29/1841	252/5575 29/1842	252/5576 29/1843	252/5577 29/1844	252/5578 29/1845	252/5579 29/1846	252/5580 29/1847	252/5581 29/1848	252/5582 29/1849
Existing Structure Height (ft)	107	119	146	106.5	141.5	141.5	116.5	146.5	143.5

Substation
Existing Structure
Project Limits

0 500 1,000 Feet
(At original document size of 11x17)
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N

Stantec

Project Location
Prince William County and Stafford County, Virginia

Prepared by JFK on 2024-07-18
TR by MGS 2024-07-22
IR by LRC 2024-07-19

Client/Project
Dominion Energy Virginia
Aquia Harbour - Possum Point
Lines #29, #252, #2083, and #568 Rebuild

203401909

Figure No.

Title
Existing Structures

Notes
1. Coordinate System: NAD 1983 StatePlane Virginia South FIPS 4502 Feet
2. Data Sources: Dominion Energy Virginia, Stantec, U.S. Census Bureau
3. Basemap © ESRI World Street Map

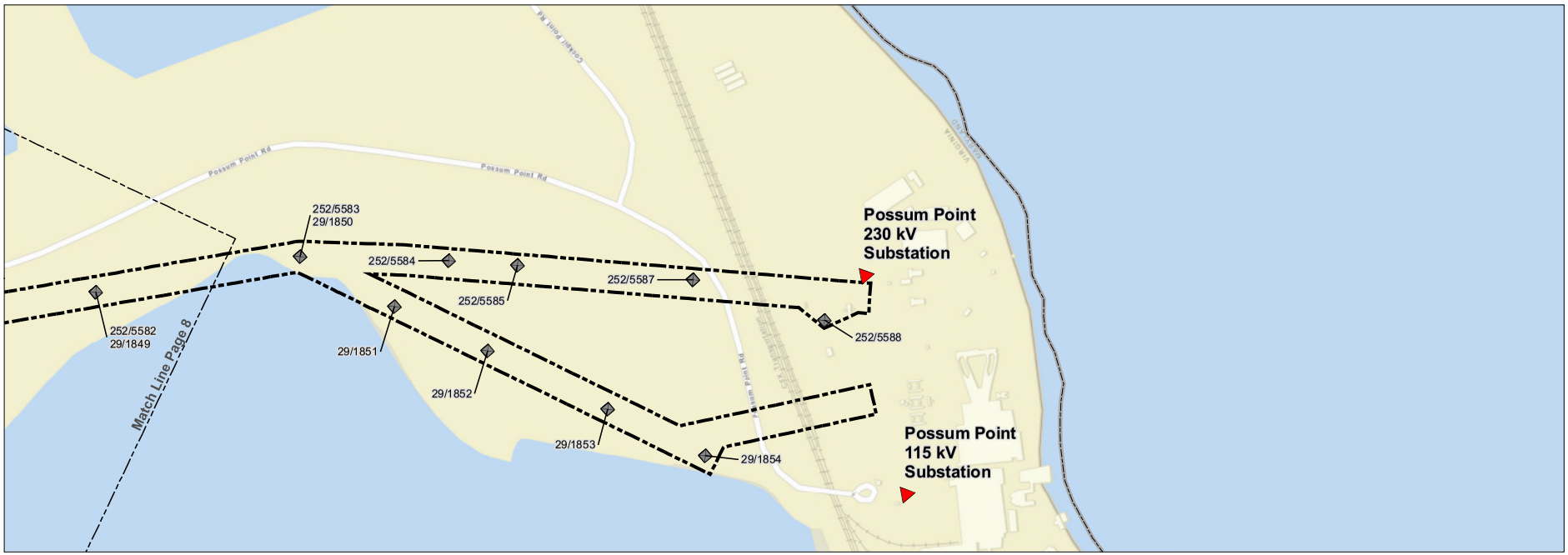
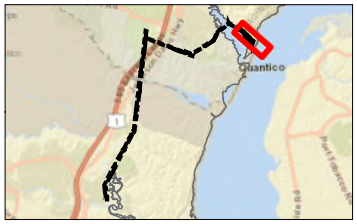


Table II.B.5a

Existing Structure Number	252/5582 29/1849	252/5583 29/1850	252/5584	252/5585	252/5587	252/5588
Existing Structure Height (ft)	143.5	116.5	73.5	80	74	121



Substation
Existing Structure
Project Limits

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N

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203401909

Figure No.

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Existing Structures

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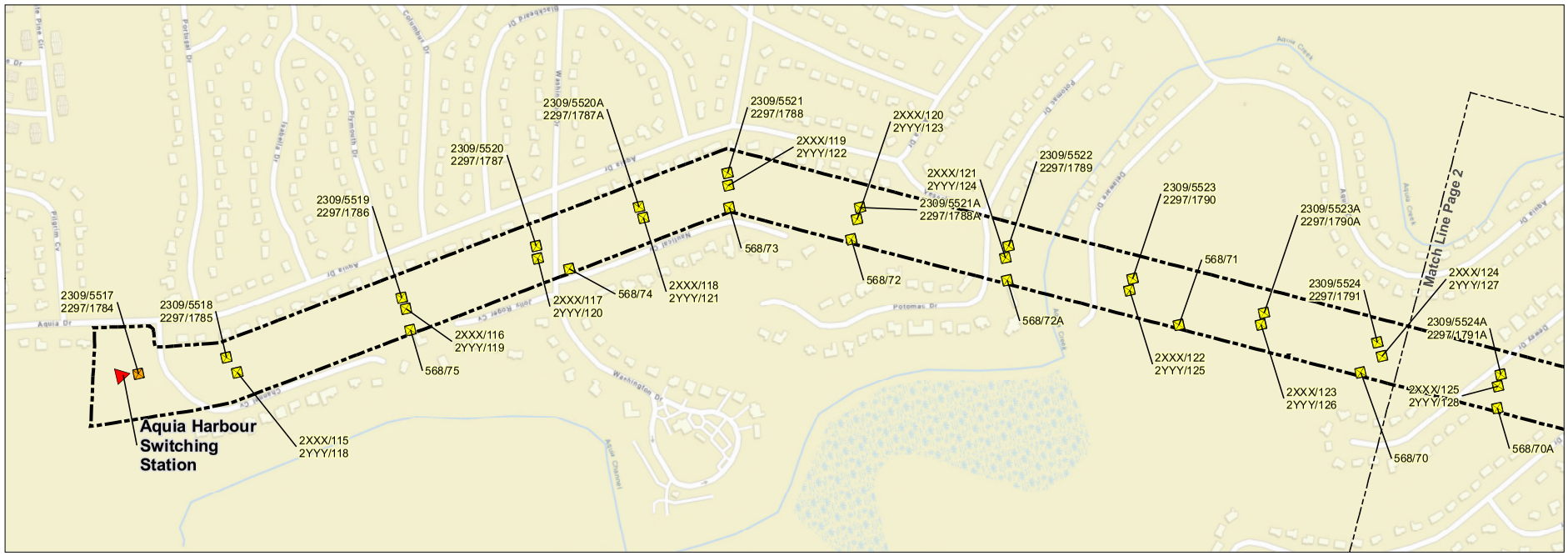

Table II.B.5b

Proposed Structure Number	2309/5517 (Existing) 2297/1784(Existing)	2309/5518 2297/1785	2309/5519 2297/1786	2309/5520 2297/1787	2309/5520A 2297/1787A	2309/5521 2297/1788	2309/5521A 2297/1788A	2309/5522 2297/1789	2309/5523 2297/1790	2309/5523A 2297/1790A	2309/5524 2297/1791	2309/5524A 2297/1791A
Proposed Structure Height (ft)	95	100	120	125	120	95	120	130	125	125	100	125

Proposed Structure Number	2XXX/115 2YYY/118	2XXX/116 2YYY/119	2XXX/117 2YYY/120	2XXX/118 2YYY/121	2XXX/119 2YYY/122	2XXX/120 2YYY/123	2XXX/121 2YYY/124	2XXX/122 2YYY/125	2XXX/123 2YYY/126	2XXX/124 2YYY/127	2XXX/125 2YYY/128
Proposed Structure Height (ft)	100	120	125	120	100	125	130	125	125	115	125

Proposed Structure Number	568/75	568/74	568/73	568/72A	568/72	568/71	568/70A	568/70
Proposed Structure Height (ft)	165	170	175	180	170	180	185	170

Substation/Switching Station
Proposed Structure
Existing Structure to Remain
Project Limits

0 500 1,000 Feet
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Stantec

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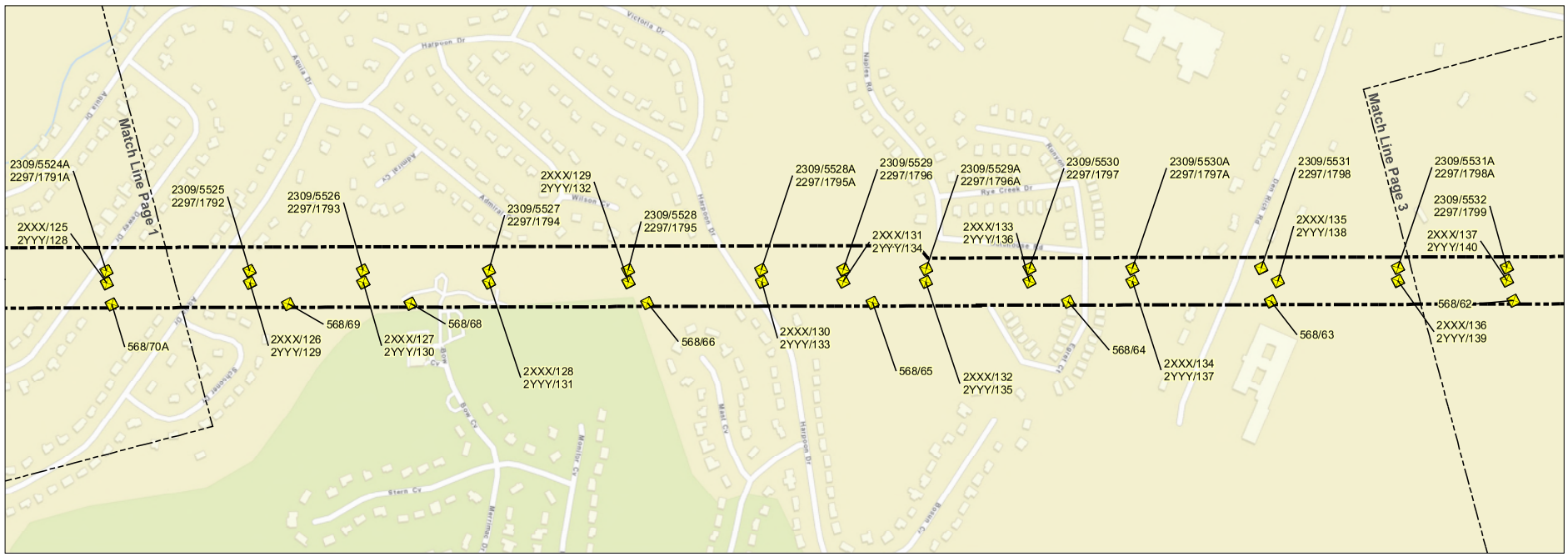
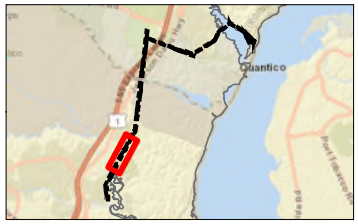


Table II.B.5b

Proposed Structure Number	2309/5524A 2297/1791A	2309/5525 2297/1792	2309/5526 2297/1793	2309/5527 2297/1794	2309/5528 2297/1795	2309/5528A 2297/1795A	2309/5529 2297/1796	2309/5529A 2297/1796A	2309/5530 2297/1797	2309/5530A 2297/1797A	2309/5531 2297/1798	2309/5531A 2297/1798A	2309/5532 2297/1799
Proposed Structure Height (ft)	125	155	135	145	120	120	100	135	105	120	140	130	110

Proposed Structure Number	2XXX/125 2YYY/128	2XXX/126 2YYY/129	2XXX/127 2YYY/130	2XXX/128 2YYY/131	2XXX/129 2YYY/132	2XXX/130 2YYY/133	2XXX/131 2YYY/134	2XXX/132 2YYY/135	2XXX/133 2YYY/136	2XXX/134 2YYY/137	2XXX/135 2YYY/138	2XXX/136 2YYY/139	2XXX/137 2YYY/140
Proposed Structure Height (ft)	125	155	135	135	120	125	100	135	105	125	140	130	115

Proposed Structure Number	568/70A	568/69	568/68	568/66	568/65	568/64	568/63	568/62
Proposed Structure Height (ft)	185	185	180	185	175	180	195	195



Proposed Structure
Project Limits

0 500 1,000 Feet
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Notes
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Aquia Harbour - Possum Point
Lines #29, #252, #2083, and #568 Rebuild
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Figure No.

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Proposed Structures

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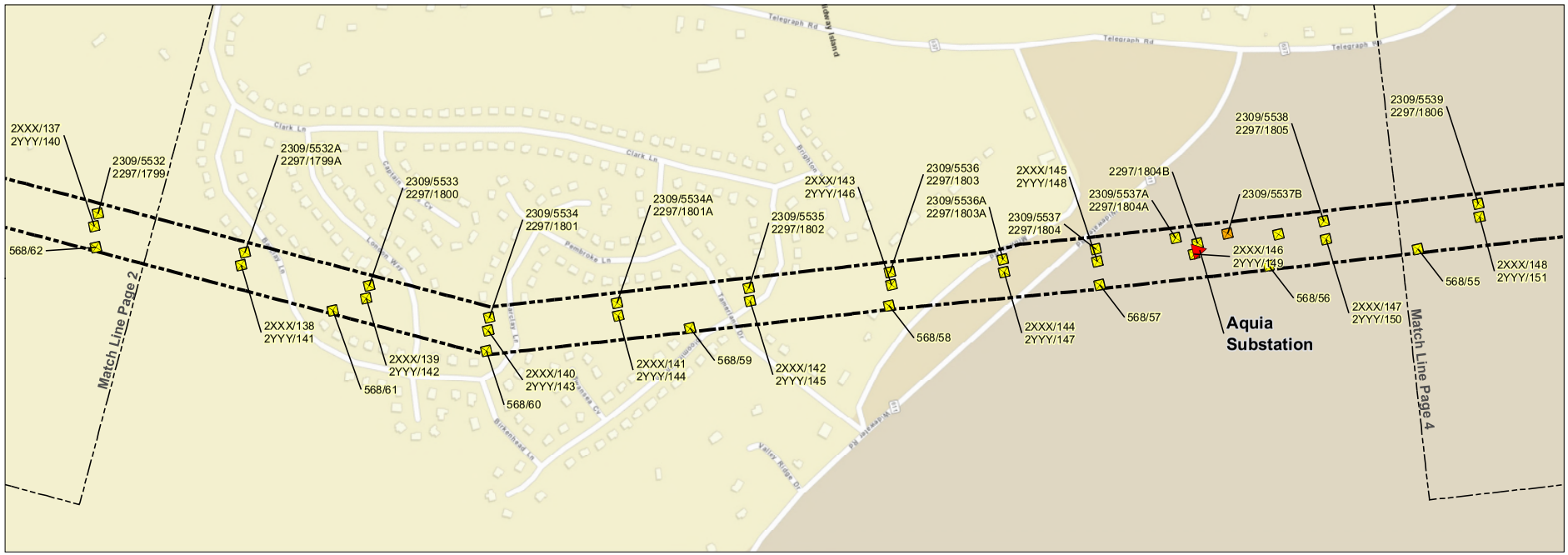
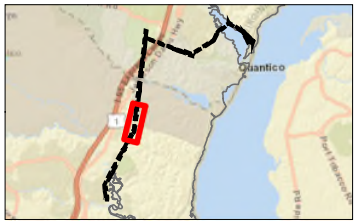


Table II.B.5b

Proposed Structure Number	2309/5532 2297/1799	2309/5532A 2297/1799A	2309/5533 2297/1800	2309/5534 2297/1801	2309/5534A 2297/1801A	2309/5535 2297/1802	2309/5536 2297/1803	2309/5536A 2297/1803A	2309/5537 2297/1804	2309/5537A 2297/1804A	2309/5537B (Existing)	2297/1804B	2297/1804D	2309/5538 2297/1805	2309/5539 2297/1806
Proposed Structure Height (ft)	110	125	110	115	120	135	130	135	110	120	70	145	125	120	140

Proposed Structure Number	2XXX/137 2YYY/140	2XXX/138 2YYY/141	2XXX/139 2YYY/142	2XXX/140 2YYY/143	2XXX/141 2YYY/144	2XXX/142 2YYY/145	2XXX/143 2YYY/146	2XXX/144 2YYY/147	2XXX/145 2YYY/148	2XXX/146 2YYY/149	2XXX/147 2YYY/150	2XXX/148 2YYY/151
Proposed Structure Height (ft)	115	125	115	115	120	135	135	130	110	115	105	140

Proposed Structure Number	568/62	568/61	568/60	568/59	568/58	568/57	568/56	568/55
Proposed Structure Height (ft)	195	195	185	180	190	195	175	185



Substation/Switching Station
Proposed Structure
Existing Structure to Remain
Project Limits

0 500 1,000 Feet
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Stantec

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203401909
Dominion Energy Virginia
Aquia Harbour - Possum Point
Lines #29, #252, #2083, and #568 Rebuild

Figure No.

Title
Proposed Structures

Notes
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2. Data Sources: Dominion Energy Virginia, Stantec, U.S. Census Bureau
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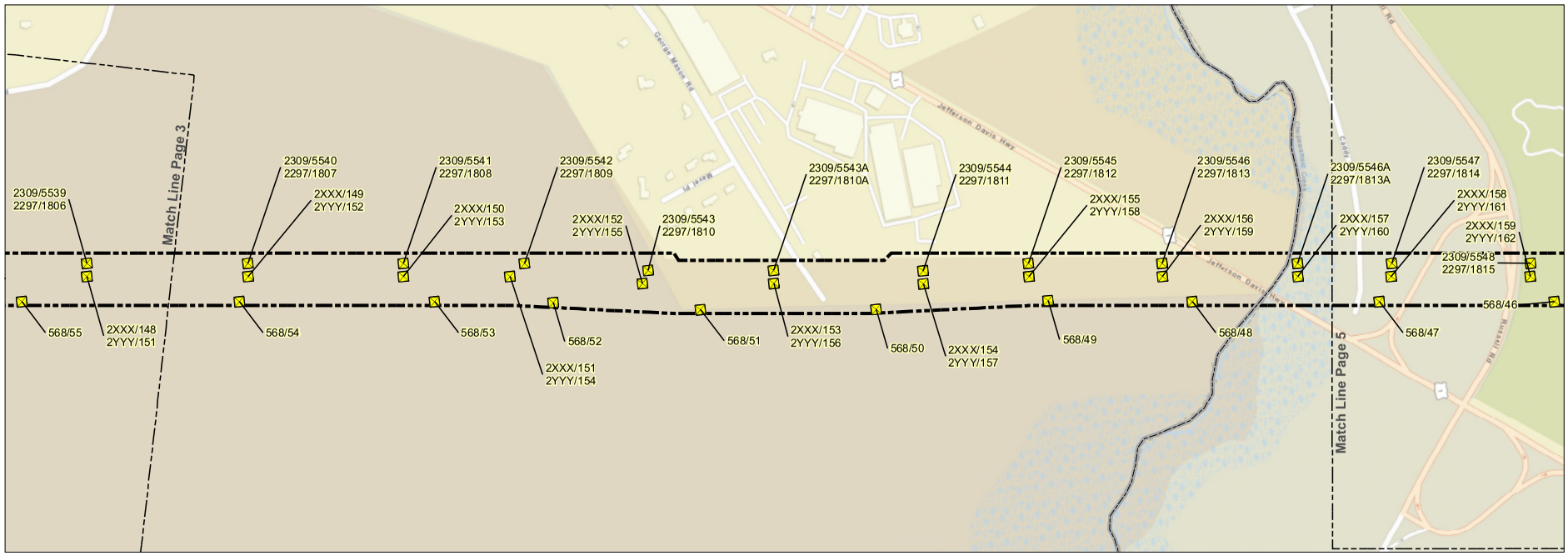
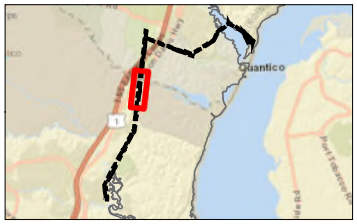


Table II.B.5b

Proposed Structure Number	2309/5539 2297/1806	2309/5540 2297/1807	2309/5541 2297/1808	2309/5542 2297/1809	2309/5543 2297/1810	2309/5543A 2297/1810A	2309/5544 2297/1811	2309/5545 2297/1812	2309/5546 2297/1813	2309/5546A 2297/1813A	2309/5547 2297/1814	2309/5548 2297/1815
Proposed Structure Height (ft)	140	105	120	115	105	125	125	130	140	160	135	135

Proposed Structure Number	2XXX/148 2YYY/151	2XXX/149 2YYY/152	2XXX/150 2YYY/153	2XXX/151 2YYY/154	2XXX/152 2YYY/155	2XXX/153 2YYY/156	2XXX/154 2YYY/157	2XXX/155 2YYY/158	2XXX/156 2YYY/159	2XXX/157 2YYY/160	2XXX/158 2YYY/161	2XXX/159 2YYY/162
Proposed Structure Height (ft)	140	105	120	125	110	125	125	130	140	160	135	135

Proposed Structure Number	568/55	568/54	568/53	568/52	568/51	568/50	568/49	568/48	568/47	568/46
Proposed Structure Height (ft)	185	160	160	160	180	195	180	175	165	180



Proposed Structure
Project Limits

0 500 1,000 Feet
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Stantec

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Prince William County and Stafford County, Virginia

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Dominion Energy Virginia
Aquia Harbour - Possum Point
Lines #29, #252, #2083, and #568 Rebuild

203401909

Figure No.

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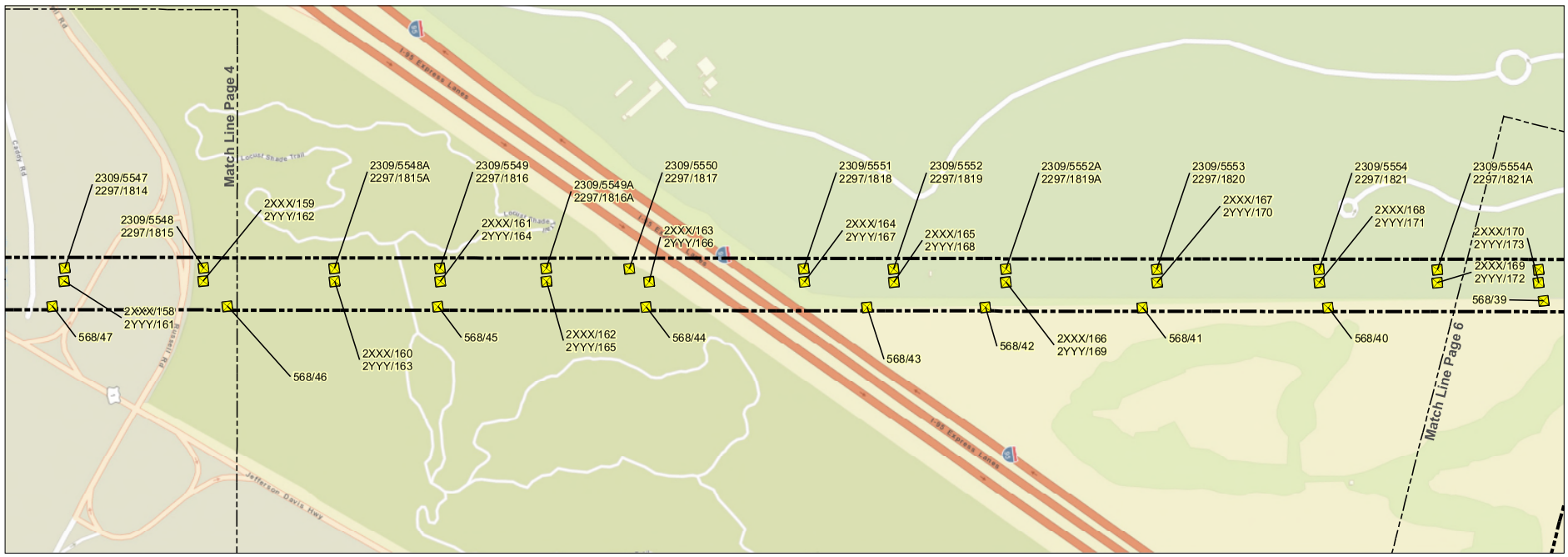
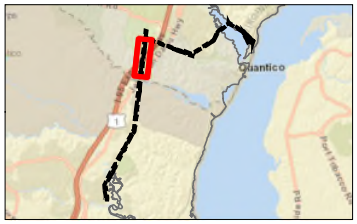


Table II.B.5b

Proposed Structure Number	2309/5547 2297/1814	2309/5548 2297/1815	2309/5548A 2297/1815A	2309/5549 2297/1816	2309/5549A 2297/1816A	2309/5550 2297/1817	2309/5551 2297/1818	2309/5552 2297/1819	2309/5552A 2297/1819A	2309/5553 2297/1820	2309/5554 2297/1821	2309/5554A 2297/1821A	2309/5555 2297/1822
Proposed Structure Height (ft)	135	135	130	100	130	155	165	125	145	110	120	125	100

Proposed Structure Number	2XXX/158 2YYY/161	2XXX/159 2YYY/162	2XXX/160 2YYY/163	2XXX/161 2YYY/164	2XXX/162 2YYY/165	2XXX/163 2YYY/166	2XXX/164 2YYY/167	2XXX/165 2YYY/168	2XXX/166 2YYY/169	2XXX/167 2YYY/170	2XXX/168 2YYY/171	2XXX/169 2YYY/172	2XXX/170 2YYY/173
Proposed Structure Height (ft)	135	135	125	100	130	135	140	110	140	125	125	125	100

Proposed Structure Number	568/47	568/46	568/45	568/44	568/43	568/42	568/41	568/40	568/39
Proposed Structure Height (ft)	165	180	170	180	170	165	185	175	180



Proposed Structure
Project Limits

0 500 1,000 Feet
(At original document size of 11x17)
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N

Stantec

Project Location
Prince William County and Stafford County, Virginia

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Client/Project
Dominion Energy Virginia
Aquia Harbour - Possum Point
Lines #29, #252, #2083, and #568 Rebuild
203401909

Figure No.

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Proposed Structures

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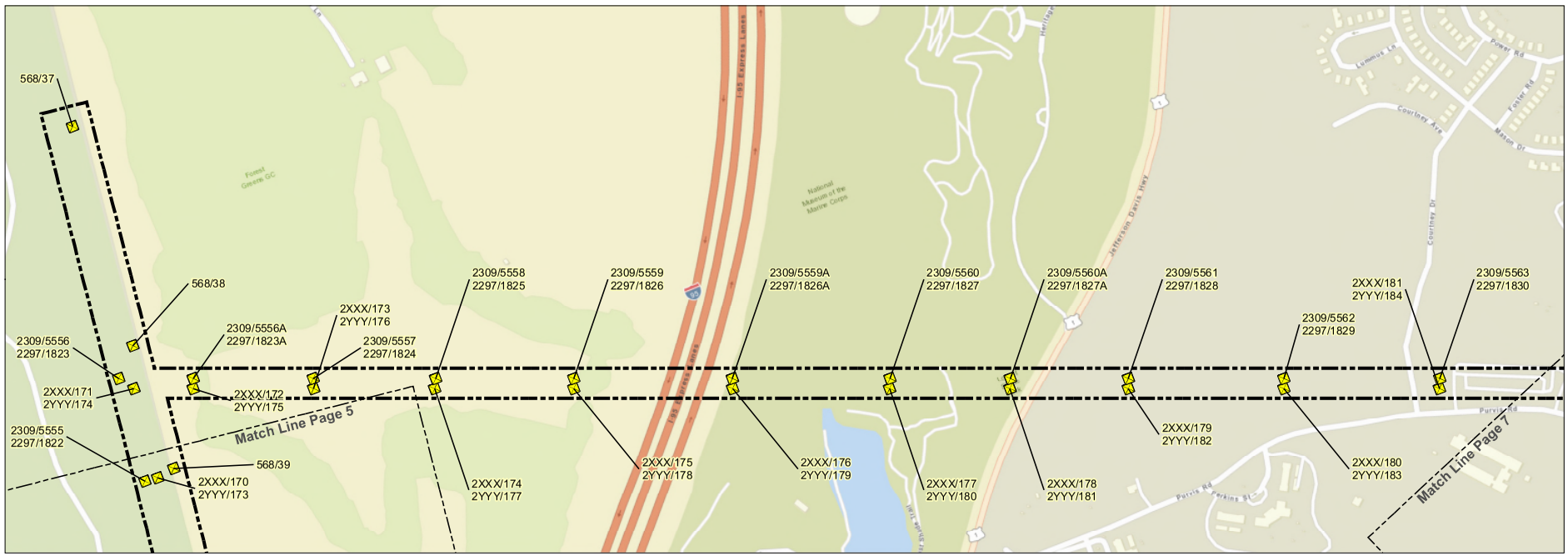
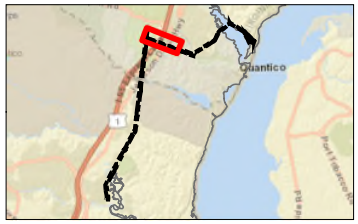


Table II.B.5b

Proposed Structure Number	2309/5555 2297/1822	2309/5556 2297/1823	2309/5556A 2297/1823A	2309/5557 2297/1824	2309/5558 2297/1825	2309/5559 2297/1826	2309/5559A 2297/1826A	2309/5560 2297/1827	2309/5560A 2297/1827A	2309/5561 2297/1828	2309/5562 2297/1829	2309/5563 2297/1830
Proposed Structure Height (ft)	100	90	95	110	95	115	135	110	140	140	120	125

Proposed Structure Number	2XXX/170 2YYY/173	2XXX/171 2YYY/174	2XXX/172 2YYY/175	2XXX/173 2YYY/176	2XXX/174 2YYY/177	2XXX/175 2YYY/178	2XXX/176 2YYY/179	2XXX/177 2YYY/180	2XXX/178 2YYY/181	2XXX/179 2YYY/182	2XXX/180 2YYY/183	2XXX/181 2YYY/184
Proposed Structure Height (ft)	100	85	95	110	95	110	135	110	140	140	120	120

Proposed Structure Number	568/39	568/38	568/37
Proposed Structure Height (ft)	180	150	125



Proposed Structure
Project Limits

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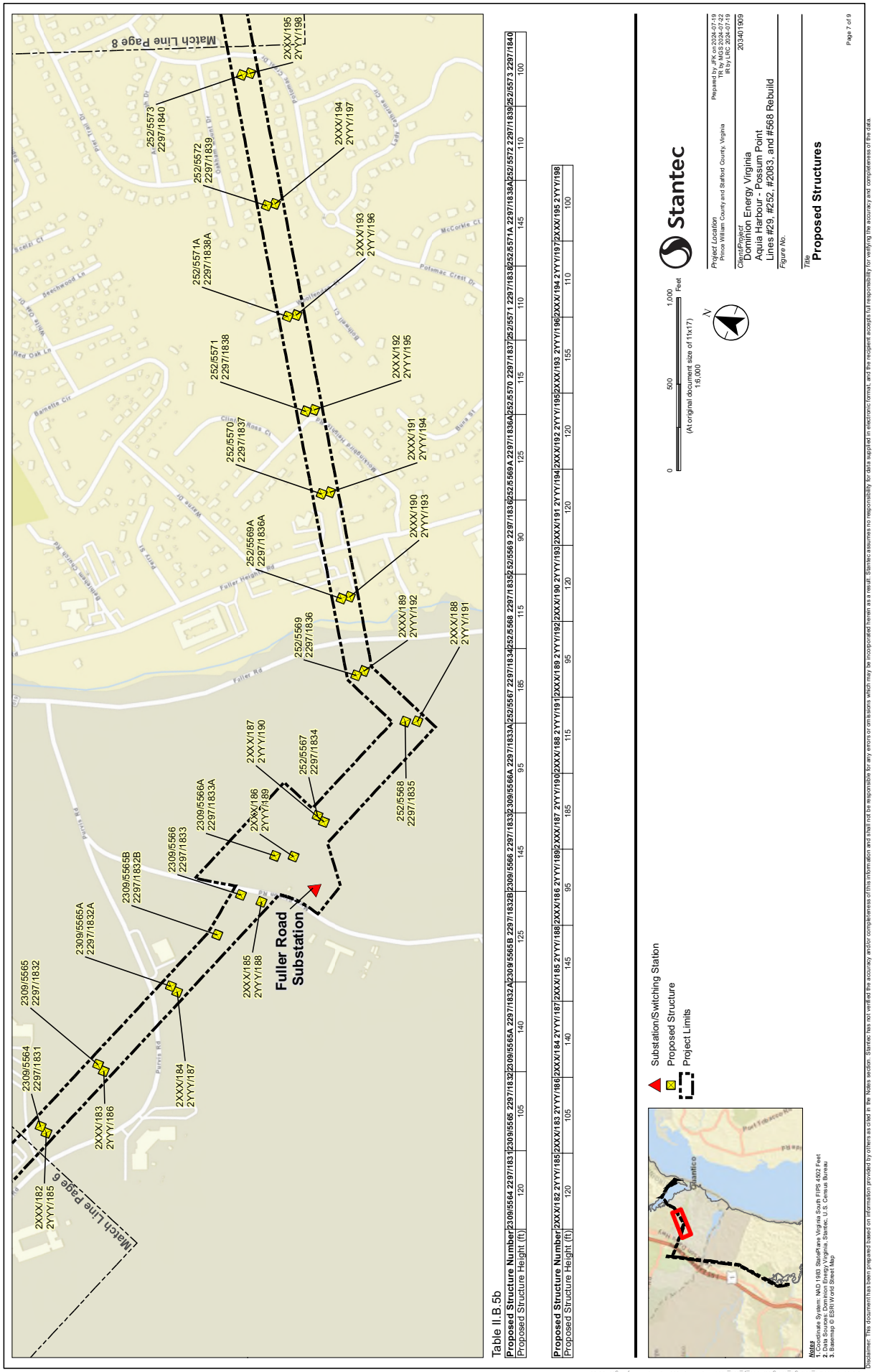


Table II.B.5b

Proposed Structure Number	2309/5564 2297/1831	2XXX/182 2YYY/185	2XXX/183 2YYY/186	2XXX/184 2YYY/187	2XXX/185 2YYY/188	2XXX/186 2YYY/189	2XXX/187 2YYY/190	2XXX/188 2YYY/191	2XXX/189 2YYY/192	2XXX/190 2YYY/193	2XXX/191 2YYY/194	2XXX/192 2YYY/195	2XXX/193 2YYY/196	2XXX/194 2YYY/197	2XXX/195 2YYY/198
Proposed Structure Height (ft)	120	120	105	140	145	95	185	115	95	120	120	120	155	110	100

Proposed Structure Number	2309/5565 2297/1832	2309/5565A 2297/1832A	2309/5565B 2297/1832B	2309/5566 2297/1833	2309/5566A 2297/1833A	252/5567 2297/1834	252/5568 2297/1835	252/5569 2297/1836	252/5569A 2297/1836A	252/5570 2297/1837	252/5571 2297/1838	252/5571A 2297/1838A	252/5572 2297/1839	252/5573 2297/1840
Proposed Structure Height (ft)	105	140	125	145	185	115	90	125	115	110	145	110	100	

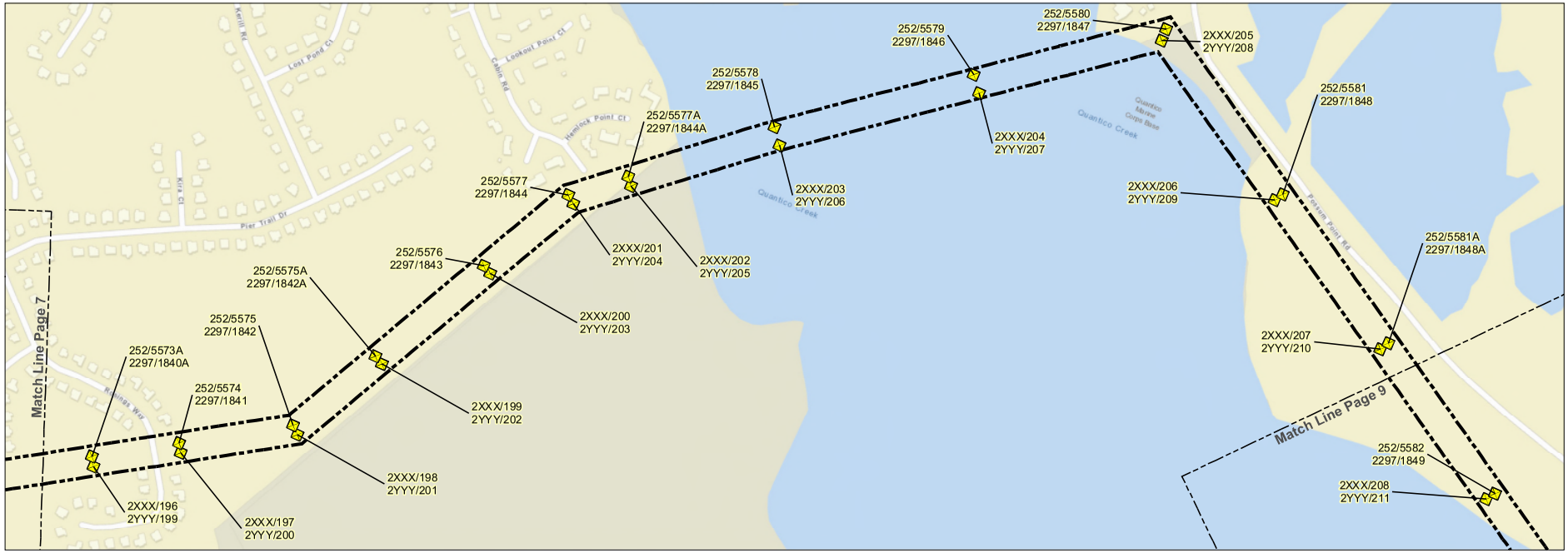
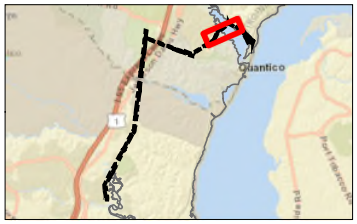


Table II.B.5b

Proposed Structure Number	252/5573A 2297/1840A	252/5574 2297/1841	252/5575 2297/1842	252/5575A 2297/1842A	252/5576 2297/1843	252/5577 2297/1844	252/5577A 2297/1844A	252/5578 2297/1845	252/5579 2297/1846	252/5580 2297/1847	252/5581 2297/1848	252/5581A 2297/1848A	252/5582 2297/1849
Proposed Structure Height (ft)	140	120	125	100	105	115	115	140	140	125	120	125	120

Proposed Structure Number	2XXX/196 2YYY/199	2XXX/197 2YYY/200	2XXX/198 2YYY/201	2XXX/199 2YYY/202	2XXX/200 2YYY/203	2XXX/201 2YYY/204	2XXX/202 2YYY/205	2XXX/203 2YYY/206	2XXX/204 2YYY/207	2XXX/205 2YYY/208	2XXX/206 2YYY/209	2XXX/207 2YYY/210	2XXX/208 2YYY/211
Proposed Structure Height (ft)	145	120	115	105	100	120	115	140	140	125	125	125	120



Proposed Structure
Project Limits

0 500 1,000 Feet
(At original document size of 11x17)
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Stantec

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Prince William County and Stafford County, Virginia

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Client/Project
Dominion Energy Virginia
Aquia Harbour - Possum Point
Lines #29, #252, #2083, and #568 Rebuild

Figure No.

Title
Proposed Structures

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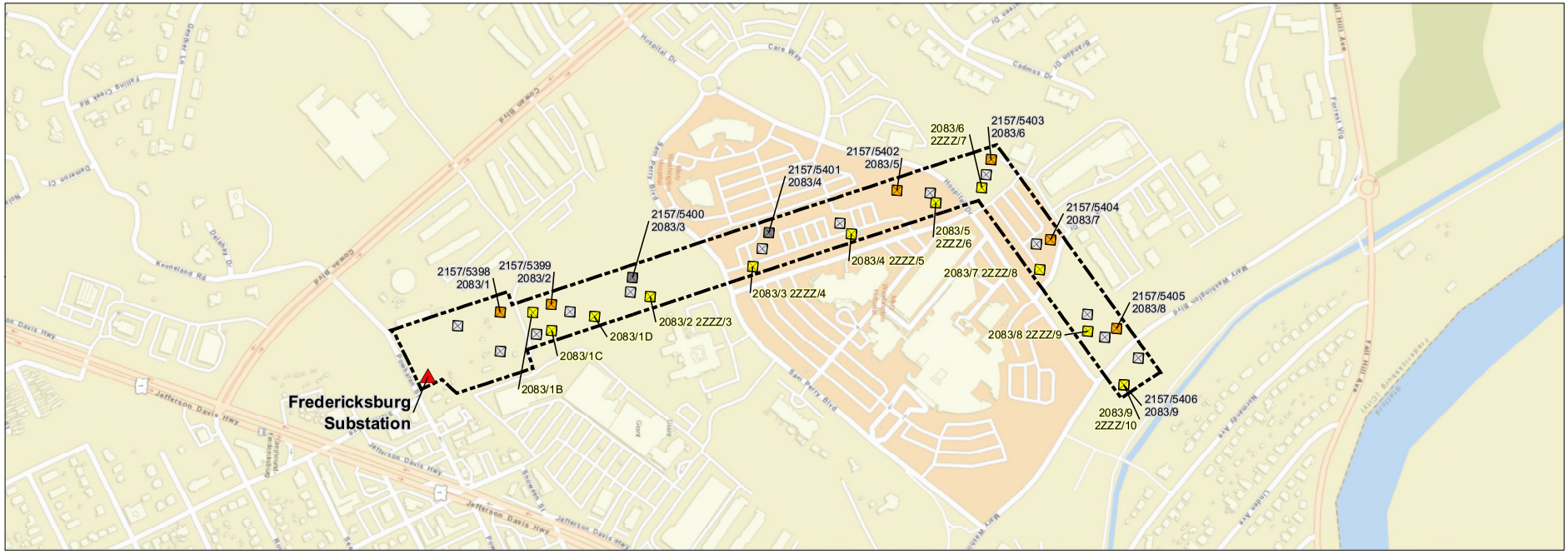


Table II.B.5c

Existing Structure Number	2157/5406 2083/9	2157/5399 2083/2	2157/5400 2083/3	2157/5401 2083/4	2157/5402 2083/5	2157/5403 2083/6	2157/5404 2083/7	2157/5405 2083/8
Existing Structure Height (ft)	115	90	97	118.5	114	108	115	125

Proposed Structure Number	2083/1B	2083/1C	2083/1D	2083/2 2ZZZ/3	2083/3 2ZZZ/4	2083/4 2ZZZ/5	2083/5 2ZZZ/6	2083/6 2ZZZ/7	2083/7 2ZZZ/8	2083/8 2ZZZ/9	2083/9 2ZZZ/10
Proposed Structure Height (ft)	115	115	115	115	120	100	105	100	110	115	115

Substation
Proposed Structure
Existing Structure
Other Existing Structure (PUR-2024-00035)
Existing Structure to Remain (PUR-2024-00035)
Project Limits

0 500 1,000 Feet
(At original document size of 11x17)
1:6,000

N

Stantec

Project Location
City of Fredericksburg, Virginia

Prepared by JFK on 2024-07-19
TR by ECL on 2024-07-24
IR by LRC on 2024-07-24

Client/Project
203401909
Dominion Energy Virginia
Aquia Harbour - Possum Point
Lines #29, #252, #2083, and #568 Rebuild

Figure No.

Title
Existing and Proposed Structures Line 2083

Page 1 of 1

Notes
1. Coordinate System: NAD 1983 StatePlane Virginia South FIPS 4502 Feet
2. Data Sources: Dominion Energy Virginia, Stantec
3. Basemap © ESRI World Street Map

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.*

See Attachments II.B.6.a.i-xi for representative photographs of typical existing structures.

(b) Comparable photographs or representations for proposed structures.

See Attachments II.B.6.b.i-xi, for representative photographs of the proposed structures for the Rebuild Project.

(c) 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.

Visual simulations showing the appearance of the proposed transmission structures are provided for historic properties where the Rebuild Project will be visible. These simulations were created using GIS modeling to depict whether the existing and proposed structures are or will be visible from historic properties. Observation points used for the simulations are indicated on the maps. The photo simulation locations are provided on Attachment II.B.6.c.i. Attachment II.B.6.c.ii provides existing photographs and simulations of the proposed structures from the selected observation points, where visible. The table below identifies the historic properties evaluated.

VDHR #	Resource Name	OP[16]	Comments
500-0001/076-0301; 076-5842	Richmond, Fredericksburg, and Potomac Railroad Cockpit Point Battlefield	1	Existing and Proposed Structures Visible
287-0010	Quantico Marine Base Historic District	2	Proposed Structures Visible in the Background

[16] Observation points are not sequential as some photo locations chosen in the field were eliminated.

VDHR #	Resource Name	OP[16]	Comments
287-0010[17]	Town of Quantico Historic District	3	Not visible
076-5313[18]	Camp French	4	Not visible
076-0299	Chopawamsic Recreation Demonstration Area	5	Not visible
089-0142[19]	Crucifix Monument	6	Not visible
089-0103	Aquia Creek Quarries	7	Structures are slightly visible through the trees Visible structures 568/76A and 568/76 are part of previously filed case PUR-2024-00035
089-0008	Aquia Church	8	Not visible
088-5180 089-0067	Chancellorsville Battlefield Falmouth Historic District	12	Not visible
089-0022 088-5180 111-5296 089-0067	Belmont Chancellorsville Battlefield Battle of Fredericksburg II Falmouth Historic District	13	Not visible
088-5180 089-0067	Chancellorsville Battlelfield Falmouth Historic District	14	Not visible

[17] Per VDHR guidance, this resource does not meet the criteria to for analysis within the Stage I. As such, it is only considered within the visual simulations for the response to II.B.6.c.
[18] Per VDHR guidance, this resource does not meet the criteria to for analysis within the Stage I. As such, it is only considered within the visual simulations for the response to II.B.6.c.
[19] Per VDHR guidance, this resource does not meet the criteria to for analysis within the Stage I. As such, it is only considered within the visual simulations for the response to II.B.6.c.

VDHR #	Resource Name	OP[16]	Comments
111-5296 089-5082	Battle of Fredericksburg II 105 West Cambridge St.		
089-0067	Falmouth Historic District	15	Not visible
111-5007 111-5295	Carl's Frozen Custard Battle of Fredericksburg I	18	Not visible
111-0147 111-5295 111-0149 111-5295 111-5296 088-5181	Fredericksburg and Spotsylvania Battlefields NMP Fall Hill Battle of Fredericksburg I Battle of Fredericksburg II Salem Church Battlefield	19	Existing and Proposed Structures Visible
111-5473 111-5295 111-5296 088-5181	Allman's Bar-B-Que Battle of Fredericksburg I Battle of Fredericksburg II Salem Church Battlefield	21	Existing and proposed structures only visible from corner of property
111-5267	Elmhurst	22	Not visible
111-5262	Washington Avenue Historic District	23	Not visible
111-0047 111-0009	Kenmore Fredericksburg Historic District Extension	24	Not visible
111-0132	Fredericksburg Historic District	25	Not visible
111-5265 111-0009	Fredericksburg City and Confederate Cemeteries Fredericksburg Historic District Extension	26	Not visible
111-0107 111-0009	John Lewis House	27	Not visible

VDHR #	Resource Name	OP[16]	Comments
	Fredericksburg Historic District Extension		
111-0008	Brompton	28	Not visible
089-0067-0031[20]	Conway House	31	Not visible

[20] Per VDHR guidance, this resource does not meet the criteria to for analysis within the Stage I. As such, it is only considered within the visual simulations for the response to II.B.6.c.

Existing Structure Type:
230kV (Left) And 115kV (Right) Single Circuit
Wood H-Frame (Tangent)

Existing Structure Type:
115kV (Left) And 230kV (Right) Single Circuit
Wood 3-Pole (DDE)

Existing Structure Type:
230kV Single Circuit Steel H-Frame (DDE)

Existing Structure Type:
230kV Single Circuit Wood H-Frame and Steel 3-Pole (Tangent)

Existing Structure Type:
115kV Steel Lattice Frame (DDE)

Existing Structure Type:
230kV Single Circuit Steel 3-Pole (DDE)

Existing Structure Type:
230kV Double Circuit Steel Tower (Tangent)

Existing Structure Type:
230kV Double Circuit Steel Tower (DDE)

Existing Structure Type:
500kV Single Circuit Steel Tower (Tangent)

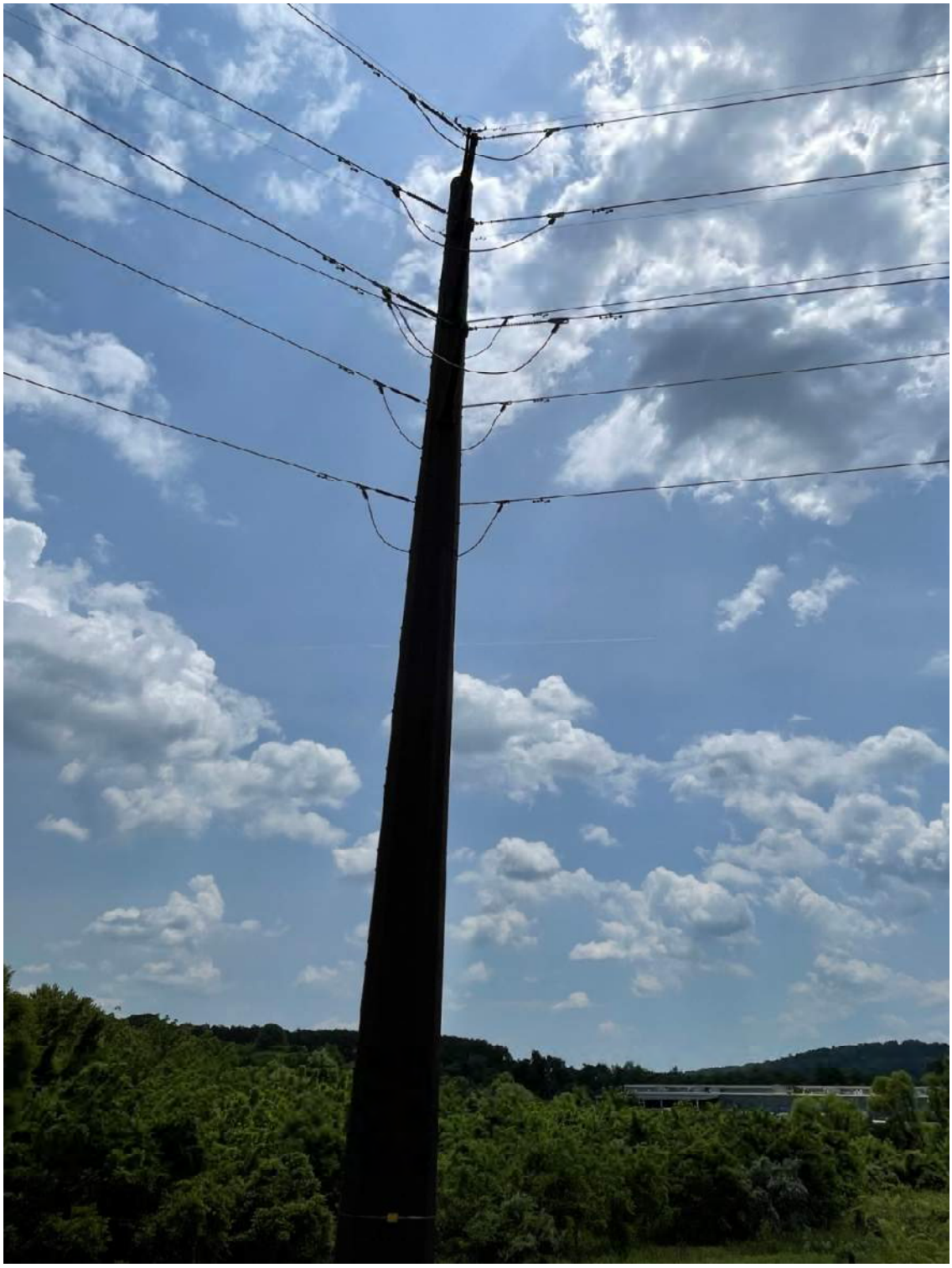
Existing Structure Type:
500kV Single Circuit Steel Tower (DDE)

Existing Structure Type:
500kV Single Circuit Steel Tower-Line Angle (DDE)

Dominion Energy

Proposed Structure Type:
230kV Double Circuit Steel Monopole (Tangent)

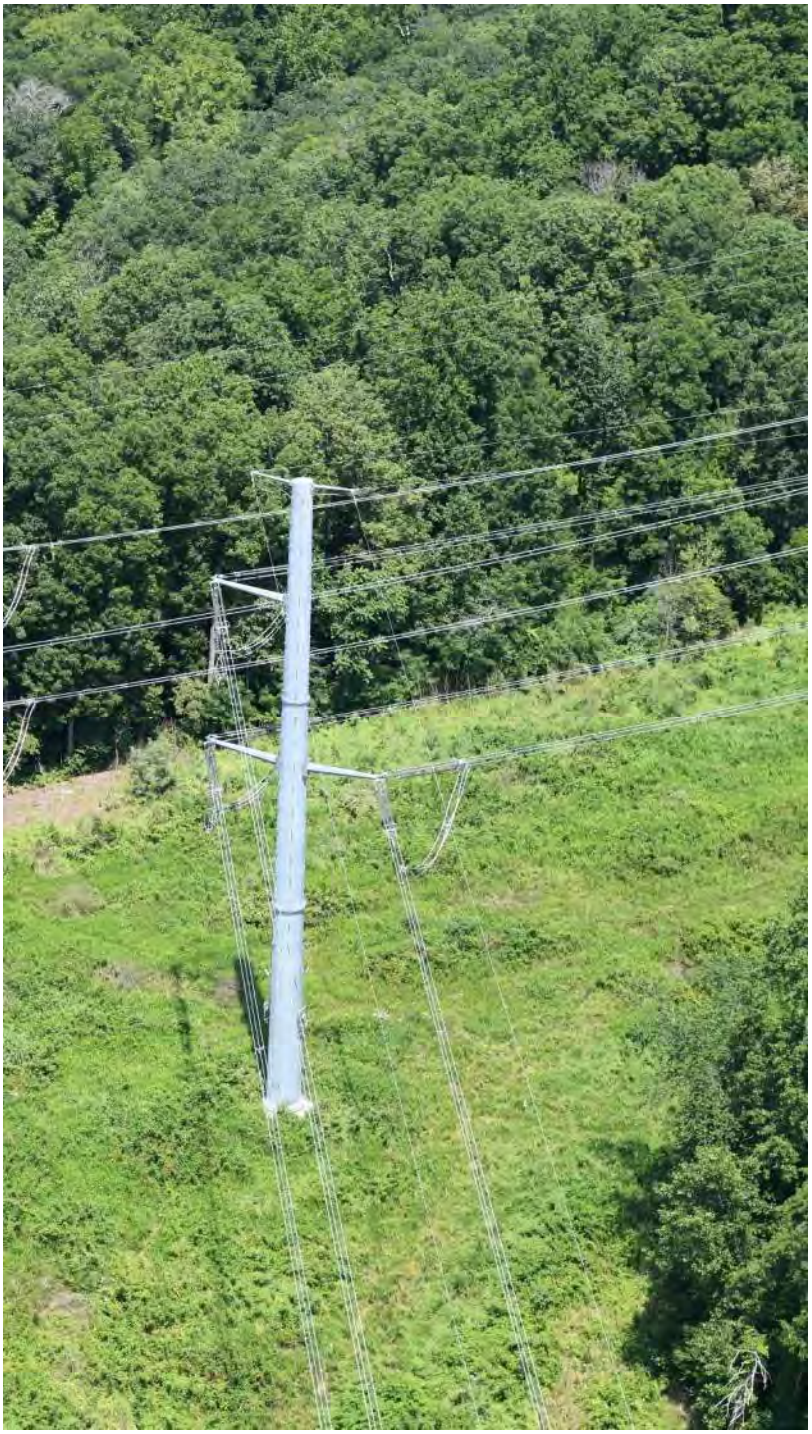

CHURCH VIEW
804-759-5836



Dominion Energy

Proposed Structure Type:
500kV Single Circuit H Frame
(DDE)

Proposed Structure Type:
500kV Single Circuit Steel Monopole
(DDE)



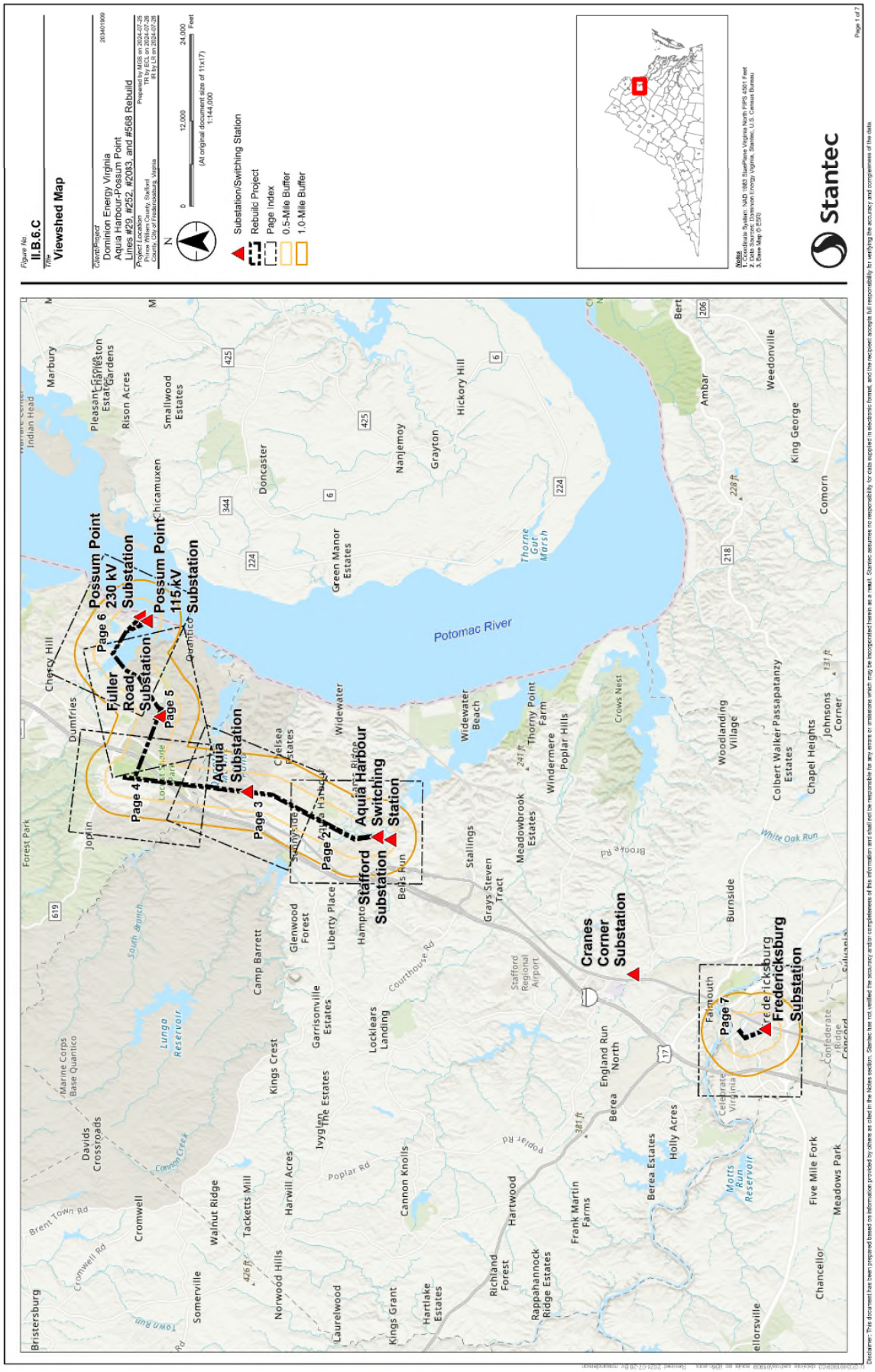
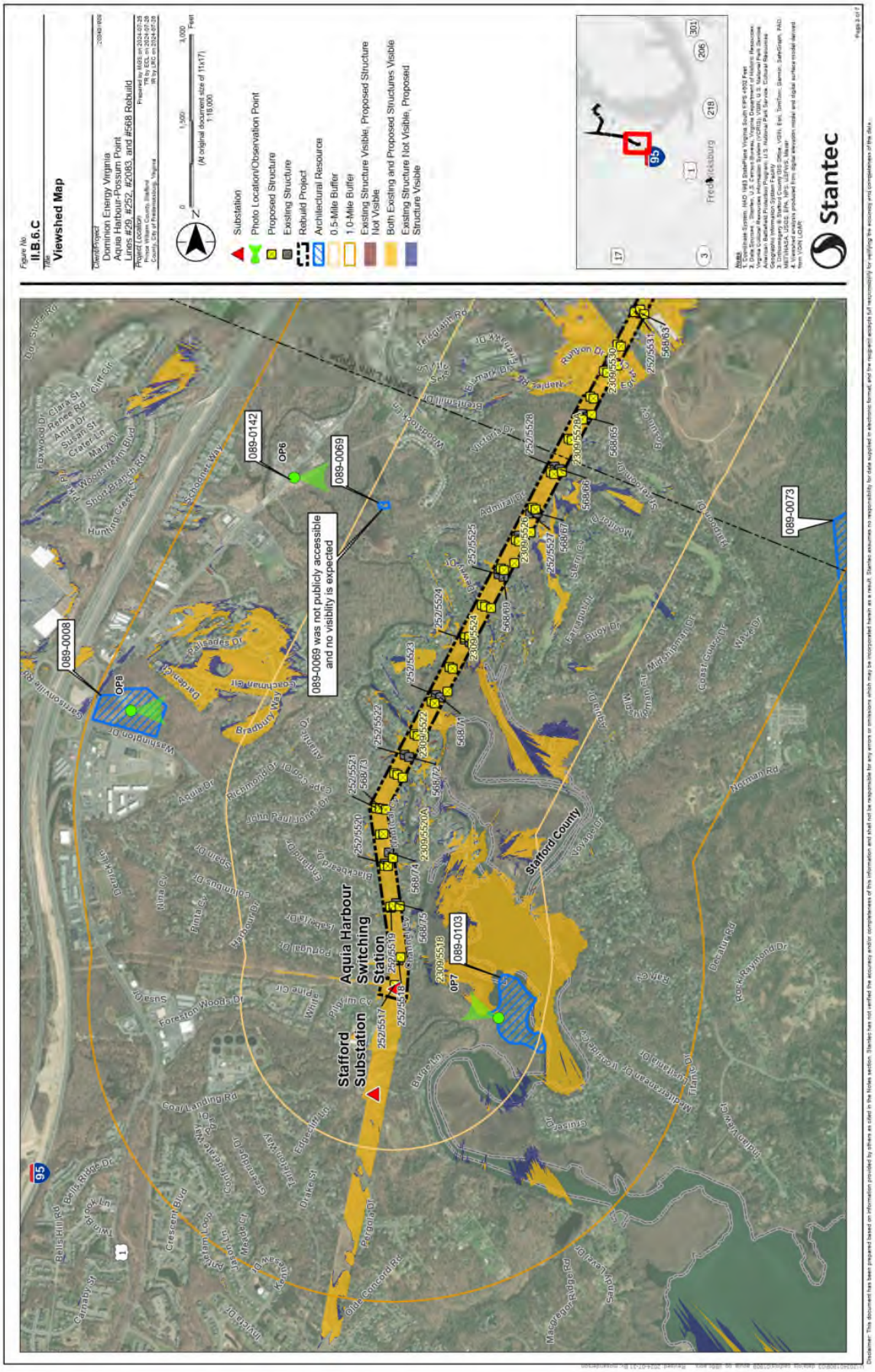


Figure No.
II.B.6.C
Title
Viewshed Map
Client/Project
Dominion Energy Virginia
Aquia Harbour-Possum Point
Lines #29, #252, #2083, and #568 Rebuild
Project Location
Prince William County, Stafford
County, City of Fredericksburg, Virginia
Prepared by MGB on 2024-07-26
TR by EDL on 2024-07-26
IR by LS on 2024-07-26
N
0
12,000
24,000
Feet
(At original document size of 11x17)
1:144,000
Substation/Switching Station
Rebuild Project
Page Index
0.5-Mile Buffer
1.0-Mile Buffer
Possum Point 230 kV Substation
Possum Point 115 kV Substation
Fuller Road Substation
Aquia Substation
Aquia Harbour Switching Station
Stafford Substation
Cranes Corner Substation
Fredericksburg Substation
Page 2
Page 3
Page 4
Page 5
Page 6
Page 7
Potomac River
Stantec
Page 1 of 7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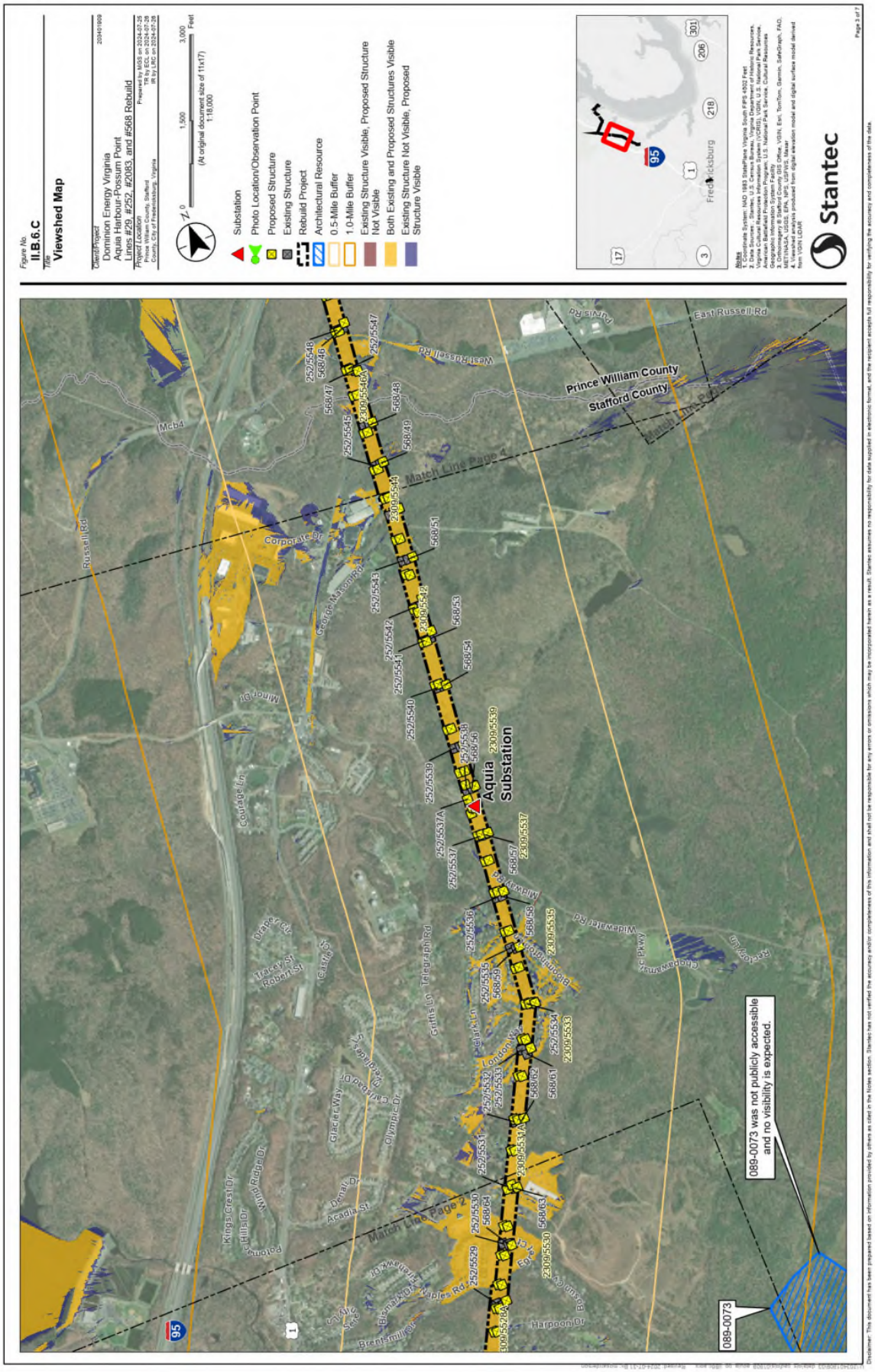
II.B.6.c
Title
Viewshed Map
Client/Project
Dominion Energy Virginia
Aquia Harbour-Possum Point
Lines #29, #252, #2083, and #568 Rebuild
Project Location
Prince William County, Stafford
County, City of Fredericksburg, Virginia
Substation
Photo Location/Observation Point
Proposed Structure
Existing Structure
Rebuild Project
Architectural Resource
0.5-Mile Buffer
1.0-Mile Buffer
Existing Structure Visible, Proposed Structure Not Visible
Both Existing and Proposed Structures Visible
Existing Structure Not Visible, Proposed Structure Visible
Aquia Harbour Switching Station
Stafford Substation
Stafford County
089-0008
089-0142
089-0069
089-0069 was not publicly accessible and no visibility is expected
089-0073
089-0103
OP6
OP7
OP8
Stantec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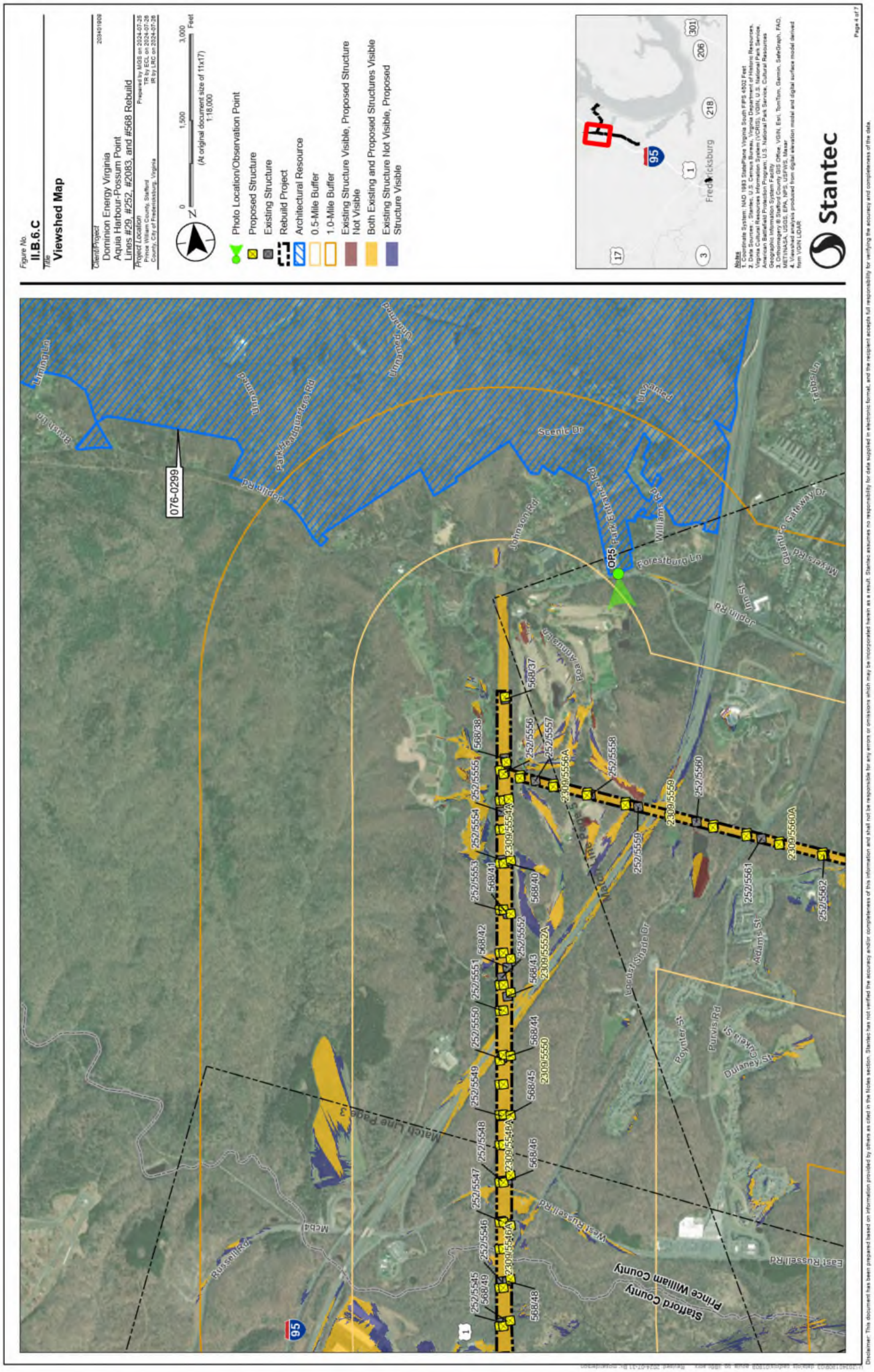
II.B.6.C
Title
Viewshed Map
Client/Project
Dominion Energy Virginia
Aquia Harbour-Possum Point
Lines #29, #252, #2083, and #568 Rebuild
Project Location
Prince William County, Stafford
County, City of Fredericksburg, Virginia
Prepared by MGS on 2024-07-26
TR by EEC on 2024-07-26
IR by LKR on 2024-07-26
0
1,500
3,000
Feet
(At original document size of 11x17)
1:18,000
Substation
Photo Location/Observation Point
Proposed Structure
Existing Structure
Rebuild Project
Architectural Resource
0.5-Mile Buffer
1.0-Mile Buffer
Existing Structure Visible, Proposed Structure Not Visible
Both Existing and Proposed Structures Visible
Existing Structure Not Visible, Proposed Structure Visible
Aquia Substation
March Line Page 4
March Line Page 3
March Line Page 2
Prince William County
Stafford County
089-0073
089-0073 was not publicly accessible and no visibility is expected.
Stantec
Page 3 of 7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II.B.6.C
Title
Viewshed Map
Client/Project
203401909
Dominion Energy Virginia
Aquia Harbour-Possum Point
Lines #29, #252, #2083, and #568 Rebuild
Project Location
Prince William County, Stafford County, City of Fredericksburg, Virginia
Prepared by MGS on 2024-07-25
TR by ECL on 2024-07-26
IR by LRC on 2024-07-26
0 1,500 3,000 Feet
(At original document size of 11x17)
1:18,000
Photo Location/Observation Point
Proposed Structure
Existing Structure
Rebuild Project
Architectural Resource
0.5-Mile Buffer
1.0-Mile Buffer
Existing Structure Visible, Proposed Structure Not Visible
Both Existing and Proposed Structures Visible
Existing Structure Not Visible, Proposed Structure Visible
Notes
1. Coordinate System: NAD 1983 StatePlane Virginia South FIPS 4502 Feet
2. Data Sources: Stantec, U.S. Census Bureau, Virginia Department of Historic Resources, Virginia Cultural Resources Information System (VCRIS), VGIN, U.S. National Park Service, American Battlefield Protection Program; U.S. National Park Service, Cultural Resources Geographic Information System Facility
3. Orthoimagery © Stafford County GIS Office, VGIN, Esri, TomTom, Garmin, SafeGraph, FAO, METI/NASA, USGS, EPA, NPS, USFWS, Maxar
4. Viewshed analysis produced from digital elevation model and digital surface model derived from VGIN LIDAR
Stantec
Page 4 of 7
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076-0299
OP5
Liming Ln
Brush Ln
Joplin Rd
Park Headquarters Rd
Unnamed
Scenic Dr
Johnson Rd
Park Entrance Rd
Williams Rd
Forestburg Ln
Quantico Gateway Dr
Meyers Rd
Tebbs Ln
Inn St
Poa Annua Ln
Locust Shade Dr
Adams St
Poynter St
Purvis Rd
Ukela St
Dulaney St
West Russell Rd
East Russell Rd
Russell Rd
Mcb4
Match Line Page 3
Match Line Page 5
Prince William County
Stafford County
568/37
568/38
252/5555
252/5556
252/5557
2309/5556A
252/5558
252/5554
2309/5554A
2309/5559
252/5559
252/5560
252/5561
2309/5560A
252/5562
252/5553
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568/45
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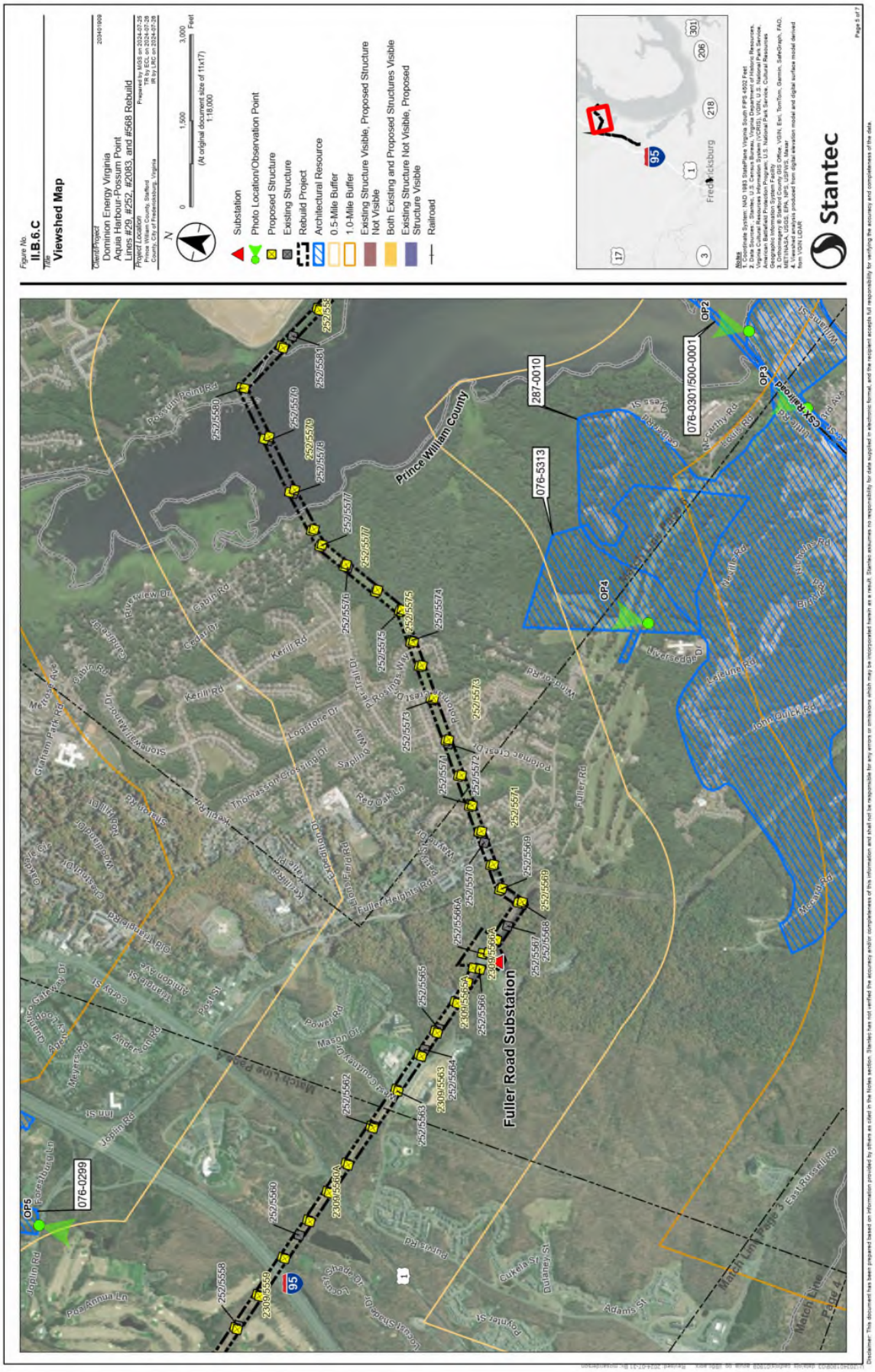
2309/5548A
252/5547
568/46
252/5546
2309/5546A
252/5545
568/49
568/48
95
1
17
3
218
206
301
Fredericksburg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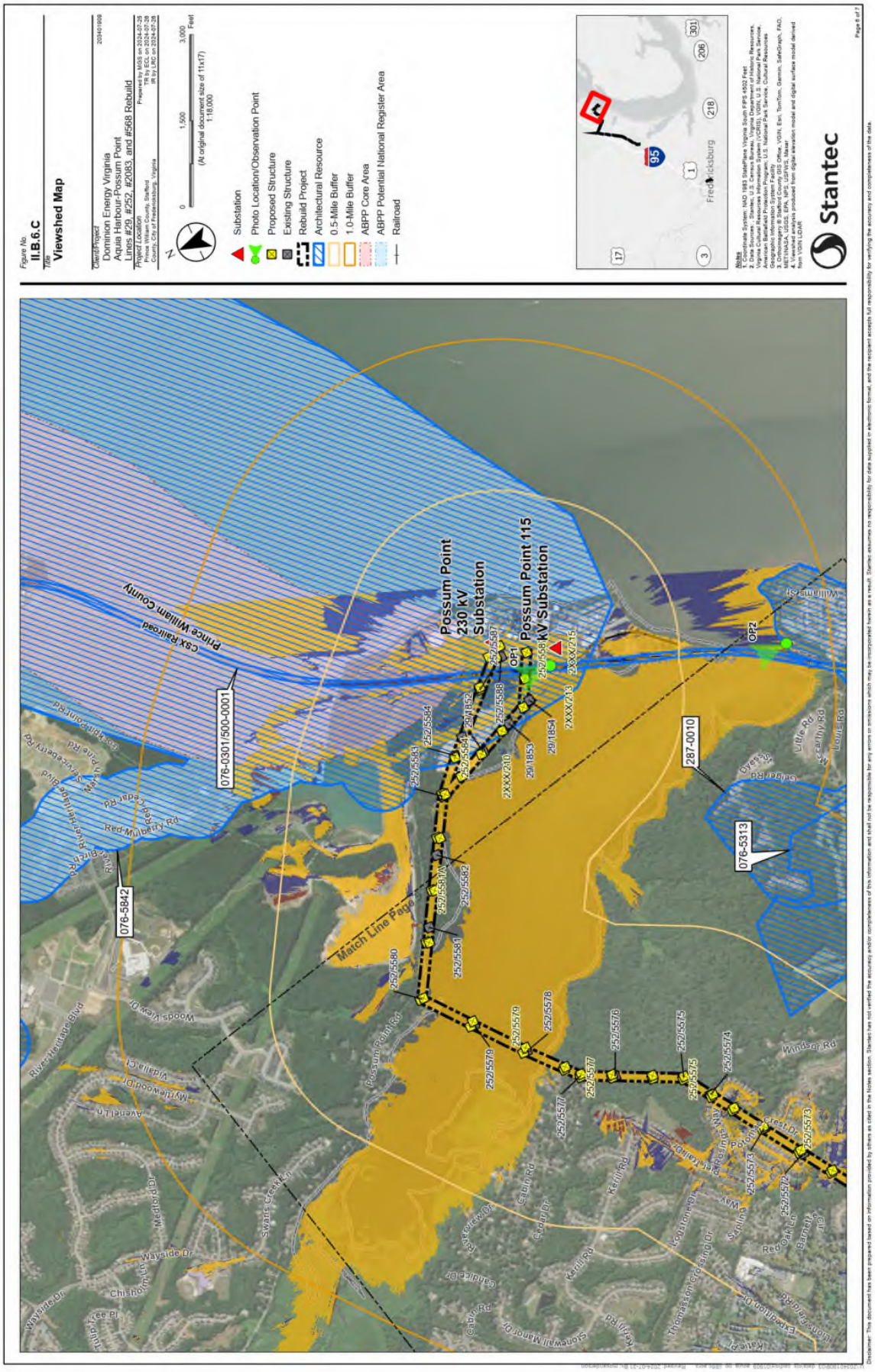
II.B.6.C
Title
Viewshed Map
Client/Project
Dominion Energy Virginia
Aquia Harbour-Possum Point
Lines #29, #252, #2083, and #568 Rebuild
Project Location
Prince William County, Stafford
County, City of Fredericksburg, Virginia
Substation
Photo Location/Observation Point
Proposed Structure
Existing Structure
Rebuild Project
Architectural Resource
0.5-Mile Buffer
1.0-Mile Buffer
Existing Structure Visible, Proposed Structure Not Visible
Both Existing and Proposed Structures Visible
Existing Structure Not Visible, Proposed Structure Visible
Railroad
Fuller Road Substation
Prince William County
076-0299
076-5313
287-0010
076-03011/500-0001
OP1
OP2
OP3
OP4
OP5
Stantec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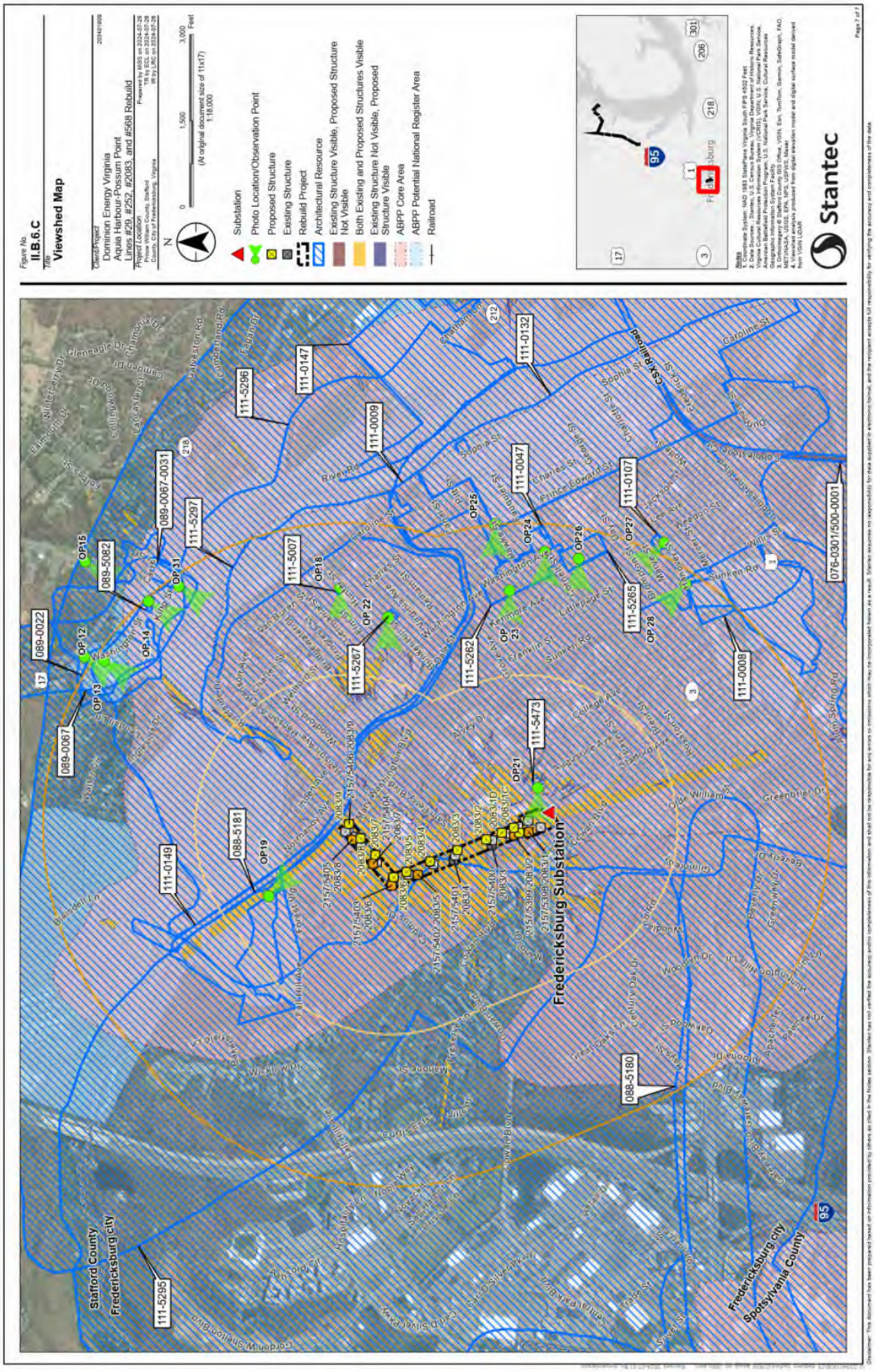
II.B.6.c
Title
Viewshed Map
Client/Project
Dominion Energy Virginia
Aqua Harbour-Possum Point
Lines #29, #252, #2083, and #568 Rebuild
Project Location
Prince William County, Stafford County, City of Fredericksburg, Virginia
Substation
Photo Location/Observation Point
Proposed Structure
Existing Structure
Rebuild Project
Architectural Resource
0.5-Mile Buffer
1.0-Mile Buffer
ABPP Core Area
ABPP Potential National Register Area
Railroad
Possum Point 230 kV Substation
Possum Point 115 kV Substation
CSX Railroad
Prince William County
076-0301/500-0001
076-5842
076-5313
287-0010
OP1
OP2
Match Line Page
Stantec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II.B.6.c
Title
Viewshed Map
Client/Project
Dominion Energy Virginia
Aquia Harbour-Possum Point
Lines #29, #252, #2083, and #568 Rebuild
Project Location
Prince William County, Stafford
County, City of Fredericksburg, Virginia
Prepared by MSS on 2024-07-26
TR by EDL on 2024-07-26
IR by JAC on 2024-07-26
N
0
1,500
3,000
Feet
(At original document size of 11x17)
1:18,000
Substation
Photo Location/Observation Point
Proposed Structure
Existing Structure
Rebuild Project
Architectural Resource
Existing Structure Visible, Proposed Structure Not Visible
Both Existing and Proposed Structures Visible
Existing Structure Not Visible, Proposed Structure Visible
ABPP Core Area
ABPP Potential National Register Area
Railroad
Fredericksburg Substation
Stafford County
Fredericksburg city
Fredericksburg city
Spotsylvania County
Stantec
Page 7 of 7

Photograph provided by Stantec

OP 1 Existing
Richmond, Fredericksburg, and Potomac Railroad (DHR #076-0301 & #500-0001), and Cockpit Point Battlefield (DHR #076-5842)

Stantec Dominion Energy

Simulation provided by Stantec

OP 1 Proposed

Richmond, Fredericksburg, and Potomac Railroad (DHR #076-0301 & #500-0001), and Cockpit Point Battlefield (DHR #076-5842)

Stantec Dominion Energy

OP02 – Existing

Photograph provided by Stantec

OP 2 Existing

Quantico Marine Base Historic District (DHR #287-0010)

Stantec Dominion Energy

OP02 – Proposed

Simulation provided by Stantec

OP 2 Proposed

Quantico Marine Base Historic District (DHR #287-0010)

Stantec Dominion Energy

OP03 – Existing

Photograph provided by Stantec

OP 3 Existing

Town of Quantico Historic District (DHR #287-0010)

Stantec Dominion Energy

Simulation provided by Stantec

OP 3 Proposed (No Visibility)
Town of Quantico Historic District (DHR #287-0010)

Stantec Dominion Energy

Photograph provided by Stantec

OP 4 Existing
Camp French (DHR #076-5313)

Stantec Dominion Energy

Simulation provided by Stantec

OP 4 Proposed (No Visibility)
Camp French (DHR #076-5313)

Stantec Dominion Energy

OP05 – Existing

Photograph provided by Stantec

OP 5 Existing

Chopawamsic Recreation Demonstration Area (DHR #076-0299)

Stantec Dominion Energy

Simulation provided by Stantec

OP 5 Proposed (No Visibility)

Chopawamsic Recreation Demonstration Area (DHR #076-0299)

Stantec Dominion Energy

Photograph provided by Stantec

OP 6 Existing
Crucifix Monument (DHR #089-0142)

Stantec Dominion Energy

Simulation provided by Stantec

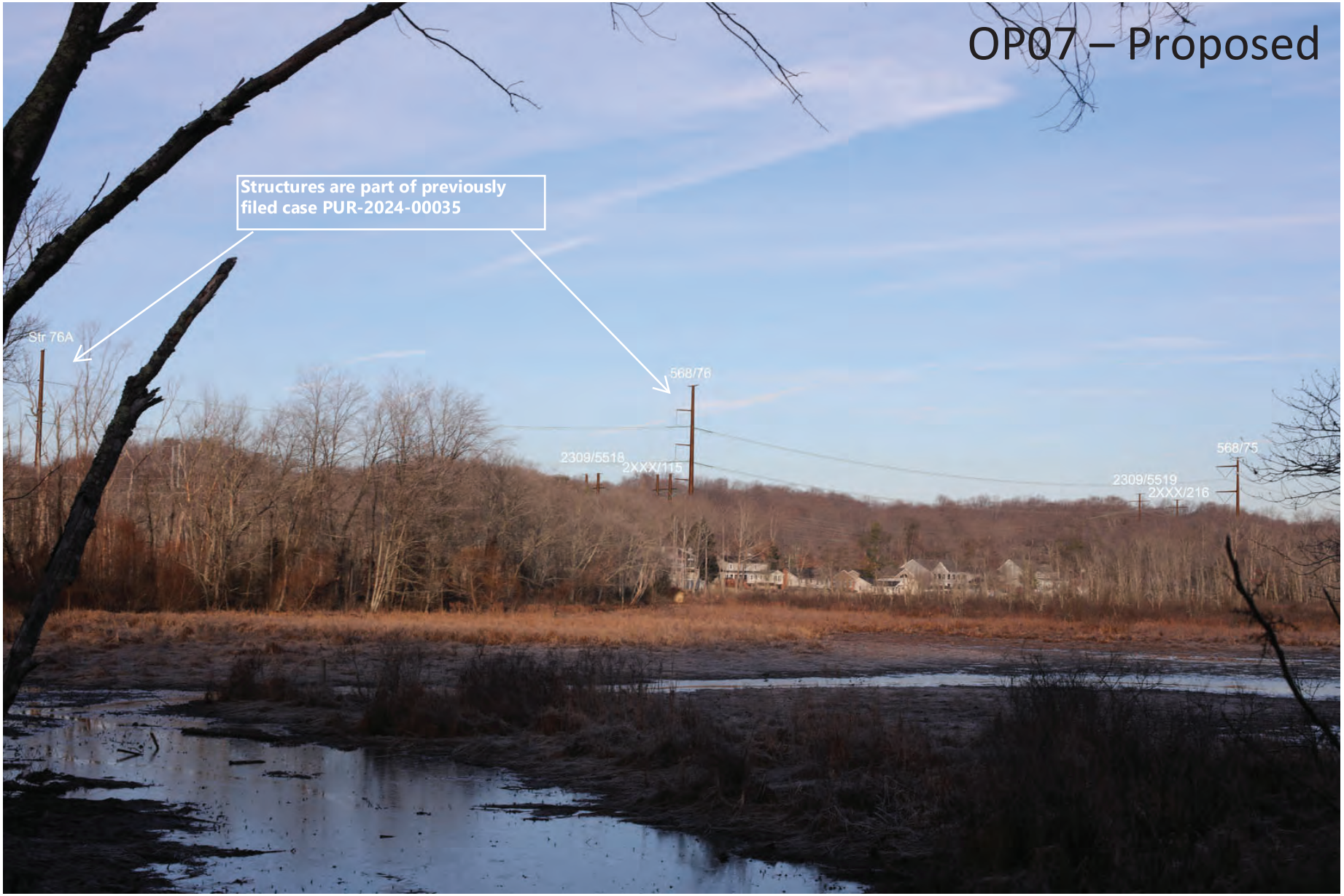
OP 6 Proposed (No Visibility)
Crucifix Monument (DHR #089-0142)

Stantec Dominion Energy

Photograph provided by Stantec

OP 7 Existing
Aquia Creek Quarries (DHR #089-0103)

Stantec Dominion Energy



Simulation provided by Stantec

OP 7 Proposed
Aquia Creek Quarries (DHR #089-0103)

Stantec Dominion Energy

Photograph provided by Stantec

OP 8 Existing
Aquia Church (DHR #089-0008)

Stantec Dominion Energy

Simulation provided by Stantec

OP 8 Proposed (No Visibility)
Aquia Church (DHR #089-0008)

Stantec Dominion Energy

OP12 – Existing

Photograph provided by Stantec

OP 12 Existing

Chancellorsville Battlefield (DHR #088-5180) and Falmouth Historic District (DHR #089-0067)

Stantec Dominion Energy