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September 27, 2023

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: Line #249 230 kV Partial Rebuild from Carson Substation to Locks Substation – Case No. PUR-2023-00168.

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 Dinwiddie County and the City of Petersburg, 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.
Annie C. Larson, Esq.
John B. Sample, Esq.
Bonnie S. Gill, Esq.
Abbey M. Thornhill, Esq.

Michala D. Black, Esq.



**Dominion
Energy®**

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

Before the State Corporation
Commission of Virginia

Line #249 230 kV Partial Rebuild
from Carson Substation to Locks
Substation

Application No. 328

Case No. PUR-2023-00168

Filed: September 27, 2023

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

Carson-Locks 230 kV Line #249 Partial Rebuild Project

Application No. 328

Case No. PUR-2023-00168

Filed: September 27, 2023

COMMONWEALTH OF VIRGINIA
STATE CORPORATION COMMISSION

APPLICATION OF)	
)	
VIRGINIA ELECTRIC AND POWER)	Case No. PUR-2023-00168
COMPANY)	
)	
For approval and certification of electric)	
transmission facilities: Carson-Locks 230 kV)	
Line #249 Partial Rebuild Project)	

**APPLICATION OF VIRGINIA ELECTRIC AND POWER COMPANY
FOR APPROVAL AND CERTIFICATION OF
ELECTRIC TRANSMISSION FACILITIES:
CARSON – LOCKS 230 KV LINE #249 PARTIAL REBUILD PROJECT**

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

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

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

3. In this Application, in order to resolve potential criteria violations of mandatory North American Electric Reliability Corporation (“NERC”) Reliability Standards and consistent with sound engineering judgment, the Company proposes the following rebuild project located within existing right-of-way or on Company-owned property in Dinwiddie County and the City of Petersburg, Virginia:

- Wreck and rebuild, entirely within existing right-of-way or on Company-owned property, approximately 6.7 miles of 230 kV Line #249 on single-circuit weathering steel H-Frame structures between Structures #249/86 and #249/22. Proposed structures #249/22 and #69/21 will be single-circuit monopoles;
- Reconductor approximately 2.5 miles of 230kV Line #249 using existing transmission structures from Locks Substation to Structure #249/22;
- Reconductor approximately 0.13 miles of 230 kV Line #249 using existing transmission structures from Structure #249/93 to Carson Substation;
- Install a 0.25 mile-long temporary line, requiring the acquisition of temporary right-of-way, and replace the existing Chaparral terminal tap structure;
- Install temporary facilities to allow Line #69 to temporarily operate at 230 kV to keep Chaparral Substation energized during the rebuild of Line #249¹;
- Complete work at Carson and Locks Substations to support the new line rating; and
- Energize the existing Carson 500-230 kV Transformer #1

¹ To enable Line #69 to temporarily operate at 230 kV during the rebuild of Line #249, the Company intends to permanently replace three structures on Line #69 with new structures approximately 4.5 feet taller than two existing 70-foot tall structures (a height increase of approximately 6.4%) and approximately 8.0 feet taller than one existing 113.5-foot tall structure (a height increase of approximately 7.0%). As discussed in more detail in FN 2, the Company considers this work to qualify as an “ordinary extension or improvement in the usual course of business” that does not require a Certificate of Public Convenience and Necessity (“CPCN”) from the State Corporation Commission of Virginia (“Commission”).

(the “Rebuild Project”).²

4. The proposed Rebuild Project is necessary to comply with mandatory NERC Reliability Standards and to maintain reliable service to accommodate overall growth in the area. The Rebuild Project is needed to resolve overloading issues on 230 kV Line #249 identified during PJM’s 2026 Summer Generator Deliverability Analysis. The current line rating is limited by 9.3 miles of 795 ACAR and ACSR conductors, which have a summer emergency rating of 595 MVA. The Rebuild Project will rebuild this portion of Line #249 to a minimum summer emergency rating of 1573 MVA.

5. The total length of the existing right-of-way and Company-owned property to be used for the Rebuild Project is approximately 6.7 miles.³ No new permanent rights-of-way are necessary.⁴ Given the availability of existing rights-of-way, the statutory preference to use existing rights-of-way, and 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 permanent rights-of-way for the Rebuild Project.

² While required by the proposed Rebuild Project and included in the total costs of the Rebuild Project, the Company considers the work associated with Line #249 outside of Chaparral Substation, which includes the installation of temporary facilities to keep Chaparral Substation energized during the rebuild of Line #249, the reconductoring of approximately 2.6 miles of 230 kV Line #249 using existing transmission structures, and energization of the Carson 500-230 kV Transformer #1, to qualify as “ordinary extensions or improvements in the usual course of business” pursuant to § 56-265.2 A 1 of the Code of Virginia (“Va. Code”) and, therefore, does not require approval pursuant to Va. Code § 56-46.1 B or a CPCN from the Commission. Because the Company considers this work to be ordinary course, detailed supporting documentation has not been provided in the Appendix. Should the Commission determine that a CPCN is required for the work as described herein, the Company requests that the Commission grant such CPCN as part of its final order in this proceeding.

³ As noted above, the Company will reductor an additional approximately 2.6 miles of Line #249 without replacing the existing structures which the Company considers “ordinary extensions or improvements in the usual course of business[.]” *See supra* n. 1.

⁴ The Company proposes to install a temporary tap line to ensure continuous service during the construction of the Rebuild Project. Approximately 0.25 miles of temporary right-of-way will be needed to accommodate the tap line as well as construction access for the duration of the Rebuild Project. Temporary facilities will be removed upon energization of the Rebuild Project.

6. The desired in-service date for the Rebuild Project is June 30, 2025. The Company estimates it will take approximately 11 months for detailed engineering, materials, procurement, permitting, and construction after a final order from the Commission. Accordingly, to support this estimated pre-construction activity timeline and construction plan, the Company respectfully requests a final order by May 31, 2024. Should the Commission issue a final order by May 31, 2024, the Company estimates that construction should begin on June 15, 2024 and be completed by June 30, 2025. This construction timeline will enable the Company to meet the targeted in-service date for the Rebuild Project. This schedule is contingent upon obtaining the necessary permits and outages. 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 or unpredictable delays due to labor shortages and/or materials/supply issues based on other extensive project work ongoing in the vicinity of the Rebuild Project. In addition, the Company is actively monitoring the 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 existing interim guidance from the U.S. Fish and Wildlife Service (“USFWS”) for the NLEB expires on March 31, 2024. The Company is also monitoring potential regulatory changes associated with the potential listing of the Tri-colored bat. On September 14, 2022, the Tri-colored bat was proposed to be listed as endangered, with an estimated announcement of a final decision within 12 months. Regulatory guidance on the Tri-colored bat will be available upon listing. The Company’s construction window described above may require adjustment based upon the regulatory guidance and potential TOYRs associated with these two bat species.

7. The total estimated conceptual cost of the Rebuild Project is approximately \$25.4 million (in 2023 dollars), which includes \$23.7 million for transmission-related work, and \$1.7 million for substation-related work (2023 dollars).⁵

8. 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.

9. 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.

10. 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.

11. 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.

12. 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 Alex Reilly, Daniel J. Cabonor, Aaron C. Kuhn, and Blair Parks filed with this Application.

⁵ The estimated costs here include the costs of the “ordinary course” components of the Rebuild Project. *See supra* n. 1.

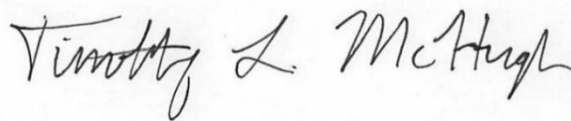
13. Because this Application seeks approval to rebuild an existing line entirely within existing right-of-way or on Company-owned property, the Company respectfully requests, in the interest of judicial economy, that the Commission issue an Order for Notice and Comment setting forth a procedural schedule 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 May 31, 2024, if possible.

VIRGINIA ELECTRIC AND POWER COMPANY

By: _____



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September 27, 2023

COMMONWEALTH OF VIRGINIA
BEFORE THE
STATE CORPORATION COMMISSION

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

Carson-Locks 230 kV Line #249 Partial Rebuild Project

Application No. 328

Appendix

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

Case No. PUR-2023-000168

Filed: September 27, 2023

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EXECUTIVE SUMMARY

In order to resolve potential criteria violations of mandatory North American Electric Reliability Corporation (“NERC”) Reliability Standards and consistent with sound engineering judgment, Virginia Electric and Power Company (“Dominion Energy Virginia” or the “Company”) proposes in Dinwiddie County and the City of Petersburg, Virginia, the following:

- (i) Wreck and rebuild, entirely within existing right-of-way or on Company-owned property, approximately 6.7 miles of 230 kV Line #249 on single-circuit weathering steel H-Frame structures between Structures #249/86 and #249/22. Proposed structures #249/22 and #69/21 will be single-circuit monopoles;
- (ii) Reconductor approximately 2.5 miles of 230kV Line #249 using existing transmission structures from Locks Substation to Structure #249/22;
- (iii) Reconductor approximately 0.13 miles of 230 kV Line #249 using existing transmission structures from Structure #249/93 to Carson Substation;
- (iv) Install a 0.25 mile-long temporary line, requiring the acquisition of temporary right-of-way, and replace the existing Chaparral terminal tap structure;
- (v) Install temporary facilities to allow Line #69 to temporarily operate at 230 kV to keep Chaparral Substation energized during the rebuild of Line #249;¹
- (vi) Complete work at Carson and Locks Substations to support the new line rating; and
- (vii) Energize the existing Carson 500-230 kV Transformer #1

(collectively, the “Rebuild Project”).²

¹ To enable Line #69 to temporarily operate at 230 kV during the rebuild of Line #249, the Company intends to permanently replace three structures on Line #69 with new structures approximately 4.5 feet taller than two existing 70-foot tall structures (a height increase of approximately 6.4%) and approximately 8.0 feet taller than one existing 113.5-foot tall structure (a height increase of approximately 7.0%). As discussed in more detail in FN 2, the Company considers this work to qualify as an “ordinary extension or improvement in the usual course of business” that does not require a Certificate of Public Convenience and Necessity (“CPCN”) from the State Corporation Commission of Virginia (“Commission”).

² While required by the proposed Rebuild Project and included in the total costs of the Rebuild Project, the Company considers the work associated with Line #249 outside of Chaparral Substation, which includes the installation of temporary facilities to keep Chaparral Substation energized during the rebuild of Line #249, the reconductoring of approximately 2.6 miles of 230 kV Line #249 using existing transmission structures, and energization of the Carson 500-230 kV Transformer #1, to qualify as “ordinary extensions or improvements in the usual course of business” pursuant to § 56-265.2 A 1 of the Code of Virginia (“Va. Code”) and, therefore, does not require approval pursuant to Va. Code § 56-46.1 B or a CPCN from the Commission. Because the Company considers this work to be ordinary course, detailed supporting documentation has not been provided in the Appendix. Should the Commission determine that a CPCN is required for the work as described herein, the Company requests that the Commission grant such CPCN as part of its final order in this proceeding.

The proposed Rebuild Project is necessary to comply with mandatory NERC Reliability Standards and to maintain reliable service to accommodate overall growth in the area. The Rebuild Project is needed to resolve overloading issues on 230 kV Line #249 identified during PJM's 2026 Summer Generator Deliverability Analysis. The current line rating is limited by 9.3 miles of 795 ACAR and ACSR conductors, which have a summer emergency rating of 595 MVA. The Rebuild Project will rebuild this portion of Line #249 to a minimum summer emergency rating of 1573 MVA.

The total length of the existing right-of-way and Company-owned property to be used for the Rebuild Project is approximately 6.7 miles.³ No new permanent rights-of-way are necessary.⁴ Given the availability of existing rights-of-way, the statutory preference to use existing rights-of-way, and 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 permanent rights-of-way for the Rebuild Project.

The total estimated conceptual cost of the Rebuild Project is approximately \$25.4 million (in 2023 dollars), which includes \$23.7 million for transmission-related work, and approximately \$1.7 million for substation-related work (2023 dollars).

The desired in-service date for the Rebuild Project is June 30, 2025. The Company estimates it will take approximately 11 months for detailed engineering, materials, procurement, permitting, and construction after a final order from the Commission. Accordingly, to support this estimated pre-construction activity timeline and construction plan, the Company respectfully requests a final order by May 31, 2024. Should the Commission issue a final order by May 31, 2024, the Company estimates that construction should begin on June 15, 2024 and be completed by June 30, 2025. This construction timeline will enable the Company to meet the targeted in-service date for the Rebuild Project.

This schedule is contingent upon obtaining the necessary permits and outages. 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 or unpredictable delays due to labor shortages and/or materials/supply issues based on other extensive project work ongoing in the vicinity of the Rebuild Project. In addition, the Company is actively monitoring the 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 existing interim guidance from the U.S. Fish and Wildlife Service ("USFWS") for the NLEB expires on March 31, 2024. The Company is also monitoring potential regulatory changes associated with the potential listing of the Tri-colored bat. On September 14, 2022, the Tri-colored bat was proposed to be listed as endangered,

³ As noted above, the Company will reconductor an additional approximately 2.6 miles of Line #249 without replacing the existing structures which the Company considers "ordinary extensions or improvements in the usual course of business[.]" *See supra* n. 1.

⁴ The Company proposes to install a temporary tap line to ensure continuous service during the construction of the Rebuild Project. Approximately 0.25 miles of temporary right-of-way will be needed to accommodate the tap line as well as construction access for the duration of the Rebuild Project. Temporary facilities will be removed upon energization of the Rebuild Project.

with an estimated announcement of a final decision within 12 months. Regulatory guidance on the Tri-colored bat will be available upon listing. The Company's construction window described above may require adjustment based upon the regulatory guidance and potential TOYRs associated with these two bat species.

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 comply with mandatory NERC Reliability Standards and to maintain reliable service to accommodate overall 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 “Dominion Energy Zone” or the “Dom Zone”). The Company needs to be able to maintain the overall, long-term reliability of its transmission system as its customers require more power in the future.

Dominion Energy Virginia is part of PJM Interconnection, LLC (“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 166,929 megawatts (“MW”) for summer peak demand, of which Dominion Energy Virginia’s load portion was approximately 19,256 MW serving 2.4 million customers. On August 9, 2022, the Company set a record high of 21,156 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 2023 PJM load forecast, the Dominion Energy Zone is expected to grow with average growth rates of 5.0% summer and 4.8% winter over the next 10 years compared to the PJM average of 0.8% and 1.0% 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.⁵

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.⁶ 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.⁷ 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

⁵ 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>.

⁶ 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>.

⁷ See PJM Manual 14B, Attachment D: PJM Reliability Planning Criteria.

Corporation, SERC Reliability Corporation, PJM, and TOs; (ii) network upgrades are new or upgraded facilities required primarily to eliminate reliability criteria violations caused by proposed generation, merchant transmission, or long-term firm transmission service requests; (iii) supplemental projects are projects initiated by the TO in order to interconnect new customer load, address degraded equipment performance, improve operational flexibility and efficiency, and increase infrastructure resilience. While supplemental projects are included in the RTEP, and the PJM Board administers stakeholder review of supplemental projects as part of the RTEP process, the PJM Board does not actually approve such projects.

As supported by Section I.J and discussed below, this Rebuild Project is classified as a baseline upgrade to resolve NERC reliability violations identified using the 2026 RTEP model case and awarded to the Company through PJM's competitive planning process (2021 PJM Reliability Open Window, Carson Region). The following baseline upgrade number has been assigned by PJM for the Rebuild Project: b3694.8. See Section I.J for a discussion of the PJM process as it relates to the Rebuild Project.

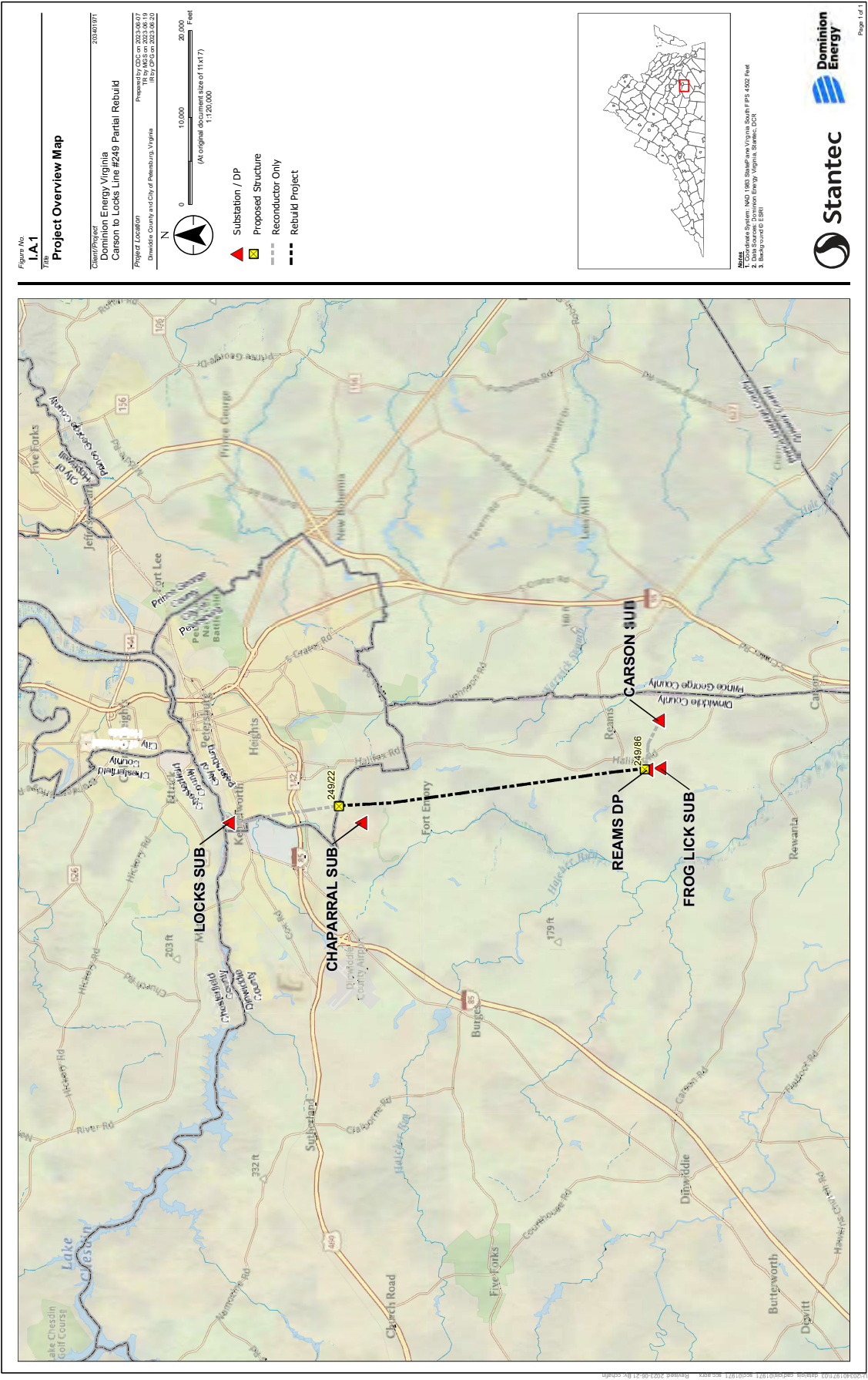
Need for the Project

The Rebuild Project is located in the Company's Petersburg Load Area, which encompasses the Company's transmission facilities located in all or part of Dinwiddie and Petersburg. The rebuild project area is within Dinwiddie County and the city of Petersburg in the transmission corridor between Locks and Carson substation. The corridor contains two 230kV lines, Line #249 and Line #2003, and a 115kV line, Line #69.

The Rebuild Project is needed to resolve overloading issues on 230 kV Line #249 identified during PJM's 2026 Summer Generator Deliverability Analysis. The current line rating is limited by 9.3 miles of 795 ACAR and ACSR conductors, which have a summer emergency rating of 595 MVA. The Rebuild Project will rebuild this portion of Line #249 to a minimum summer emergency rating of 1573 MVA.

This Rebuild Project was submitted to PJM as an Open Window project as b3694.8 on September 2, 2021. The Rebuild Project was approved by the PJM Board as a baseline project on November 30, 2021. See Attachment I.A.2 for relevant submissions and Section I.J of this Appendix.

As part of the Rebuild Project, the Company also plans to energize Carson 500-230 kV Transformer #1, upgrade Line #249 Line terminal equipment at Carson and Locks Substations to a 4000-Ampere ("amp" or "A") rating to support the new line rating, including upgrading two existing 2000A switches at Locks Substation and one existing 2000A switch at Carson Substation.





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.
- Load loss of 307 MW under N-1-1.

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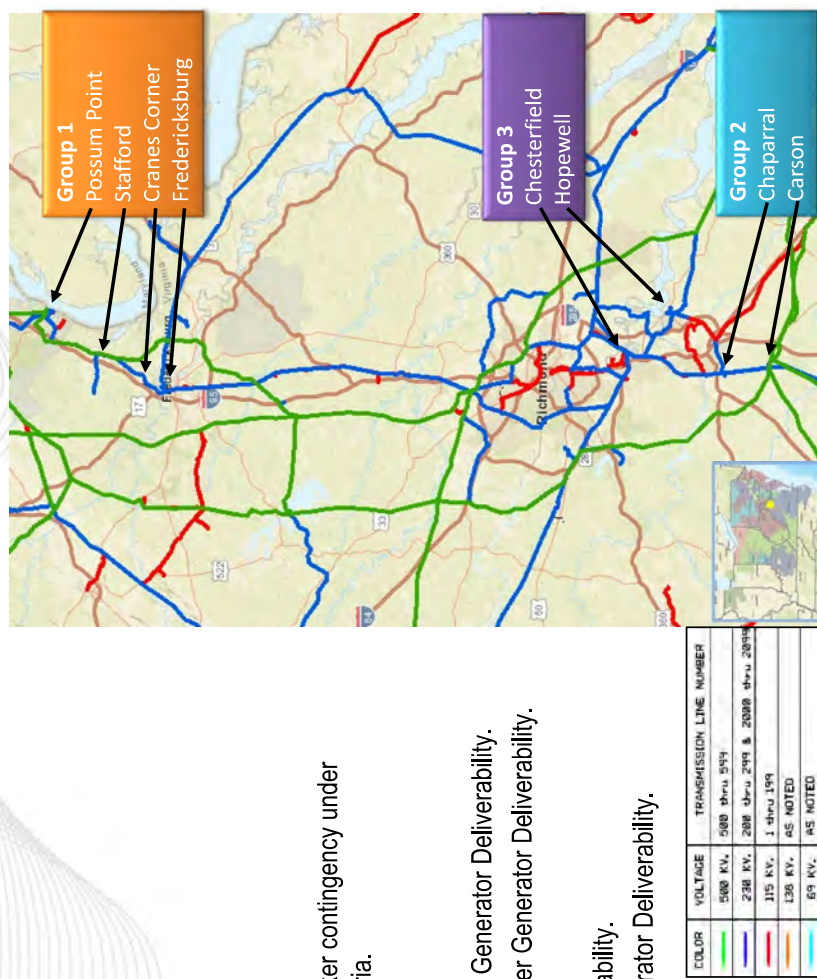
Carson (Group 2: GD-S465, GD-S39)

- 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.

Continued on next slide....





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 500/230kV #2	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	6HOPEWELL – 6CHESTF A 230kV	478/478/606/606
Hopewell	6HOPEWELL – 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	93.412
		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	

Continued on next slide....

I. NECESSITY FOR THE PROPOSED PROJECT

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

Response: [1] Engineering Justification for the Project

See Section I.A of the Appendix.

[2] Known Future Projects

There are no known future projects that require the Rebuild Project to be constructed. The Rebuild Project is required to resolve the potential NERC criteria violations described in Section I.A of the Appendix.

[3] Planning Studies

The planning studies run by PJM for the Generator Deliverability analysis used the most recent (at that time) RTEP case, which would have been the Summer 2026 RTEP, with all the known projects applied. The reliability studies conducted for this Rebuild Project and the study results are described in Section I.A.

[4] Facilities List

Not applicable.

I. NECESSITY FOR THE PROPOSED PROJECT

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

Response: Attachment I.G.1 shows the portion of the Company's transmission system in the area of the Rebuild Project. Existing Line #249 is part of the Company's 230 kV network, which supports the delivery of electric generation to retail and wholesale customers. This line supports the network in the Central Virginia area.

The tables in Attachment I.C.1 provide five years of historical system peak loads for the Company's Petersburg Load Area. The tables in Attachment I.C.1 also provide the anticipated summer and winter peak loads from 2022 to 2031 for this area. The projected loads in Attachment I.C.1 represent the Company's forecasted peaks based on actual load and the PJM 2023 Load Forecast and demonstrate stable load demand in the area. Over the period from 2022 to 2031, the summer peak electrical demand for this area is projected to vary between approximately 1791 MW and 1802 MW, and the winter peak electrical demand for this area is projected to vary between approximately 1617 MW and 2269 MW.

As discussed in Section I.A, the Rebuild Project is needed to resolve overloading issues on 230 kV Line #249 identified during PJM's 2026 Summer Generator Deliverability Analysis. The current line rating is limited by 9.3 miles of 795 ACAR and ACSR conductors, which have a summer emergency rating of 595 MVA. The Rebuild Project will rebuild this portion of Line #249 to a minimum summer emergency rating of 1573 MVA.

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

Forecast Load MW

	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	max	min
Chesterfield - Summer	1704	1791	1795	1799	1802	1802	1802	1802	1802	1802	1802	1791
Chesterfield - Winter	2053	2092	2099	2101	2103	2103	2103	2103	2107	2110	2110	2092

Historic Load MW

	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	max	min
Chesterfield - Summer	1686	1644	1629	1688	1744	1687	1617	1734	1714	1704	1744	1617
Chesterfield - Winter	1690	1784	2099	2231	1808	2129	2269	2269	1774	1666	2269	1666

	MAX	MIN
Peak Load Historic and Projected (summer and winter)	1617	2269

Highlighted cells used in application

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

There are no feasible project alternatives to the Rebuild Project.

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 and consistent with sound engineering judgment, thereby enabling the Company to maintain the overall long-term reliability of its transmission system.⁸ 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 absolve the need for the Rebuild Project. As reflected in Attachment I.C.1, the peak load for the Rebuild Project area (historic and projected) ranges from approximately 1617 MW to 2269 MW (summer and winter). By way of comparison, statewide, the Company achieved demand savings of 264.8 MW (net) / 404.8 MW (gross) from its DSM Programs in 2022.

⁸ While the PJM load forecast does not directly incorporate DR, its load forecast incorporates variables derived from Itron that reflect EE by modeling the stock of end-use equipment and its usages. Further, because PJM's load forecast considers the historical non-coincident peak ("NCP") for each load serving entity ("LSE") within PJM, it reflects the actual load reductions achieved by DSM programs to the extent an LSE has used DSM to reduce its NCPs.

I. NECESSITY FOR THE PROPOSED PROJECT

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

Response: The Rebuild Project includes the removal and replacement of existing facilities on existing Line #249, as described below. There will be no lines permanently taken out of service as part of the proposed Rebuild Project.

The Company proposes to replace forty-five (45) single circuit wood H-frame suspension structures, sixteen (16) single circuit weathering steel direct embed H-frame suspension structures, two (2) single circuit weathering steel direct embed H-frame suspension structures, one (1) single-circuit wood H-frame double deadend (“DDE”) structure, one (1) single-circuit weathering steel direct embed H-frame DDE structure, one (1) double circuit galvanized lattice tower DDE structure, and one (1) single-circuit wood three-pole terminal structure with:

- Fifty-five (55) single circuit weathering steel direct embed two-pole “DOM” H-frame suspension structures;
- Two (2) single circuit weathering steel direct embed two-pole “DOM” H-frame DDE structure;
- Six (6) engineered weather steel two-pole H-frame structures with foundation (Str. Nos. 249/23, 249/26, 249/28, 249/47, 249/66, and 249/81);
- Two (2) 230 kV standard galvanized steel self-supporting switch structures;
- Two (2) single-circuit weathering steel two-pole H-frame structures with extra cross-arm with foundations (249/26A and 249/27);
- One (1) single-circuit monopole DDE angle structure with foundation (Str. No. 69/21);
- One (1) single-circuit monopole DDE structure with foundation (Str. No. 249/22);
- Two (2) single-circuit direct embed weathering steel two-pole H-frame anchor structures (Str. Nos. 69/25 and 69/26);
- One (1) single-circuit three-pole dead-end structure with foundations (Str. No. 249/201).

Approximately 0.14 miles of existing three-phase 2-721 ACAR conductor between existing backbone Structure #249/94A and existing Structure #249/93 and approximately 9.18 miles of existing three-phase 795 ACSR conductor between

existing Structure #249/86 and existing Structure #205/84, 249/1 will be removed and replaced with three-phase twin-bundled 768.2 ACSS/TW/HS “Maumee” conductor.⁹

The existing 3#6 alumoweld shield wires will be replaced with two fiber optic shield wires.

The existing capacity of Line #249 between Carson Substation and Locks Substation is limited by the existing three-phase 2-721 ACAR conductor, which has a normal/emergency rating of 478/478 MVA summer and 659/569 MVA winter, and the existing three-phase 795 ACSR conductor, which has a normal/emergency rating of 478/478 MVA summer and 659/659 MVA winter. After the proposed Rebuild Project, the capacity of the new three-phase twin-bundled 768.2 ACSS/TW/HS “Maumee” conductor within this segment of Line #249 will have a normal/emergency rating of 1,573/1,573 MVA summer and 1,648/1,648 MVA winter.

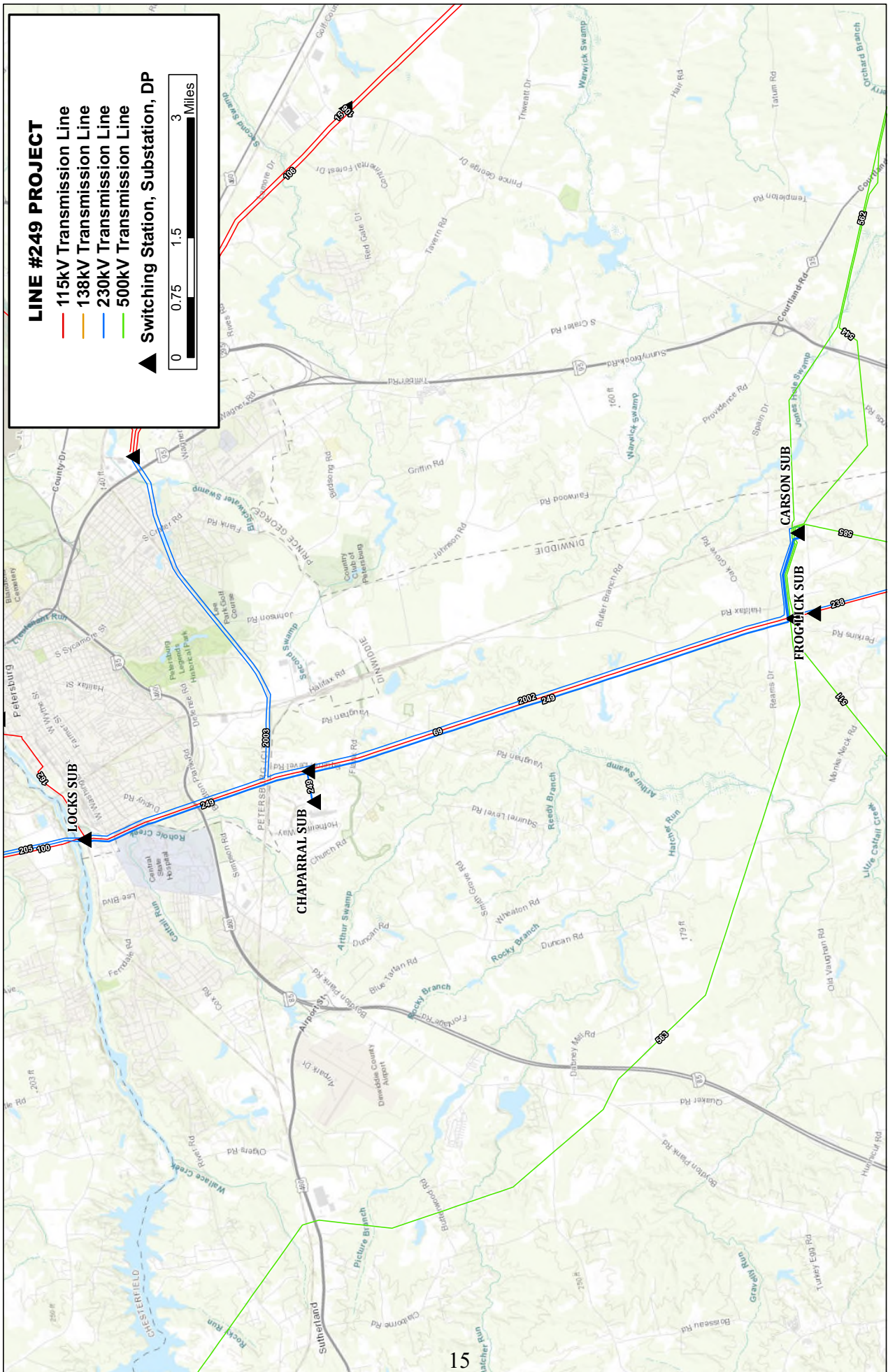
The proposed Rebuild Project includes the installation and removal of temporary structures and conductors to ensure continuous service to the customer served by the Chaparral Substation. These temporary facilities will be in service for approximately six months during construction and will be removed upon energization of the Rebuild Project.

⁹ Approximately 2.6 miles of the 9.3 miles identified here will be reconductored without replacing existing structures which the Company considers “ordinary extensions or improvements in the usual course of business[.]” *See supra* n. 1-2.

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.



I. NECESSITY FOR THE PROPOSED PROJECT

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

Response: The desired in-service date for the proposed Rebuild Project is June 30, 2025.

The Company estimates that it will take approximately 11 months for detailed engineering, materials procurement, permitting, real estate, and construction after a final order from the Commission. Accordingly, to support this estimated construction timeline and construction plan, the Company respectfully requests a final order by May 31, 2024. Should the Commission issue a final order by May 31, 2024, the Company estimates that the construction should begin by June 15, 2024, and be completed by June 30, 2025. This construction timeline will enable the Company to meet the targeted in-service date for the Rebuild Project. This schedule is contingent upon obtaining the necessary permits and outages. 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 or unpredictable delays due to labor shortages and/or materials/supply issues based on other extensive project work ongoing in the vicinity of the Rebuild Project. In addition, the Company is actively monitoring the 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 existing interim guidance from the U.S. Fish and Wildlife Service (“USFWS”) for the NLEB expires on March 31, 2024. The Company is also monitoring potential regulatory changes associated with the potential listing of the Tri-colored bat. On September 14, 2022, the Tri-colored bat was proposed to be listed as endangered, with an estimated announcement of a final decision within 12 months. Regulatory guidance on the Tri-colored bat will be available upon up-listing. The Company’s construction window described above may require adjustment based upon the regulatory guidance and potential TOYRs associated with these two bat species.

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 total estimated conceptual cost of the Rebuild Project is approximately \$25 million (in 2023 dollars), which includes \$23.7 million for transmission-related work, and \$1.7 million for substation-related work (2023 dollars).¹⁰

¹⁰ The estimated costs here include the costs of the “ordinary course” components of the Rebuild Project. *See supra* n. 1-2.

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 Rebuild Project was initially presented at the September 2, 2021, PJM TEAC meeting, and was approved by the PJM Board at its November 30, 2021, meeting as a baseline project with the following number: b3694.8. See Attachment I.A.2 and Sections I.A and I.E.

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 prevent potential overloading. 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: Not applicable. See Sections I.A and I.C.

I. NECESSITY FOR THE PROPOSED PROJECT

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

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

Response: Not applicable.

I. NECESSITY FOR THE PROPOSED PROJECT

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

Response: Not applicable.

II. DESCRIPTION OF THE PROPOSED PROJECT

A. Right-of-way (“ROW”)

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

Response: The total length of the Rebuild Project is approximately 6.7 miles.¹¹ 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.

¹¹ The Company will reconductor an additional approximately 2.6 miles of Line #249 without replacing the existing structures which the Company considers “ordinary extensions or improvements in the usual course of business[.]” *See supra* n. 1-2.

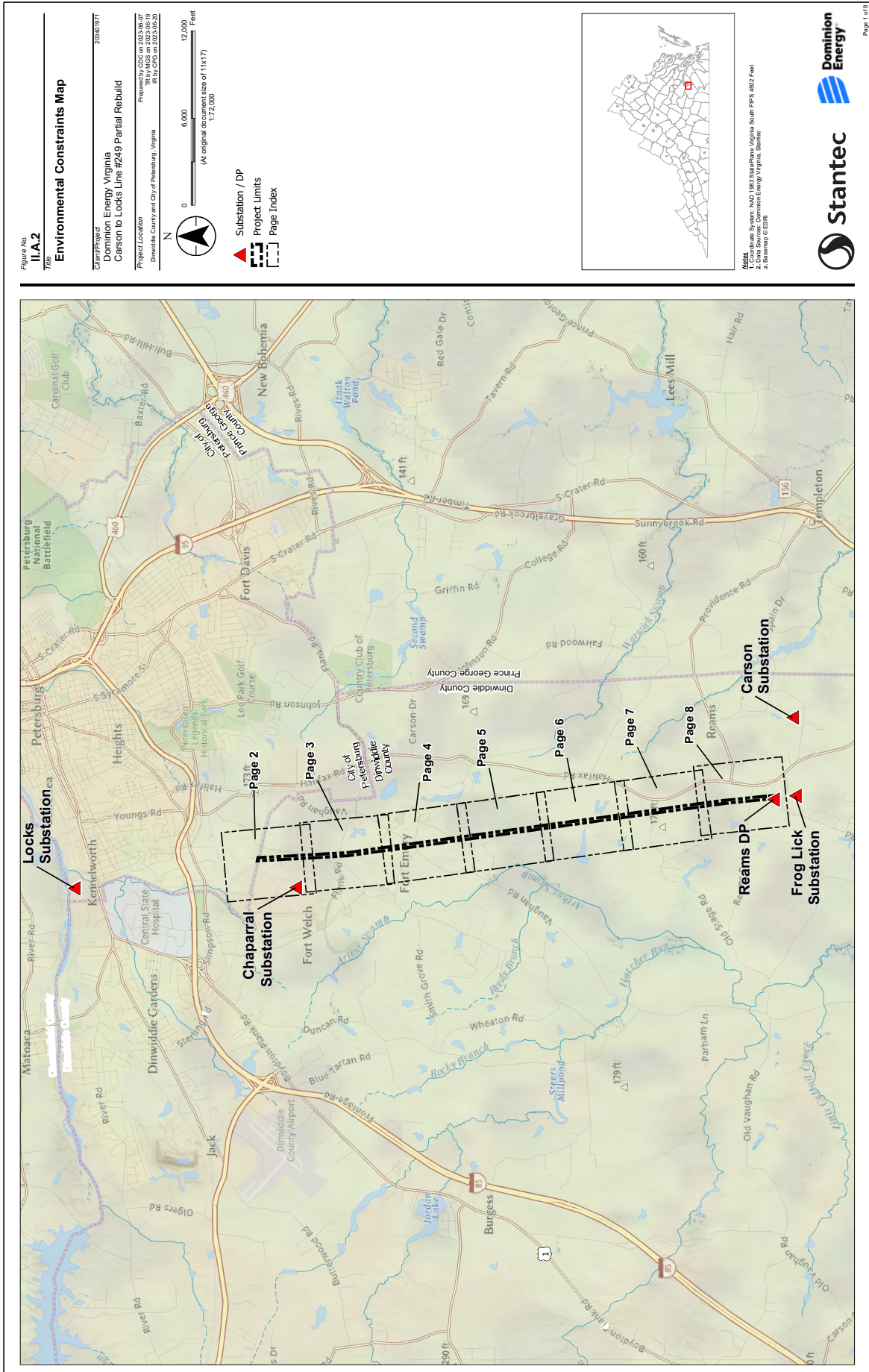
II. DESCRIPTION OF THE PROPOSED PROJECT

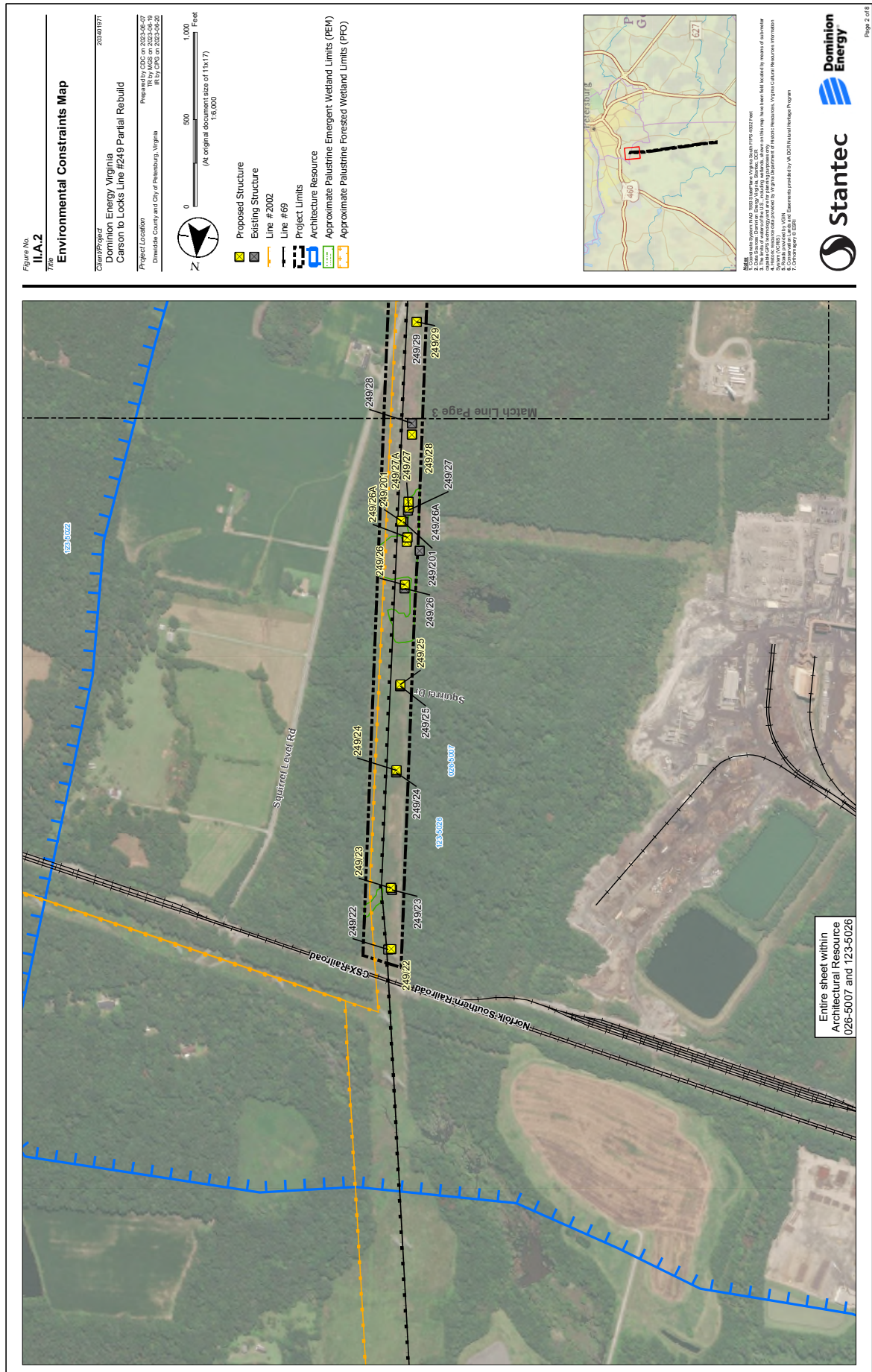
A. Right-of-way (“ROW”)

- 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. With the exception of approximately 0.25 miles of temporary right-of-way, the Rebuild Project is located within existing transmission line right-of-way, which collocates and parallels 230 kV Lines #2002 and 115 kV Line #69. No portion of the right-of-way is proposed to be quitclaimed or relinquished.

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

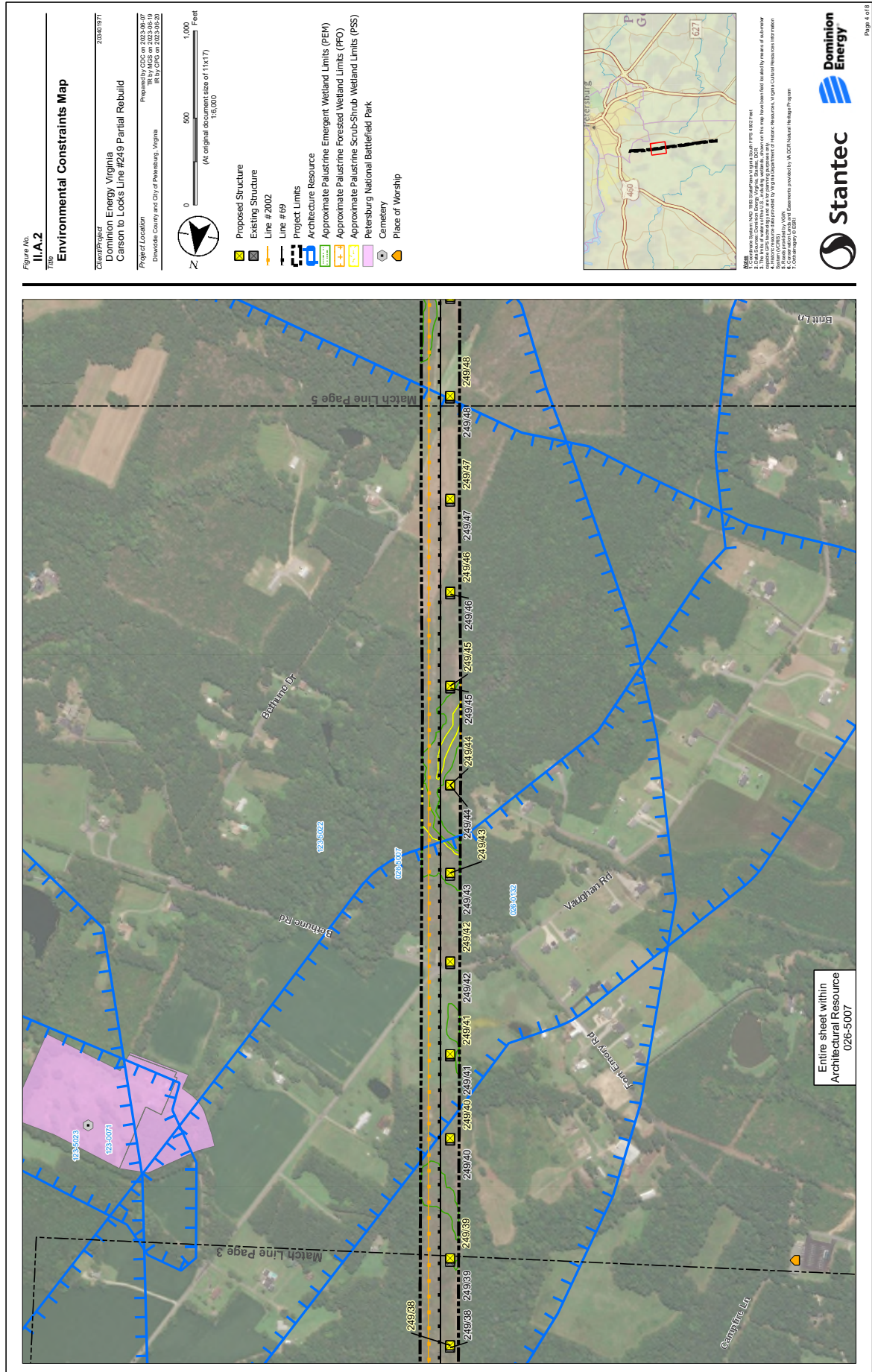


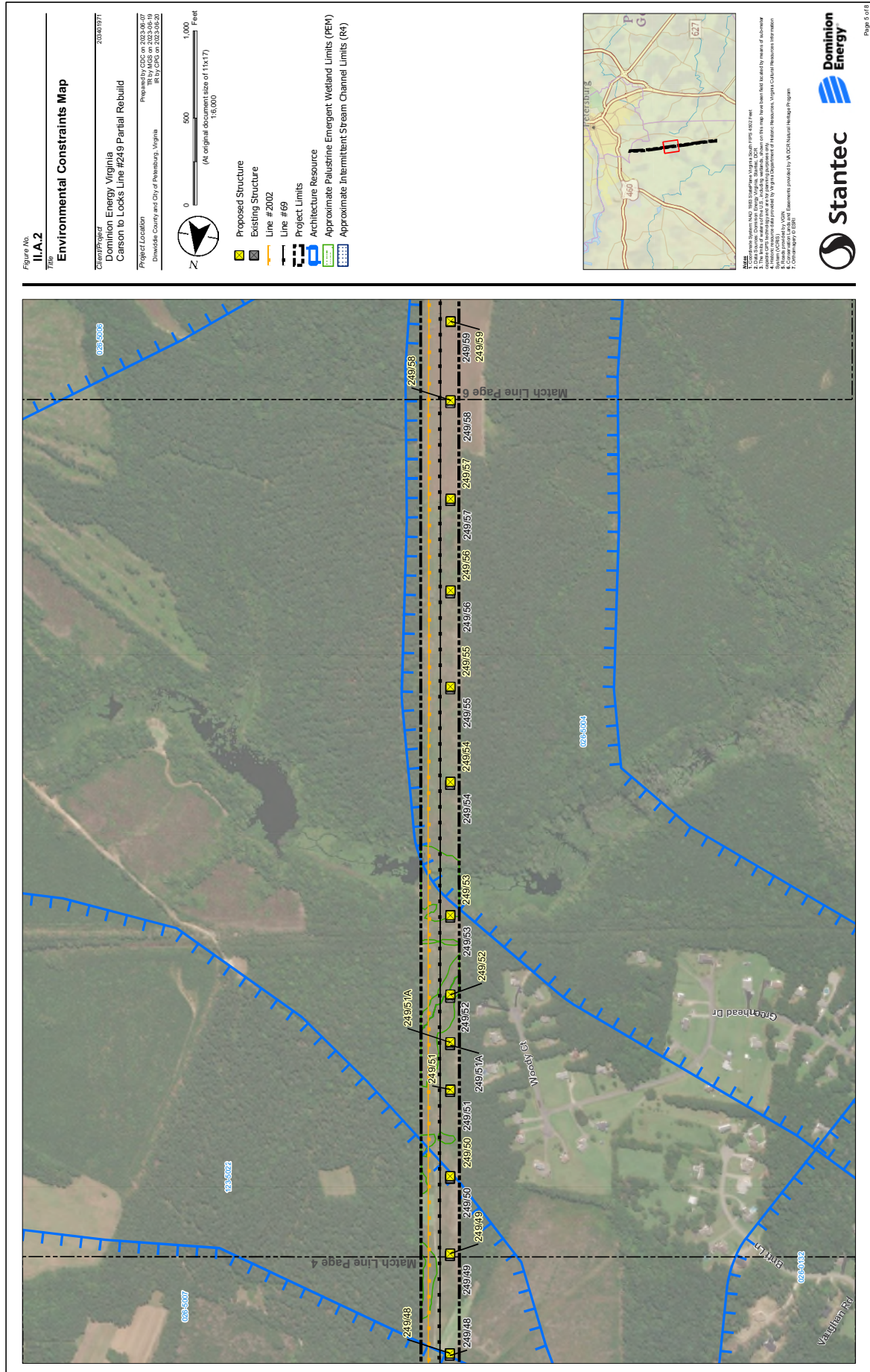


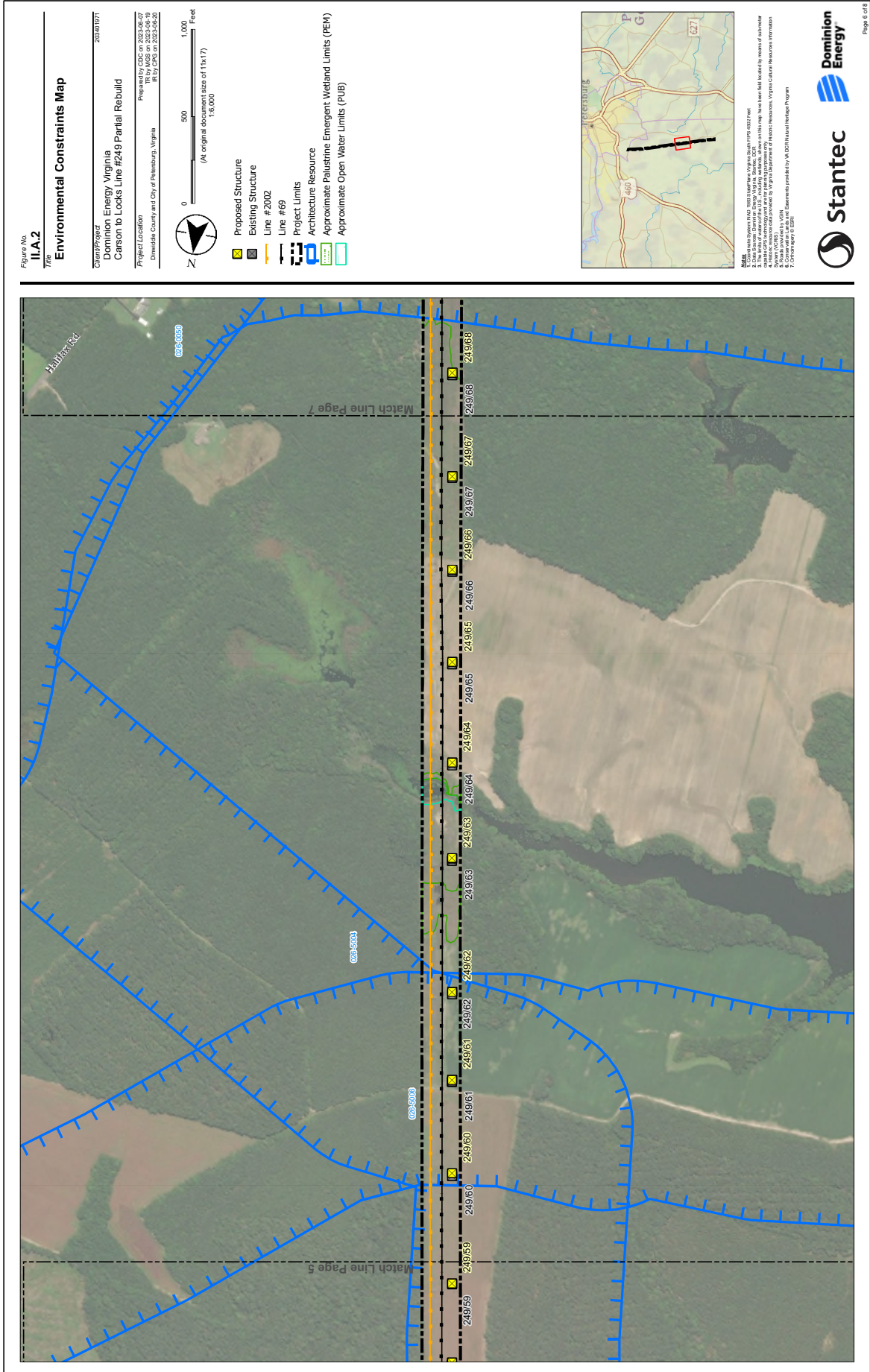
Notes:

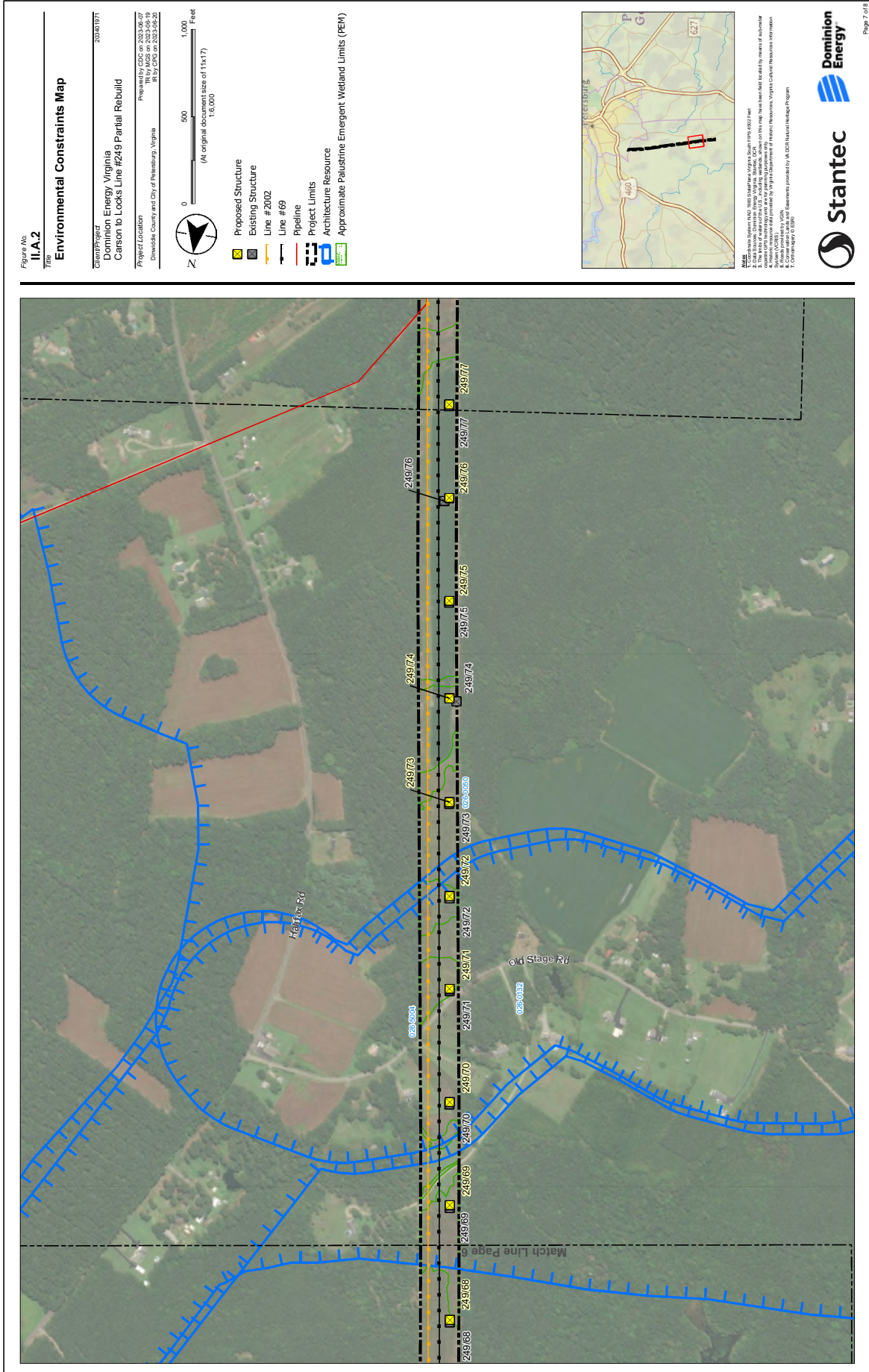
1. Data from System 1400, 1985, *Topdrome Virginia's South Flats*, 4837 Feet
2. Data Source: Dominion Energy, Virginia, Santee, OCR
3. The limits of water surface U.S. including, shown on this map have been located by means of submeter satellite GPS technology and are for planning purposes only
4. Data was provided by Virginia Department of Natural Resources, Virginia Cultural Resources Information System (VCRIS)
5. Reads provided by VCRIS
6. Conservation Lands and Easements provided by MDCR Natural Heritage Program

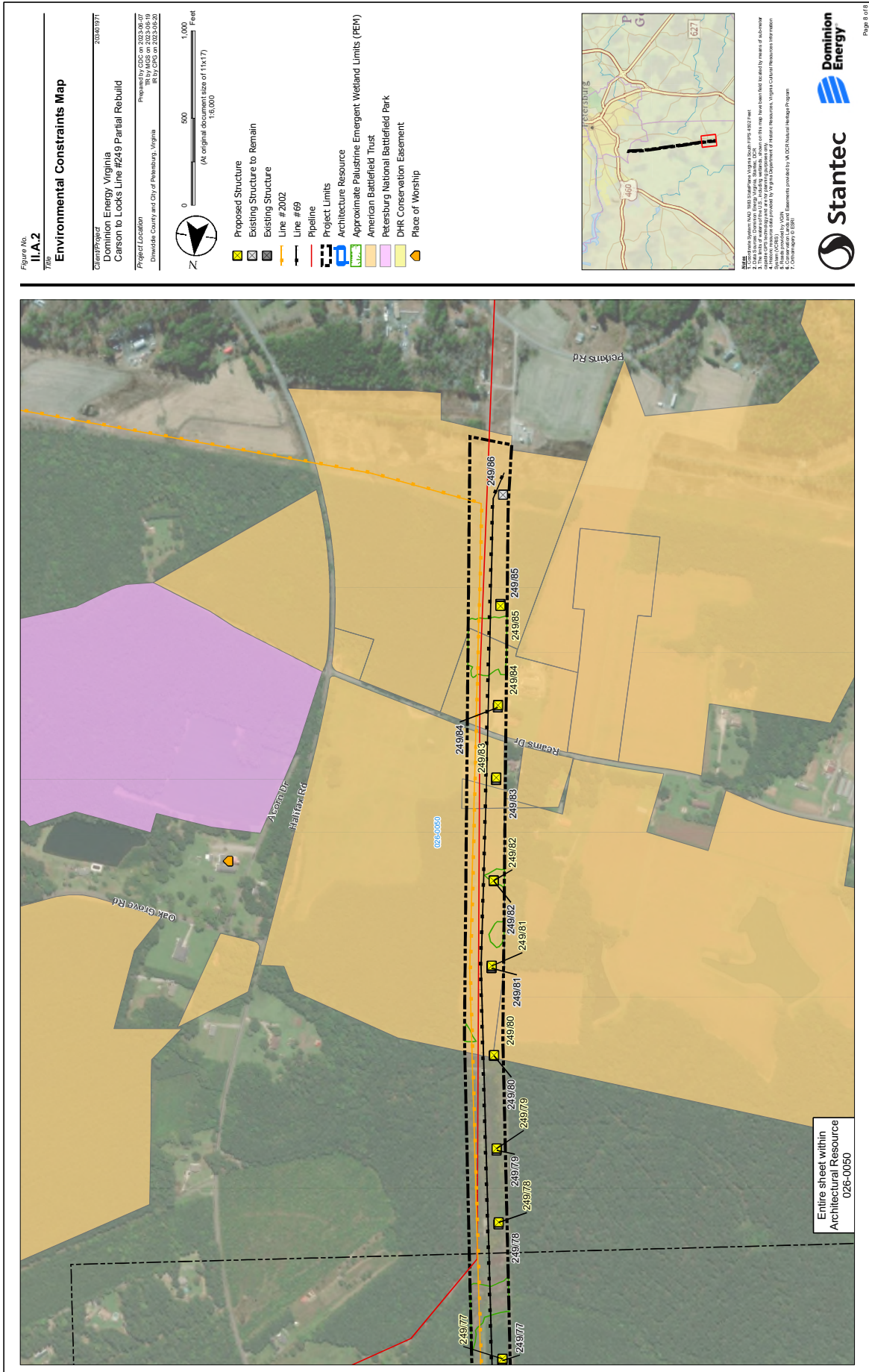












II. DESCRIPTION OF THE PROPOSED PROJECT

A. Right-of-way (“ROW”)

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

Response: See Attachment I.G.1.

II. DESCRIPTION OF THE PROPOSED PROJECT

A. Right-of-way (“ROW”)

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

Response: Not applicable. Because the existing right-of-way and Company-owned property are adequate for the proposed Rebuild Project, no permanent new right-of-way is required.¹²

¹² See *supra* n. 4.

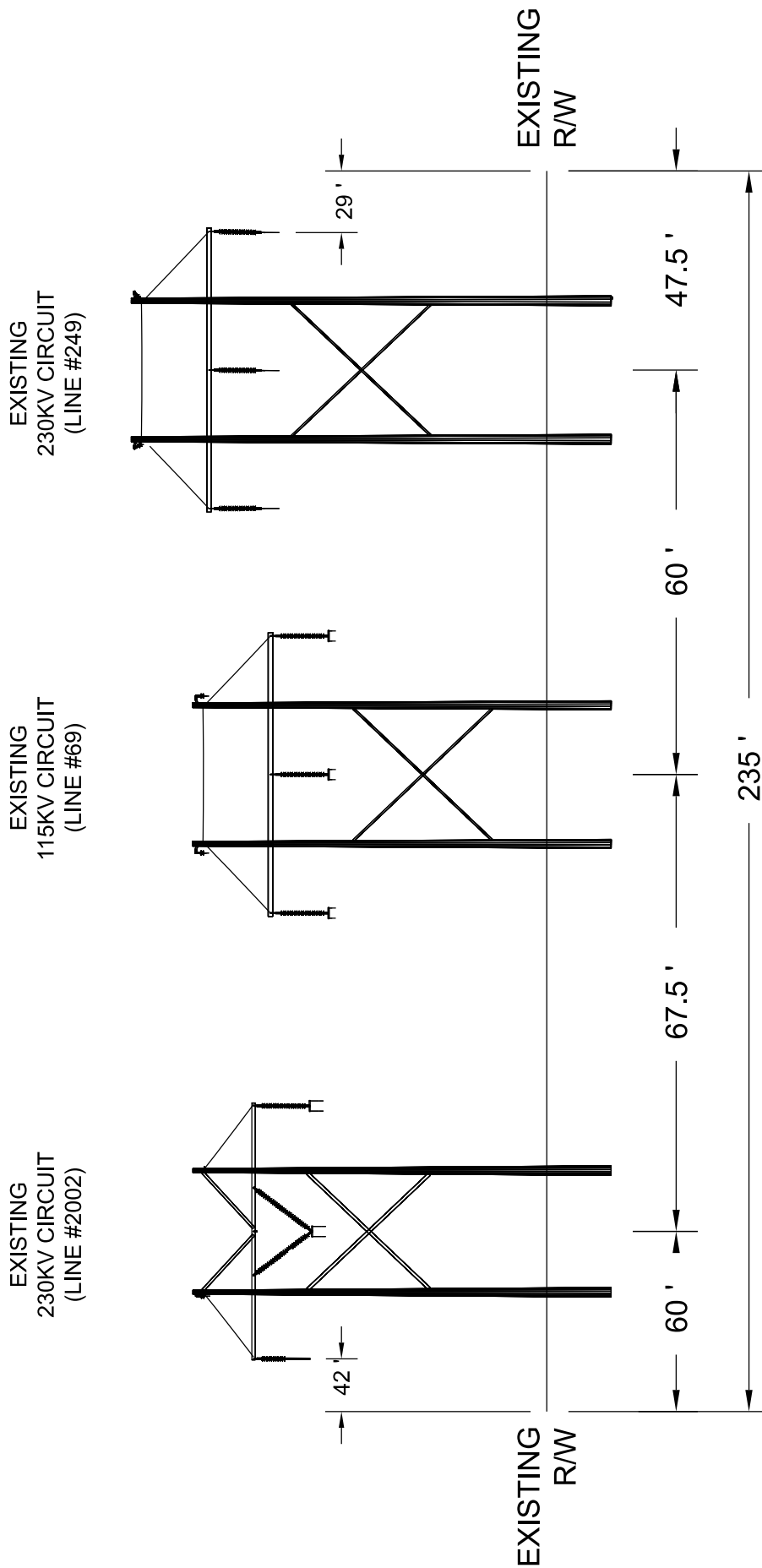
II. DESCRIPTION OF THE PROPOSED PROJECT

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 through II.A.5.b

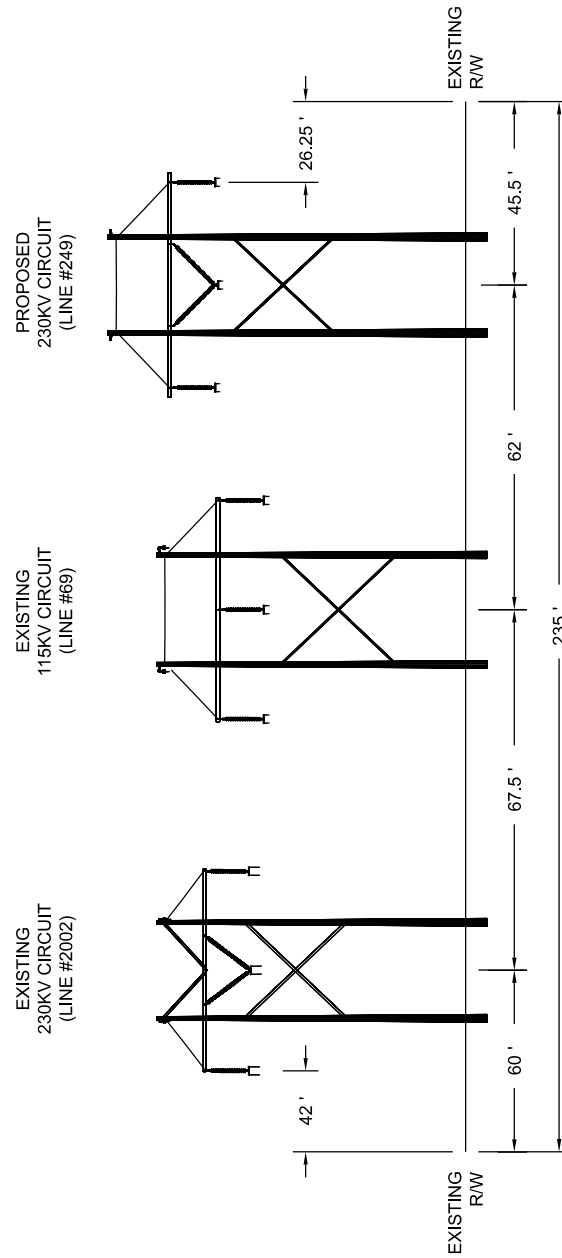
STRUCTURE 249/23 - STRUCTURE 249/85
EXISTING CONFIGURATION



TYPICAL RIGHT OF WAY LOOKING TOWARD CARSON SUBSTATION.

- NOTES:
1. Existing structure shown with approximate average height of 62' (line 249) and does not include foundation reveal.
 2. Approximate average height is measured from the groundline at structure centerline.

STRUCTURE 249/23 - STRUCTURE 249/85 PROPOSED CONFIGURATION



TYPICAL RIGHT OF WAY LOOKING TOWARD CARSON SUBSTATION.

NOTES:

1. Proposed structure shown with approximate average height of 68' and does not include foundation reveal.
2. Approximate average height is measured from the groundline at structure centerline.
3. Information contained on drawing is to be considered preliminary in nature and subject to changed based on final design.

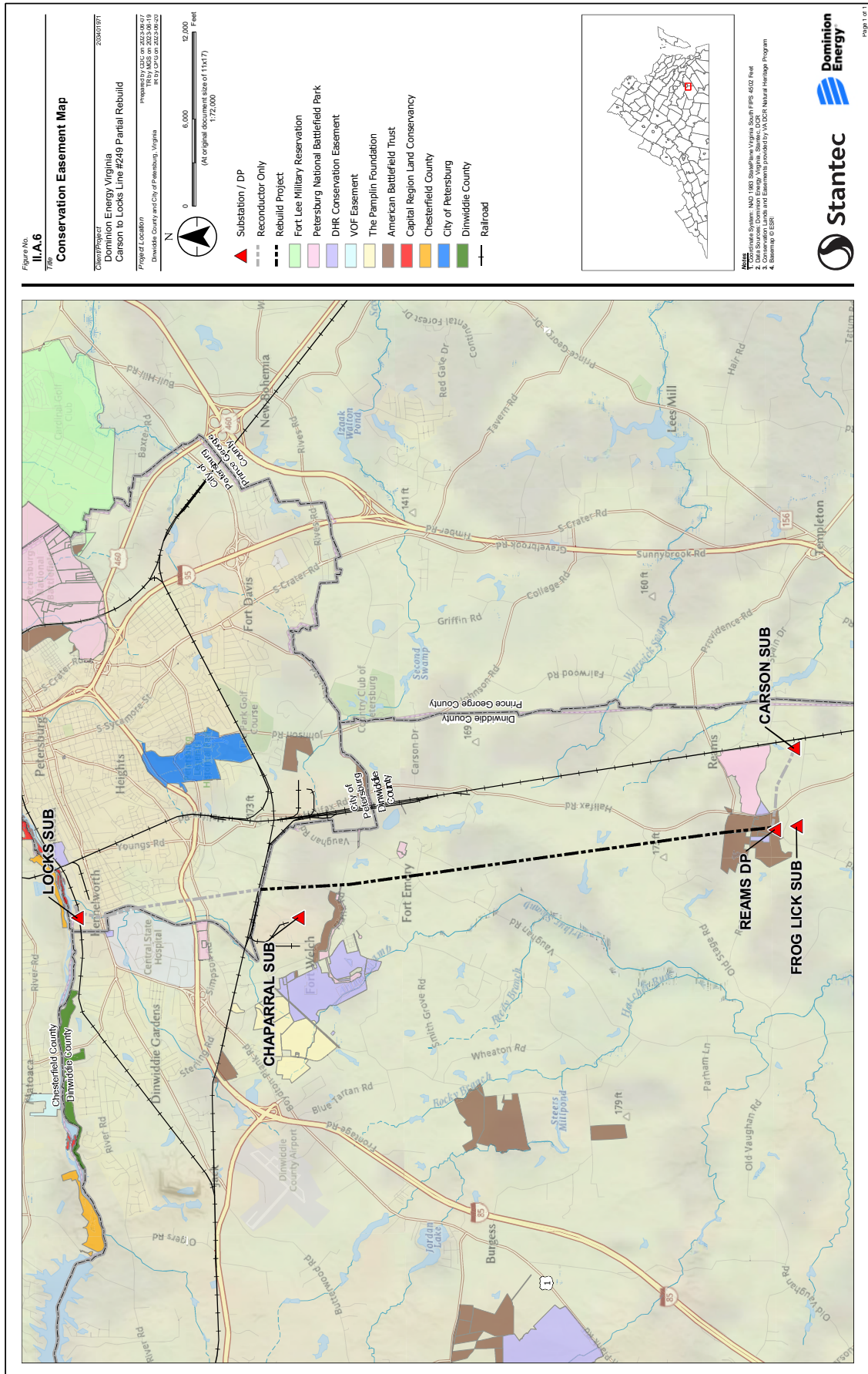
II. DESCRIPTION OF THE PROPOSED PROJECT

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 its easements along the existing right-of-way of the 249-Line Rebuild Project corridor between 1903 and the 1990s. Right-of-way widths range between 85 feet and 350 feet. The Company does not anticipate that new easements will be required, as the Rebuild Project is within existing rights-of-way or on Company-owned property. See Attachment II.A.6 for a conservation easement map.

The Company proposes to install a temporary tap line to ensure continuous service during construction of the Rebuild Project. See Sections I.F and II.A.10. The Company will pursue a temporary right-of-way adjacent to the existing right-of-way of approximately 0.25 miles in total length, roughly in the shape of an “L.” One section of this temporary right-of-way will run south to north and will be approximately 25 feet wide and 500 feet long. The second section will run from east to west and will be approximately 22.5 feet wide and 620 feet in length.



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 entire existing transmission line corridor, which varies in width from approximately 220 to 400 feet, is currently cleared and maintained for operation of the existing transmission facilities. As part of the Rebuild Project, a 0.25-mile temporary line will be constructed using new temporary right-of-way that will include tree clearing rights.

Trimming of tree limbs along the edge of the right-of-way may be conducted to support construction activities for the Rebuild Project. For any such minimal clearing, trees will be cut to no more than three inches above ground level. Trees located outside of the right-of-way that are tall enough to potentially impact the transmission facilities, commonly referred to as “danger trees,” may also need to be cut. Danger trees will be cut to be no more than three inches above ground level, limbed, and will remain where felled. 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 devices will be used on an ongoing basis, as appropriate, during all clearing and construction activities.

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 was approved by the Virginia Department of Environmental Quality (“DEQ”). Time of year and weather conditions may affect when permanent stabilization takes place.

Limited clearing or limbing may be required to accommodate construction access. Any clearing will be done in accordance with the Company’s Integrated Vegetation Management Plan (“IVMP”) practice with no grubbing 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 herbicide

application and limited to no more than four times a year.

Based on recommendations by the Virginia Department of Wildlife Resources (“DWR”), the Company will endeavor to adhere to the TOYRs for cutting trees and vegetations favorable to winged animals from March 15 – November 15, to the extent practicable. This includes further minimizing potential effects by avoiding trees favorable for bat maternity roosting locations nesting bird habitat, to the extent practicable.

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.

For the proposed Rebuild Project, no additional permanent right-of-way is needed.¹³ Given no need for new permanent right-of-way, the availability of existing right-of-way and the statutory preference given to the use of existing rights-of-way, and because additional costs and environmental impacts would be associated with the acquisition of and construction on new right-of-way, the Company did not consider any alternate routes requiring new permanent right-of-way for this Rebuild Project.

¹³ See *supra* n. 4.

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: To limit service disruption to the affected load area, the Company plans to take Line #249 out of service in two outages. The outages are scheduled to allow the adjacent infrastructure to adequately provide service to connected customers while Line #249 is out of service. The work will be done during non-peak load times. This strategy will allow the grid to be in normal and optimal configuration during peak load times and available to respond to contingency issues should they arise. Assuming a final order by May 31, 2024, as requested in Section I.H, the current plan is to start construction on June 15, 2024, and to complete construction of the Rebuild Project by June 30, 2025. 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.

The Company has requested a single outage on Line #69 from June 1, 2024 to June 30, 2025. The eDart Number for the outage is 1113016. It is customary for PJM to not grant approval of an outage until shortly before the outage is expected to occur (up until one week prior) and, therefore, it may be subject to change.

II. DESCRIPTION OF THE PROPOSED PROJECT

A. Right-of-way (“ROW”)

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

Response: The FERC Guidelines, included as Attachment 1 to these Guidelines, are 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 with an existing transmission corridor.

By utilizing the existing transmission corridor, the proposed Rebuild Project will minimize impact to any site listed on the National Register of Historic Places (“NRHP”). Thus, the Rebuild Project is consistent with Guideline #2 (where practical, rights-of-way should avoid sites listed on the National Register of Historic Places). In any event, the Company will coordinate with the VDHR regarding its plans prior to engineering and construction of the Rebuild Project to avoid or minimize impacts. See Section III.A for a discussion of the Stage I Pre-Application Analysis prepared by Stantec Consulting Services Inc. (“Stantec”) which was submitted to VDHR in September 2023 and is included with the DEQ Supplement as Attachment 2.I.2. The Company will coordinate with the 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 III.J of this Appendix, and the DEQ Supplement.

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

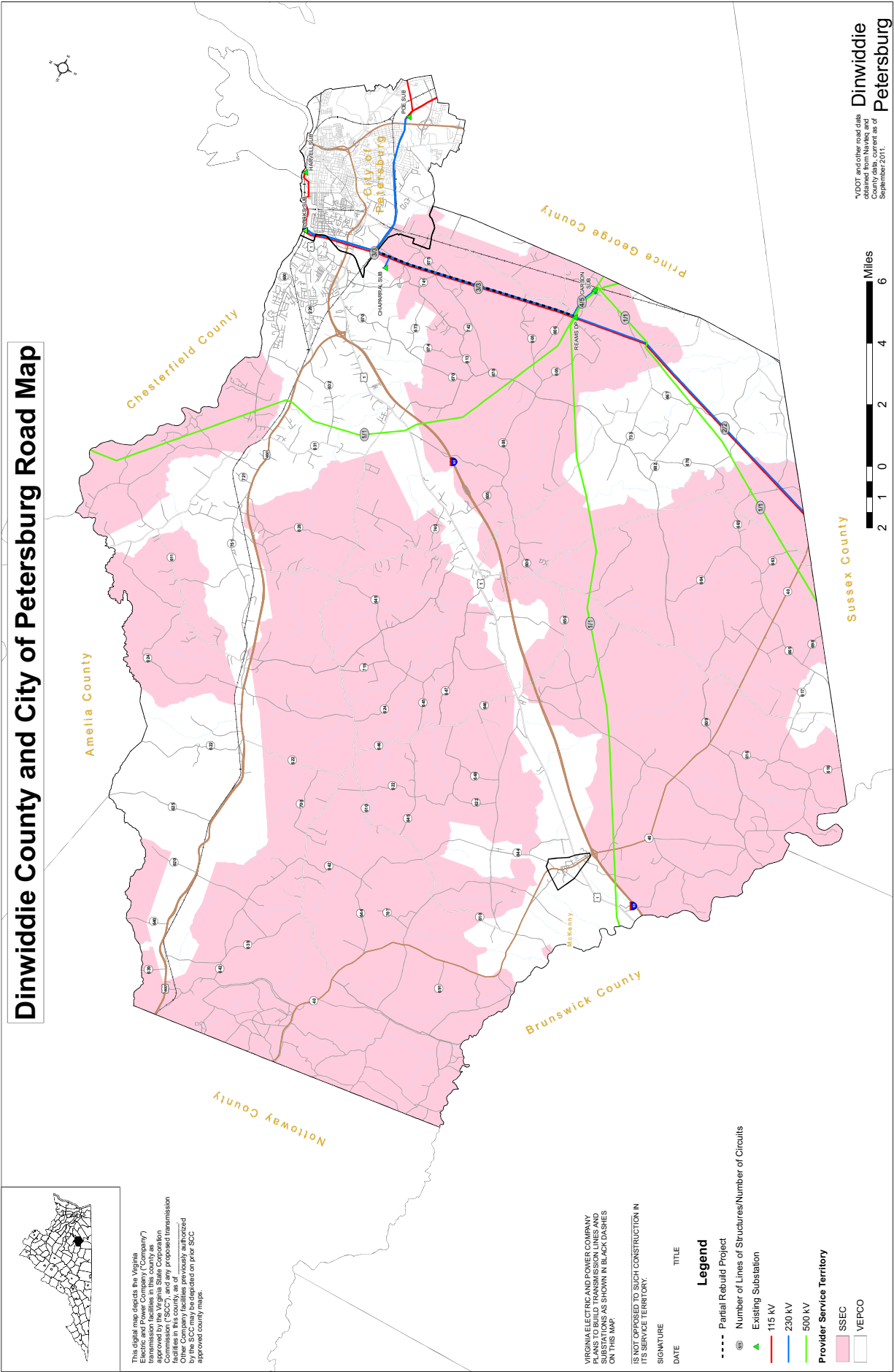
The Company also utilizes recommended Guidelines in clearing right-of-way, constructing facilities, and maintaining rights-of-way after construction. Moreover, secondary uses of rights-of-way that are consistent with the safe maintenance and operation of facilities are permitted, as noted in Section II.A.8.

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 proposed Rebuild Project traverses Dinwiddie County and the City of Petersburg. The 6.69 miles of project centerline in Dinwiddie County is within SSEC territory. The additional 0.01 mile of centerline in the City of Petersburg is within VEPCO territory.
- b. Electronic versions of the Virginia Department of Transportation (“VDOT”) “General Highway Map” for Dinwiddie County and the City of Petersburg have been marked as required and filed with the Application. Reduced copies of the maps are provided as Attachment II.A.12.b.



II. DESCRIPTION OF THE PROPOSED PROJECT

B. Line Design and Operational Features

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

Response: The portion of Line #249 proposed for rebuild will be designed and operated at 230 kV and will have a summer/winter transfer capability of 1,573/1,648 MVA. No voltage upgrades are anticipated.

II. DESCRIPTION OF THE PROPOSED PROJECT

B. Line Design and Operational Features

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

Response: The proposed conductor for 230 kV Line #249 will be 3-phase twin-bundled 768.2 ACSS/TW/HS conductors arranged in a horizontal orientation with two fiber optic shield wires. See Attachments II.B.3.i-vii for more details on conductor configurations at each structure type.

The twin-bundled 768.2 ACSS/TW/HS conductors are a Company standard for new 230 kV construction.

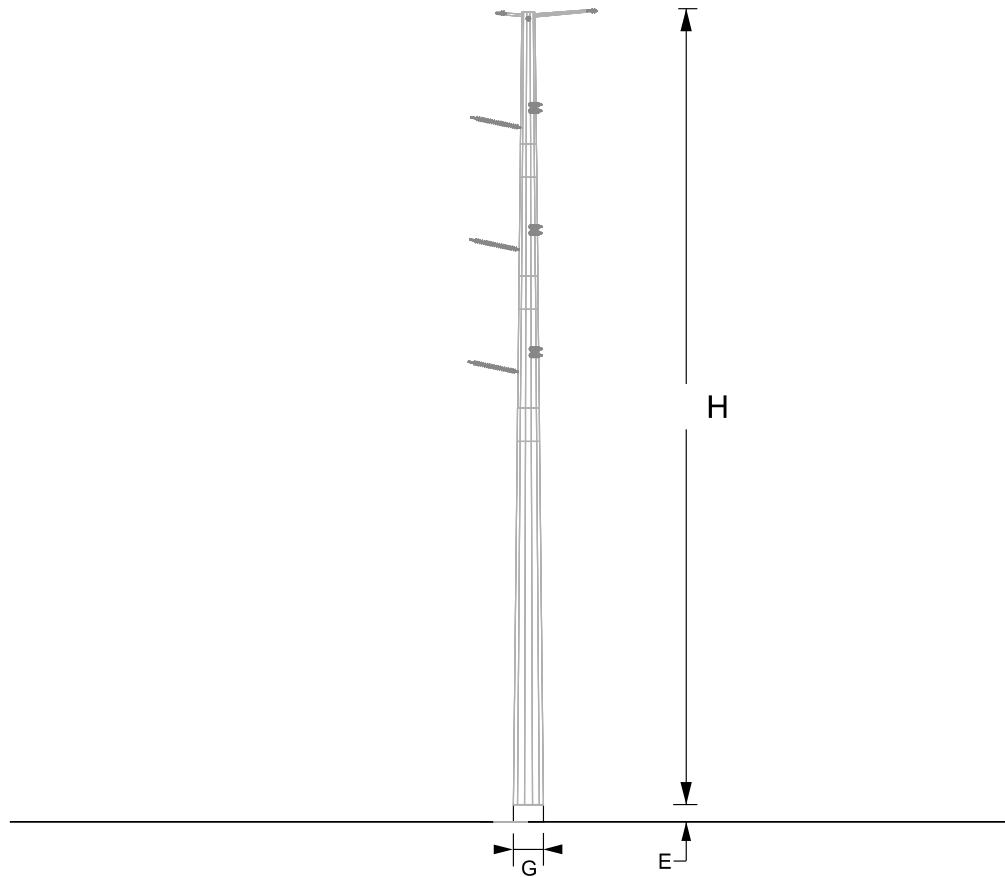
II. DESCRIPTION OF THE PROPOSED PROJECT

B. Line Design and Operational Features

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

Response: See Attachments II.B.3.i-vii.

STRUCTURE 249/22



SINGLE CIRCUIT MONOPOLE DOUBLE DEAD-END STRUCTURE

B. RATIONALE FOR STRUCTURE TYPE:	SINGLE CIRCUIT MONOPOLES CAN BE BUILT ON THE EXISTING R/W
C. LENGTH OF R/W (STRUCTURE QUANTITY):	0.20 MILES (1 STRUCTURE)
D. STRUCTURE MATERIAL:	WEATHERING STEEL 100
RATIONALE FOR STRUCTURE MATERIAL:	TO MATCH THE EXISTING WOOD POLES
E. FOUNDATION MATERIAL:	CONCRETE
AVERAGE FOUNDATION REVEAL:	SEE NOTE 4
F. AVERAGE WIDTH AT CROSSARM:	N/A
G. AVERAGE WIDTH AT BASE:	6' DIAMETER FOUNDATION (SEE NOTE 2)
H. MINIMUM STRUCTURE HEIGHT:	120'
MAXIMUM STRUCTURE HEIGHT:	120'
AVERAGE STRUCTURE HEIGHT:	120'
I. AVERAGE SPAN LENGTH:	539' (341'-737')
J. MINIMUM CONDUCTOR-TO-GROUND:	22.5' (AT MAXIMUM OPERATING TEMPERATURE)

NOTES	1. INFORMATION ON DRAWING IS PRELIMINARY AND SUBJECT TO CHANGE DURING FINAL ENGINEERING 2. FINAL FOUNDATION DIAMETER SHALL BE BASED UPON FINAL ENGINEERING 3. STRUCTURE HEIGHTS ARE MEASURED FROM STRUCTURE CENTERLINE 4. MINIMUM FOUNDATION REVEAL SHALL BE 1.5', MAX REVEAL SUBJECT TO FINAL LOCATION AND TERRAIN
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Electric Transmission

SECTION #:

DRAWING NO.

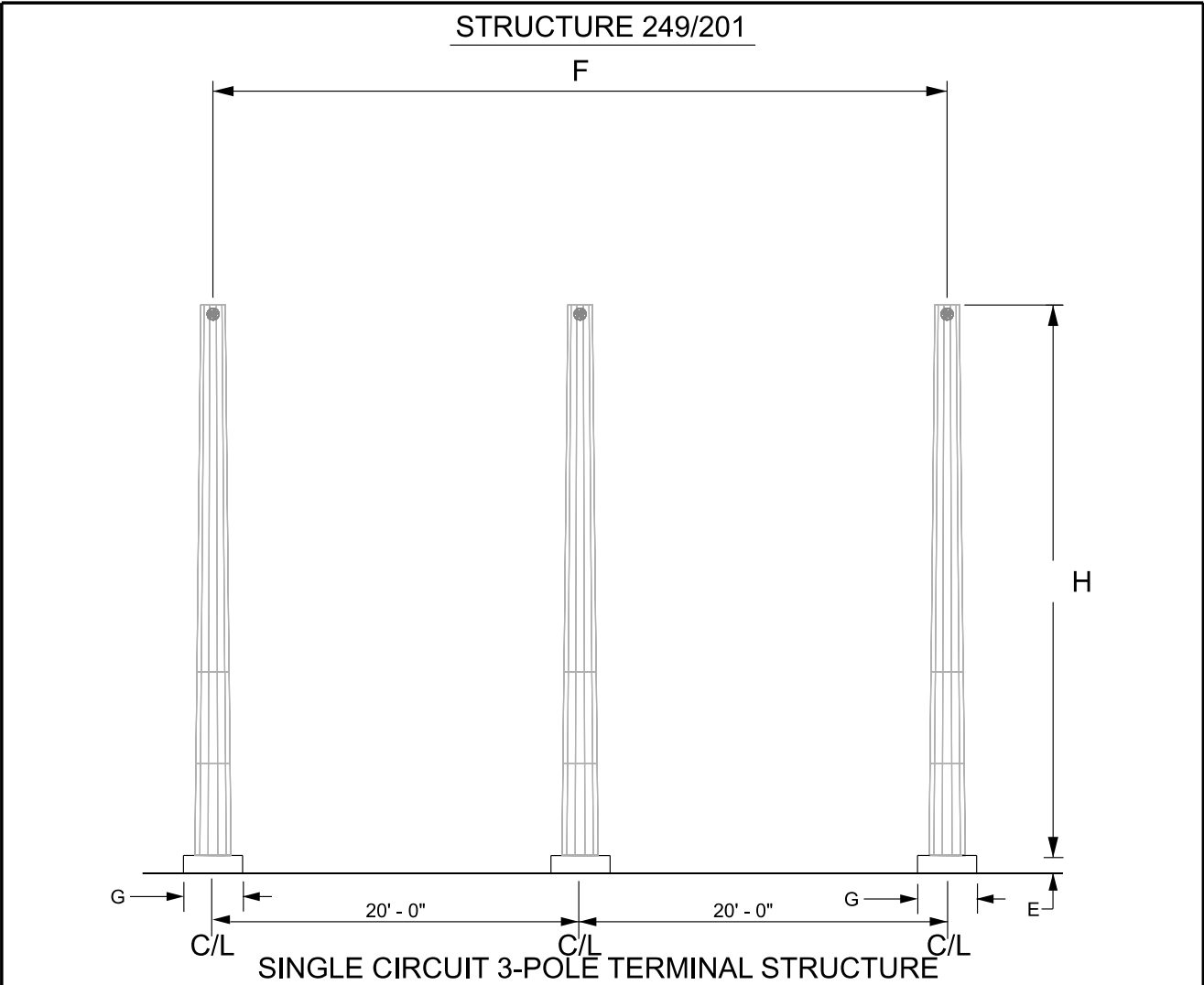
STRUCTURE 249/22

ATTACHMENT II.B.3.i

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

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B. RATIONALE FOR STRUCTURE TYPE:	SINGLE CIRCUIT 3-POLE CAN BE BUILT ON THE EXISTING R/W
C. LENGTH OF R/W (STRUCTURE QUANTITY):	6.70 MILES (1 STRUCTURE)
D. STRUCTURE MATERIAL:	WEATHERING STEEL
RATIONALE FOR STRUCTURE MATERIAL:	TO MATCH THE EXISTING WOOD POLES
E. FOUNDATION MATERIAL:	CONCRETE
AVERAGE FOUNDATION REVEAL:	SEE NOTE 4
F. AVERAGE WIDTH AT CROSSARM:	40.0'
G. AVERAGE WIDTH AT BASE:	6' DIAMETER FOUNDATION (SEE NOTE 2)
H. MINIMUM STRUCTURE HEIGHT:	30'
MAXIMUM STRUCTURE HEIGHT:	30'
AVERAGE STRUCTURE HEIGHT:	30'
I. AVERAGE SPAN LENGTH:	540' (172'-782')
J. MINIMUM CONDUCTOR-TO-GROUND:	22.5' (AT MAXIMUM OPERATING TEMPERATURE)

NOTES

1. INFORMATION ON DRAWING IS PRELIMINARY AND SUBJECT TO CHANGE DURING FINAL ENGINEERING


2. FINAL FOUNDATION DIAMETER SHALL BE BASED UPON FINAL ENGINEERING

3. STRUCTURE HEIGHTS ARE MEASURED FROM STRUCTURE CENTERLINE

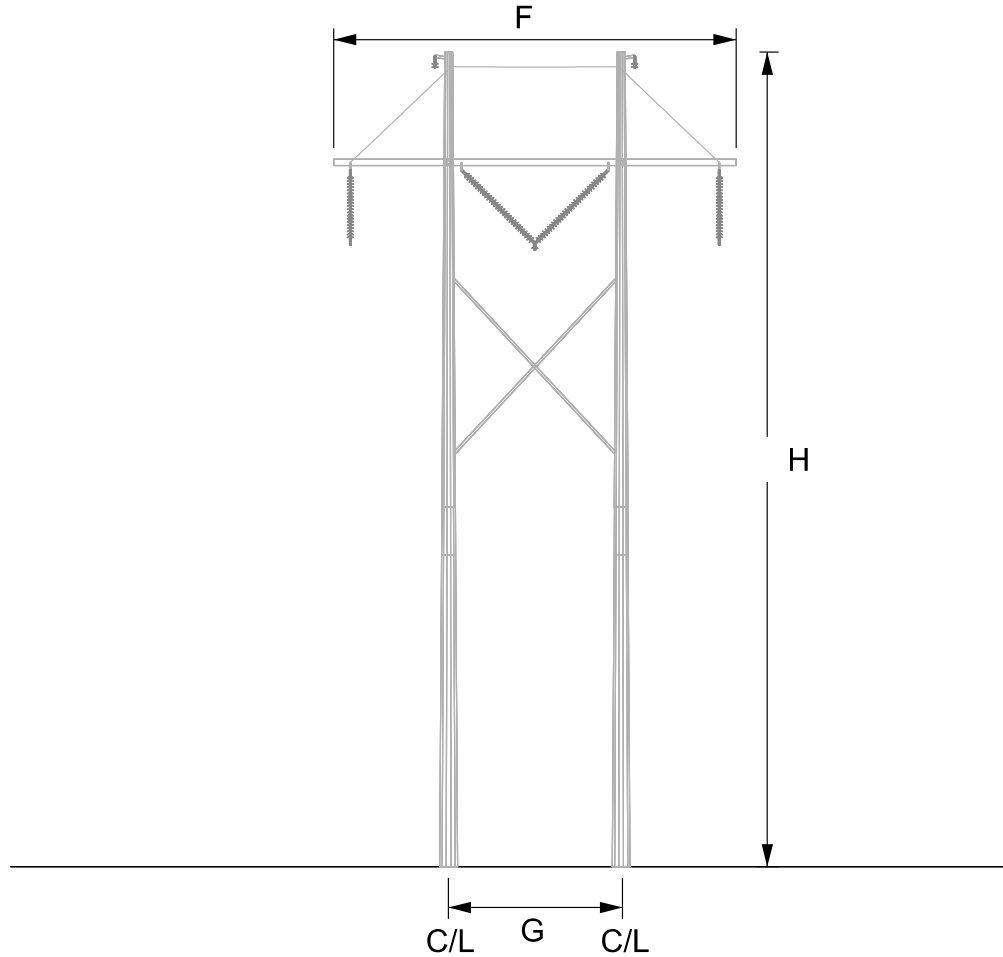
4. MINIMUM FOUNDATION REVEAL SHALL BE 1.5', MAX REVEAL SUBJECT TO FINAL LOCATION AND TERRAIN

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Electric Transmission	SECTION #:	DRAWING NO.
 Dominion Energy Dominion Energy 10900 Nuckols Road Glen Allen, VA 23060	STRUCTURES 249/201	ATTACHMENT II.B.3.ii
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STRUCTURE 249/24-25, 249/29-32, 249/34-46, 249/48-65, 249/67-80, 249/82-84



SINGLE CIRCUIT H-FRAME SUSPENSION STRUCTURE

B. RATIONALE FOR STRUCTURE TYPE:	SINGLE CIRCUIT H-FRAME CAN BE BUILT ON THE EXISTING R/W
C. LENGTH OF R/W (STRUCTURE QUANTITY):	6.70 MILES (55 STRUCTURE)
D. STRUCTURE MATERIAL:	WEATHERING STEEL, GALVANIZED STEEL CROSS ARMS & CROSS BRACES
RATIONALE FOR STRUCTURE MATERIAL:	TO MATCH THE EXISTING WOOD POLES
E. FOUNDATION MATERIAL:	N/A - DIRECT EMBED (SEE NOTE 4)
AVERAGE FOUNDATION REVEAL:	N/A - DIRECT EMBED
F. AVERAGE WIDTH AT CROSSARM:	39.5'
G. AVERAGE WIDTH AT BASE:	18'
H. MINIMUM STRUCTURE HEIGHT:	88'
MAXIMUM STRUCTURE HEIGHT:	56.5'
AVERAGE STRUCTURE HEIGHT:	69'
I. AVERAGE SPAN LENGTH:	540' (172'-782')
J. MINIMUM CONDUCTOR-TO-GROUND:	22.5' (AT MAXIMUM OPERATING TEMPERATURE)

NOTES
 1. INFORMATION ON DRAWING IS PRELIMINARY AND SUBJECT TO CHANGE DURING FINAL ENGINEERING
 2. INDIVIDUAL POLE HEIGHTS MAY VARY SUBJECT TO FINAL ENGINEERING
 3. STRUCTURE HEIGHTS ARE MEASURED FROM STRUCTURE CENTERLINE
 4. IN WETLANDS OR SWAMPS - DIRECT EMBED INTO STEEL PIPE PILES

Electric Transmission

SECTION #:

DRAWING NO.



Dominion Energy

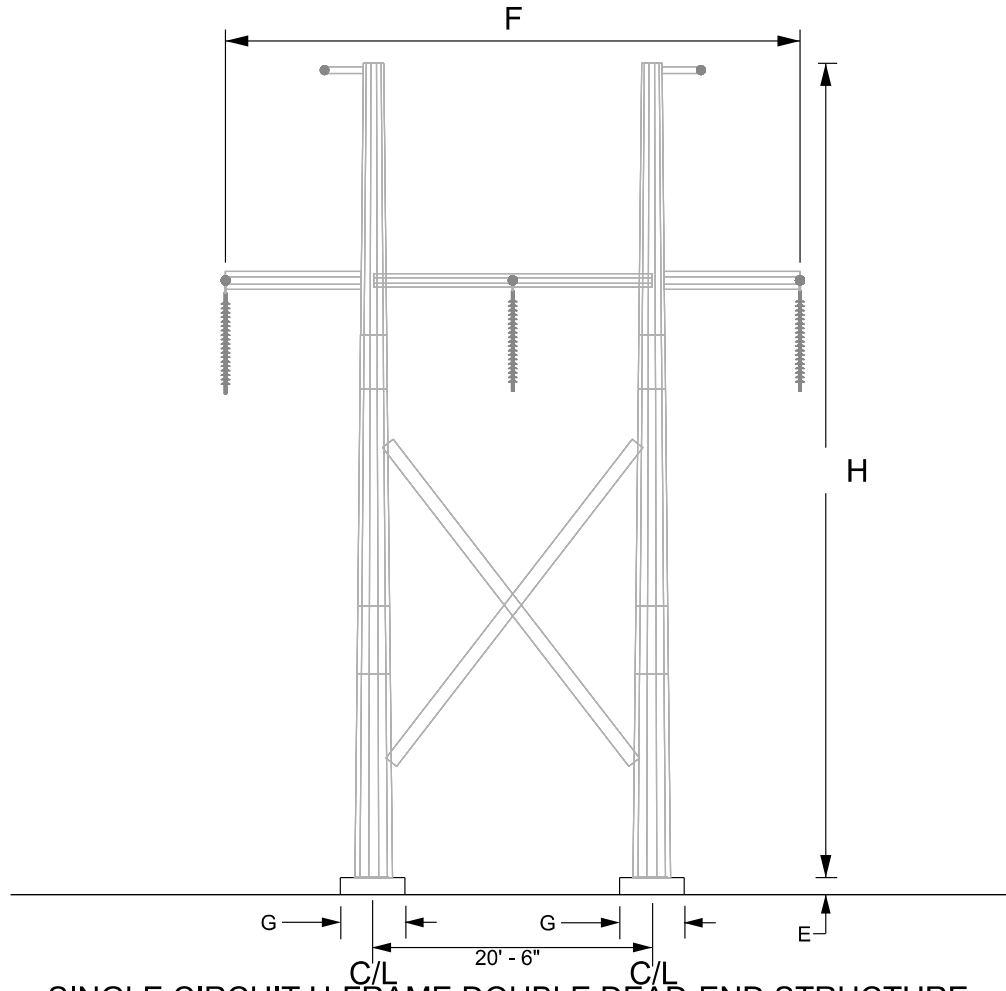
Dominion Energy
 5000 Dominion Blvd
 Glen Allen, VA 23060

**STRUCTURE 249/24-25, 249/29-32,
 249/34-46, 249/48-65, 249/67-80,
 249/82-84**

ATTACHMENT II.B.3.iii

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STRUCTURE 249/26, 249/28, 249/47, 249/66, 249/81



SINGLE CIRCUIT H-FRAME DOUBLE DEAD-END STRUCTURE

B. RATIONALE FOR STRUCTURE TYPE:	SINGLE CIRCUIT H-FRAME CAN BE BUILT ON THE EXISTING R/W
C. LENGTH OF R/W (STRUCTURE QUANTITY):	6.70 MILES (5 STRUCTURE)
D. STRUCTURE MATERIAL:	WEATHERING STEEL
RATIONALE FOR STRUCTURE MATERIAL:	TO MATCH THE EXISTING WOOD POLES
E. FOUNDATION MATERIAL:	CONCRETE
AVERAGE FOUNDATION REVEAL:	SEE NOTE 4
F. AVERAGE WIDTH AT CROSSARM:	43.5'
G. AVERAGE WIDTH AT BASE:	6' DIAMETER FOUNDATION (SEE NOTE 2)
H. MINIMUM STRUCTURE HEIGHT:	55'
MAXIMUM STRUCTURE HEIGHT:	65'
AVERAGE STRUCTURE HEIGHT:	62'
I. AVERAGE SPAN LENGTH:	540' (172'-782')
J. MINIMUM CONDUCTOR-TO-GROUND:	22.5' (AT MAXIMUM OPERATING TEMPERATURE)

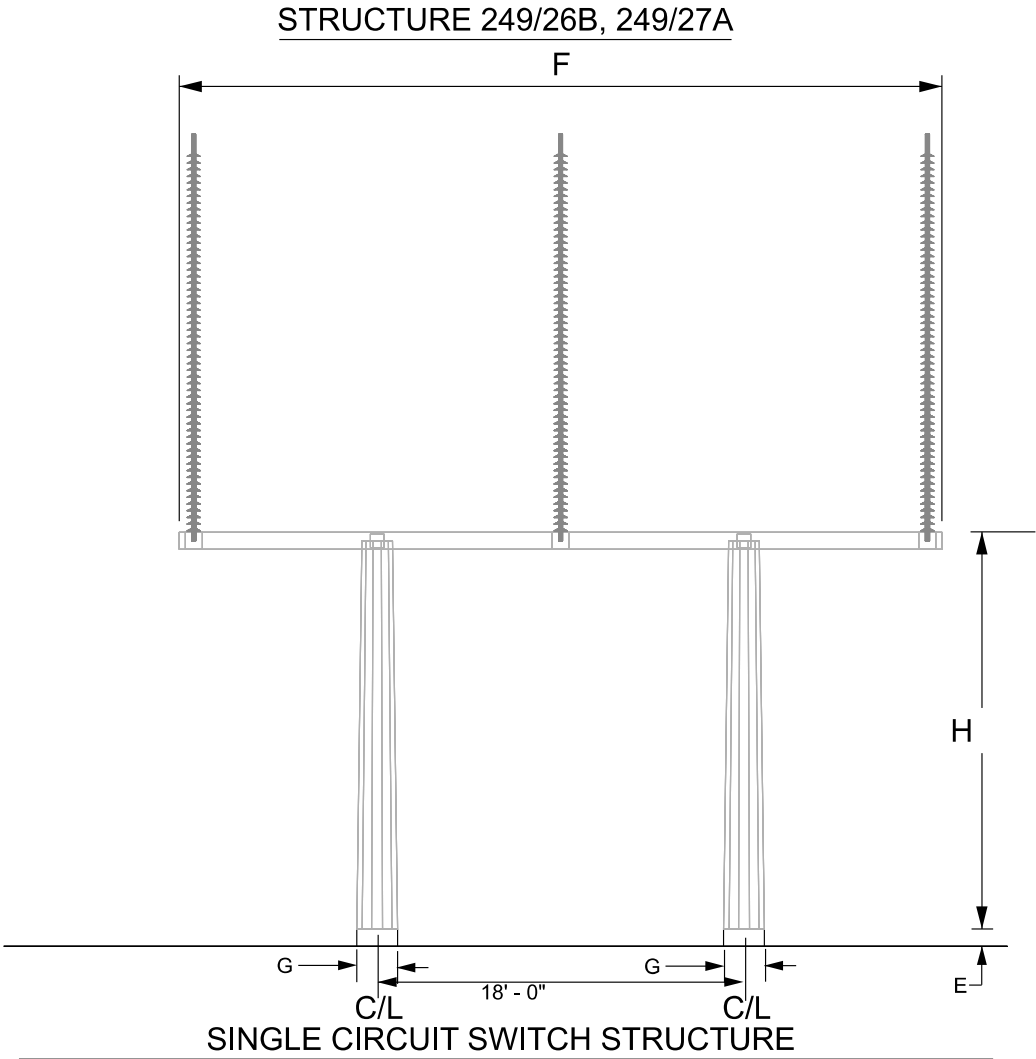
NOTES	1. INFORMATION ON DRAWING IS PRELIMINARY AND SUBJECT TO CHANGE DURING FINAL ENGINEERING 2. FINAL FOUNDATION DIAMETER SHALL BE BASED UPON FINAL ENGINEERING 3. STRUCTURE HEIGHTS ARE MEASURED FROM STRUCTURE CENTERLINE 4. MINIMUM FOUNDATION REVEAL SHALL BE 1.5', MAX REVEAL SUBJECT TO FINAL LOCATION AND TERRAIN
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Electric Transmission**SECTION #:**STRUCTURES 249/26, 249/28,
249/47, 249/66, 249/81**DRAWING NO.**

ATTACHMENT II.B.3.iv

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5000 Dominion Blvd
Glen Allen, VA 23060**DRAWN** DJC

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B. RATIONALE FOR STRUCTURE TYPE:	SINGLE CIRCUIT SWITCH STRUCTURE CAN BE BUILT ON THE EXISTING R/W
C. LENGTH OF R/W (STRUCTURE QUANTITY):	6.70 MILES (2 STRUCTURE)
D. STRUCTURE MATERIAL:	GALVANIZED STEEL
RATIONALE FOR STRUCTURE MATERIAL:	THE COMPANY'S STANDARD FOR SELF-SUPPORT SWITCH STRUCTURE CONSTRUCTION IS GALVANIZED STEEL
E. FOUNDATION MATERIAL:	CONCRETE
AVERAGE FOUNDATION REVEAL:	SEE NOTE 4
F. AVERAGE WIDTH AT CROSSARM:	37' - 5"
G. AVERAGE WIDTH AT BASE:	6' DIAMETER FOUNDATION (SEE NOTE 2)
H. MINIMUM STRUCTURE HEIGHT:	19'
MAXIMUM STRUCTURE HEIGHT:	19'
AVERAGE STRUCTURE HEIGHT:	19'
I. AVERAGE SPAN LENGTH:	390' (257'-523')
J. MINIMUM CONDUCTOR-TO-GROUND:	22.5' (AT MAXIMUM OPERATING TEMPERATURE)

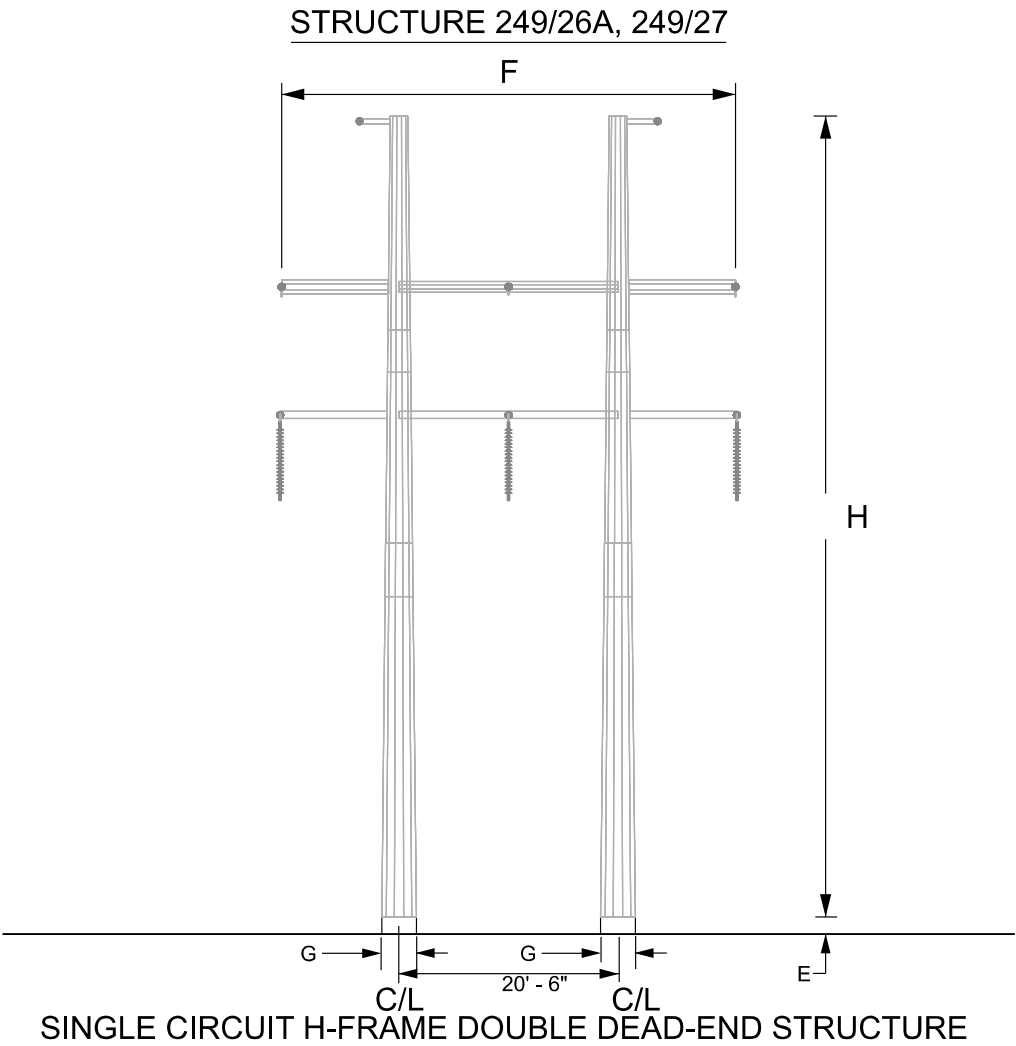
NOTES 1. INFORMATION ON DRAWING IS PRELIMINARY AND SUBJECT TO CHANGE DURING FINAL ENGINEERING
2. FINAL FOUNDATION DIAMETER SHALL BE BASED UPON FINAL ENGINEERING
3. STRUCTURE HEIGHTS ARE MEASURED FROM STRUCTURE CENTERLINE
4. MINIMUM FOUNDATION REVEAL SHALL BE 1.5', MAX REVEAL SUBJECT TO FINAL LOCATION AND TERRAIN

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Electric Transmission		SECTION #:	DRAWING NO.
 Dominion Energy Dominion Energy 5000 Dominion Blvd Glen Allen, VA 23060		STRUCTURE 249/26B, 249/27A	ATTACHMENT II.B.3.v
			DRAWN DJC

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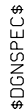
B. RATIONALE FOR STRUCTURE TYPE:	SINGLE CIRCUIT H-FRAME CAN BE BUILT ON THE EXISTING R/W
C. LENGTH OF R/W (STRUCTURE QUANTITY):	6.70 MILES (2 STRUCTURE)
D. STRUCTURE MATERIAL:	WEATHERING STEEL
RATIONALE FOR STRUCTURE MATERIAL:	TO MATCH THE EXISTING WOOD POLES
E. FOUNDATION MATERIAL:	CONCRETE
AVERAGE FOUNDATION REVEAL:	SEE NOTE 4
F. AVERAGE WIDTH AT CROSSARM:	43.5'
G. AVERAGE WIDTH AT BASE:	6' DIAMETER FOUNDATION (SEE NOTE 2)
H. MINIMUM STRUCTURE HEIGHT:	75'
MAXIMUM STRUCTURE HEIGHT:	75'
AVERAGE STRUCTURE HEIGHT:	75'
I. AVERAGE SPAN LENGTH:	540' (172'-782')
J. MINIMUM CONDUCTOR-TO-GROUND:	22.5' (AT MAXIMUM OPERATING TEMPERATURE)

NOTES	1. INFORMATION ON DRAWING IS PRELIMINARY AND SUBJECT TO CHANGE DURING FINAL ENGINEERING 2. FINAL FOUNDATION DIAMETER SHALL BE BASED UPON FINAL ENGINEERING 3. STRUCTURE HEIGHTS ARE MEASURED FROM STRUCTURE CENTERLINE 4. MINIMUM FOUNDATION REVEAL SHALL BE 1.5', MAX REVEAL SUBJECT TO FINAL LOCATION AND TERRAIN
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Electric Transmission	SECTION #:	DRAWING NO.
 Dominion Energy Dominion Energy 5000 Dominion Blvd Glen Allen, VA 23060	STRUCTURE 249/26A, 249/27	ATTACHMENT II.B.3.vi
		DRAWN DJC



TESBORD1

NOTES	1. INFORMATION ON DRAWING IS PRELIMINARY AND SUBJECT TO CHANGE DURING FINAL ENGINEERING 2. FINAL FOUNDATION DIAMETER SHALL BE BASED UPON FINAL ENGINEERING 3. STRUCTURE HEIGHTS ARE MEASURED FROM STRUCTURE CENTERLINE 4. MINIMUM FOUNDATION REVEAL SHALL BE 1.5'. MAX REVEAL SUBJECT TO FINAL LOCATION AND TERRAIN
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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.

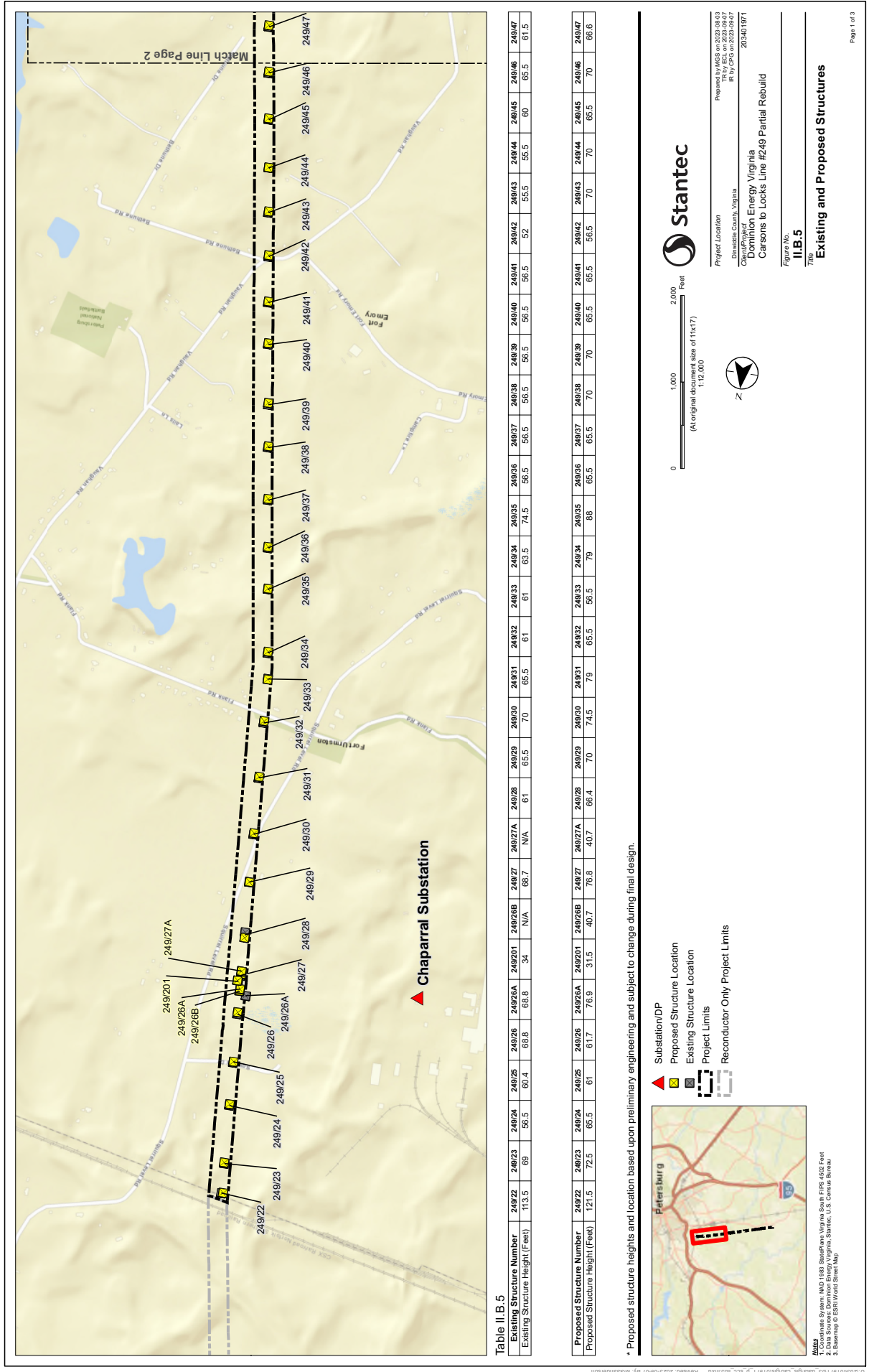
Response: See [Attachment II.B.5](#) for structure mapping.

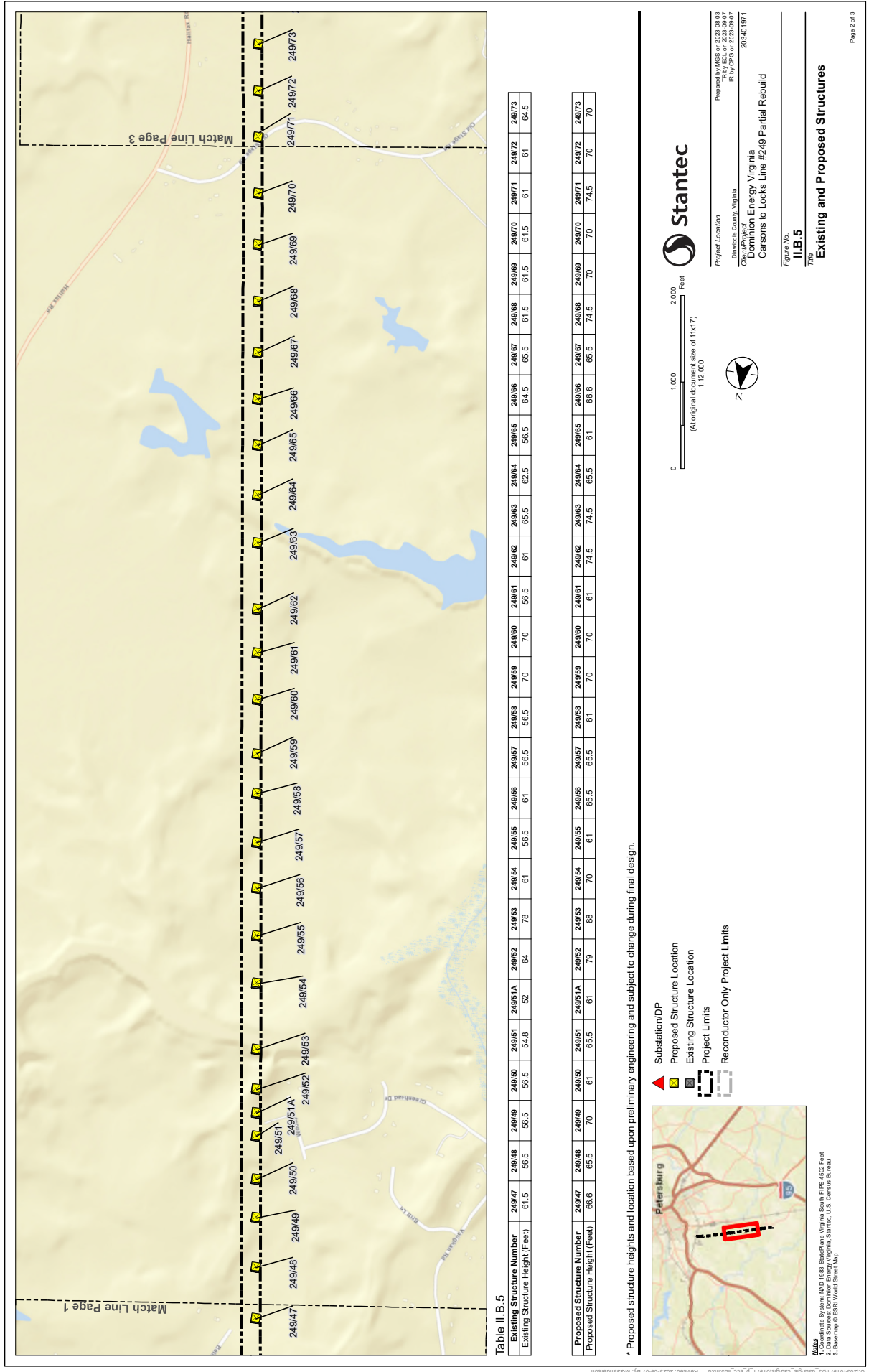
See the table below for the existing and proposed heights of permanent structures related to the Rebuild Project. The proposed approximate structure heights are from the conceptual design created to estimate the cost of the Rebuild Project and are subject to change based on final engineering design. The approximate structure heights are above ground level (“AGL”) (i.e., they are inclusive of foundation reveal).

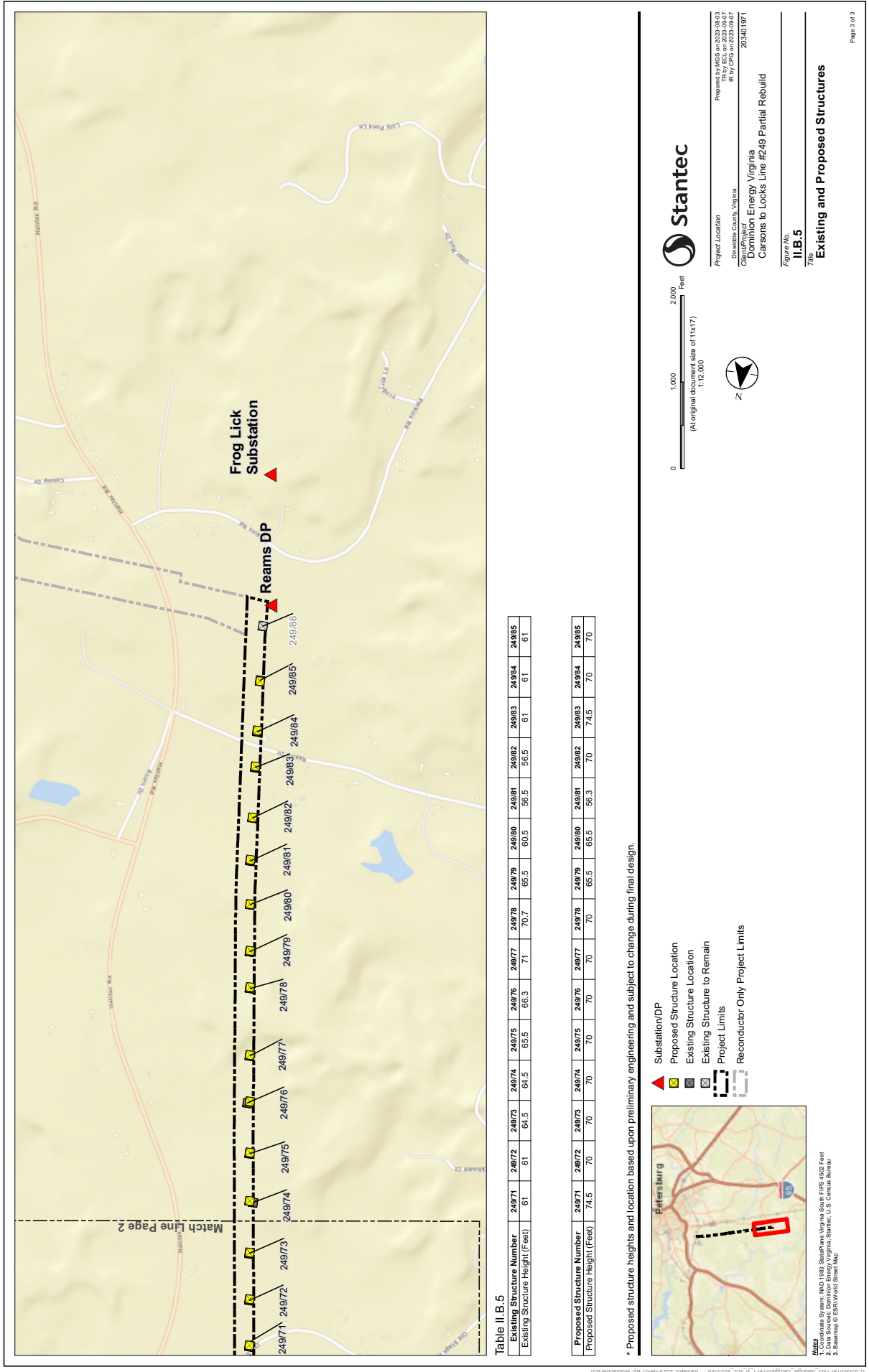
Structure Number	Existing Structure Height (ft.)	Proposed Structure Height (ft.)	Attachment II.B.3 Structure Type
249/22	113.5	121.5	i
249/23	69.0	72.5	iv
249/24	56.5	65.5	iii
249/25	60.4	61.0	iii
249/26	68.8	61.7	iv
249/26B	-	40.7	v
249/26A	68.8	76.9	vi
249/27	68.7	76.8	vi
249/27A	-	40.7	v
249/28	61.0	66.4	iv
249/29	65.5	70.0	iii
249/30	70.0	74.5	iii
249/31	65.5	79.0	iii
249/32	61.0	65.5	iii
249/33	61.0	56.5	iii
249/34	63.5	79.0	iii
249/35	74.5	88.0	iii
249/36	56.5	65.5	iii
249/37	56.5	65.5	iii
249/38	56.5	70.0	iii
249/39	56.5	70.0	iii
249/40	56.5	65.5	iii
249/41	56.5	65.5	iii
249/42	52.0	56.5	iii

Structure Number	Existing Structure Height (ft.)	Proposed Structure Height (ft.)	Attachment II.B.3 Structure Type
249/43	55.5	70.0	iii
249/44	55.5	70.0	iii
249/45	60.0	65.5	iii
249/46	65.5	70.0	iii
249/47	61.5	66.6	iv
249/48	56.5	65.5	iii
249/49	56.5	70.0	iii
249/50	56.5	61.0	iii
249/51	54.8	65.5	iii
249/51A	52.0	61.0	iii
249/52	64.0	79.0	iii
249/53	78.0	88.0	iii
249/54	61.0	70.0	iii
249/55	56.5	61.0	iii
249/56	61.0	65.5	iii
249/57	56.5	65.5	iii
249/58	56.5	61.0	iii
249/59	70.0	70.0	iii
249/60	70.0	70.0	iii
249/61	56.5	61.0	iii
249/62	61.0	74.5	iii
249/63	65.5	74.5	iii
249/64	62.5	65.5	iii
249/65	56.5	61.0	iii
249/66	64.5	66.6	iv
249/67	65.5	65.5	iii
249/68	61.5	74.5	iii
249/69	61.5	70.0	iii
249/70	61.5	70.0	iii
249/71	61.0	74.5	iii
249/72	61.0	70.0	iii
249/73	64.5	70.0	iii
249/74	64.5	70.0	iii
249/75	65.5	70.0	iii
249/76	66.3	70.0	iii
249/77	71.0	70.0	iii
249/78	70.7	70.0	iii
249/79	65.5	65.5	iii
249/80	60.5	65.5	iii

Structure Number	Existing Structure Height (ft.)	Proposed Structure Height (ft.)	Attachment II.B.3 Structure Type
249/81	56.5	56.3	iv
249/82	56.5	70.0	iii
249/83	61.0	74.5	iii
249/84	61.0	70.0	iii
249/85	61.0	70.0	vii
249/201	34.0	31.5	ii
Minimum	34	31.5	
Maximum	113.5	121.5	
Average	62	68*	
*Average includes two (2) new self-supporting switch structures			







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-vi for representative photographs of typical existing structures.

(b) *Comparable photographs or representations for proposed structures.*

See Attachments II.B.6.b.i-vii for representative photographs of the proposed structures for the 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.*

Visibility of the existing transmission structures and the proposed Rebuild Project structures from historic properties within one mile of the proposed centerline was developed using GIS modeling. Visual simulations were then developed for each historic property. Attachment II.B.6.c.i-ii includes maps of the visibility illustrating the photo simulation locations, as well as photographs of existing structures and simulations of the proposed structures from observation points (OPs). The table below identifies the historic properties evaluated.

VDHR #	Resource Name	OP	Comments
026-5007	Peebles' Farm Battlefield	1, 2, 3, 4	1. Project not visible 2. Limited visibility of existing and proposed structures 3. Project not visible 4. Existing and proposed structures visible. Minimal incremental change
123-0071	Petersburg National Military Park	1, 2, 3, 6	1. Project not visible 2. Limited visibility of existing and proposed structures 3. Project not visible 6. Project not visible

VDHR #	Resource Name	OP	Comments
123-5026	Petersburg Battlefield III	1, 6, 7	1. Project not visible 6. Project not visible 7. Project not visible
123-5022	Blick's Station Battlefield	2, 3, 4	2. Limited visibility of existing and proposed structures 3. Project not visible 4. Existing and proposed structures visible. Minimal incremental change
026-0132	Hatcher's Run Battlefield	2, 4	2. Limited visibility of existing and proposed structures 4. Existing and proposed structures visible. Minimal incremental change
123-5023	First Battle of Weldon Railroad	3, 7	3. Project not visible 7. Project not visible
026-5004	Boydton Plank Road Battlefield	5	5. Existing and proposed structures visible. Minimal incremental change
026-5006	Lewis's Farm Battlefield	5	5. Existing and proposed structures visible. Minimal incremental change
127-6271 ¹⁴	Seaboard Air Line Railroad Corridor	6	6. Railroad corridor inaccessible. Used OP 6 for proxy. Project not visible.
323-5019-0049 ¹⁵	AM&O Railroad	7	7. Project not visible.
026-0050	Reams Station Battlefield (I&II)	8, 9	8. Existing and proposed structures visible. Minimal incremental change. 9. Existing and proposed wires visible. Structures not visible.

Simulations of the Rebuild Project from key locations are provided in [Attachment III.B.4](#).

¹⁴ Seaboard Air Line Railroad Corridor (DHR #127-6271) is included in the list of historic properties with visual simulations because it is within one mile of the Rebuild Project; however, since this property is eligible for listing in the NRHP and greater than 0.5 mile from the Rebuild Project, it is not included in the Stage I Pre-Application Analysis.

¹⁵ AM&O Railroad (DHR #323-5019-0049) is included in the list of historic properties with visual simulations because it is within one mile of the Rebuild Project; however, since this property is eligible for listing in the NRHP and greater than 0.5 mile from the Rebuild Project, it is not included in the Stage I Pre-Application Analysis.



Existing Structure Type:
230 kV Single Circuit H-Frame I-String Suspension Structure:
Weathering Steel Finish

Attachment II.B.6.a.i



Existing Structure Type:
230 kV Single Circuit H-Frame I-String Suspension Structure:
Wood

Attachment II.B.6.a.ii



Existing Structure Type:
230 kV Single Circuit H-Frame Double Deadend Structure:
Weathering Steel Finish

Attachment II.B.6.a.iii



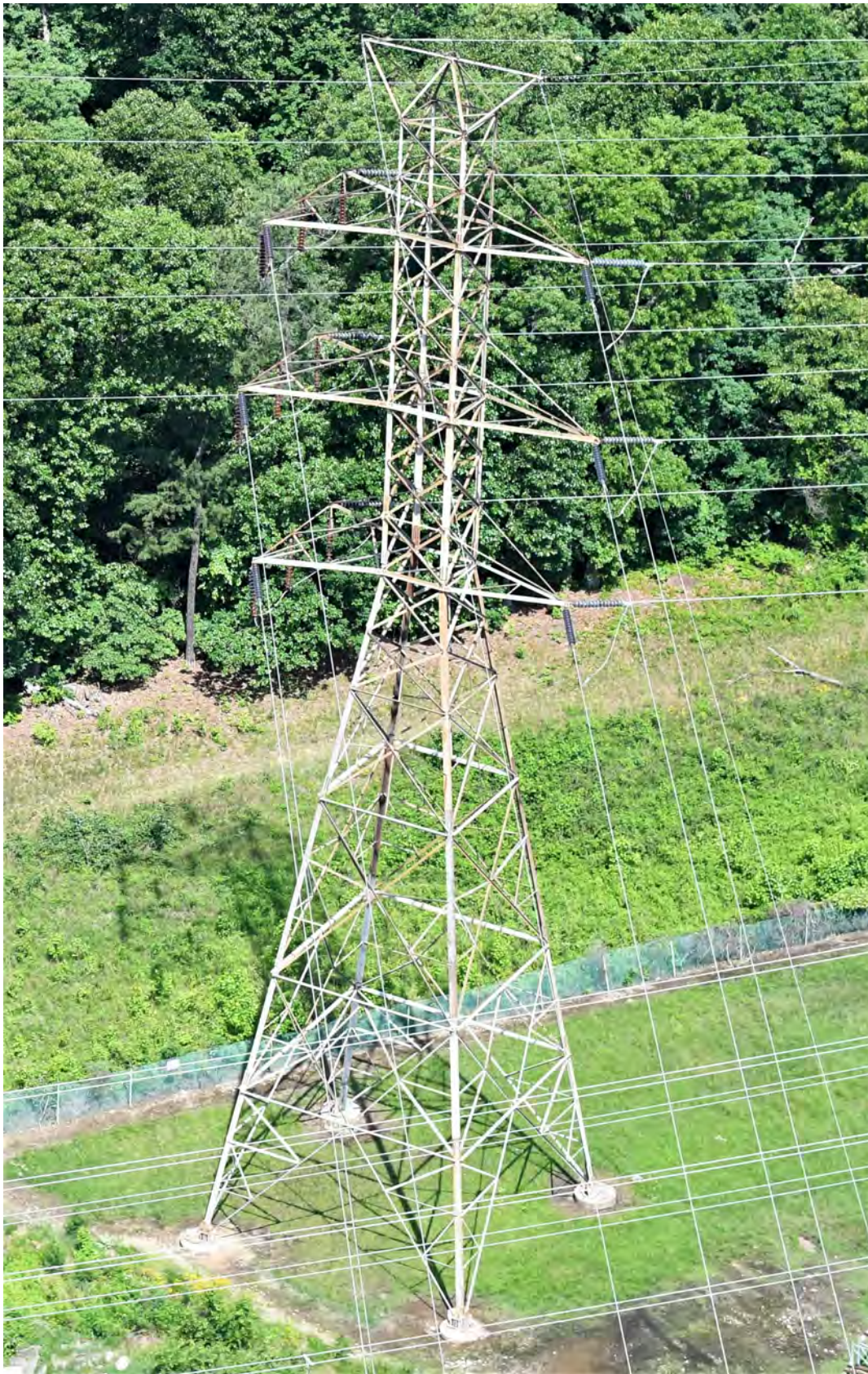
Existing Structure Type:
230 kV Single Circuit Concrete H-Frame Double Deadend Switch Structure:
Concrete Poles with Galvanized Steel Cross-arms Finish

Attachment II.B.6.a.iv



Existing Structure Type:
230 kV Single Circuit 3-Pole Deadend Structure:
Wood Finish

Attachment II.B.6.a.v



Existing Structure Type:
230 kV Double Circuit Lattice Tower Double Deadend Structure
Galvanized Steel Finish



Proposed Structure Type:
230 kV Single Circuit H-Frame V-String Center Suspension Structure:
Weathering Steel Finish with Galvanized Steel Cross-arm Finish

Attachment II.B.6.b.i



Proposed Structure Type:
230 kV Single Circuit H-Frame Double Deadend guyed Structure:
Weathering Steel Finish with Galvanized Steel Cross-arm Finish

Attachment II.B.6.b.ii



Proposed Structure Type:
230 kV Single Circuit H-Frame Double Deadend Structure:
Weathering Steel Finish

Attachment II.B.6.b.iii



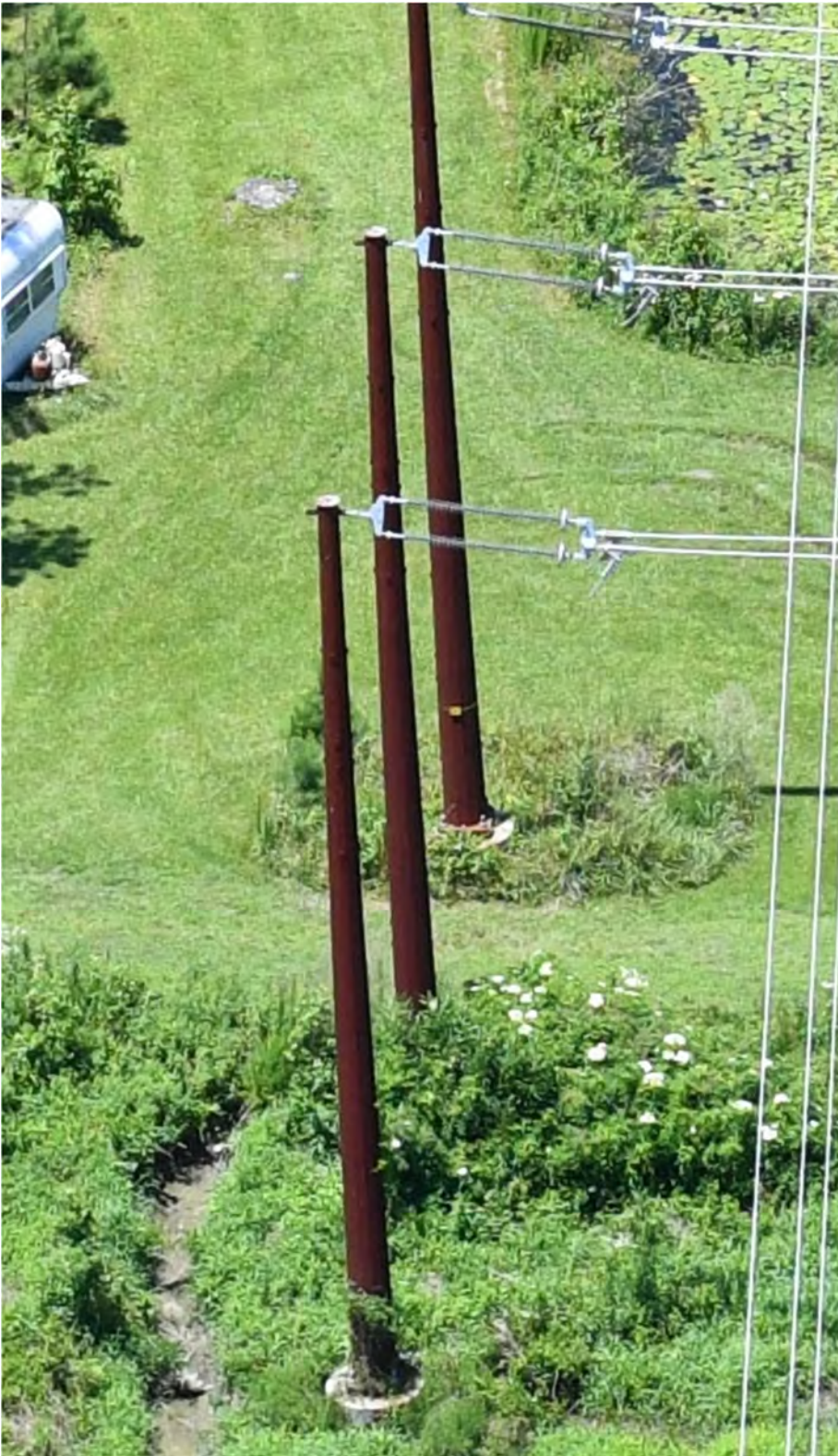
Proposed Structure Type:
230 kV Single Circuit Double Deadend H-frame with Training Arm Structure:
Weathering Steel Finish

Attachment II.B.6.b.iv



Proposed Structure Type:
230 kV Single Circuit Self-supporting Switch Structure:
Galvanized Steel Finish

Attachment II.B.6.b.v



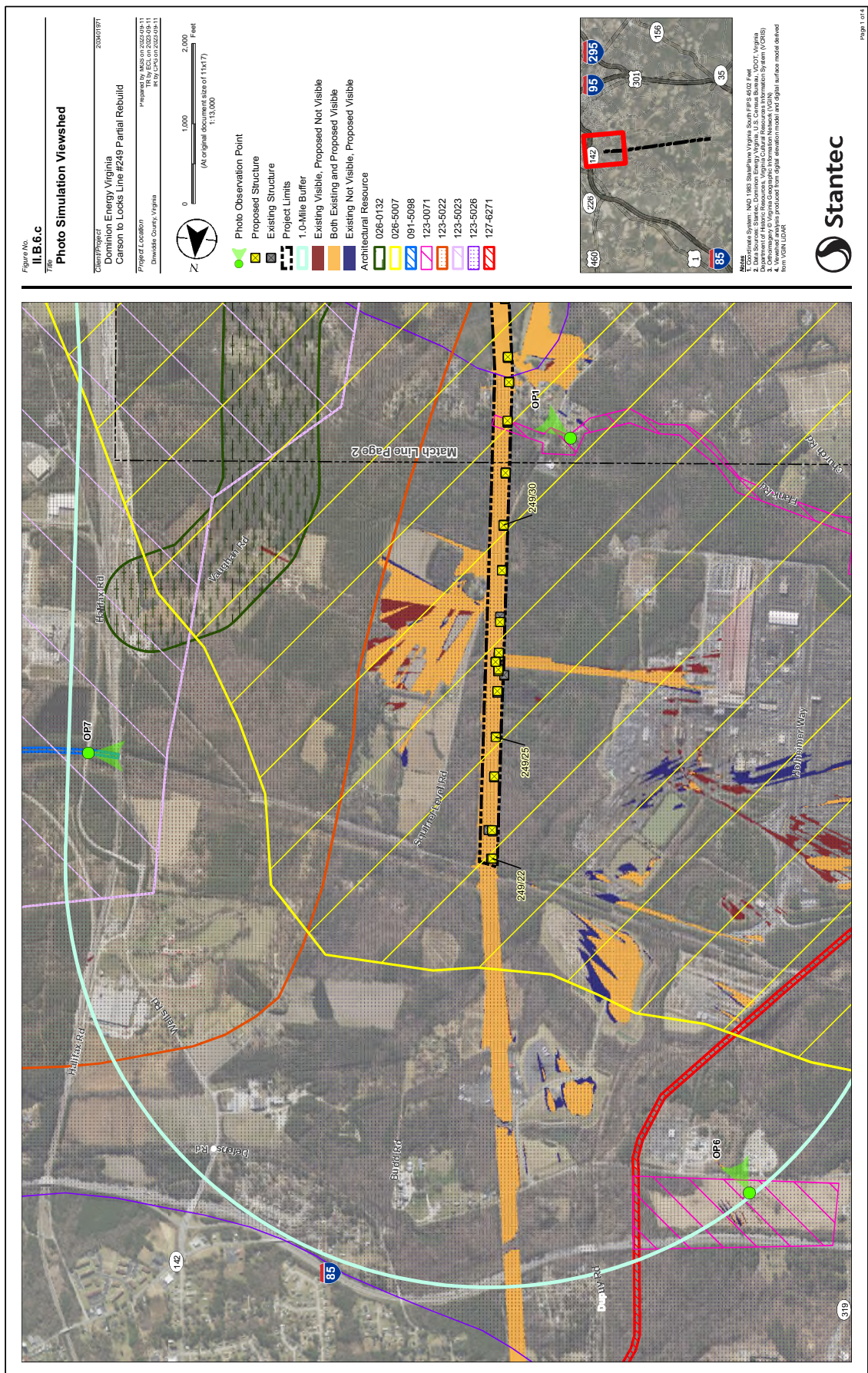
Proposed Structure Type:
230 kV Single Circuit 3-Pole Deadend Structure:
Weathering Steel Finish

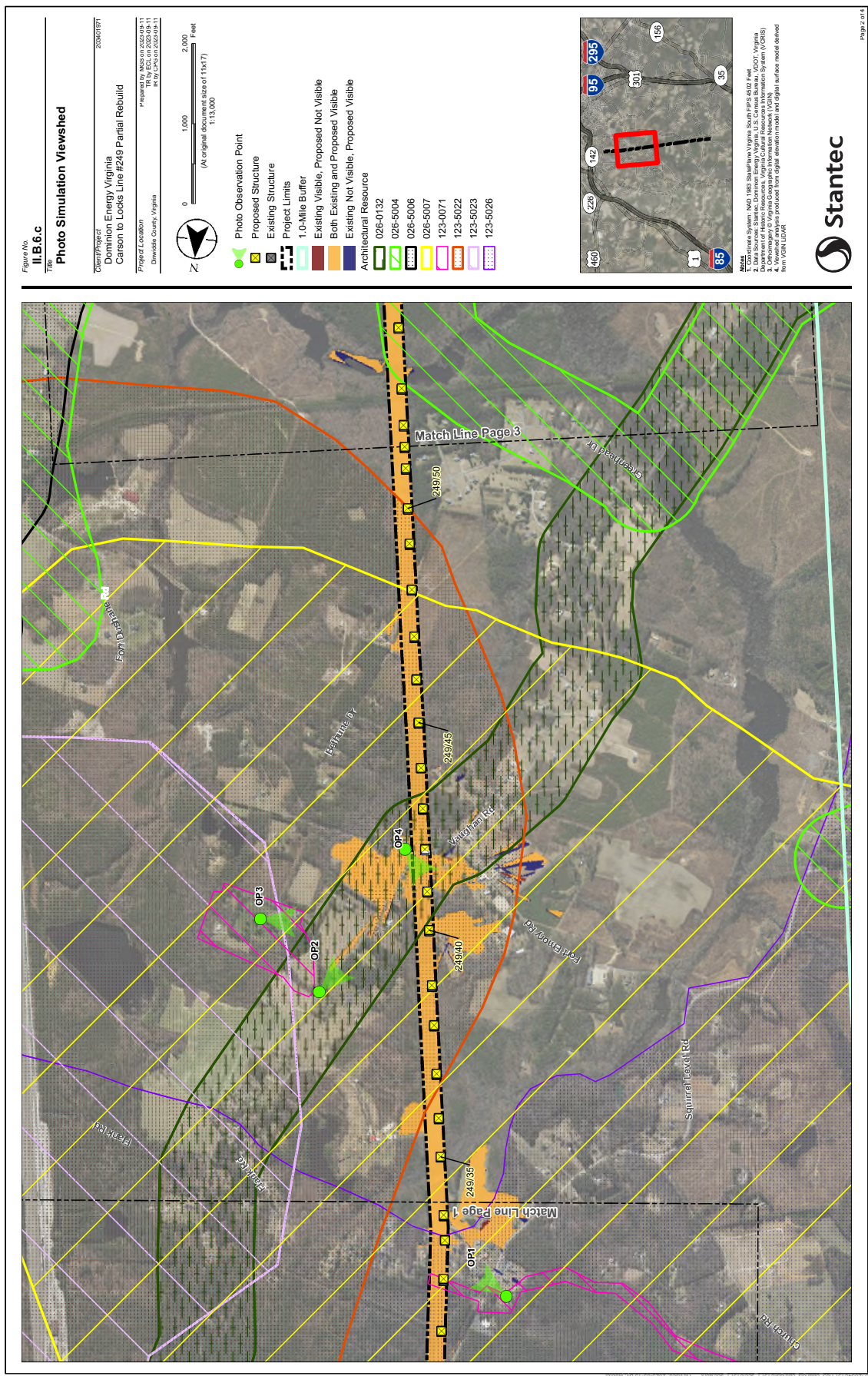
Attachment II.B.6.b.vi

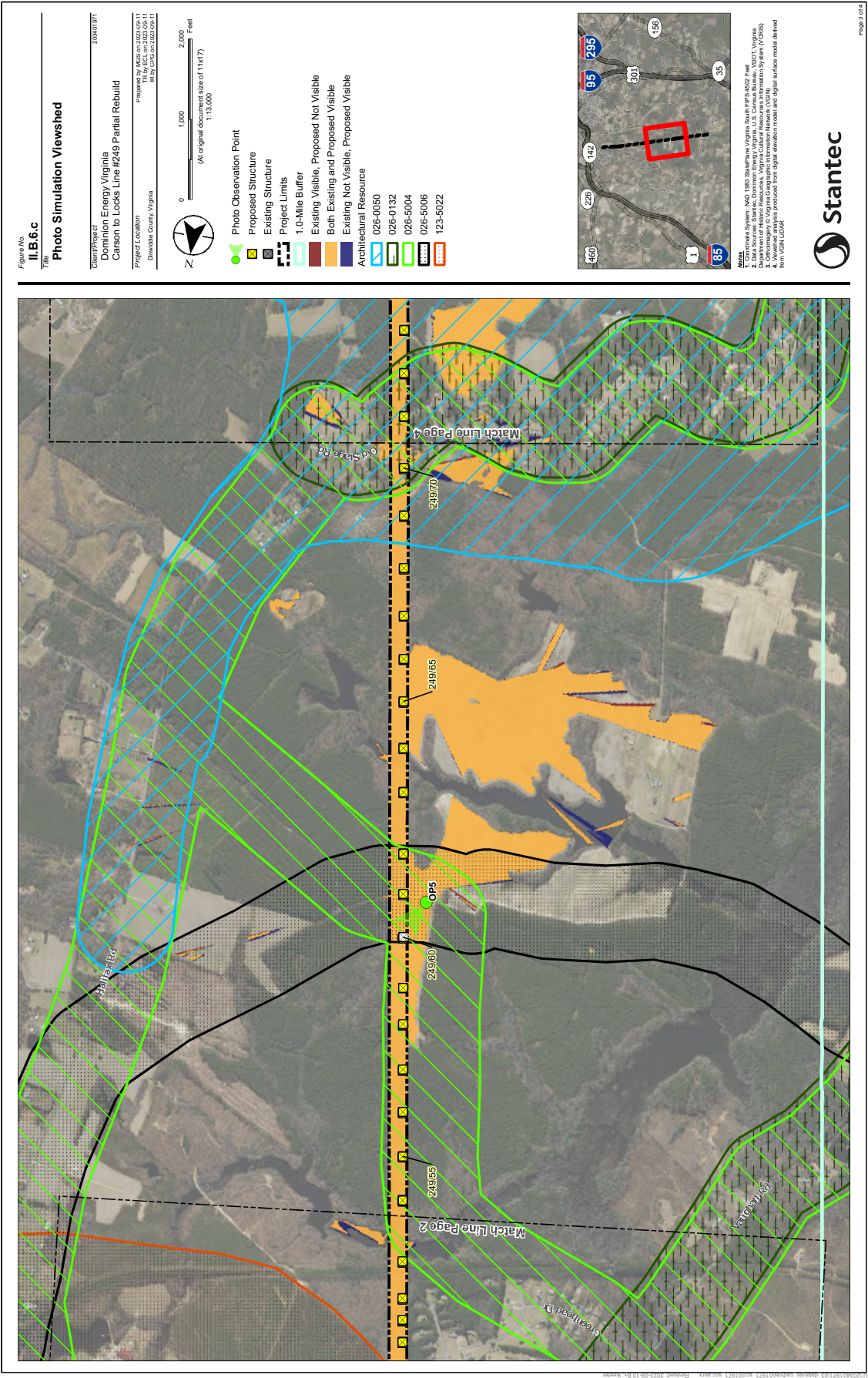


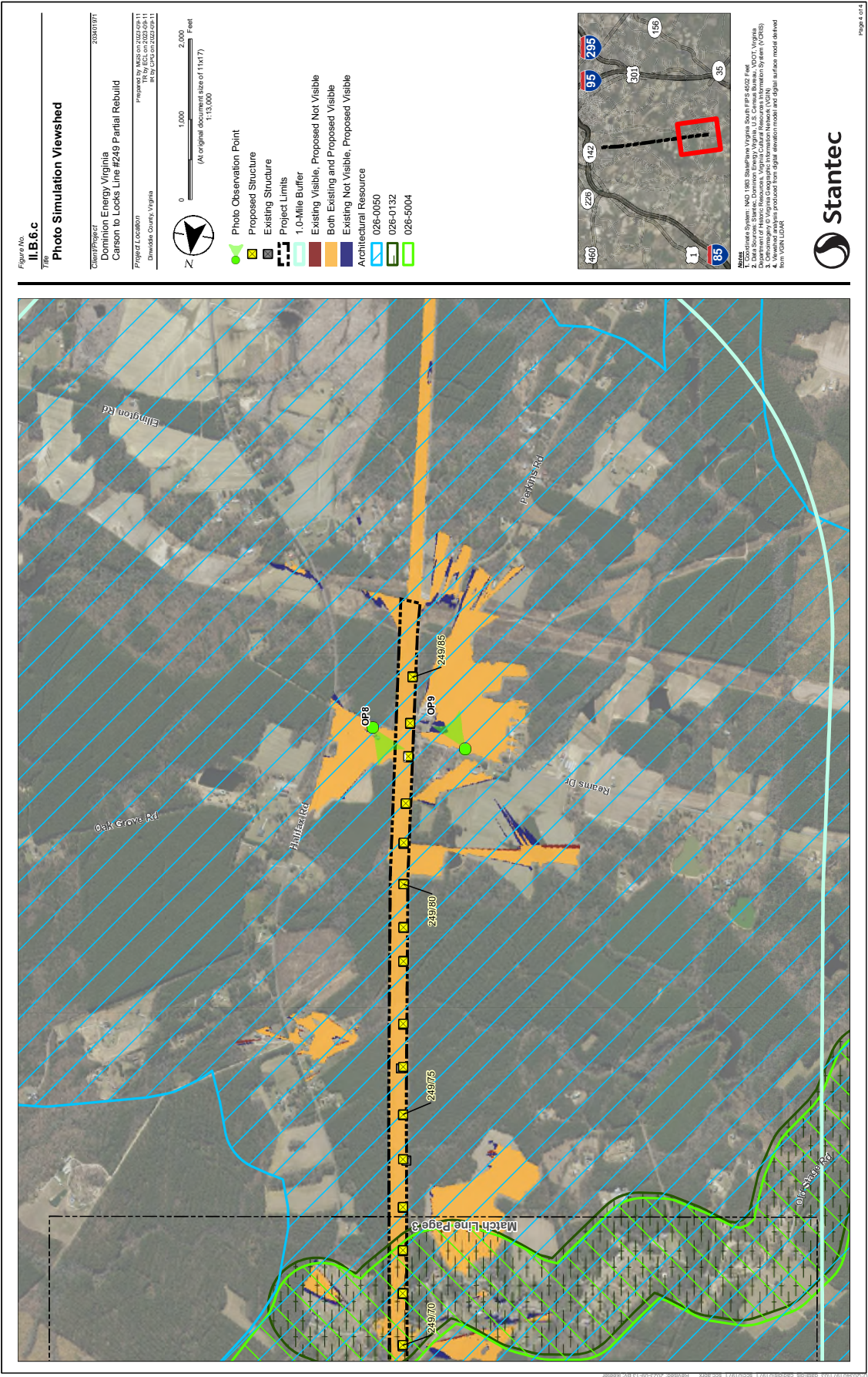
Proposed Structure Type:
230 kV Single Circuit 1-Pole Double Deadend Structure:
Weathering Steel Finish

Attachment II.B.6.b.vii









OP01 – EXISTING



Photograph provided by Stantec

OP 1 Existing (Not Visible)

Peebles' Farm Battlefield (DHR #026-5007), Petersburg National Military Park (DHR # 123-0071) & Petersburg Battlefield III (DHR # 123-5026)



Photograph provided by Stantec

OP 1 Proposed (Not Visible)

Peebles' Farm Battlefield (DHR #026-5007), Petersburg National Military Park (DHR # 123-0071) & Petersburg Battlefield III (DHR # 123-5026)



OP02 – EXISTING

OP 2 Existing

Peebles' Farm Battlefield (DHR #026-5007), Petersburg National Military Park (DHR # 123-0071), Blick's Station Battlefield(DHR # 123-5022) & Hatcher's Run Battlefield(DHR # 026-0132)

Photograph provided by Stantec



Photograph provided by Stantec

OP 2 Proposed
Peebles' Farm Battlefield (DHR #026-5007), Petersburg National Military Park (DHR # 123-0071), Blick's Station Battlefield(DHR # 123-5022) & Hatcher's Run Battlefield(DHR # 026-0132)

OP03 – EXISTING



Photograph provided by Stantec

OP 3 Existing (Not Visible)

Peebles' Farm Battlefield (DHR #026-5007), Petersburg National Military Park (DHR # 123-0071), Blick's Station Battlefield (DHR # 123-5022) & First Battle of Weldon Railroad (DHR # 123-5023)



Photograph provided by Stantec

OP 3 Proposed (Not Visible)

Peebles' Farm Battlefield (DHR #026-5007), Petersburg National Military Park (DHR # 123-0071), Blick's Station Battlefield (DHR # 123-5022) & First Battle of Weldon Railroad (DHR # 123-5023)



Photograph provided by Stantec

OP 4 Existing
 Peebles' Farm Battlefield (DHR #026-5007), Blick's Station Battlefield (DHR # 123-5022) & Hatcher's Run Battlefield (DHR # 026-0132)



Photograph provided by Stantec

OP 4 Proposed
Peebles' Farm Battlefield (DHR #026-5007), Blick's Station Battlefield (DHR # 123-5022) & Hatcher's Run Battlefield (DHR # 026-0132)



OP05 – EXISTING

OP 5 Existing
Boydton Plank Road Battlefield (DHR # 026-5004) & Lewis's Farm Battlefield (DHR # 026-5006)

Photograph provided by Stantec





Photograph provided by Stantec

OP 5 Proposed
Boydton Plank Road Battlefield (DHR # 026-5004) & Lewis's Farm Battlefield (DHR # 026-5006)

OP06 – EXISTING



Photograph provided by Stantec

OP 6 Existing (Not Visible)

Petersburg National Military Park (DHR # 123-0071), Petersburg Battlefield III (DHR # 123-5026) & Seaboard Air Line Railroad Corridor (DHR # 127-6271)

OP06 – Proposed



Photograph provided by Stantec

OP 6 Proposed (Not Visible)

Petersburg National Military Park (DHR # 123-0071), Petersburg Battlefield III (DHR # 123-5026)
& Seaboard Air Line Railroad Corridor (DHR # 127-6271)



Photograph provided by Stantec

OP 7 Existing (Not Visible)
 Petersburg Battlefield III (DHR # 123-5026) First Battle of Weldon Railroad (DHR # 123-5023) &
 AM&O Railroad (DHR # 323-5019-0049)





Photograph provided by Stantec

OP 7 Proposed (Not Visible)
Petersburg Battlefield III (DHR # 123-5026) First Battle of Weldon Railroad (DHR # 123-5023) &
AM&O Railroad (DHR # 323-5019-0049)

OP08 – EXISTING



Photograph provided by Stantec

OP 8 Existing
Reams Station Battlefield (I & II) (DHR # 026-0050)



OP08 – Proposed



Photograph provided by Stantec

OP 8 Proposed
Reams Station Battlefield (I & II) (DHR # 026-0050)

OP09 – EXISTING

249/85

Photograph provided by Stantec

OP 9 Existing
Reams Station Battlefield (I & II) (DHR # 026-0050)





Photograph provided by Stantec

OP 9 Proposed
Reams Station Battlefield (I & II) (DHR # 026-0050)

II. DESCRIPTION OF THE PROPOSED PROJECT

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

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

At Carson Substation, the Company will upgrade Line #249 wave trap, circuit breaker switch, and line lead to 4000A.

At Locks Substation, the Company will upgrade Line #249 capacitively coupled voltage transformers, circuit breaker switch, circuit breaker leads, wave trap, and line lead to 4000A, and replace 1200/5 current transformers (“CTs”) with 34000/5 CTs to lift CT primary, secondary, and relay trip ratings.

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

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

Response: **Land Use**

The proposed Rebuild Project begins at the City of Petersburg border and traverses south through Dinwiddie County. The total project length is 6.7 miles. The area is largely characterized as agricultural land and low-density residential with the transmission line supplying power to an industrial area at the northern end of the project.

Farmlands/Forests

According to the Natural Resources Conservation Service Data (“NRCS”), within the right-of-way there are approximately 146.82 acres of prime farmland and 19.14 acres of farmland of statewide importance. The right-of-way has been in use since 1962 and portions of the existing right-of-way are currently in agricultural use. The transmission line right-of-way is regularly maintained to keep vegetation at the scrub-shrub level for the safe operation of the existing facilities; as such, no portions of the existing right-of-way are forested. Therefore, it is not expected that the Rebuild Project will permanently impact farmland or forests. Prime farmlands within the Rebuild Project right-of-way are depicted in Attachment III.A.1. Section 2.L of the DEQ Supplement discusses in detail the anticipated impacts of the Rebuild Project on recreational, agricultural, and forest resources.

Wetlands

The proposed Rebuild Project is in the James River and Chowan River watersheds. According to the U.S. Geological Survey (“USGS”) topographic quadrangles (Petersburg and Carson), the existing transmission line corridor does not cross any named streams, but it crosses several unnamed perennial and intermittent streams.

A wetland delineation was completed for this existing transmission line right-of-way by Stantec Consulting Services, Inc., in accordance with the methods outlined in the 1987 Corps of Engineers Wetland Delineation Manual and methods described in the *2012 Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Eastern Mountains and Piedmont Region (Version 2.0)*. A request for a Preliminary Jurisdictional Determination will be submitted to the U.S. Army Corps of Engineers along with a permit application for impacts to Waters of the U.S. The results of the delineation are included as Attachment 2.D.1 to the

DEQ Supplement. Section 2.D of the DEQ Supplement discusses in detail the anticipated impacts of the Rebuild Project on tidal and non-tidal wetlands.

Historic Features

In accordance with the *Guidelines for Assessing Impacts of Proposed Transmission Lines and Associated Facilities on Historic Resources in the Commonwealth of Virginia (2008)*, a Stage I Pre-Application Analysis (“Stage 1 Analysis”) was conducted by Stantec Consulting Services Inc. This report was submitted to the VDHR in September 2023 and is included as Attachment 2.I.2 to the DEQ Supplement. Section 2.I of the DEQ Supplement discusses in detail the anticipated impacts of the Rebuild Project on archeological, historic, scenic, cultural, and architectural resources.

Threatened and Endangered Species

Online database searches for threatened and endangered species in the vicinity of the Rebuild Project, including the U.S. Fish and Wildlife (“USFWS”) Information, Planning, and Conservation (“IPaC”) system, the Virginia Department of Wildlife Resources (“DWR”) Virginia Fish and Wildlife Information Service (“VAFWIS”), Virginia Department of Conservation and Recreation (“DCR”), Natural Heritage Data Explorer (“NHDE”), and the Center for Conservation Biology (“CCB”) Bald Eagle Nest Locator, were conducted, which identified federal- and state-listed species that have the potential to occur within the vicinity of the Rebuild Project right-of-way. These results are identified in the report included as Attachment 2.G.1 to the DEQ Supplement.

The Company intends to reasonably minimize any impact on these resources and coordinate with pertinent agencies, as appropriate.

Dwellings

According to a review of the most recent aerial imagery available in ESRI, there are approximately 39 dwellings within 500 feet of the centerline of the Rebuild Project, approximately 13 dwellings within 250 feet of the centerline, and no dwellings within 100 feet of the centerline. No dwellings are located within the existing right-of-way.