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April 30, 2024

BY ELECTRONIC FILING

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

Re: Application of Virginia Electric and Power Company for Approval and Certification of Electric Transmission Facilities: Dooms-Harrisonburg 230 kV Lines #260 and #272 Rebuild Project – Case No. PUR-2024-00074.

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 Augusta and Rockingham Counties, 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 me.

Sincerely,

Andrew J. Flavin

Enclosures

cc: William H. Chambliss, Esq.
Mr. David Essah (without enclosures)
Mr. Neil Joshipura (without enclosures)
Mr. Michael A. Cizenski (without enclosures)
David J. DePippo, Esq.
Charlotte P. McAfee, Esq.
Annie C. Larson, Esq.
Timothy L. McHugh, Esq.
John B. Sample, Esq.
Bonnie S. Gill, Esq.

Travis L. Randle, Esq.

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

Before the State Corporation Commission of Virginia

Dooms-Harrisonburg 230 kV Lines #260 and #272 Rebuild Project

Application No. 335

Case No. PUR-2024-00074

Filed: April 30, 2024

Volume 1 of 2

COMMONWEALTH OF VIRGINIA
BEFORE THE
STATE CORPORATION COMMISSION

APPLICATION OF

VIRGINIA ELECTRIC AND POWER COMPANY

FOR APPROVAL AND CERTIFICATION OF ELECTRIC TRANSMISSION FACILITIES

Dooms–Harrisonburg 230 kV Lines #260 and #272 Rebuild Project

Application No. 335

Case No. PUR-2024-00074

Filed: April 30, 2024

COMMONWEALTH OF VIRGINIA

STATE CORPORATION COMMISSION

APPLICATION OF VIRGINIA ELECTRIC AND POWER COMPANY For approval and certification of electric transmission facilities: Dooms–Harrisonburg 230 kV Lines # 260 and #272 Rebuild Project	))))))))	Case No. PUR-2024-00074

APPLICATION OF VIRGINIA ELECTRIC AND POWER COMPANY
FOR APPROVAL AND CERTIFICATION OF
ELECTRIC TRANSMISSION FACILITIES:
DOOMS-HARRISONBURG 230 KV LINES #260 AND #272 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 maintain the structural integrity and reliability of its transmission systems in compliance with the Company's mandatory electric transmission planning criteria ("Planning Criteria")[1] and consistent with sound engineering judgment, the Company proposes within the Counties of Augusta and Rockingham, and the Town of Grottoes, to:

- Rebuild, entirely within existing right-of-way or on Company-owned property, approximately 10.6 miles of the existing 230 kV Line #260 single-circuit weathering wooden H-Frame structures with weathering steel H-frame structures; and

- Rebuild, entirely within existing right-of-way or on Company-owned property, approximately 11.5 miles of the existing 230 kV Line #272 single circuit COR-TEN®[2] lattice towers with weathering steel monopole structures,

(collectively, the "Rebuild Project").[3]

4. The Rebuild Project will replace aging infrastructure that is approaching the end of its service life to comply with the Company's Planning Criteria, thereby enabling the Company to maintain the overall long-term reliability of its transmission system. The majority of Line #260 was constructed in 1970 using mostly wooden structures, which have been identified through field inspections to be showing significant deterioration. The majority of Line #272 was constructed in 1967 and consists of COR-TEN® X-Series lattice-type towers, which have been identified as showing inherent corrosion and continuous deterioration.

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

[2] Registered trademark of the United States Steel Corporation.

[3] The Company will also perform minor work associated with the Rebuild Project at the Grottoes, Harrisonburg, and Dooms Substations to support the new line ratings. This work, while not included as part of the Rebuild Project, is discussed in Section II.C of the Appendix.

5. The total length of the existing right-of-way and Company-owned property to be used for the Rebuild Project is approximately 22.1 miles. No new permanent rights-of-way are necessary. 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.

6. The desired in-service date for the Rebuild Project is December 31, 2027. The Company estimates it will take approximately 24 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 December 31, 2024. Should the Commission issue a final order by December 31, 2024, the Company estimates that construction should begin in October 2025 and be completed by December 2027. 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.

7. Any adjustments to the Rebuild Project schedule resulting from these or similar challenges could necessitate a minimum of a six- to twelve-month delay in the targeted in-service date. Accordingly, for purposes of judicial economy, the Company requests that the Commission issue a final order approving both a desired in-service target date (*i.e.*, December 31, 2027) and a CPCN sunset date (*i.e.*, December 31, 2028) for energization of the Rebuild Project.

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

9. The total estimated conceptual cost of the Rebuild Project is approximately $57 million (in 2023 dollars).

10. 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.

11. 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.

12. 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.

13. 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.

14. 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 Wesley Strunk, Charles H. Weil, and Zhangxin Zhou, filed with this Application.

15. 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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April 30, 2024

COMMONWEALTH OF VIRGINIA
BEFORE THE
STATE CORPORATION COMMISSION

APPLICATION OF

VIRGINIA ELECTRIC AND POWER COMPANY

FOR APPROVAL AND CERTIFICATION
OF ELECTRIC FACILITIES

Dooms–Harrisonburg 230 kV Lines #260 and #272 Rebuild Project

Application No. 335

Appendix

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

Case No. PUR-2024-00074

Filed: April 30, 2024

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EXECUTIVE SUMMARY

In order to maintain the structural integrity and reliability of its transmission systems in compliance with the Company's mandatory electric transmission planning criteria ("Planning Criteria")[1] and consistent with sound engineering judgment, Virginia Electric and Power Company ("Dominion Energy Virginia" or the "Company") proposes within the Counties of Augusta and Rockingham, and the Town of Grottoes, to:

(i) Rebuild, entirely within existing right-of-way or on Company-owned property, approximately 10.6 miles of the existing 230 kV Line #260 single circuit wooden H-frame structures with weathering steel H-frame structures; and

(ii) Rebuild, entirely within existing right-of-way or on Company-owned property, approximately 11.5 miles of the existing 230 kV Line #272 single circuit COR-TEN®[2] lattice towers with weathering steel monopole structures,

(collectively, the "Rebuild Project").[3]

The Company has developed a proactive plan to replace transmission lines comprised of wood pole structures experiencing maintenance and reliability issues, including cracked and decaying wood, ground line rot, and woodpecker damage, and COR-TEN® lattice structures experiencing deterioration due to inherent corrosion. Line #260 was constructed in 1970 on wooden H-frame structures, which have been identified for rebuild in accordance with the Company's mandatory electric transmission planning criteria (the "Planning Criteria"). Line #272 was constructed in 1967 on COR-TEN® steel lattice towers, which have been identified for rebuild in accordance with the Company's Planning Criteria. COR-TEN® steel is now known to be problematic when used for lattice-type structures. Utility companies have been monitoring the material since the 1970s, and the problems are well documented. Industry standards indicate that equipment life is approximately 35 to 55 years for wooden pole structures, approximately 40 to 60 years for conductor and connectors, and approximately 50 years for porcelain insulators.

The proposed Rebuild Project will replace aging infrastructure that is approaching the end of its service life in order to comply with the Company's mandatory Planning Criteria, thereby enabling the Company to maintain the overall long-term reliability of its transmission system.

The total length of the existing right-of-way easements and Company-owned property to be used for the Rebuild Project is approximately 22.1 miles. Because the existing right-of-way is adequate

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

[2] Registered trademark of the United States Steel Corporation.

[3] The Company will also perform minor work associated with the Rebuild Project at the Grottoes, Harrisonburg, and Dooms Substations to support the new line ratings. This work, while not included as part of the Rebuild Project, is discussed in Section II.C.

to construct the proposed Rebuild Project, no new rights-of-way are necessary. 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 rights-of-way for the Rebuild Project.

The total estimated conceptual cost of the Rebuild Project is approximately $57 million (in 2023 dollars).[4]

The desired in-service target date for the Rebuild Project is December 31, 2027. The Company estimates it will take approximately 24 months after a final order from the Commission for detailed engineering, materials, procurement, permitting, real estate and construction of the Rebuild Project. Accordingly, to support this estimated construction timeline and construction plan, the Company respectfully requests a final order by December 31, 2024. Should the Commission issue a final order by December 31, 2024, the Company estimates that construction should begin by October 2025, with the Rebuild Project to be completed by the in-service target date of December 31, 2027.

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. Any adjustments to the Rebuild Project schedule resulting from these or similar challenges could necessitate a minimum of a six- to twelve-month delay in the targeted in-service date. Accordingly, for purposes of judicial economy, the Company requests that the Commission issue a final order approving both a desired in-service target date (*i.e.*, December 31, 2027) and a CPCN sunset date (*i.e.*, December 31, 2028) for energization 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 U.S. Fish and Wildlife Service ("USFWS") previously indicated that it planned to issue final NLEB guidance to replace the interim guidance by April 1, 2024; however, the interim guidance has been extended by USFWS until late summer 2024. The Company is actively tracking updates from the USFWS with respect to the final guidance. Once issued, the Company plans to review and follow the final guidance to the extent it applies to the Company's projects. Until the final guidance is issued, the Company will continue following the interim guidance. For projects that may require additional coordination, the Company will coordinate with the USFWS.

The Company is also monitoring potential regulatory changes associated with the potential up-listing of the Tricolored bat ("TCB"). On September 14, 2022, the USFWS published the proposed rule to the Federal Register to list the TCB as endangered under the Endangered Species Act

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[4] The cost of the work associated with the Grottoes, Harrisonburg, and Dooms Substations is approximately $5 million (2023 dollars). The Company considers this work and the associated costs to be separate from the Rebuild Project. *See supra* n. 3.

("ESA"). USFWS recently extended its Final Rule issuance target from September 2023 to September 2024. The Company is actively tracking this ruling and evaluating the effects of potential outcomes on Company projects' permitting, construction, and in-service dates, including electric transmission projects.

I. NECESSITY FOR THE PROPOSED PROJECT

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

Response: The proposed Rebuild Project is necessary to replace aging infrastructure that is approaching the end of its service life along the approximately 10.6-mile segment of 230 kV Line #260 between Harrisonburg and Grottoes Substations and the approximately 11.5-mile segment of Line #272 between Grottoes and Dooms Substations. See Attachment I.A.1 for an overview map of the proposed Rebuild Project.

Dominion Energy Virginia's transmission system is responsible for providing transmission service: (i) for redelivery to the Company's retail customers; (ii) to Appalachian Power Company, Old Dominion Electric Cooperative, 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 customers in North Carolina (collectively, the "Dom Zone"). The Company needs to be able to maintain the overall, long-term reliability of its transmission system to meet its customers' evolving power needs in the future.

Dominion Energy Virginia is part of PJM Interconnection, L.L.C. ("PJM"), the regional transmission organization that provides service to a large portion of the eastern United States. PJM currently is responsible for ensuring the reliability of, and coordinating the movement of, electricity through all or parts of Delaware, Illinois, Indiana, Kentucky, Maryland, Michigan, New Jersey, North Carolina, Ohio, Pennsylvania, Tennessee, Virginia, West Virginia, and the District of Columbia. This service area has a population of approximately 65 million and, on August 2, 2006, set a record high of 165,563 megawatts ("MW") for summer peak demand, of which Dominion Energy Virginia's load portion was approximately 19,256 MW. On July 28, 2023, the Company set a record high of 21,993 MW for summer peak demand. On December 24, 2022, the Company set a winter and all-time record demand of 22,189 MW. Based on the 2024 PJM load forecast, the Dominion Energy Zone is expected to grow with average growth rates of 5.6% summer and 5.1% winter over the next 10 years compared to the PJM average of 1.7% and 2.0% over the same period for the summer and winter, respectively.[5]

[5] A copy of the 2024 PJM Load Report is available at the following: https://www.pjm.com/-/media/library/reports-notices/load-forecast/2024-load-report.ashx. *See, in particular*, page 3 (PJM) and 28, 35, 39 (DOM Zone).

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.

North American Electric Reliability Corporation ("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.[6]

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.[7] 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.[8] 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.

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[6] *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.

[7] PJM Manual 14B (effective December 20, 2023) focuses on the RTEP process and can be found at https://www.pjm.com/-/media/documents/manuals/m14b.ashx.

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

Outcomes of the RTEP process include three types of transmission system upgrades or projects: (i) baseline upgrades are those that resolve a system reliability criteria violation, which can include planning criteria from NERC, Reliability-First Corporation, SERC Reliability Corporation, PJM, and TOs; (ii) network upgrades 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. See Section I.J for a discussion of the PJM process as it relates to the Rebuild Project.

Need for the Rebuild Project

The Company has developed a proactive plan to rebuild transmission lines that are comprised of wood pole structures that are experiencing maintenance and reliability issues, including cracked and decaying wood, severe shell damage, and woodpecker damage, and COR-TEN® structures that are experiencing deterioration due to inherent corrosion. Under the Rebuild Project, the Company proposes to wreck and rebuild approximately 10.6 miles of Line #260 between Harrisonburg and Grottoes Substations, and approximately 11.5 miles of Line #272 between Grottoes and Dooms Substations, in existing right-of-way. The majority of Line #260 was constructed in 1970 using wooden structures, which have been identified through field inspections to be showing significant deterioration. The majority of Line #272 was constructed in 1967 and consists of COR-TEN® X-Series lattice-type towers, which have been identified as showing inherent corrosion and continuous deterioration.

Section C.2.9 of the Company's Planning Criteria addresses electric transmission infrastructure approaching its end of life:[9]

> Electric transmission infrastructure reaches its end of life as a result of many factors. Some factors such as extreme weather and environmental conditions can *shorten* infrastructure life, while others such as maintenance activities can *lengthen* its life. Once end of life is recognized, in order to ensure continued reliability of the

[9] *See supra* n. 1. The Company's Planning Criteria regarding infrastructure to be evaluated under end-of-life ("EOL") criteria was updated effective January 1, 2024. However, the process for determining that an asset has reached its EOL remains the same; therefore, the Company continues to use the criteria evaluation process outlined in Section C.2.9 of the Planning Criteria. *See* https://cdn-dominionenergy-prd-001.azureedge.net/-/media/pdfs/virginia/parallel-generation/facility-connection-requirements.pdf.

> transmission grid, a decision must be made regarding the best way to address this end-of-life asset.
>
> For this criterion, "end of life" is defined as the point at which infrastructure is at risk of failure, and continued maintenance and/or refurbishment of the infrastructure is no longer a valid option to extend the life of the facilities consistent with Good Utility Practice and Dominion Energy Transmission Planning Criteria. The infrastructure to be evaluated under this end-of-life criterion are all regional transmission lines operated at 500 kV and above.
>
> The decision point of this criterion is based on satisfying two metrics:
>
> 1) *Facility is nearing, or has already passed, its end of life, and*
>
> 2) *Continued operation risks negatively impacting reliability of the transmission system.*
>
> For facilities that satisfy both of these metrics, this criterion mandates either replacing these facilities with in-kind infrastructure that meets current Dominion standards or employing an alternative solution to ensure the Dominion transmission system satisfies all applicable reliability criteria.

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

The Rebuild Project will rebuild approximately 10.6 miles of Line #260 and approximately 11.5 miles of Line #272, which have been identified for rebuild based on Dominion Energy Virginia's assessment in accordance with the Company's Planning Criteria and consistent with sound engineering judgment.

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

Industry standards indicate that equipment life is approximately 35 to 55 years for wooden pole structures. The wood structures supporting the 10.6-mile segment of Line #260 proposed to be rebuilt are experiencing damage including cracking and decaying wood, severe shell damage, and woodpecker damage. Approximately 70% of the structures are currently in poor condition in need of repair or replacement. Based on the wood pole assessment, a complete rebuild is recommended because the condition and age of these structures indicate that they are approaching the end of their life.

The COR-TEN® lattice towers supporting the 11.5-mile segment of Line #272 proposed were erected in 1967. COR-TEN® steel is now known to be problematic when used for lattice-type structures. Utility companies have been monitoring the material since the 1970s, and the problems are well documented. The Company hired a third-party company, Quanta, to evaluate the condition of its COR-TEN® towers. Quanta provided a report in 2016 ("2016 Quanta Report") confirming the need to rebuild certain COR-TEN® towers, including those on Line #272.

In addition to the wooden and COR-TEN® structures, industry guidelines indicate equipment life for conductor and connectors is 40-60 years, and for porcelain insulators is 50 years. The combination of deteriorating condition and age indicate that these structures and line equipment are approaching their end of life.

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

The Company relied on one of the four reliability tests identified in the Company's Planning Criteria. The relevant section of the Planning Criteria states in part:[10]

> *2. Reliability and System Impact*
>
> The reliability impact of continued operation of a facility will be determined based on a planning assessment and operational performance considerations. The end-of-life determination for a facility to be tested for reliability impact will be assessed by evaluating the impact on short- and long-term reliability with and without the facility in service. The existing system with the facility removed will become the base case system for which all reliability tests will be performed.
>
> The primary four (4) reliability tests to be considered are:
>
> 1. NERC Reliability Standards
> 2. PJM Planning Criteria – As documented in PJM Manual 14B PJM Region Transmission Planning Process
> 3. Dominion Transmission Planning Criteria contained in this document
> 4. Operational Performance – This test will be based on input from PJM and/or Dominion System Operations as to the

[10] *See supra* n. 1.

impact on reliability operating the system without the facility

Additional factors to be evaluated under system impact may include but not be limited to:

1. Market efficiency
2. Stage 1A Auction Revenue Rights (ARR) sufficiency
3. Public policy
4. SERC Reliability Criteria

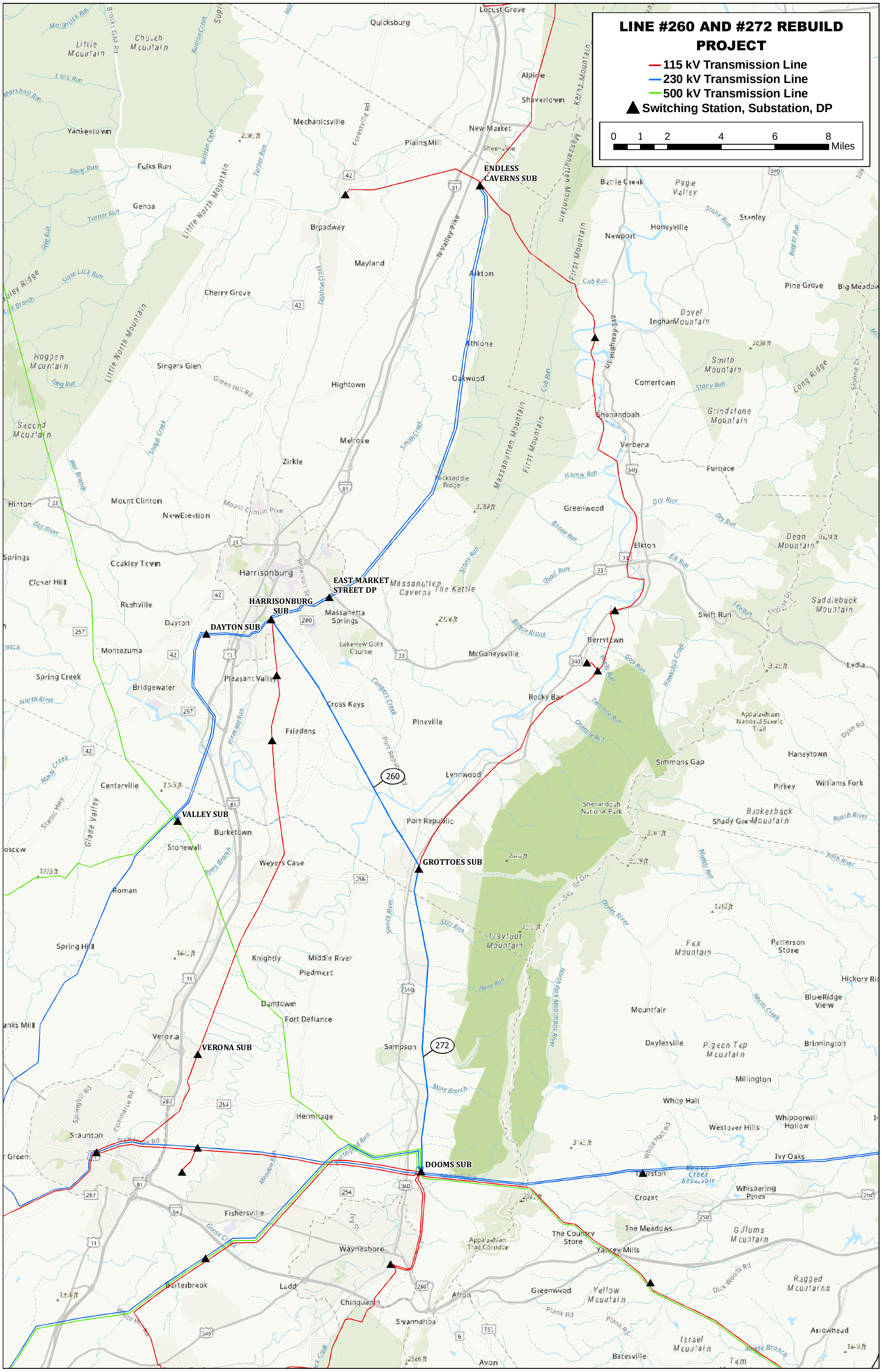
Failure of any of these reliability tests, along with the end-of-life assessment discussed herein, will indicate a violation of the end-of-life criteria and necessitate replacement as mandated earlier in this document.

Lines #260 and #272 are networked 230 kV lines between Dooms and Harrisonburg Substations through Grottoes Substation. At Grottoes Substation, Lines #260 and #272 are connected on each side of a 230 kV breaker and voltage is stepped down to 115kV to connect Grottoes-Merck Line #119. At Merck Substation, Lines Grottoes-Merck #119 and Grottoes-Endless Caverns #118 are connected on each side of two back-to-back 115 kV breakers. Removing either Line #260 or Line #272 thus discontinues the 230 kV network and could result in a negative impact on reliability in the Shenandoah Valley area of western Virginia. With either 230 kV line removed from service, the loss of the remaining 230 kV line followed by the loss of Line #118 will result in the loss of Line #119 which directly serves Grottoes, Elkton Delivery Point ("DP") and Merck Substations with approximately 9,729 customers, including residential and commercial customers of Dominion Energy and Shenandoah Valley Electric Cooperative.

In addition, without Line #272 in service, thermal violations were identified on Harrisonburg-Verona Line #43 for the loss of Harrisonburg-Valley Line #253 and Dayton-Valley Line #2109 in the Winter 2025 RTEP model.

The Company submitted the Rebuild Project proposal as supplemental projects to the PJM RTEP process on March 9, 2021, April 6, 2021, and April 30, 2024 for Line #272 and March 5, 2024 and April 30, 2024 for Line #260 to address the end-of-life criteria. No additional reliability studies were required by PJM in support of the need for the proposed Rebuild Project.

In summary, the proposed Rebuild Project will replace aging infrastructure approaching the end of its service life in compliance with the Company's mandatory Planning Criteria and consistent with sound engineering judgment, thereby enabling the Company to maintain the overall long-term reliability of its transmission system, as well as to provide important system reliability benefits to the Company's entire network.


LINE #260 AND #272 REBUILD PROJECT
115 kV Transmission Line
230 kV Transmission Line
500 kV Transmission Line
Switching Station, Substation, DP
0 1 2 4 6 8
Miles
ENDLESS CAVERNS SUB
EAST MARKET STREET DP
HARRISONBURG SUB
DAYTON SUB
VALLEY SUB
GROTTOES SUB
VERONA SUB
DOOMS SUB
260
272
Harrisonburg
Staunton
Waynesboro
Elkton
Shenandoah
Bridgewater
Dayton
Grottoes
Weyers Cave
Verona
Fishersville
Massanutten Mountain
Shenandoah National Park

Dominion Energy

PJM Southern Sub-Regional RTEP Meeting

Planning Assumptions

Planning Criteria and Assumptions

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

Power Flow Modeling Assumptions

- Dominion uses PJM RTEP developed power flow models for 5 year and intermediate year assessments
- For situations where a PJM RTEP model is not available, Dominion will create a specific case using a PJM RTEP case
- Dominion at times may also utilize a MMWG series power flow case
- Loads used in all power flow cases will be modeled consistent with the 2024 PJM Load Forecast Report
- Generation retirements modeled as outlined in the PJM's Generation Retirement Process
  - Dominion may also consider future generation retirements consistent with the VA/NC Integrated Resource Plan

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

- Infrastructure to be evaluated under this end-of-life criteria are all regional transmission lines operated at 500 kV and above
- The decision point of this criterion is based on satisfying two metrics:
  1) Facility is nearing, or has already passed, its end of life, and
  2) Continued operation risks negatively impacting reliability of the transmission system, including our ability to serve local load.
- Projects approved by PJM under this criteria are classified as baseline
- Detailed discussion on the End of Life criteria can be found in Attachment 1, section C.2.9 of Dominion Energy's Facility Interconnection Requirements document
- All other asset management of transmission infrastructure is covered by the M-3 Supplemental process
- The Appendix lists transmission lines expected to be evaluated using the FERC Form No. 715 End of Life criteria in the 2024 RTEP cycle

Supplemental Project Drivers

Dominion Energy

Summary of Supplemental Project Drivers

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

I. Customer Service

- Service to new and existing customers. Interconnect new customer load. Address distribution load growth, customer outage exposure, equipment loading

Customer Service Considerations

Project Drivers typically include:

- New Load Delivery Points (DP)
- Upgrades or modifications to existing Load Delivery Points(DP)
- Other customer requests

II. Equipment Material Condition, Performance and Risk

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

Dominion Energy

Equipment Material Condition, Performance and Risk

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

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

Equipment Material Condition, Performance and Risk

<u>Project Drivers</u>

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

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

- Infrastructure to be evaluated under this end-of-life criteria are all transmission lines operated at or above 100kV and below 500 kV
- Projects must satisfy the following two decision point metrics:
  1) Facility is nearing, or has already passed, its end of life, and
  2) Continued operation risks negatively impacting reliability of the transmission system, including our ability to serve local load.
- Projects will be classified as supplemental

Transmission Line Facilities

Project Development Process

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

Transmission Line Components

Project Development Process

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

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

- Infrastructure to be evaluated under this end-of-life criteria are transmission transformers, high side operated at or above 100kV
- Transformer Health Assessment Program (THA)

500 kV Transformer Failure in 2000

230 kV Transformer Failure in 2001

Transmission Transformer THA Overview

- For Transmission Transformers, Dominion uses a Transformer Health Assessment (THA) approach to prioritize replacement
- A proven systematic approach to calculating transformer health and risk
- Not just about age – several condition-based parameters are considered
- Supports possible additional maintenance, online monitoring, proactive replacements

Transmission Transformer THA Overview

Parameters Considered for Proactive Replacement:

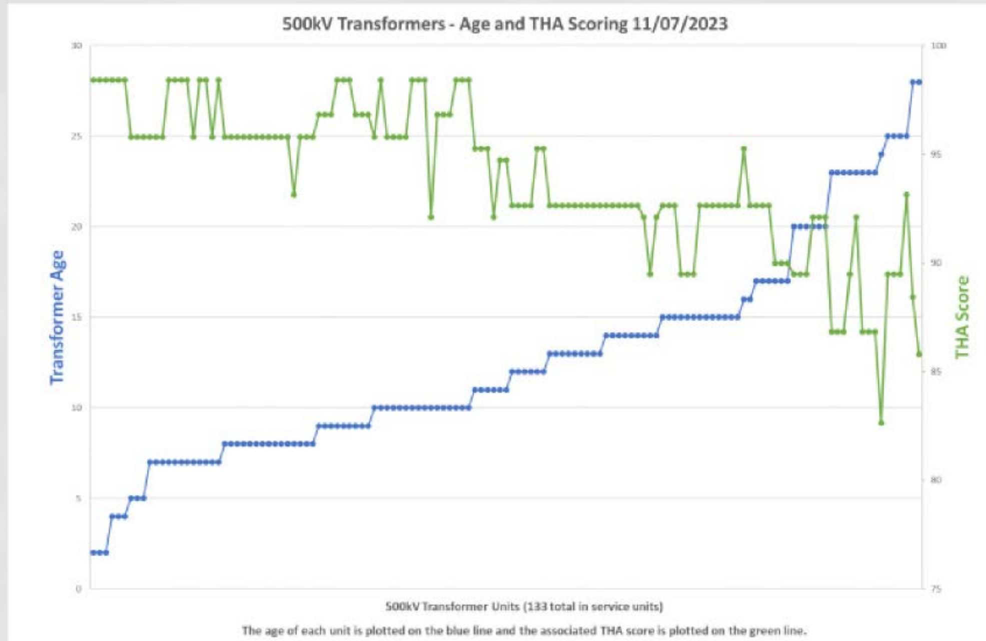
- THA score less than 80
- Maintenance history/environmental risk
- Previous transformer failures of same manufacturer
- Previous failures and remanufacturing history
- Dissolved Gas-in-Oil Analysis (DGA) trends

THA Condition-Based Parameter Weighting

Parameter	Weight for 500 kV Txs	Weight for 230 kV Txs
Dissolved Gas-in-Oil Analysis	25%	25%
Winding Power Factor	20%	15%
LTC Design	-	15%
Age	10%	10%
BIL Ratings	10%	10%
Loading	5%	-
Oil Acidity	5%	-
Moisture in Oil/Insulation	5%	5%
Bushing Power Factor	5%	5%
Tertiary Design/Presence	5%	5%
Bushing Type/Age	5%	5%
Fault Exposure	5%	5%

Example Scoring of Age Parameter

Age	Score
0 - 10 years	10
10 - 30 years	7
30 - 40 years	4
40 - 45 years	1
45 - 50 years	-5
50 - 55 years	-10
> 55 years	-15



Other Asset Management

Project Development Process

Other Transmission Line and Transformer Projects (below 100kV)

- Projects are evaluated using the same process as EOL

Substation Projects

- Projects are prioritized based on many different factors including:
  - Project Type
  - Likelihood and consequence of failure
  - Completing work in conjunction with other planned capital improvement work or scheduled maintenance activities and outages
  - Project cost
- Projects are assigned to a project manager and the conceptual team for detailed review and estimating
- Planning reviews projects to ensure they do not conflict with long term plans prior to submittal to PJM through the M-3 Planning process

Other Asset Management

Project Development Process

- All project requests and inputs are reviewed
- Compliance projects (time based) are identified and documented.

  These typically include:
  - Wave Traps – 25 years
  - CCVT's - 25 years
  - Batteries – 20 years
  - Battery Chargers – 20 years
  - Nuclear (Switchyard and one terminal away) – 20 years
- A high-level scope and cost estimate is developed

III. Operational Flexibility and Efficiency

- Optimizing system configuration, equipment duty cycles and restoration capability, minimize outages

Operational Flexibility and Efficiency Considerations

Project Drivers typically include:

- Operational flexibility issues identified by Dominion's SOC and/or field operations
- Reoccurring thermal, voltage, or stability issues identified by System Operations in real time but not captured in planning studies
- Projects related to ability to safely and reliably operate the transmission system
- Provide flexibility and improvement to serve customer load
- Adherence to Facility Interconnection Requirements
- Other

IV. Infrastructure Resilience

- Improve system ability to anticipate, absorb, adapt to, and/or rapidly recover from a potentially disruptive event, including severe weather, geo-magnetic disturbances, physical and cyber security challenges, critical infrastructure reduction

Infrastructure Resilience
Considerations

Project Drivers typically include:

- Hardening for severe weather
- GMD (geo-magnetic disturbances)
- EMP (electromagnetic pulses)
- Physical and Cyber security challenges
- Reduction of Critical Infrastructure
- Rapid Restoration of Services (mobiles, spares, etc.)
- Adherence to Facility Interconnection Requirements

V. Other

- Meet objectives not included in other definitions

Other Planning Considerations

Project Drivers typically include:

- Unique situations that drive "needs" not covered in other objectives
- Adhere to Good Utility Practice
- Maintain system reliability

Questions?

Appendix A: Transmission lines expected to be evaluated using Dominion Energy's FERC Form 715 End of Life criteria in 2024 RTEP cycle

Line A	Line B	Line Section	Line A kV	Line B kV	Line A Year	Line B Year
565		Suffolk – Yadkin	500		1970	
588		Fentress – Yadkin	500		1975	

Note: This list covers lines to be evaluated under Dominion's End of Life criteria during the 2024 planning cycle. The evaluation could lead to some of these facilities being delayed, cancelled or removed from consideration as well as other facilities added.

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

For a detailed description of the engineering justification of the proposed Rebuild 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 by the Company's end-of-life criteria as described in Section I.A.

[3] Planning Studies

Not applicable.

[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 #260 and Line #272 are part of the Company's 230 kV network, which supports the delivery of electric generation to retail and wholesale customers. These lines support the network in the Shenandoah Valley area of western Virginia.

The tables in Attachment I.C.1 provide 10 years of historical system peak loads for the Company's Valley Load Area. The tables in Attachment I.C.1 also provide the anticipated summer and winter peak loads from 2024 to 2033 for this area. The projected loads in Attachment I.C.1 represent the Company's forecasted peaks based on actual load and the PJM 2024 Load Forecast and demonstrate stable load demand in the area. Over the period from 2024 to 2033, the summer peak electrical demand for this area is projected to vary between approximately 683 MW and 690 MW, and the winter peak electrical demand for this area is projected to vary between approximately 843MW and 861MW.

As discussed in Section I.A, Lines #260 and #272 provide an important 230 kV network path through Harrisonburg, Grottoes, and Dooms Substations located in the Shenandoah Valley area of western Virginia. Should either 230 kV line be out of service, reliability could be negatively impacted by the loss of the remaining 230 kV line and loss of Grottoes-Merck Line #118, resulting in the loss of service to approximately 9729 customers. In addition, Line #272 out of service could result in a thermal violation on Harrisonburg-Verona Line #43 for the loss of Harrisonburg-Valley Line #253 and Dayton-Valley Line #2109 in the Winter 2025 RTEP model.

The Company's Harrisonburg Substation, located at the northern end of Line #260, is a major hub in the transmission system. Harrisonburg Substation interconnects five 230 kV lines and steps power down to 115 kV. The Company's Dooms Substation, located at the southern end of Line #272, is also a major hub in the transmission system. Dooms Substation interconnects three 500 kV lines and steps power down to 230 kV and 115 kV. Grottoes Substation interconnects Lines #260 and #272 and steps voltage down to 115 kV to connect Merck-Endless Caverns Line #119.

Existing Lines #260 and #272 cannot adequately serve the needs of the Company and its customers because of aging infrastructure, as discussed in Section I.A.

The Company has created a plan to address its end-of-life facilities, setting target completion dates for end-of-life projects based on the condition of the facilities, the Company's resources, and the need to schedule outages. The desired in-service date for completion of the Rebuild Project is December 31, 2027, which reflects the need confirmed by industry guidelines and balanced against the timeline for permitting, construction, and obtaining necessary outages.

Forecasted Load MW

	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	MAX	MIN
Valley Area (Summer)	683	684	684	684	690	686	686	687	687	687	690	683
Valley Area (Winter)	843	856	856	856	856	861	858	858	858	858	861	843

Historical Load MW

	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	MAX	MIN
Valley Area (Summer)	691	714	713	703	744	689	730	739	695	671	744	671
Valley Area (Winter)	851	898	828	831	890	820	752	695	813	843	898	695

	Max	Min
Peak Load Historical and Projected(Summer)	744	671
Peak Load Historical and Projected(Winter)	898	695

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: Not applicable.

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

No feasible alternatives have been submitted to PJM. As discussed in Section I.A, the Rebuild Project is needed because modeling indicates that taking Line #260 and/or Line #272 out of service could result in a negative impact on reliability and/or thermal violations.

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, the Company has identified a need for the Rebuild Project based on the need to replace aging infrastructure at the end of its service life in order to comply with the Company's mandatory Planning Criteria and consistent with sound engineering judgment, thereby enabling the Company to maintain the overall long-term reliability of its transmission system.[11] Notwithstanding this, when performing an analysis based on PJM's 50/50 load forecast, there is no adjustment in load for DR programs because PJM only dispatches DR when the system is under stress (*i.e.*, a system emergency). Accordingly, while existing DSM is considered to the extent the load forecast accounts for it, DR that has been bid previously into PJM's capacity market is not a factor in this particular Application because of the identified need for the Rebuild Project. Based on these considerations, the evaluation of the Rebuild Project demonstrated that despite accounting for DSM consistent with PJM's methods, the Rebuild Project is necessary.

Incremental DSM also will not eliminate the need for the Rebuild Project. As reflected in Attachment I.C.1.b, the highest annual peak load over the next 10 years is projected to total approximately 898 MW (including future planned stations). 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.

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[11] 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 Lines #260 and #272, 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 55 wood H-frame structures, 22 weathering steel H-frame structures, two weathering steel three-pole structures, and three wood three-pole structures on Line #260 with 73 weathering steel H-frame structures and nine weathering steel three-pole structures.

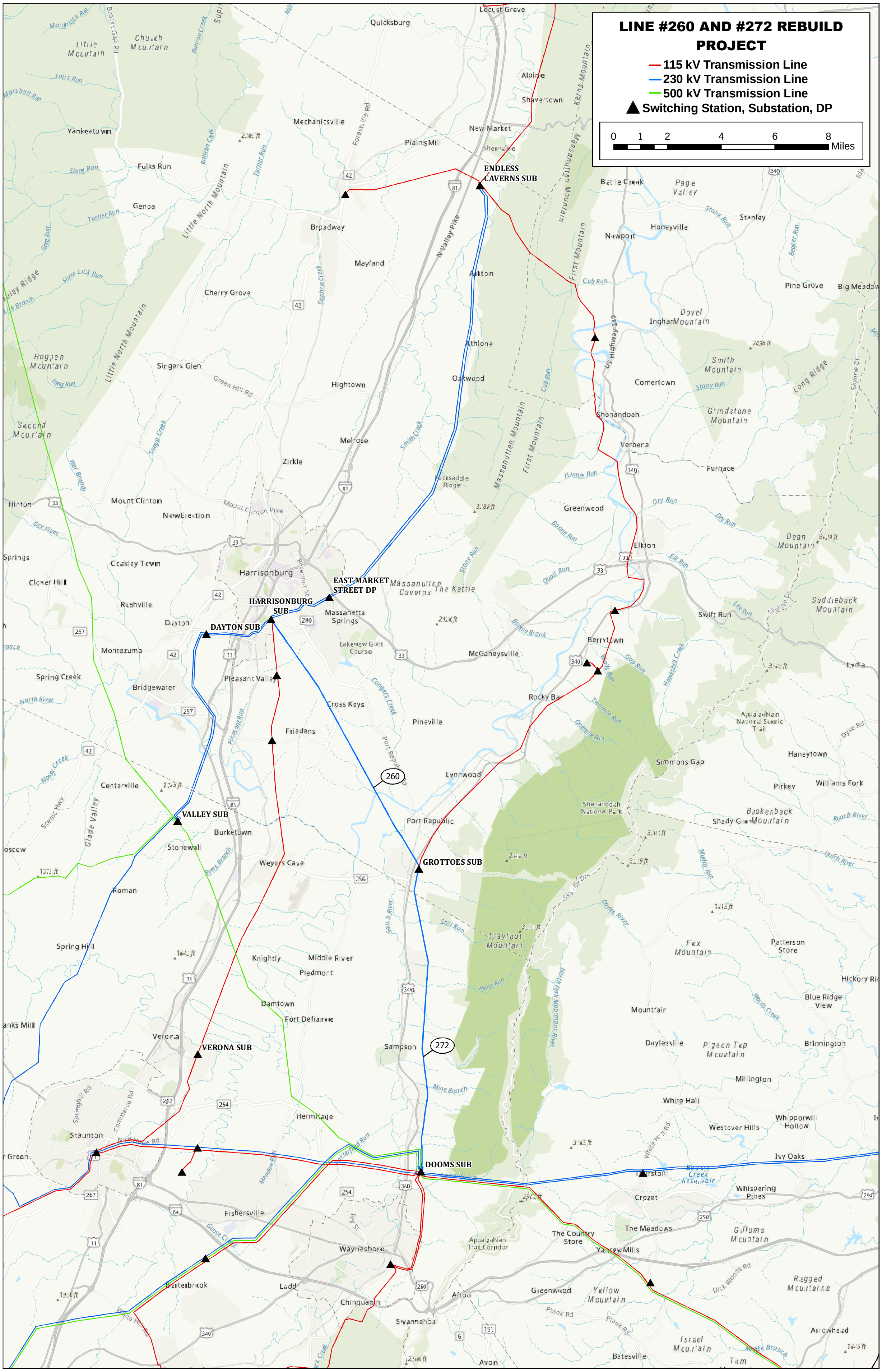
The Company proposes to replace 72 COR-TEN® lattice-type towers, one wood H-frame structure, two weathering steel H-frame structures, three weathering steel three-pole structures, and one weathering steel switch H-frame structure on Line #272 with 70 weathering steel monopole structures, two weathering steel three-pole structures, seven weathering steel H-frame structures, and two galvanized steel switches.

In addition to the structure replacements, there will be upgrades to 4000A at Harrisonburg, Grottoes, and Dooms Substations.

I. NECESSITY FOR THE PROPOSED PROJECT

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

Response: See Attachment I.G.1.



LINE #260 AND #272 REBUILD PROJECT
115 kV Transmission Line
230 kV Transmission Line
500 kV Transmission Line
Switching Station, Substation, DP
0 1 2 4 6 8 Miles
ENDLESS CAVERNS SUB
EAST MARKET STREET DP
HARRISONBURG SUB
DAYTON SUB
VALLEY SUB
GROTTOES SUB
VERONA SUB
DOOMS SUB
260
272
Harrisonburg
Staunton
Waynesboro
Elkton
Shenandoah

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 December 31, 2027.

The Company estimates that it will take approximately 24 months after a final order from the Commission for detailed engineering, materials procurement, permitting, real estate, and construction of the Rebuild Project. Accordingly, to support this estimated construction timeline and construction plan, the Company respectfully requests a final order by December 31, 2024. Should the Commission issue a final order by December 31, 2024, the Company estimates that construction of the Rebuild Project should begin by October 2025, with the Rebuild Project to be completed by the in-service target date of December 31, 2027. 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.

Any adjustments to the Rebuild Project schedule resulting from these or similar challenges could necessitate a minimum of a six- to twelve-month delay in the targeted in-service date. Accordingly, for purposes of judicial economy, the Company requests that the Commission issue a final order approving both a desired in-service target date (*i.e.*, December 31, 2027) and a CPCN sunset date (*i.e.*, December 31, 2028) for energization of the Project.

In addition, the Company is actively monitoring the regulatory changes and requirements associated with the NLEB and how it could potentially impact construction timing associated with TOYRs. The USFWS has previously indicated that it planned to issue final NLEB guidance to replace the interim guidance by April 1, 2024; however, the interim guidance has been extended by USFWS until late summer 2024. The Company is actively tracking updates from the USFWS with respect to the final guidance. Once issued, the Company plans to review and follow the final guidance to the extent it applies to the Company's projects. Until the final guidance is issued, the Company will continue following the interim guidance. For projects that may require additional coordination, the Company will coordinate with the USFWS.

The Company is also continuing to track potential regulatory changes associated with the potential up-listing of the Tri-colored bat. On September 14, 2022, the USFWS published the proposed rule to the in the Federal Register to list the TCB as endangered under the ESA. USFWS recently extended its Final Rule issuance target from September 2023 to September 2024. The Company is actively tracking this ruling and evaluating the effects of potential outcomes on Company projects' permitting, construction, and in-service dates, including electric transmission projects.

I. NECESSITY FOR THE PROPOSED PROJECT

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

Response: The total estimated conceptual cost of the Rebuild Project is approximately $57 million (in 2023 dollars).[12]

[12] The cost of the work associated with the Grottoes, Harrisonburg, and Dooms Substations is approximately $5 million (2023 dollars). The Company considers this work and the associated costs to be separate from the Rebuild Project.

I. NECESSITY FOR THE PROPOSED PROJECT

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

Response: The Company submitted the Rebuild Project proposal as supplemental projects to the PJM RTEP process on March 9, 2021, April 6, 2021, and April 30, 2024 for Line #272 and March 5, 2024 and April 30, 2024 for Line #260 to address the end-of-life criteria. Attachment I.J.1 contains the relevant slides presented at the PJM TEAC meetings.

No additional reliability studies were required by PJM in support of the need for the proposed Rebuild Project. The proposed rebuild of Line #272 portion of the Rebuild Project is incorporated into PJM's RTEP process as a supplemental project (s2613). The proposed rebuild of Line #260 portion of the Rebuild Project is expected to be incorporated into PJM's RTEP process as a supplemental project.

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

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

Need Number: DOM-2021-0014

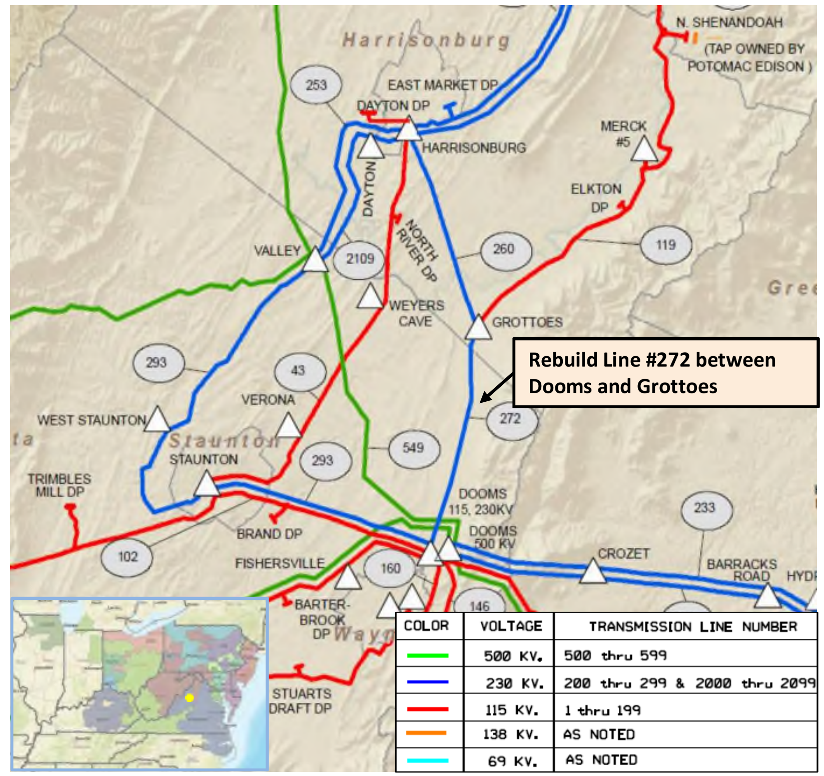
Process Stage: Need Meeting 03/09/2021

Project Driver: Equipment Material Condition, Performance and Risk

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

Problem Statement:
Dominion Energy has identified a need to replace 79 existing transmission towers that carry 230 kV Line #272 (Dooms - Grottoes). The need for replacement is based on the Company's End of Life criteria.

- The 11.5-mile-long line consists of CORTEN X-Series lattice-type towers that were constructed in 1967.
- These towers have inherent corrosion problems causing continuous deterioration to the steel members and have reached the end of their useful life. They are amongst the weakest and most problematic CORTEN lattice towers on our system and are a high priority for replacement.



Dominion Energy

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

Need Number: DOM-2021-0014

Process Stage: Solutions Meeting 04/06/2021

Previously Presented: Need Meeting 03/09/2021

Project Driver: Equipment Material Condition, Performance and Risk

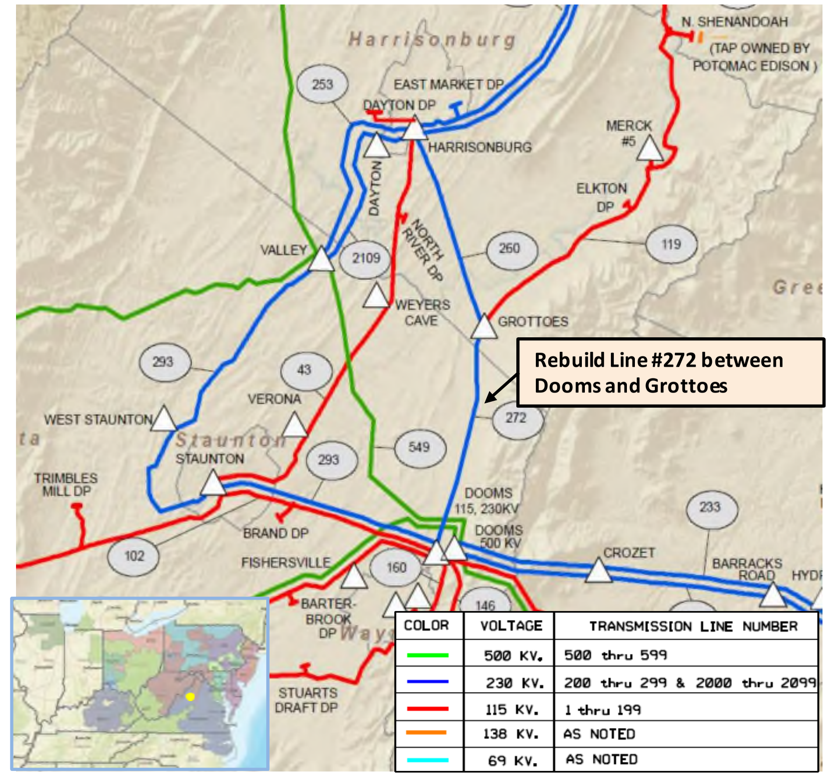
Specific Assumption References:

See details on Equipment Material Condition, Performance and Risk in Dominion's Planning Assumptions presented in December 2019.

Problem Statement:

Dominion Energy has identified a need to replace 79 existing transmission towers that carry 230 kV Line #272 (Dooms - Grottoes). The need for replacement is based on the Company's End of Life criteria.

- The 11.5 mile long line consists of CORTEN X-Series lattice-type towers that were constructed in 1967.
- These towers have inherent corrosion problems causing continuous deterioration to the steel members and have reached the end of their useful life. They are amongst the weakest and most problematic CORTEN lattice towers on our system and are a high priority for replacement.



Dominion Transmission Zone: Supplemental
230 kV Line #272 – EOL Rebuild

Need Number: DOM-2021-0014

Process Stage: Solutions Meeting 04/06/2021

Proposed Solution:
Approximately 11.5 miles containing weathering CORTEN lattice-type towers will be replaced with steel monopoles and new conductor with a normal summer rating of 1047 MVA to meet current 230 kV standards.

Estimated Project Cost: $30.8 M

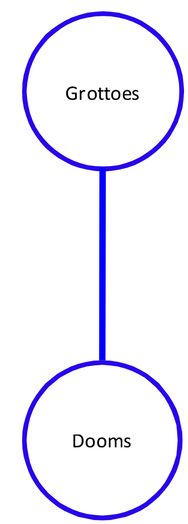
Alternatives Considered:
Retire Line #272 from Dooms to Grottoes.

Without Line #272 in service, thermal violations were identified on Line #43 (Harrisonburg – Verona) for the loss of Line #253 (Harrisonburg – Valley) and Line #2109 (Dayton – Valley) in the Winter 2025 RTEP model.

Projected In-service Date: 12/31/2026

Project Status: Conceptual

Model: 2025 RTEP



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

Need Number: DOM-2021-0014
Process Stage: Solutions Meeting 04/30/2024 – UPDATE
Previously Presented: Solution Meeting 04/06/2021
Project Driver: Equipment Material Condition, Performance and Risk

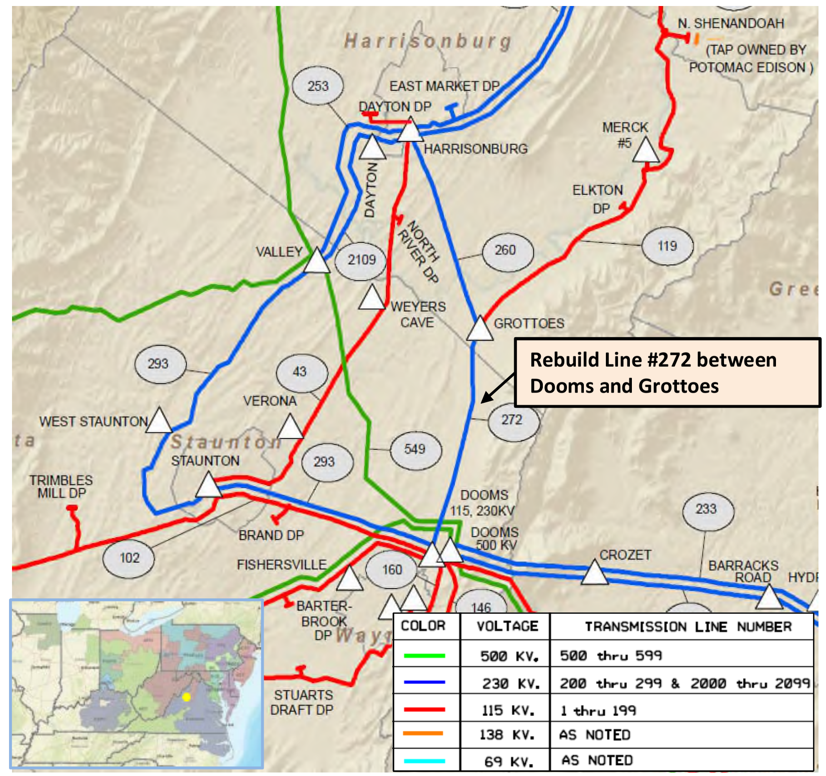
Specific Assumption References:

See details on Equipment Material Condition, Performance and Risk in Dominion's Planning Assumptions presented in December 2019.

Problem Statement:

Dominion Energy has identified a need to replace 79 existing transmission towers that carry 230 kV Line #272 (Dooms - Grottoes). The need for replacement is based on the Company's End of Life criteria.

- The 11.5 mile long line consists of CORTEN X-Series lattice-type towers that were constructed in 1967.
- These towers have inherent corrosion problems causing continuous deterioration to the steel members and have reached the end of their useful life. They are amongst the weakest and most problematic CORTEN lattice towers on our system and are a high priority for replacement.



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

Dominion Transmission Zone: Supplemental
230 kV Line #272 – EOL Rebuild

Need Number: DOM-2021-0014

Process Stage: Solutions Meeting 04/30/2024

Proposed Solution:

Approximately 11.5 miles containing weathering CORTEN lattice-type towers will be replaced with steel monopoles and new conductor with a normal summer rating of ~~1047~~ 1573 MVA to meet current 230 kV standards.

Estimated Project Cost: $~~30.8~~ 34M

Alternatives Considered:

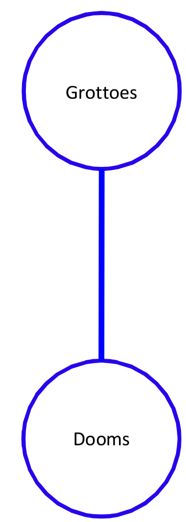
No feasible alternatives.

Without Line #272 in service, thermal violations were identified on Line #43 (Harrisonburg – Verona) for the loss of Line #253 (Harrisonburg – Valley) and Line #2109 (Dayton – Valley) in the Winter 2025 RTEP model.

Projected In-service Date: ~~12/31/2026~~ 12/31/2027

Project Status: Conceptual

Model: 2025 RTEP



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

Need Number: DOM-2024-0014

Process Stage: Need Meeting 03/05/2024

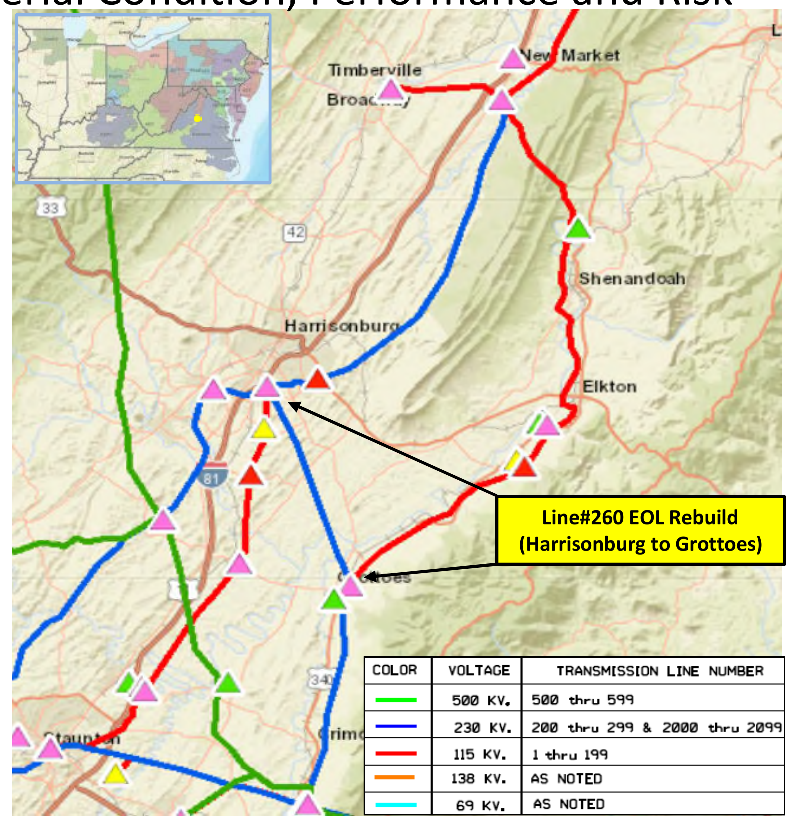
Project Driver: Equipment Material Condition, Performance and Risk

Specific Assumption References:
See details on Equipment Material Condition, Performance and Risk in Dominion's Planning Assumptions presented in December 2023.

Problem Statement:

Dominion Energy has identified a need to replace approx. 10.6 miles of 230kV Line#260 from Harrisonburg to Grottoes based on the Company's End of Life criteria.

- Line#260 from Harrisonburg to Grottoes was constructed on mostly wood structures all dating back to 1970, ACAR conductor and 3/8" static wire.
- A number of structures have been replaced, and additional wood structure replacement is identified because of wood structure issues.
- Industry guidelines indicate equipment life for steel structures is 40-60 years, wood structures is 35-55 years, conductor and connectors are 40-60 years, and porcelain insulators are 50 years.



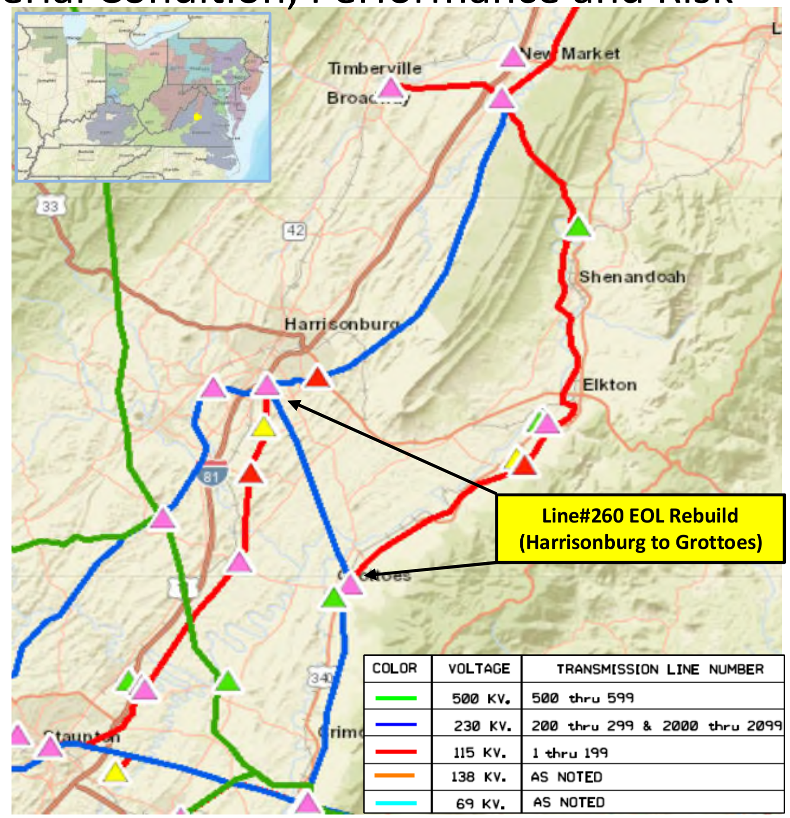
Dominion Transmission Zone: Supplemental
Equipment Material Condition, Performance and Risk

Need Number: DOM-2024-0014
Process Stage: Solutions Meeting 04/30/2024
Previously Presented: Need Meeting 03/05/2024
Project Driver: Equipment Material Condition, Performance and Risk

Specific Assumption References:
See details on Equipment Material Condition, Performance and Risk in Dominion's Planning Assumptions presented in December 2023.

Problem Statement:
Dominion Energy has identified a need to replace approx. 10.6 miles of 230kV Line#260 from Harrisonburg to Grottoes based on the Company's End of Life criteria.

- Line#260 from Harrisonburg to Grottoes was constructed on mostly wood structures all dating back in 1970, ACAR conductor and 3/8" static wire.
- A number of structures have been replaced, and additional wood structure replacement is identified because of wood structure issues.
- Industry guidelines indicate equipment life for steel structures is 40-60 years, wood structures is 35-55 years, conductor and connectors are 40-60 years, and porcelain insulators are 50 years.



Dominion Transmission Zone: Supplemental 230 kV Line #260 – EOL Rebuild

Need Number: DOM-2024-0014

Process Stage: Solutions Meeting 04/30/2024

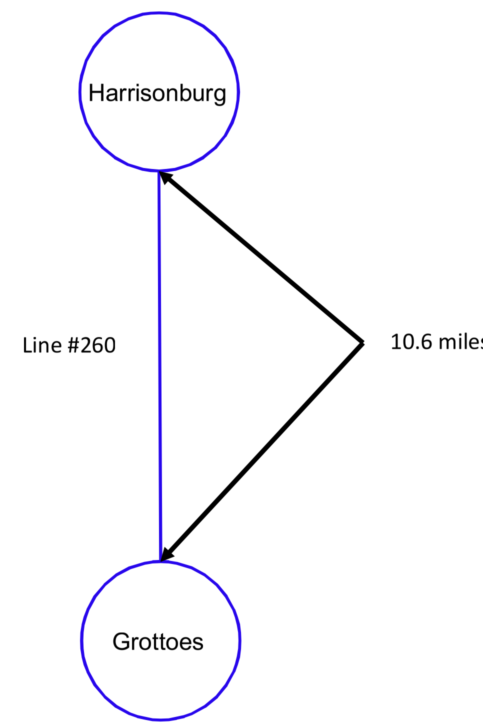
Proposed Solution:

Approximately 10.6 miles (from Harrisonburg to Grottoes) consisting of mostly wood structures will be replaced with weathering steel H-frame structures. New conductor with a normal summer rating of 1573 MVA will be used.

Estimated Project Cost: $28 M

Alternatives Considered:
No feasible alternatives, end of life.

Projected In-service Date: 12/31/2027
Project Status: Conceptual
Model: 2028 RTEP



I. NECESSITY FOR THE PROPOSED PROJECT

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

Response: Not applicable. The need for the Rebuild Project is not driven by outage history, but rather by the need to replace transmission infrastructure approaching its end of life. See Section I.A of this Appendix.

I. NECESSITY FOR THE PROPOSED PROJECT

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

Response: The proposed Rebuild Project will replace aging infrastructure that is approaching the end of its service life.

See Attachments I.L.i-ix for representative photographs of the deterioration of the wood poles supporting Line #260 and corrosion of COR-TEN® towers on Line #272 that have been identified for rebuild and Attachment I.L.x for inspection reports detailing the condition of those representative structures.

Structure 260/4

Structure 260/38

Structure 260/41

Structure 260/52

Structure 260/62

Structure 260/6

Structure 260/21

Structure 260/58

Structure 260/64

Dominion

Progress Report - T&S construction
Transmission Construction

Project Name:	**272 Dooms to Grottoes**	**Date:**	**11/24/2014**
Project #: 58408 V11	**WBS/Order/Network #: 67686996**	**Start Date:**	**8/11/2014**
Project Manager:	**Fred Harmeling**	**Target Date:**	
Scope of Project:	**Corten Refurbishment**	**Completion Date:**	**11/22/2014**
Overall % of Work Completed:	**100%**	**Coordinator Name:**	**Edward Murden**

Structure 272	Climbing Insp/ Steel Repair	Grounded	Fnd Insp	Fnd Repair	Rehab	Meg Reading	Complete	Comments
1A								
1								
2								
3								
4								
5								
6								
7	Y	Y	FR-1	Y	Y	29	100%	
8	Y	Y	FR-1	Y	Y	29	100%	
9	Y	Y	FR-2	Y	Y	25	100%	
10	Y	Y	FR-1	Y	Y	10	100%	
11	Y	Y	FR-1	Y	Y	12	100%	
12	Y	Y	FR-1	Y	Y	25	100%	
13	Y	Y	FR-1	Y	Y	27	100%	
14	Y	Y	2-FR2	Y	Y	18	100%	LEG 1,3,4-FR1
15	Y	Y	FR-1	Y	Y	9	100%	
16	Y	Y	FR-1	Y	Y	25	100%	
17	Y	Y	FR-1	Y	Y	7	100%	
18	Y	Y	FR-1	Y	Y	25	100%	
19	Y	Y	FR-1	Y	Y	15	100%	
20	Y	Y	FR-1	Y	Y	18	100%	
21	Y	Y	FR-1	Y	Y	20	100%	
22	Y	Y	FR-1	Y	Y	17	100%	
23	Y	Y	FR-1	Y	Y	15	100%	
24	Y	Y	FR-1	Y	Y	18	100%	
25	Y	Y	FR-1	Y	Y	22	100%	
26	Y	Y	FR-1	Y	Y	18	90%	
27	Y	Y	FR-1	Y	Y	29	100%	
28	Y	Y	FR-1	Y	Y	25	100%	
29	Y	Y	FR-1	Y	Y	19	100%	
30	Y	Y	FR-1	Y	Y	14	100%	
31	Y	Y	FR-1	Y	Y	18	100%	
32	Y	Y	FR-1	Y	Y	19	100%	
33	Y	Y	FR-1	Y	Y	25	100%	
34	Y	Y	FR-1	Y	Y	15	100%	
35	Y	Y	FR-1	Y	Y	23	100%	
36	Y	Y	FR-1	Y	Y	6	100%	
37	Y	Y	FR-1	Y	Y	8	100%	
38	Y	Y	FR-1	Y	Y	20	100%	
39	Y	Y	FR-1	Y	Y	20	100%	
40	Y	Y	FR-1	Y	Y	15	100%	
41	Y	Y	FR-1	Y	Y	18	100%	

42	Y	Y	FR-1	Y	Y	13	100%	
43	Y	Y	FR-1	Y	Y	25	100%	
44	Y	Y	FR-1	Y	Y	15	100%	
45	Y	Y	FR-1	Y	Y	22	100%	
46	Y	Y	FR-1	Y	Y	18	100%	
47	Y	Y	FR-1	Y	Y	22	100%	
48	Y	Y	FR-1	Y	Y	14	100%	
49	Y	Y	FR-1	Y	Y	23	100%	
50	Y	Y	FR-1	Y	Y	27	100%	
51	Y	Y	FR-1	Y	Y	22	100%	
52	Y	Y	FR-1	Y	Y	25	100%	
53	Y	Y	FR-1	Y	Y	23	100%	
54	Y	Y	FR-1	Y	Y	19	100%	
55	Y	Y	FR-1	Y	Y	10	100%	
56	Y	Y	FR-1	Y	Y	7	100%	
57	Y	Y	FR-1	Y	Y	21	100%	
58	Y	Y	FR-1	Y	Y	23	100%	
59	Y	Y	FR-1	Y	Y	12	100%	
60	Y	Y	FR-1	Y	Y	3	100%	28 Pieces replaced
61	Y	Y	FR-1	Y	Y	15	100%	29 Pieces replaced
62	Y	Y	FR-1	Y	Y	10	100%	
63	Y	Y	FR-1	Y	Y	9	100%	37 Pieces replaced
64	Y	Y	FR-1	Y	Y	18	100%	
65	Y	Y	FR-1	Y	Y	15	100%	
66	Y	Y	FR-1	Y	Y	12	100%	
67	Y	Y	FR-1	Y	Y	5	100%	
68	Y	Y	FR-1	Y	Y	3	100%	
69	Y	Y	FR-1	Y	Y	28	100%	
70	Y	Y	FR-1	Y	Y	20	100%	
71	Y	Y	FR-1	Y	Y	20	100%	
72	Y	Y	FR-1	Y	Y	27	100%	
73	Y	Y	FR-1	Y	Y	22	100%	
74	Y	Y	FR-1	Y	Y	26	100%	
75	Y	Y	FR-1	Y	Y	24	100%	
76	Y	Y	FR-1	Y	Y	22	100%	
77	Y	Y	FR-1	Y	Y	23	100%	Spliced 4 legs at base
78	Y	Y	FR-1	Y	Y	20	100%	
79								
80								
Contractor's Name	**L.E. Myers**							

I. NECESSITY FOR THE PROPOSED PROJECT

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

1. The full name of the NUG as it appears in its contract with the utility and the dates of initial contract and any amendments;

2. A description of the arrangements for financing the facilities, including information on the allocation of costs between the utility and the NUG;

3. a. For Qualifying Facilities ("QFs") certificated by Federal Energy Regulatory Commission ("FERC") order, provide the QF or docket number, the dates of all certification or recertification orders, and the citation to FERC Reports, if available;

b. For self-certificated QFs, provide a copy of the notice filed with FERC;

4. Provide the project number and project name used by FERC in licensing hydroelectric projects; also provide the dates of all orders and citations to FERC Reports, if available; and

5. If the name provided in 1 above differs from the name provided in 3 above, give a full explanation.

Response: Not applicable.

I. NECESSITY FOR THE PROPOSED PROJECT

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

Response: Not applicable.

II. DESCRIPTION OF THE PROPOSED PROJECT

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

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

Response: The total length of the existing right-of-way for the Rebuild Project is approximately 22.1 miles between Harrisonburg and Dooms Substations. The right-of-way is located within Augusta and Rockingham Counties, as well as the Town of Grottoes.

No alternative routes are proposed for the Rebuild Project. See Section II.A.9 of the Appendix for an explanation of the Company's route selection process.

II. DESCRIPTION OF THE PROPOSED PROJECT

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

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

Response: See Attachment II.A.2, which includes existing linear utilities paralleled by the existing transmission line corridor. The Rebuild Project is located within existing transmission line right-of-way, which parallels Line #43 for approximately 0.1 miles out of Harrisonburg Substation, Line #119 for approximately 0.1 miles out of Grottoes Substation, and Line #549 and Line #555 for approximately 0.7 miles out of Dooms Substation. 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.

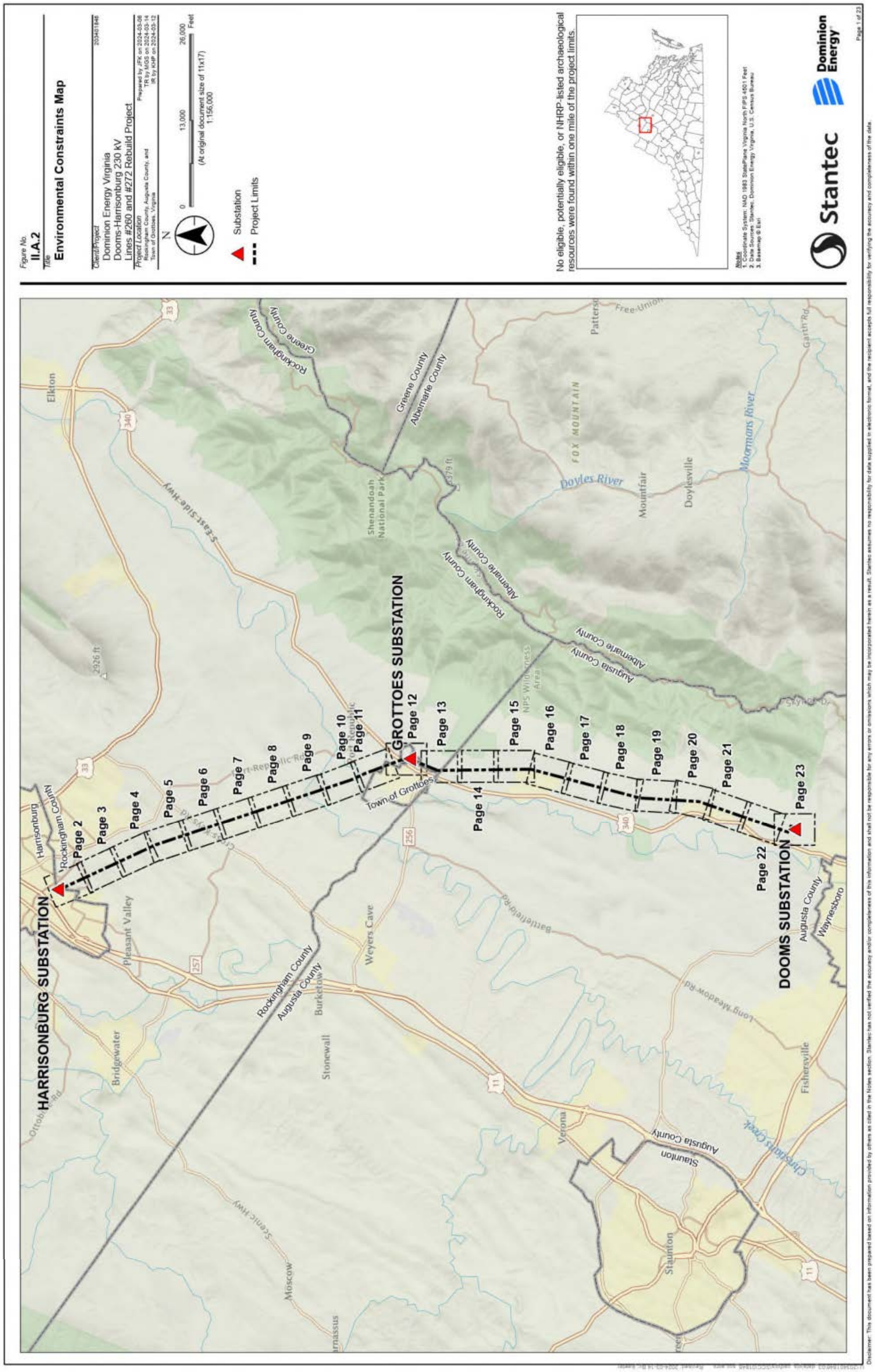


Figure No.
II.A.2
Title
Environmental Constraints Map
Client/Project
Dominion Energy Virginia
Dooms-Harrisonburg 230 kV
Lines #260 and #272 Rebuild Project
Project Location
Rockingham County, Augusta County, and Town of Grottoes, Virginia
203401848
Prepared by JFK on 2024-03-06
TR by MGS on 2024-03-14
IR by KHP on 2024-03-12
N
0
13,000
26,000
Feet
(At original document size of 11x17)
1:156,000
Substation
Project Limits
No eligible, potentially eligible, or NHRP-listed archaeological resources were found within one mile of the project limits.
Notes
1. Coordinate System: NAD 1983 StatePlane Virginia North FIPS 4501 Feet
2. Data Sources: Stantec, Dominion Energy Virginia, U.S. Census Bureau
3. Basemap: © Esri
Stantec
Dominion Energy
Page 1 of 23
HARRISONBURG SUBSTATION
GROTTOES SUBSTATION
DOOMS SUBSTATION
Page 2
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Page 4
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Page 6
Page 7
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Page 20
Page 21
Page 22
Page 23
Harrisonburg
Rockingham County
Town of Grottoes
Pleasant Valley
Bridgewater
Weyers Cave
Burketown
Stonewall
Moscow
Verona
Staunton
Augusta County
Fishersville
Waynesboro
Elkton
Shenandoah National Park
Greene County
Albemarle County
Doyles River
Mountfair
Doylesville
Moormans River
FOX MOUNTAIN
NPS Wilderness Area
Christians Creek

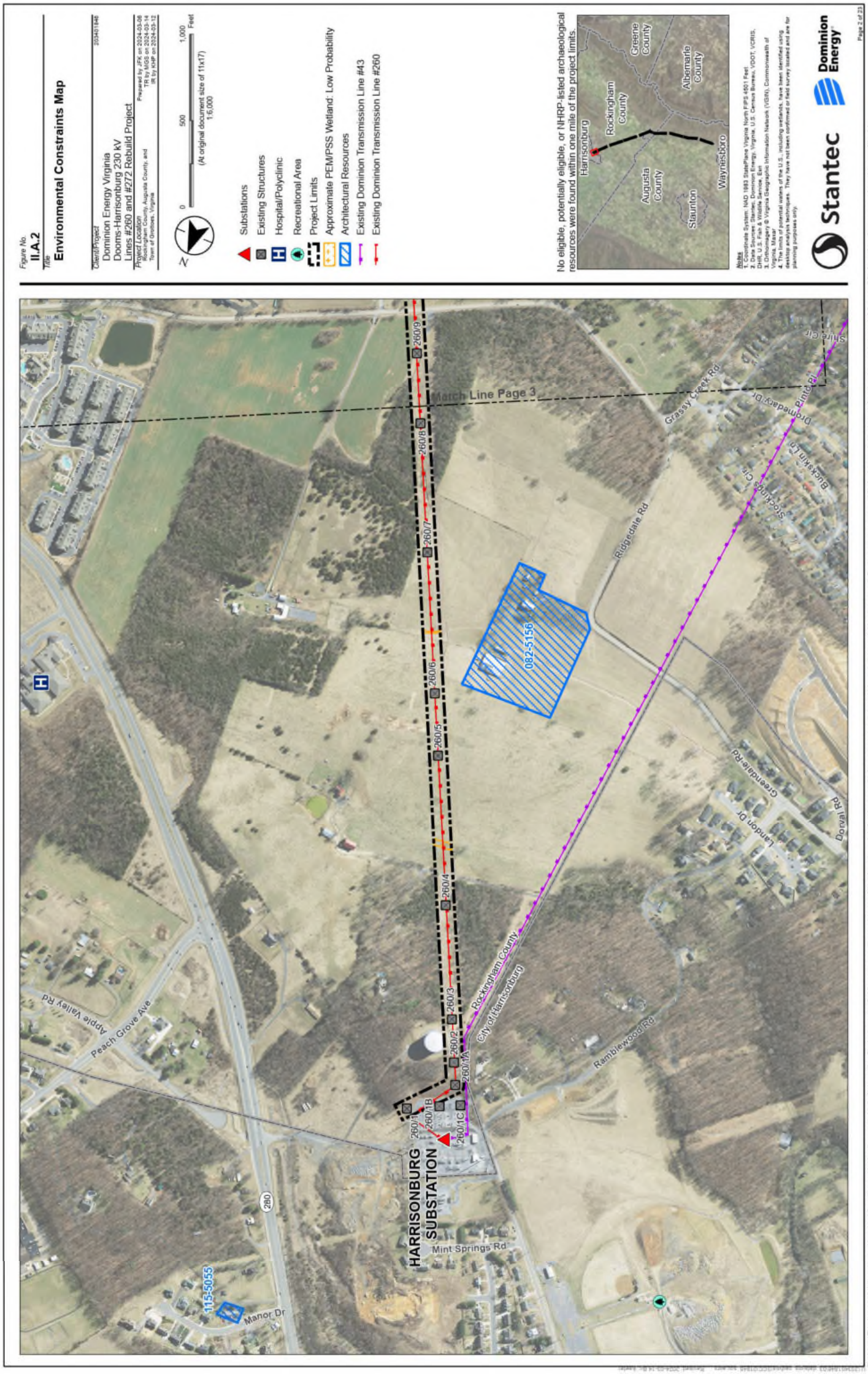


Figure No.
II.A.2
Title
Environmental Constraints Map
Client/Project
Dominion Energy Virginia
Dooms-Harrisonburg 230 kV
Lines #260 and #272 Rebuild Project
Project Location
Rockingham County, Augusta County, and Town of Grottoes, Virginia
(At original document size of 11x17)
1:6,000
Feet
Substations
Existing Structures
Hospital/Polyclinic
Recreational Area
Project Limits
Approximate PEM/PSS Wetland: Low Probability
Architectural Resources
Existing Dominion Transmission Line #43
Existing Dominion Transmission Line #260
No eligible, potentially eligible, or NHRP-listed archaeological resources were found within one mile of the project limits.
Harrisonburg
Rockingham County
Greene County
Augusta County
Albemarle County
Staunton
Waynesboro
Stantec
Dominion Energy
HARRISONBURG SUBSTATION
Match Line Page 3
082-5156
115-5055
Rockingham County
City of Harrisonburg
Apple Valley Rd
Peach Grove Ave
Mint Springs Rd
Manor Dr
Ramblewood Rd
Ridgedale Rd
Greendale Rd
Landon Dr
Dorval Rd
Grassy Creek Rd
Stockbridge Cir
Buckskin Ln
Dromedary Dr
Pinto Pl
Shire Cir
280
260/1
260/1B
260/1C
260/1A
260/2
260/3
260/4
260/5
260/6
260/7
260/8
260/9

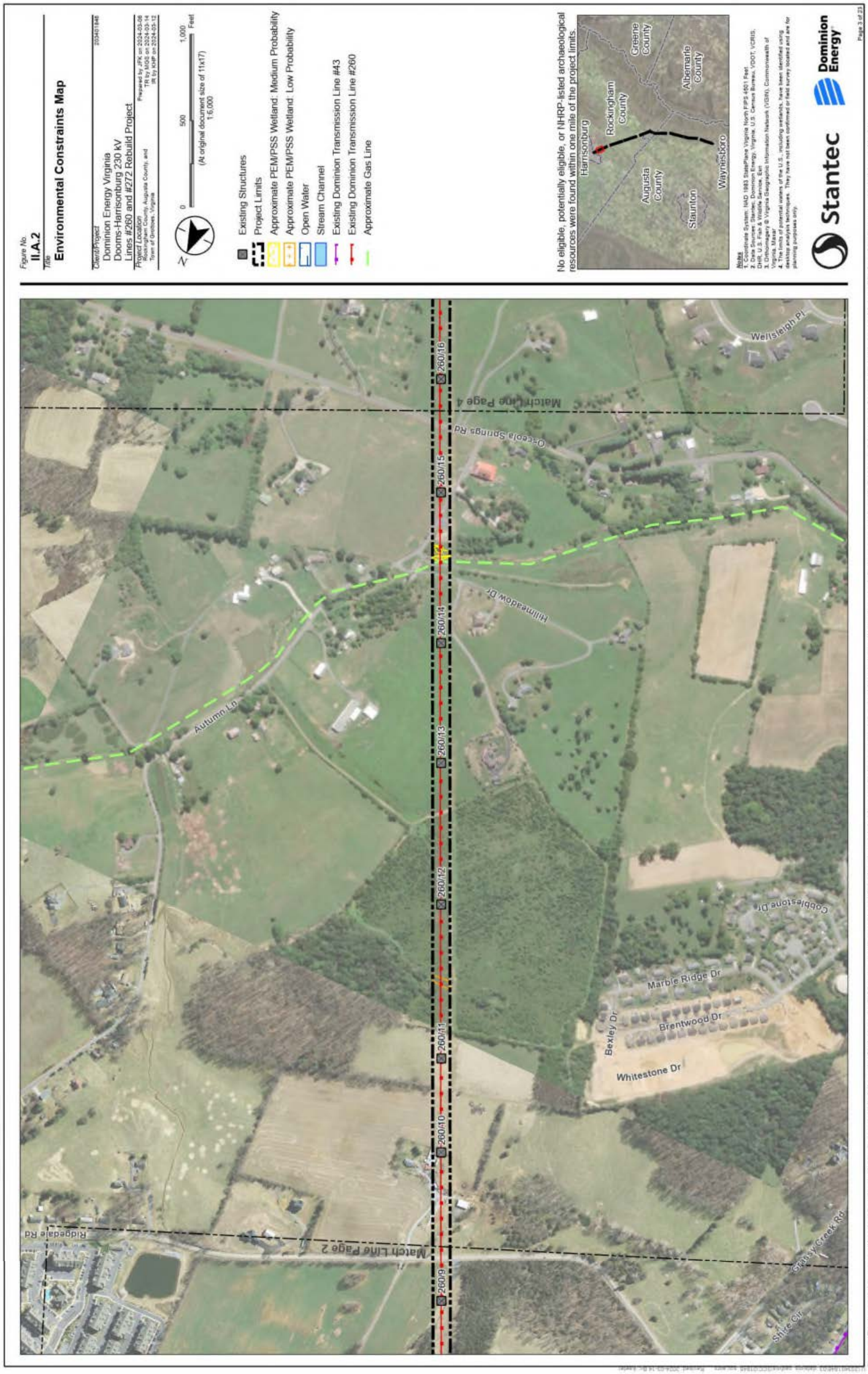


Figure No.
II.A.2
Title
Environmental Constraints Map
Client/Project
Dominion Energy Virginia
Dooms-Harrisonburg 230 kV
Lines #260 and #272 Rebuild Project
203401846
0
500
1,000
Feet
(At original document size of 11x17)
1:6,000
Existing Structures
Project Limits
Approximate PEM/PSS Wetland: Medium Probability
Approximate PEM/PSS Wetland: Low Probability
Open Water
Stream Channel
Existing Dominion Transmission Line #43
Existing Dominion Transmission Line #260
Approximate Gas Line
No eligible, potentially eligible, or NHRP-listed archaeological resources were found within one mile of the project limits.
Harrisonburg
Rockingham County
Greene County
Albemarle County
Augusta County
Staunton
Waynesboro
Stantec
Dominion Energy
Page 3 of 23
260/9
260/10
260/11
260/12
260/13
260/14
260/15
260/16
Match Line Page 4
Match Line Page 2
Osceola Springs Rd
Hillmeadow Dr
Autumn Ln
Wellsleigh Pl
Cobblestone Dr
Marble Ridge Dr
Brentwood Dr
Bexley Dr
Whitestone Dr
Ridgedale Rd
Grassy Creek Rd


Figure No.
II.A.2
Title
Environmental Constraints Map
Client/Project
Dominion Energy Virginia
Dooms-Harrisonburg 230 kV
Lines #260 and #272 Rebuild Project
Project Location
Rockingham County, Augusta County, and
Town of Grottoes, Virginia
Prepared by JFK on 2024-03-06
TR by MGB on 2024-03-14
IR by KHP on 2024-03-12
0
500
1,000
Feet
(At original document size of 11x17)
1:6,000
N
Existing Structures
Project Limits
Approximate PEM/PSS Wetland: Low Probability
Open Water
Existing Dominion Transmission Line #260
No eligible, potentially eligible, or NHRP-listed archaeological resources were found within one mile of the project limits.
Harrisonburg
Rockingham County
Greene County
Augusta County
Albemarle County
Staunton
Waynesboro
Stantec
Dominion Energy
Match Line Page 5
Match Line Page 3
260/16
260/17
260/18
260/19
260/20
260/21
260/22
260/23
260/24
Spaders Church Rd
Osceola Springs Rd
Pleasant Valley Rd
Blossom Dr
Huntington Springs Dr
Wellsley Pl

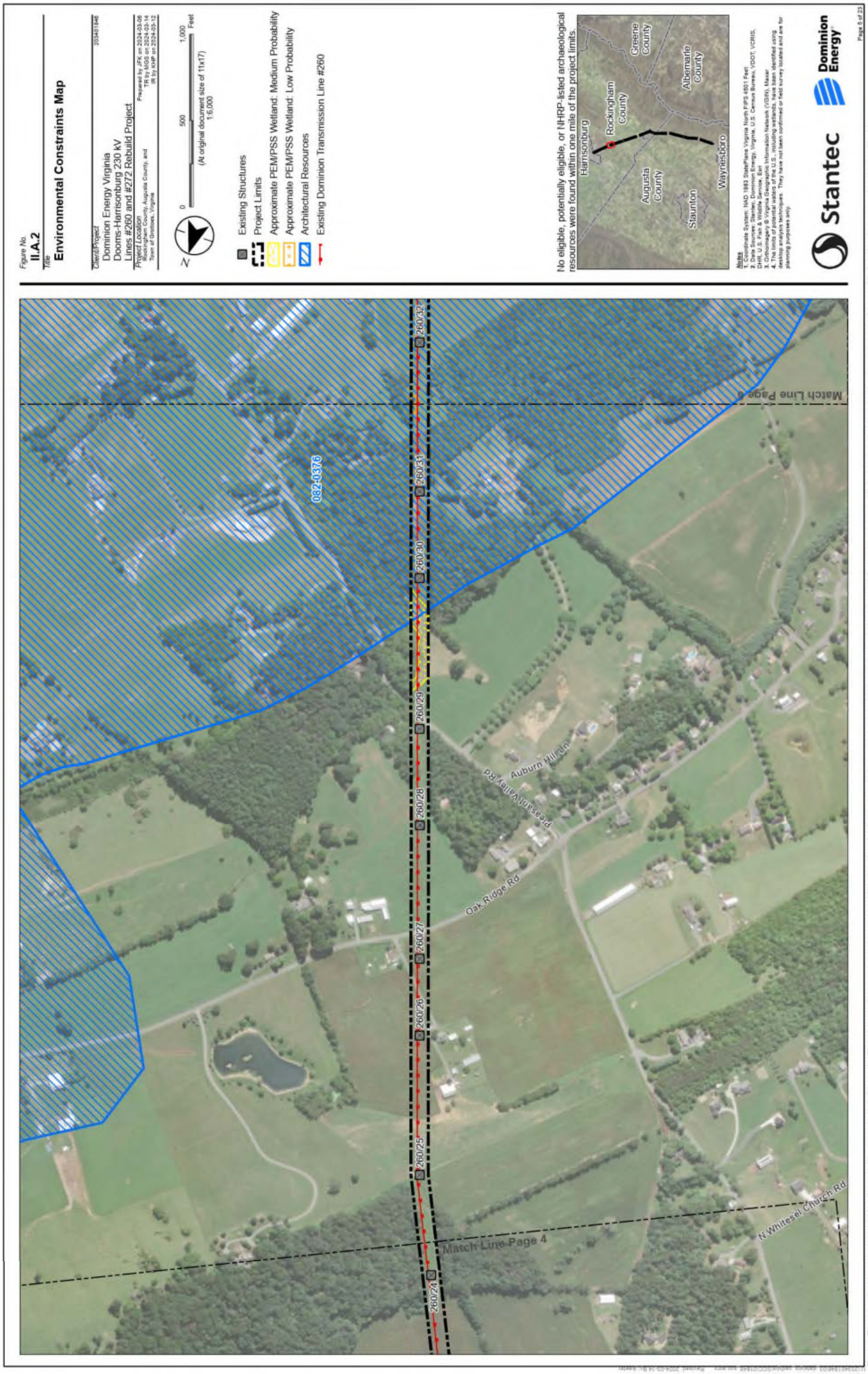


Figure No.
II.A.2
Title
Environmental Constraints Map
Client/Project
203401846
Dominion Energy Virginia
Dooms-Harrisonburg 230 kV
Lines #260 and #272 Rebuild Project
Project Location
Rockingham County, Augusta County, and Town of Grottoes, Virginia
Prepared by JFK on 2024-03-06
TR by MGS on 2024-03-14
IR by KHP on 2024-03-12
N
0
500
1,000
Feet
(At original document size of 11x17)
1:6,000
Existing Structures
Project Limits
Approximate PEM/PSS Wetland: Medium Probability
Approximate PEM/PSS Wetland: Low Probability
Architectural Resources
Existing Dominion Transmission Line #260
No eligible, potentially eligible, or NHRP-listed archaeological resources were found within one mile of the project limits.
Harrisonburg
Rockingham County
Greene County
Augusta County
Albemarle County
Staunton
Waynesboro
Notes
1. Coordinate System: NAD 1983 StatePlane Virginia North FIPS 4501 Feet
2. Data Sources: Stantec, Dominion Energy, Virginia, U.S. Census Bureau, VDOT, VCRIS, DHR, U.S. Fish & Wildlife Service, Esri
3. Orthoimagery © Virginia Geographic Information Network (VGIN), Maxar
4. The limits of potential waters of the U.S., including wetlands, have been identified using desktop analysis techniques. They have not been confirmed or field survey located and are for planning purposes only.
Stantec
Dominion Energy
Page 5 of 23
082-0376
260/24
260/25
260/26
260/27
260/28
260/29
260/30
260/31
260/32
Match Line Page 4
Match Line Page 6
Oak Ridge Rd
Pleasant Valley Rd
Auburn Hill Ln
N Whitesel Church Rd
Disclaimer: This document has been prepared based on information provided by others as cited in the Notes section. Stantec has not verified the accuracy and/or completeness of this information and shall not be responsible for any errors or omissions which may be incorporated herein as a result. Stantec assumes no responsibility for data supplied in electronic format, and the recipient accepts full responsibility for verifying the accuracy and completeness of the data.

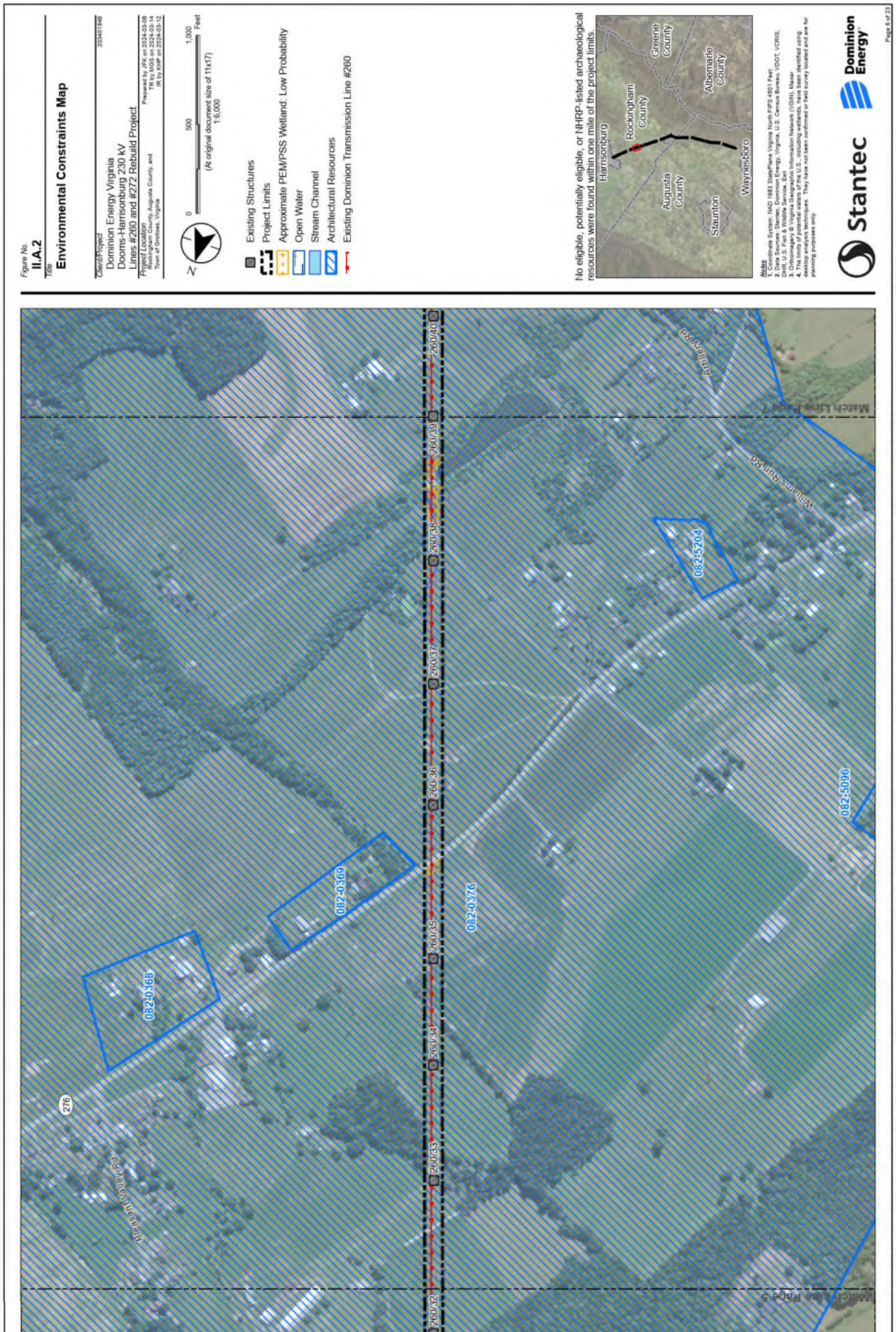


Figure No.
II.A.2
Title
Environmental Constraints Map
Client/Project
Dominion Energy Virginia
Dooms-Harrisonburg 230 kV
Lines #260 and #272 Rebuild Project
Project Location
Rockingham County, Augusta County, and Town of Grottoes, Virginia
0
500
1,000
Feet
(At original document size of 11x17)
1:6,000
Existing Structures
Project Limits
Approximate PEM/PSS Wetland: Low Probability
Open Water
Stream Channel
Architectural Resources
Existing Dominion Transmission Line #260
No eligible, potentially eligible, or NHRP-listed archaeological resources were found within one mile of the project limits.
Harrisonburg
Rockingham County
Greene County
Albemarle County
Augusta County
Staunton
Waynesboro
Stantec
Dominion Energy
260/32
260/33
260/34
260/35
260/36
260/37
260/38
260/39
260/40
082-0168
082-0169
082-0376
082-5204
082-5096
276

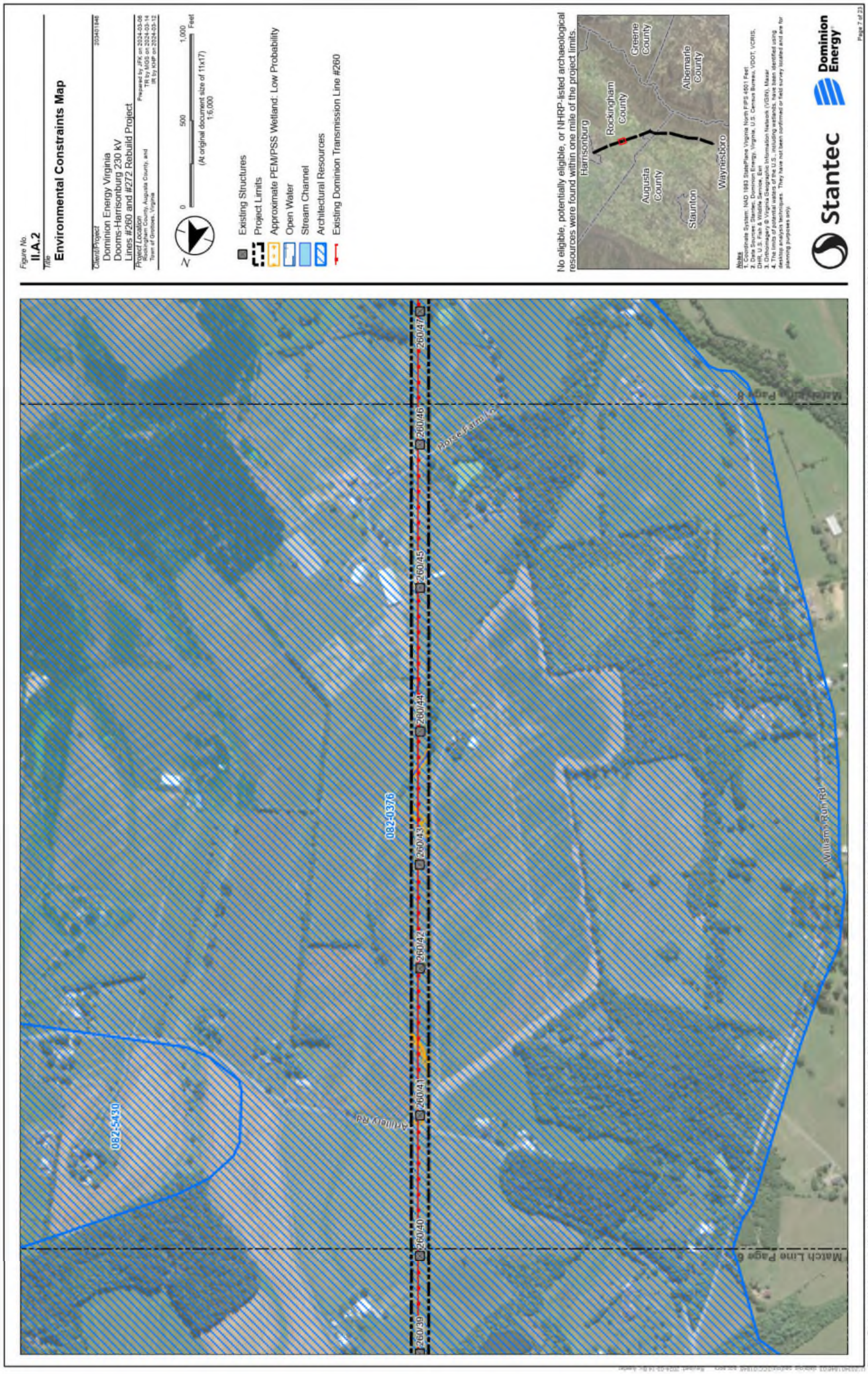


Figure No.
II.A.2
Title
Environmental Constraints Map
Client/Project
203401846
Dominion Energy Virginia
Dooms-Harrisonburg 230 kV
Lines #260 and #272 Rebuild Project
Project Location
Rockingham County, Augusta County, and Town of Grottoes, Virginia
Prepared by JFK on 2024-03-06
TR by MGS on 2024-03-14
IR by KHP on 2024-03-12
N
0
500
1,000
Feet
(At original document size of 11x17)
1:6,000
Existing Structures
Project Limits
Approximate PEM/PSS Wetland: Low Probability
Open Water
Stream Channel
Architectural Resources
Existing Dominion Transmission Line #260
No eligible, potentially eligible, or NHRP-listed archaeological resources were found within one mile of the project limits.
Harrisonburg
Rockingham County
Greene County
Albemarle County
Augusta County
Staunton
Waynesboro
Notes
1. Coordinate System: NAD 1983 StatePlane Virginia North FIPS 4501 Feet
2. Data Sources: Stantec, Dominion Energy, Virginia, U.S. Census Bureau, VDOT, VCRIS, DHR, U.S. Fish & Wildlife Service, Esri
3. Orthoimagery © Virginia Geographic Information Network (VGIN), Maxar
4. The limits of potential waters of the U.S., including wetlands, have been identified using desktop analysis techniques. They have not been confirmed or field survey located and are for planning purposes only.
Stantec
Dominion Energy
Page 7 of 23
260/39
260/40
260/41
260/42
260/43
260/44
260/45
260/46
260/47
082-0376
082-5430
Artillery Rd
Williams Run Rd
Match Line Page 6
Match Line Page 8

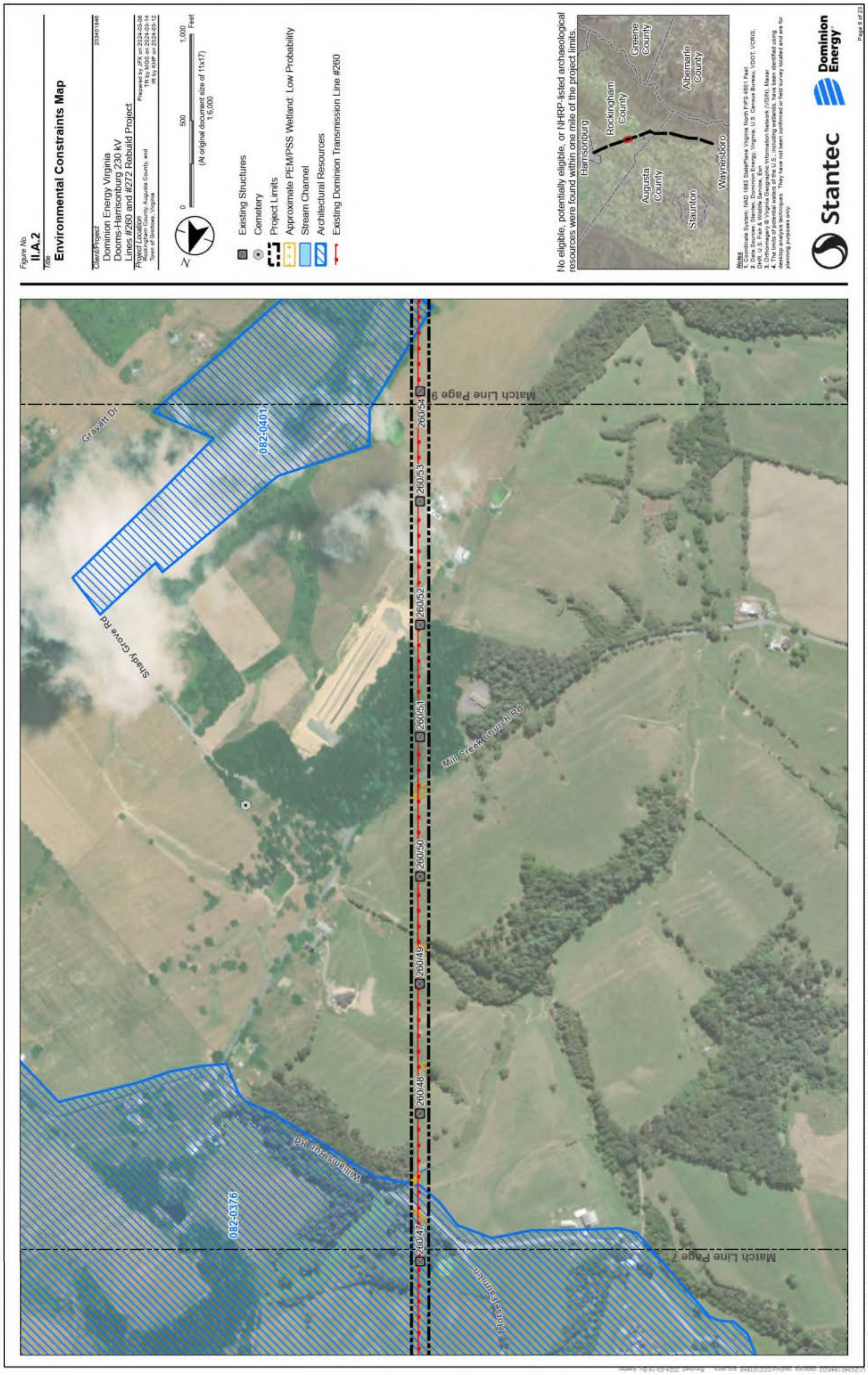


Figure No.
II.A.2
Title
Environmental Constraints Map
Client/Project
Dominion Energy Virginia
Dooms-Harrisonburg 230 kV
Lines #260 and #272 Rebuild Project
203401846
Project Location
Rockingham County, Augusta County, and Town of Grottoes, Virginia
Prepared by JFK on 2024-03-06
TR by MGG on 2024-03-14
IR by KHP on 2024-03-12
0
500
1,000
Feet
(At original document size of 11x17)
1:6,000
Existing Structures
Cemetery
Project Limits
Approximate PEM/PSS Wetland: Low Probability
Stream Channel
Architectural Resources
Existing Dominion Transmission Line #260
No eligible, potentially eligible, or NHRP-listed archaeological resources were found within one mile of the project limits.
Harrisonburg
Rockingham County
Greene County
Albemarle County
Augusta County
Staunton
Waynesboro
Notes
Stantec
Dominion Energy
082-0401
082-0376
Gravatt Dr
Shady Grove Rd
Mill Creek Church Rd
Williams Run Rd
Match Line Page 9
Match Line Page 7
260/47
260/48
260/49
260/50
260/51
260/52
260/53
260/54

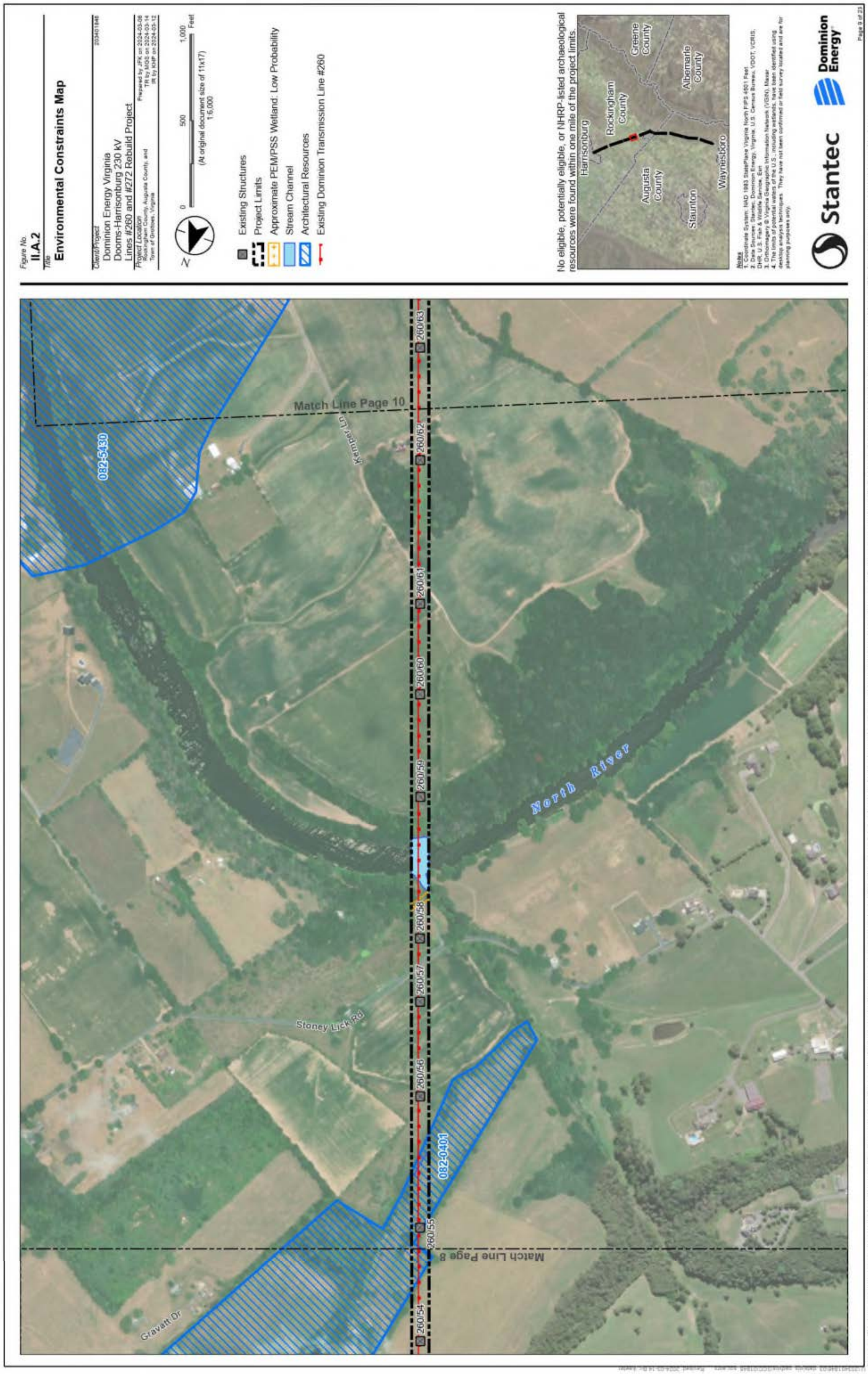


Figure No.
II.A.2
Title
Environmental Constraints Map
Client/Project
Dominion Energy Virginia
Dooms-Harrisonburg 230 kV
Lines #260 and #272 Rebuild Project
203401846
Project Location
Rockingham County, Augusta County, and Town of Grottoes, Virginia
0
500
1,000
Feet
(At original document size of 11x17)
1:6,000
Existing Structures
Project Limits
Approximate PEM/PSS Wetland: Low Probability
Stream Channel
Architectural Resources
Existing Dominion Transmission Line #260
No eligible, potentially eligible, or NHRP-listed archaeological resources were found within one mile of the project limits.
Harrisonburg
Rockingham County
Greene County
Augusta County
Albemarle County
Staunton
Waynesboro
Stantec
Dominion Energy
Match Line Page 10
Match Line Page 8
Kemper Ln
Stoney Lick Rd
Gravatt Dr
North River
082-5430
082-0401
260/54
260/55
260/56
260/57
260/58
260/59
260/60
260/61
260/62
260/63

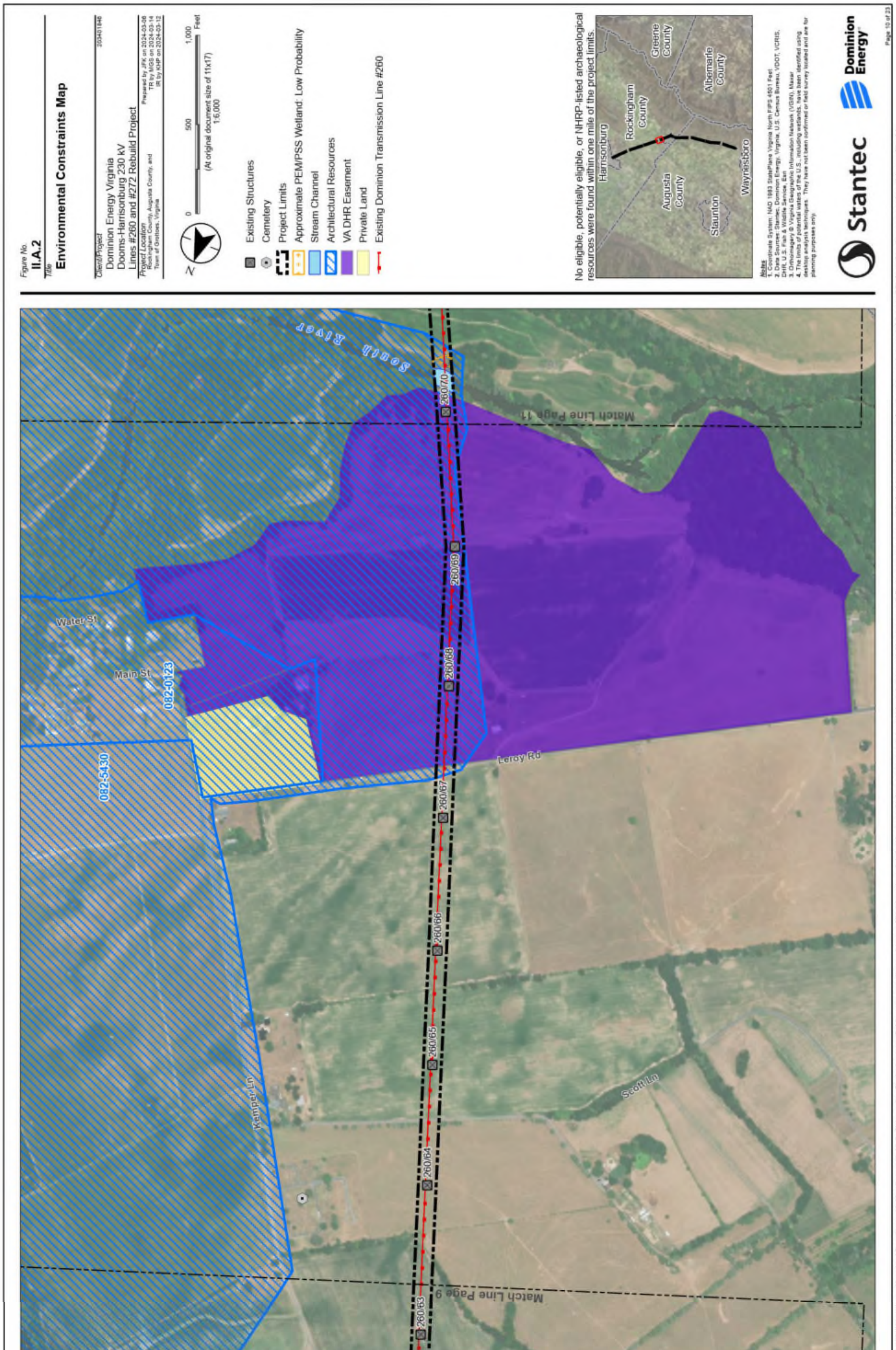


Figure No.
II.A.2
Title
Environmental Constraints Map
Client/Project
203401846
Dominion Energy Virginia
Dooms-Harrisonburg 230 kV
Lines #260 and #272 Rebuild Project
Project Location
Rockingham County, Augusta County, and
Town of Grottoes, Virginia
Prepared by JFK on 2024-03-06
TR by MGS on 2024-03-14
IR by KHP on 2024-03-12
N
0
500
1,000
Feet
(At original document size of 11x17)
1:6,000
Existing Structures
Cemetery
Project Limits
Approximate PEM/PSS Wetland: Low Probability
Stream Channel
Architectural Resources
VA DHR Easement
Private Land
Existing Dominion Transmission Line #260
No eligible, potentially eligible, or NHRP-listed archaeological resources were found within one mile of the project limits.
Harrisonburg
Rockingham County
Greene County
Augusta County
Albemarle County
Staunton
Waynesboro
Notes
1. Coordinate System: NAD 1983 StatePlane Virginia North FIPS 4501 Feet
2. Data Sources: Stantec, Dominion Energy, Virginia, U.S. Census Bureau, VDOT, VCRIS, DHR, U.S. Fish & Wildlife Service, Esri
3. Orthoimagery © Virginia Geographic Information Network (VGIN), Maxar
4. The limits of potential waters of the U.S., including wetlands, have been identified using desktop analysis techniques. They have not been confirmed or field survey located and are for planning purposes only.
Stantec
Dominion Energy
Page 10 of 23
South River
Match Line Page 11
Match Line Page 9
Water St
Main St
Leroy Rd
Kemper Ln
Scott Ln
082-0123
082-5430
260/63
260/64
260/65
260/66
260/67
260/68
260/69
260/70

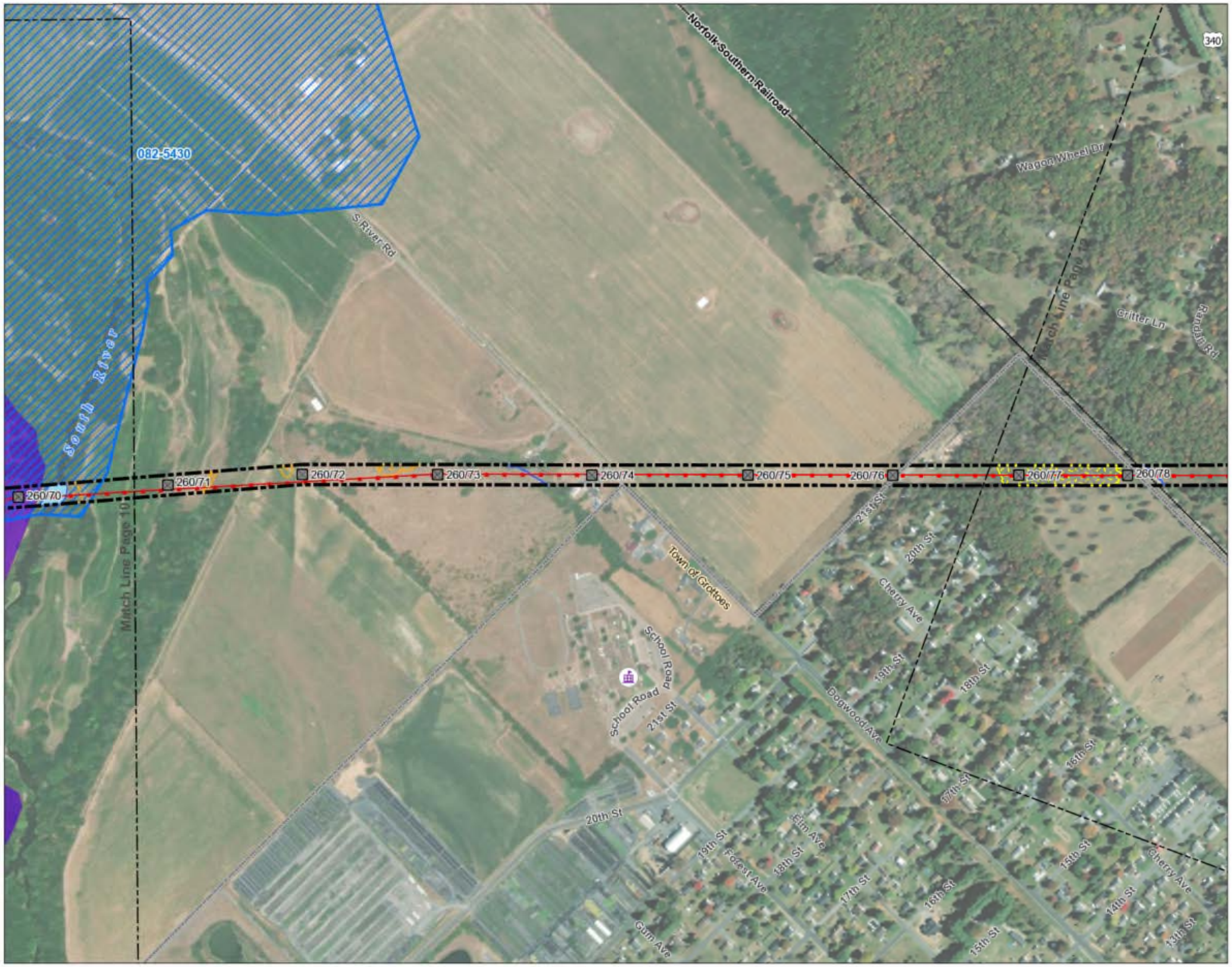


Figure No.
II.A.2

Title
Environmental Constraints Map

Client/Project 203401846
Dominion Energy Virginia
Dooms-Harrisonburg 230 kV
Lines #260 and #272 Rebuild Project

Project Location
Rockingham County, Augusta County, and
Town of Grottoes, Virginia

Prepared by JFK on 2024-03-06
TR by MGS on 2024-03-14
IR by KHP on 2024-03-12

N

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

- Existing Structures
- School
- Project Limits
- Approximate PEM/PSS Wetland: Medium Probability
- Approximate PEM/PSS Wetland: Low Probability
- Stream Channel
- Architectural Resources
- VA DHR Easement
- Existing Dominion Transmission Line #260
- Railroad

No eligible, potentially eligible, or NHRP-listed archaeological resources were found within one mile of the project limits.

Notes
1. Coordinate System: NAD 1983 StatePlane Virginia North FIPS 4501 Feet
2. Data Sources: Stantec, Dominion Energy, Virginia, U.S. Census Bureau, VDOT, VCRIS, DHR, U.S. Fish & Wildlife Service, Esri
3. Orthoimagery © Virginia Geographic Information Network (VGIN), Maxar
4. The limits of potential waters of the U.S., including wetlands, have been identified using desktop analysis techniques. They have not been confirmed or field survey located and are for planning purposes only.

Stantec
Dominion Energy

Page 11 of 23

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

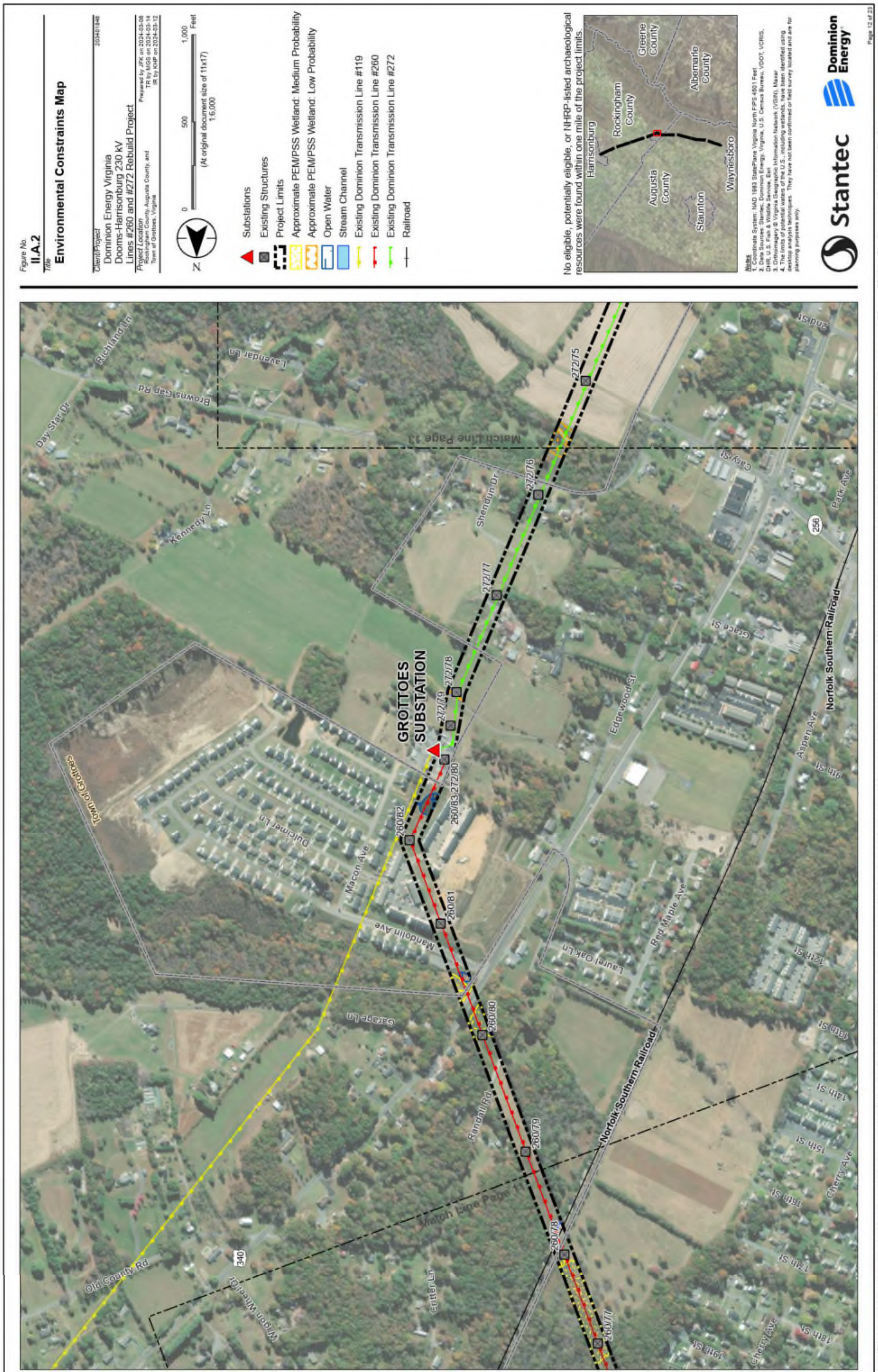


Figure No.
II.A.2
Title
Environmental Constraints Map
Client/Project
203401846
Dominion Energy Virginia
Dooms-Harrisonburg 230 kV
Lines #260 and #272 Rebuild Project
Project Location
Rockingham County, Augusta County, and Town of Grottoes, Virginia
Prepared by JFK on 2024-03-06
TR by MGS on 2024-03-14
IR by KHP on 2024-03-12
0
500
1,000
Feet
(At original document size of 11x17)
1:6,000
N
Substations
Existing Structures
Project Limits
Approximate PEM/PSS Wetland: Medium Probability
Approximate PEM/PSS Wetland: Low Probability
Open Water
Stream Channel
Existing Dominion Transmission Line #119
Existing Dominion Transmission Line #260
Existing Dominion Transmission Line #272
Railroad
No eligible, potentially eligible, or NHRP-listed archaeological resources were found within one mile of the project limits.
Harrisonburg
Rockingham County
Greene County
Albemarle County
Augusta County
Staunton
Waynesboro
Stantec
Dominion Energy
GROTTOES SUBSTATION
Town of Grottoes
Match Line Page 13
Match Line Page 11
Norfolk Southern Railroad
260/77
260/78
260/79
260/80
260/81
260/82
260/83,272/80
272/79
272/78
272/77
272/76
272/75
Old County Rd
Wagon Wheel Dr
Critter Ln
Randall Rd
Garage Ln
Mandolin Ave
Macon Ave
Dulcimer Ln
Edgewood St
Shendun Dr
Kennedy Ln
Day Star Dr
Browns Gap Rd
Richland Ln
Lavender Ln
Cary St
Park Ave
Grace St
Aspen Ave
Red Maple Ave
Laurel Oak Ln
Cherry Ave
256
340
Page 12 of 23

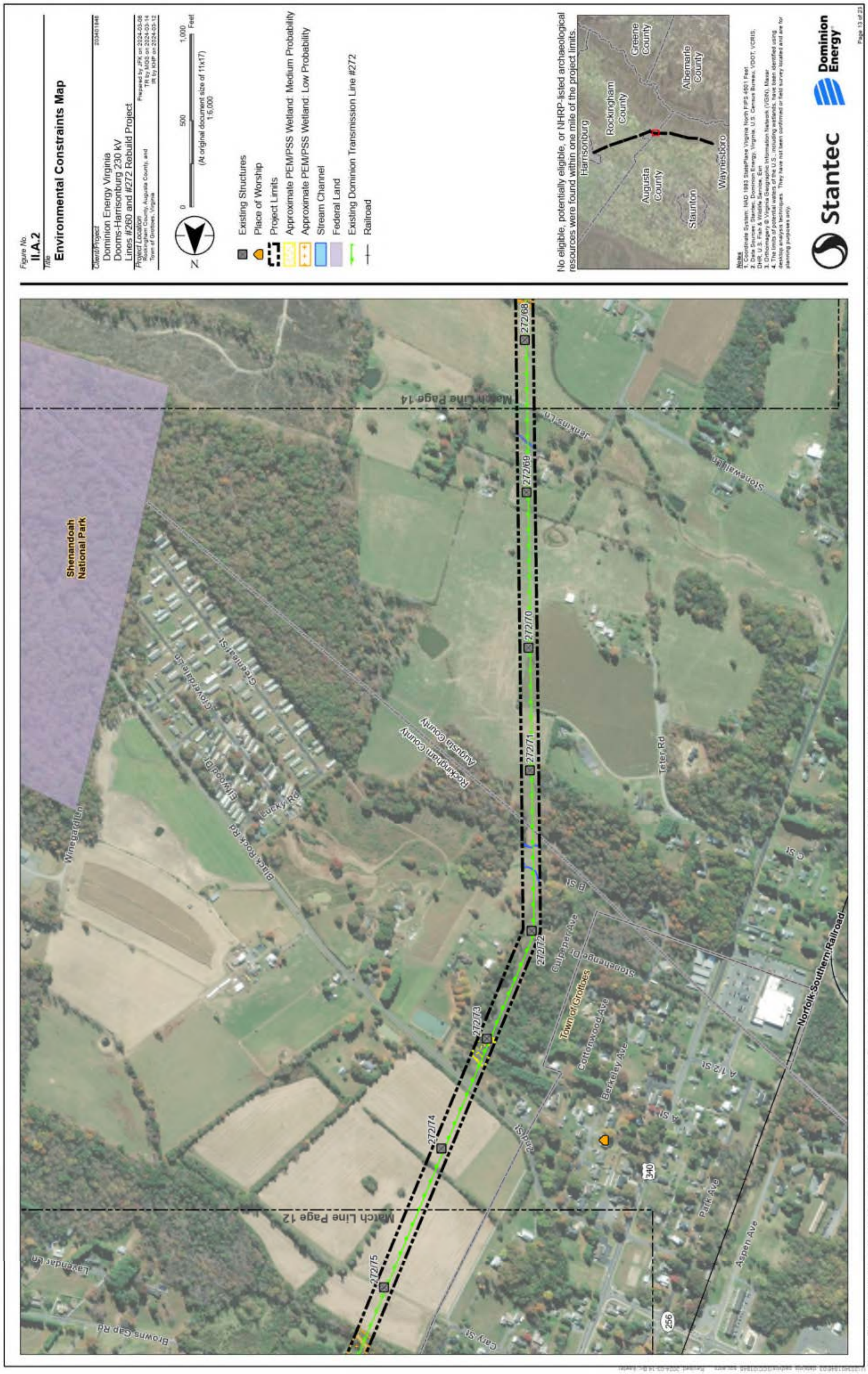


Figure No.
II.A.2
Title
Environmental Constraints Map
Client/Project
Dominion Energy Virginia
Dooms-Harrisonburg 230 kV
Lines #260 and #272 Rebuild Project
Project Location
(At original document size of 11x17)
1:6,000
Existing Structures
Place of Worship
Project Limits
Approximate PEM/PSS Wetland: Medium Probability
Approximate PEM/PSS Wetland: Low Probability
Stream Channel
Federal Land
Existing Dominion Transmission Line #272
Railroad
No eligible, potentially eligible, or NHRP-listed archaeological resources were found within one mile of the project limits.
Harrisonburg
Rockingham County
Greene County
Albemarle County
Augusta County
Staunton
Waynesboro
Stantec
Dominion Energy
Shenandoah National Park
Match Line Page 14
Match Line Page 12
Rockingham County
Augusta County
Town of Grottoes
Norfolk Southern Railroad
272/68
272/69
272/70
272/71
272/72
272/73
272/74
272/75
Jenkins Ln
Stonewall Ln
Teter Rd
Black Rock Rd
Lucky Rd
Elmwood Dr
Cloverdale Ln
Greenleaf St
Winegard Ln
Culpeper Ave
Stonehenge Dr
Cottonwood Ave
Berkeley Ave
Park Ave
Aspen Ave
Lavender Ln
Browns Gap Rd
Cary St
A 1/2 St
B St
C St
340
256

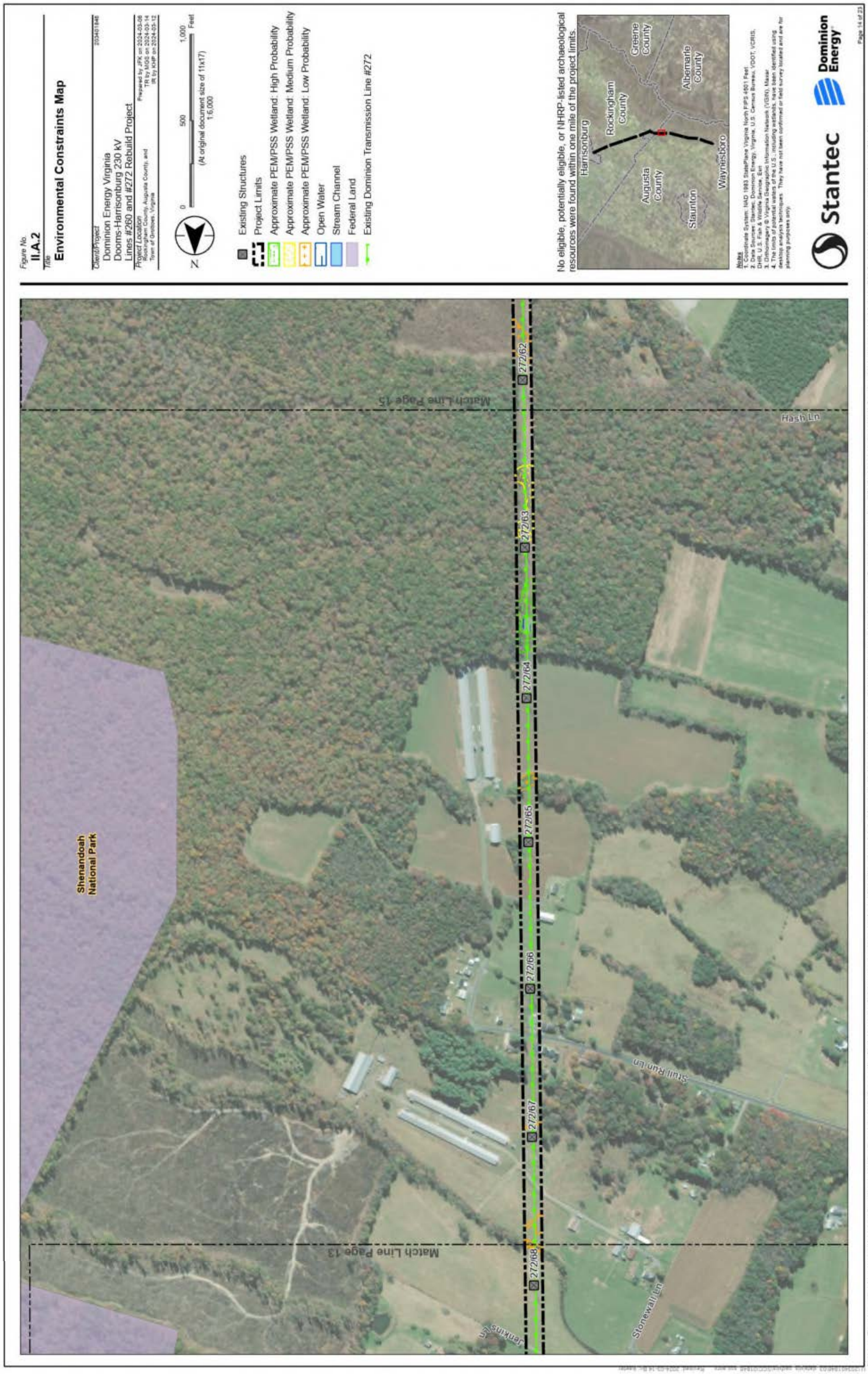


Figure No.
II.A.2
Title
Environmental Constraints Map
203401846
Client/Project
Dominion Energy Virginia
Dooms-Harrisonburg 230 kV
Lines #260 and #272 Rebuild Project
Project Location
Rockingham County, Augusta County, and Town of Grottoes, Virginia
Prepared by JFK on 2024-03-08
TR by MGG on 2024-03-14
IR by KHP on 2024-03-12
0
500
1,000
Feet
(At original document size of 11x17)
1:6,000
Existing Structures
Project Limits
Approximate PEM/PSS Wetland: High Probability
Approximate PEM/PSS Wetland: Medium Probability
Approximate PEM/PSS Wetland: Low Probability
Open Water
Stream Channel
Federal Land
Existing Dominion Transmission Line #272
No eligible, potentially eligible, or NHRP-listed archaeological resources were found within one mile of the project limits.
Harrisonburg
Rockingham County
Greene County
Albemarle County
Augusta County
Staunton
Waynesboro
Stantec
Dominion Energy
Shenandoah National Park
Match Line Page 15
Match Line Page 13
Hash Ln
Stull Run Ln
Stonewall Ln
Jenkins Ln
272/62
272/63
272/64
272/65
272/66
272/67
272/68

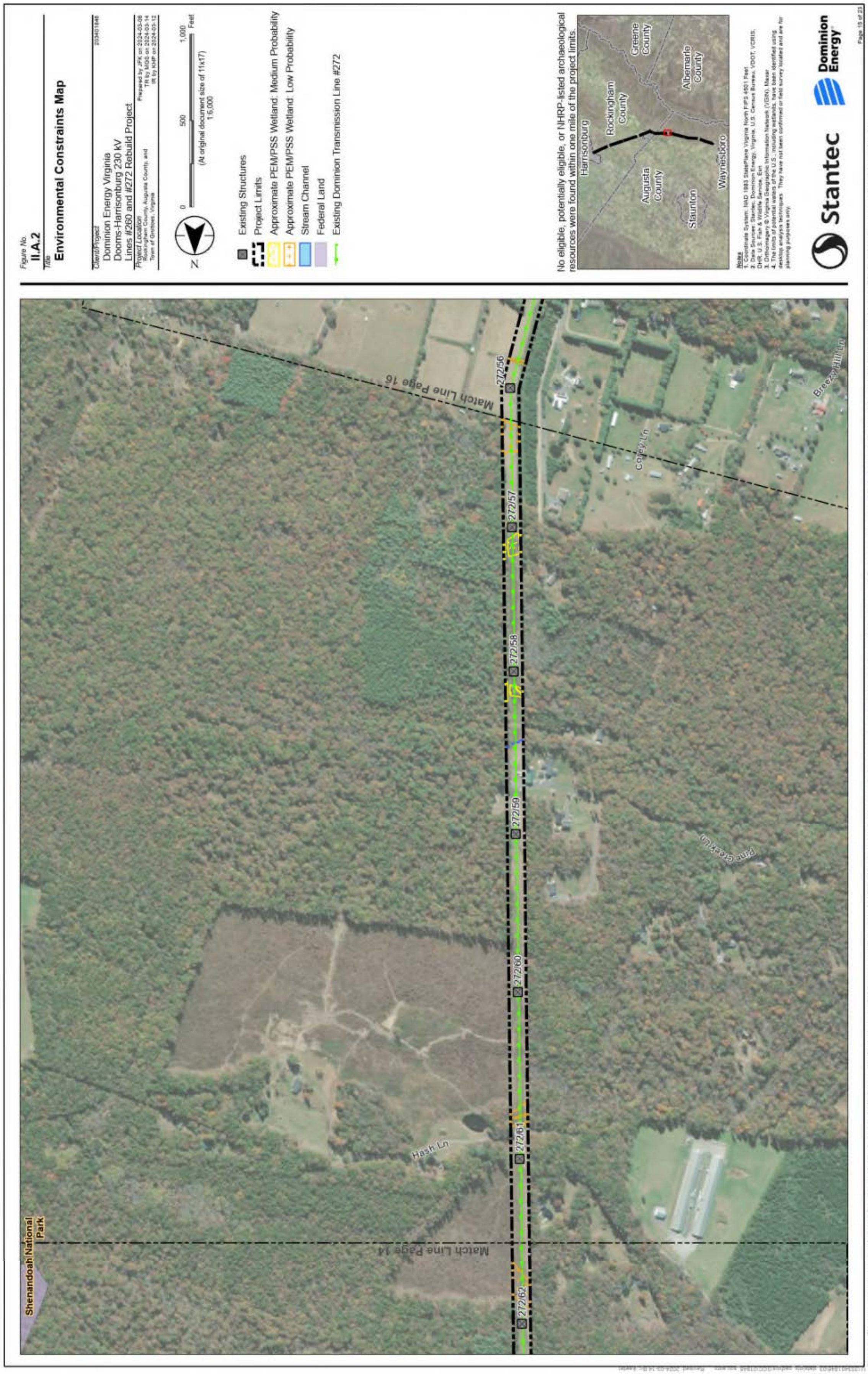


Figure No.
II.A.2
Title
Environmental Constraints Map
Client/Project
Dominion Energy Virginia
Dooms-Harrisonburg 230 kV
Lines #260 and #272 Rebuild Project
Project Location
Rockingham County, Augusta County, and Town of Grottoes, Virginia
Prepared by JFK on 2024-03-06
TR by MGS on 2024-03-14
IR by KHP on 2024-03-12
N
0
500
1,000
Feet
(At original document size of 11x17)
1:6,000
Existing Structures
Project Limits
Approximate PEM/PSS Wetland: Medium Probability
Approximate PEM/PSS Wetland: Low Probability
Stream Channel
Federal Land
Existing Dominion Transmission Line #272
No eligible, potentially eligible, or NHRP-listed archaeological resources were found within one mile of the project limits.
Harrisonburg
Rockingham County
Greene County
Augusta County
Staunton
Albemarle County
Waynesboro
Stantec
Dominion Energy
Shenandoah National Park
Match Line Page 14
Match Line Page 16
272/56
272/57
272/58
272/59
272/60
272/61
272/62
Hash Ln
Coyey Ln
Breezy Hill Ln
Page 15 of 23

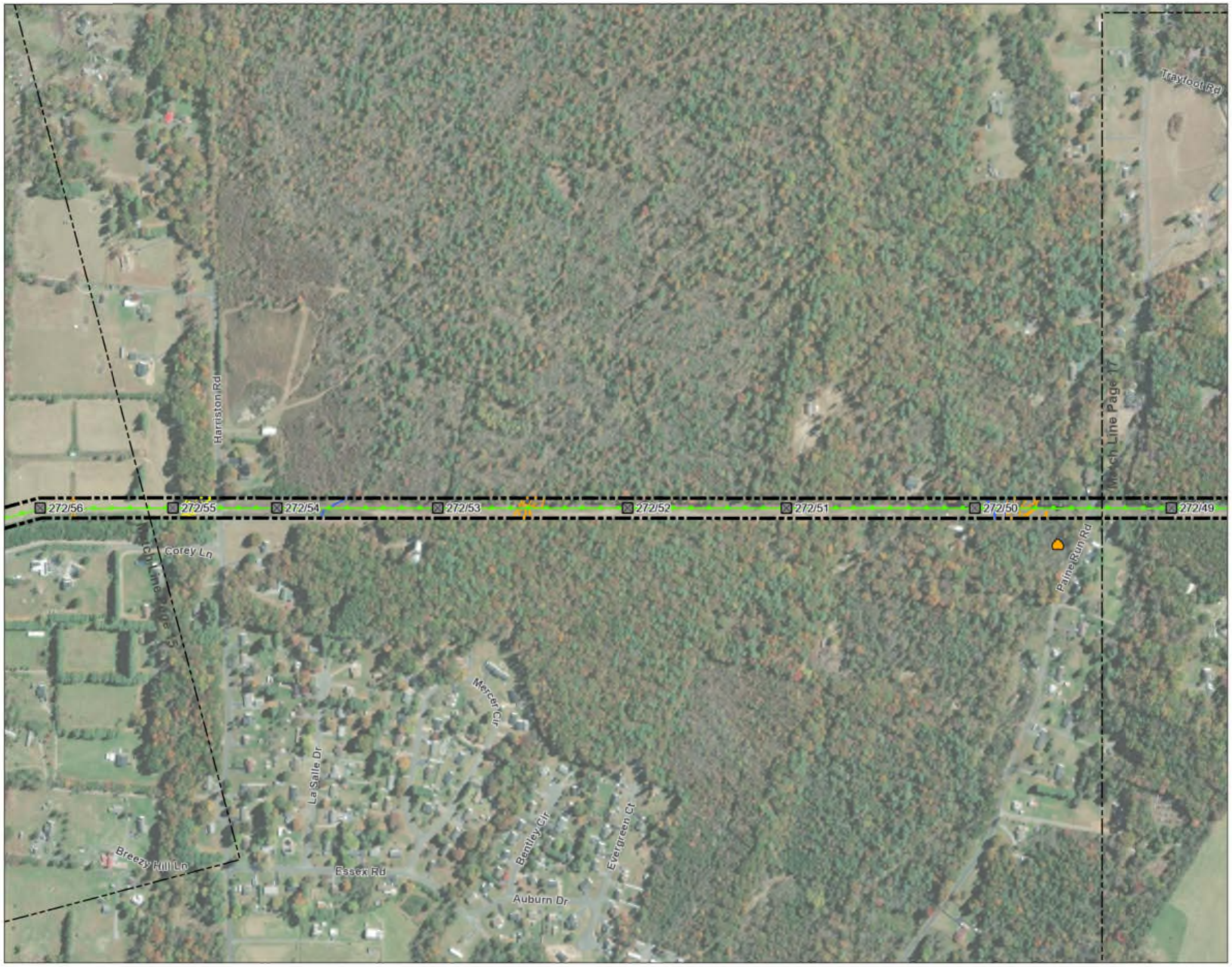


Figure No.
II.A.2

Title
Environmental Constraints Map

Client/Project 203401846
Dominion Energy Virginia
Dooms-Harrisonburg 230 kV
Lines #260 and #272 Rebuild Project

Project Location
Rockingham County, Augusta County, and Town of Grottoes, Virginia

Prepared by JFK on 2024-03-06
TR by MGS on 2024-03-14
IR by KHP on 2024-03-12

N

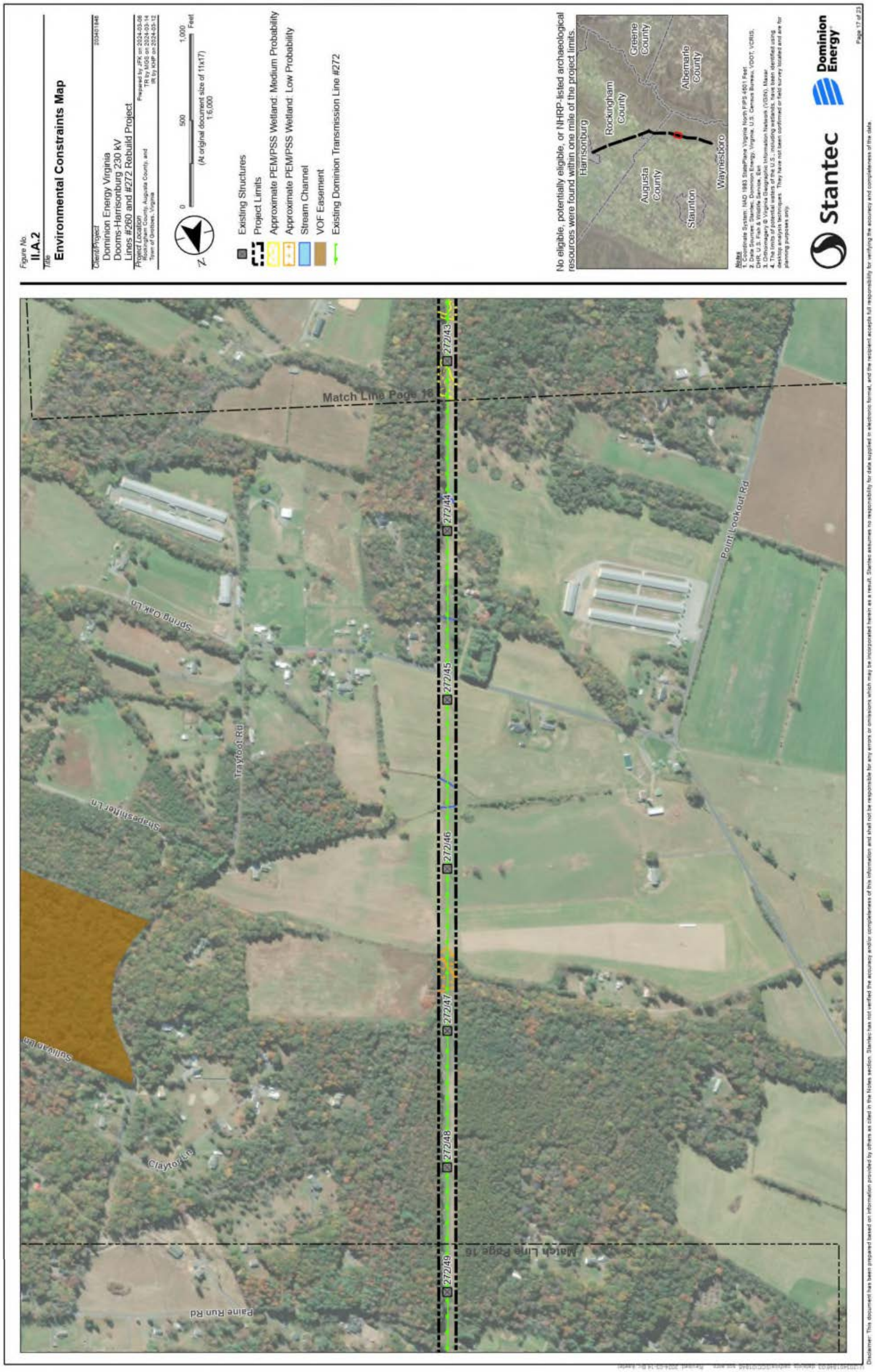
0 500 1,000 Feet
(At original document size of 11x17)
1:6,000

- Existing Structures
- Place of Worship
- Project Limits
- Approximate PEM/PSS Wetland: Medium Probability
- Approximate PEM/PSS Wetland: Low Probability
- Stream Channel
- Existing Dominion Transmission Line #272

No eligible, potentially eligible, or NHRP-listed archaeological resources were found within one mile of the project limits.

Notes
1. Coordinate System: NAD 1983 StatePlane Virginia North FIPS 4501 Feet
2. Data Sources: Stantec, Dominion Energy, Virginia, U.S. Census Bureau, VDOT, VCRIS, DHR, U.S. Fish & Wildlife Service, Esri
3. Orthoimagery © Virginia Geographic Information Network (VGIN), Maxar
4. The limits of potential waters of the U.S., including wetlands, have been identified using desktop analysis techniques. They have not been confirmed or field survey located and are for planning purposes only.

Page 16 of 23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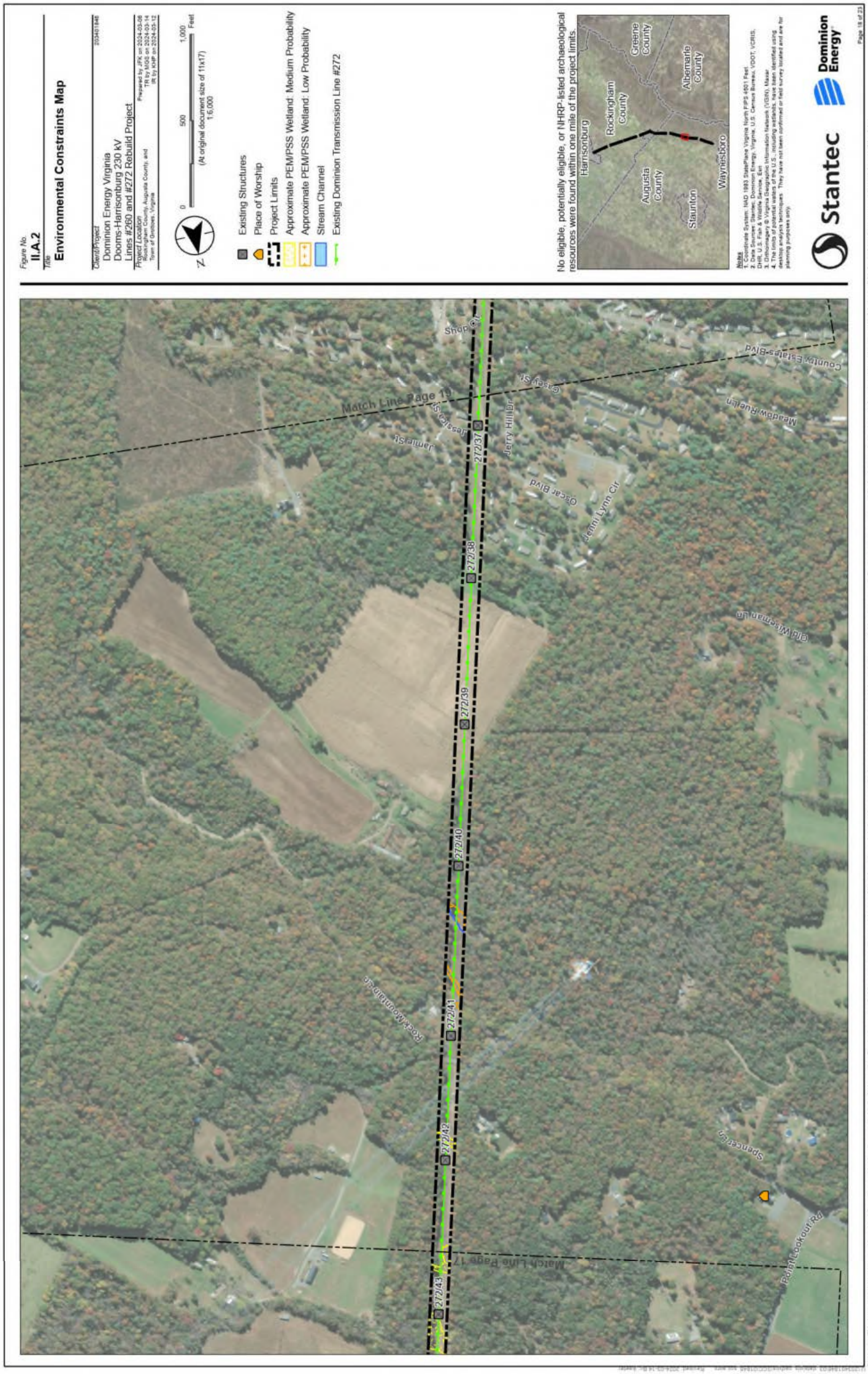
II.A.2
Title
Environmental Constraints Map
Client/Project
Dominion Energy Virginia
Dooms-Harrisonburg 230 kV
Lines #260 and #272 Rebuild Project
Project Location
Rockingham County, Augusta County, and Town of Grottoes, Virginia
0 500 1,000 Feet
(At original document size of 11x17)
1:6,000
Existing Structures
Project Limits
Approximate PEM/PSS Wetland: Medium Probability
Approximate PEM/PSS Wetland: Low Probability
Stream Channel
VOF Easement
Existing Dominion Transmission Line #272
No eligible, potentially eligible, or NHRP-listed archaeological resources were found within one mile of the project limits.
Harrisonburg
Rockingham County
Greene County
Albemarle County
Augusta County
Staunton
Waynesboro
Stantec
Dominion Energy
Match Line Page 16
Match Line Page 18
272/43
272/44
272/45
272/46
272/47
272/48
272/49
Spring Oak Ln
Traytoot Rd
Shapesliffer Ln
Sullivan Ln
Clayton Ln
Paine Run Rd
Point Lookout Rd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II.A.2
Title
Environmental Constraints Map
Client/Project
203401846
Dominion Energy Virginia
Dooms-Harrisonburg 230 kV
Lines #260 and #272 Rebuild Project
Project Location
0
500
1,000
Feet
(At original document size of 11x17)
1:6,000
Existing Structures
Place of Worship
Project Limits
Approximate PEM/PSS Wetland: Medium Probability
Approximate PEM/PSS Wetland: Low Probability
Stream Channel
Existing Dominion Transmission Line #272
No eligible, potentially eligible, or NHRP-listed archaeological resources were found within one mile of the project limits.
Harrisonburg
Rockingham County
Greene County
Albemarle County
Augusta County
Staunton
Waynesboro
Notes
Stantec
Dominion Energy
Page 18 of 23
Match Line Page 19
Match Line Page 17
Shop Ct
Country Estates Blvd
Meadow Run Ln
Jamie St
Jerry Hill Dr
Oscar Blvd
Jenni Lynn Cir
Spencer Ln
Point Lookout Rd
272/37
272/38
272/39
272/40
272/41
272/42
272/43

Figure No.
II.A.2
Title
Environmental Constraints Map
Client/Project
203401846
Dominion Energy Virginia
Dooms-Harrisonburg 230 kV
Lines #260 and #272 Rebuild Project
Project Location
Rockingham County, Augusta County, and Town of Grottoes, Virginia
Prepared by JFK on 2024-03-08
TR by MGS on 2024-03-14
IR by KHP on 2024-03-12
0
500
1,000
Feet
(At original document size of 11x17)
1:6,000
N
Existing Structures
Project Limits
Approximate PEM/PSS Wetland: Medium Probability
Approximate PEM/PSS Wetland: Low Probability
Stream Channel
Existing Dominion Transmission Line #272
No eligible, potentially eligible, or NHRP-listed archaeological resources were found within one mile of the project limits.
Harrisonburg
Rockingham County
Greene County
Albemarle County
Augusta County
Staunton
Waynesboro
Notes
Stantec
Dominion Energy
Match Line Page 20
Match Line Page 18
272/30
272/31
272/32
272/33
272/34
272/35
272/36
Forest Chapel Ln
Spradlin Ln
Thorofare Rd
Kelsie Lee Ln
Emery Dr
Dales Rd
Jules Ln
Wolfe Ln
Jerry Hill Dr
Samantha Ln
Mickeys Ln
Jessica St
County Estates Blvd

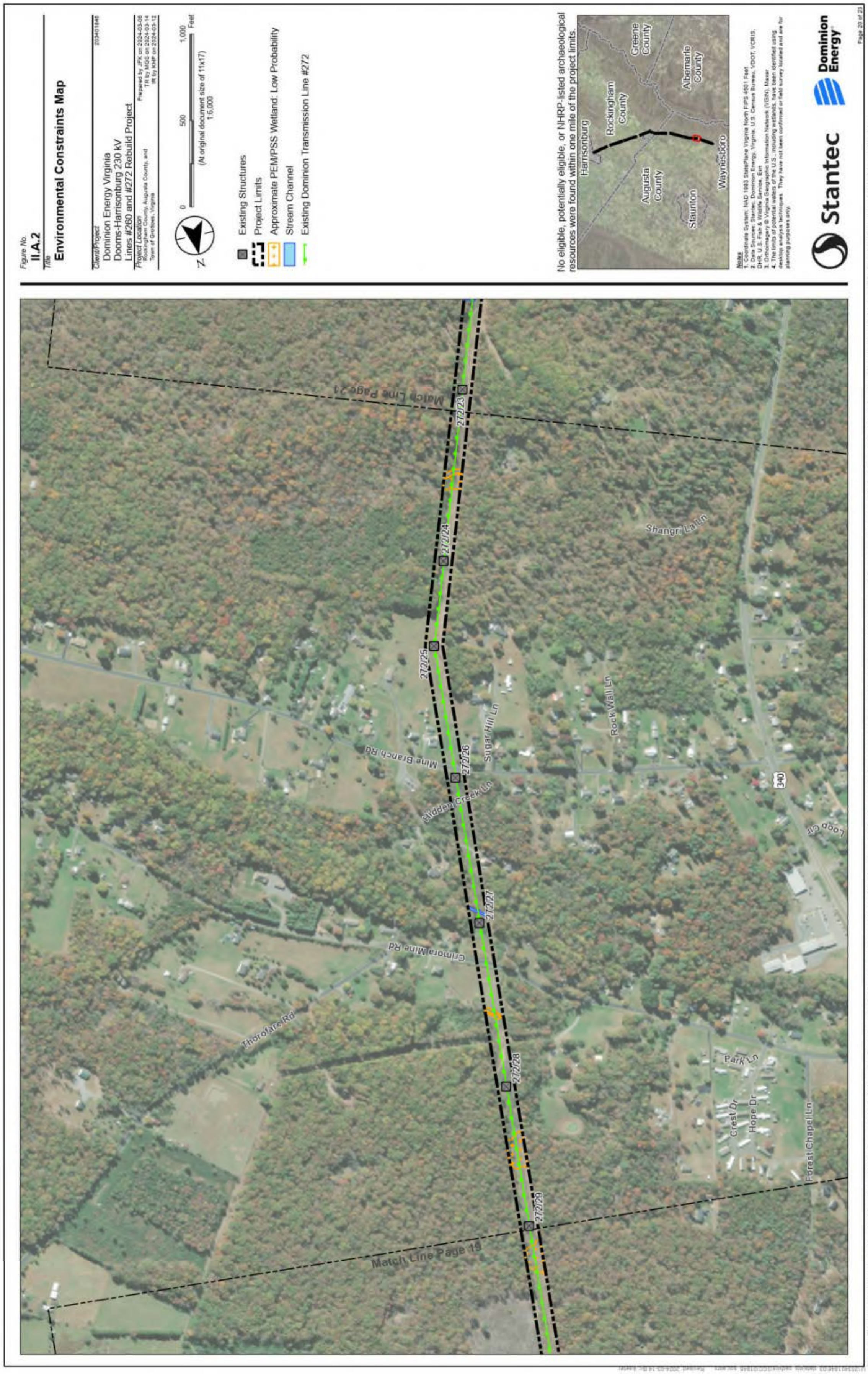
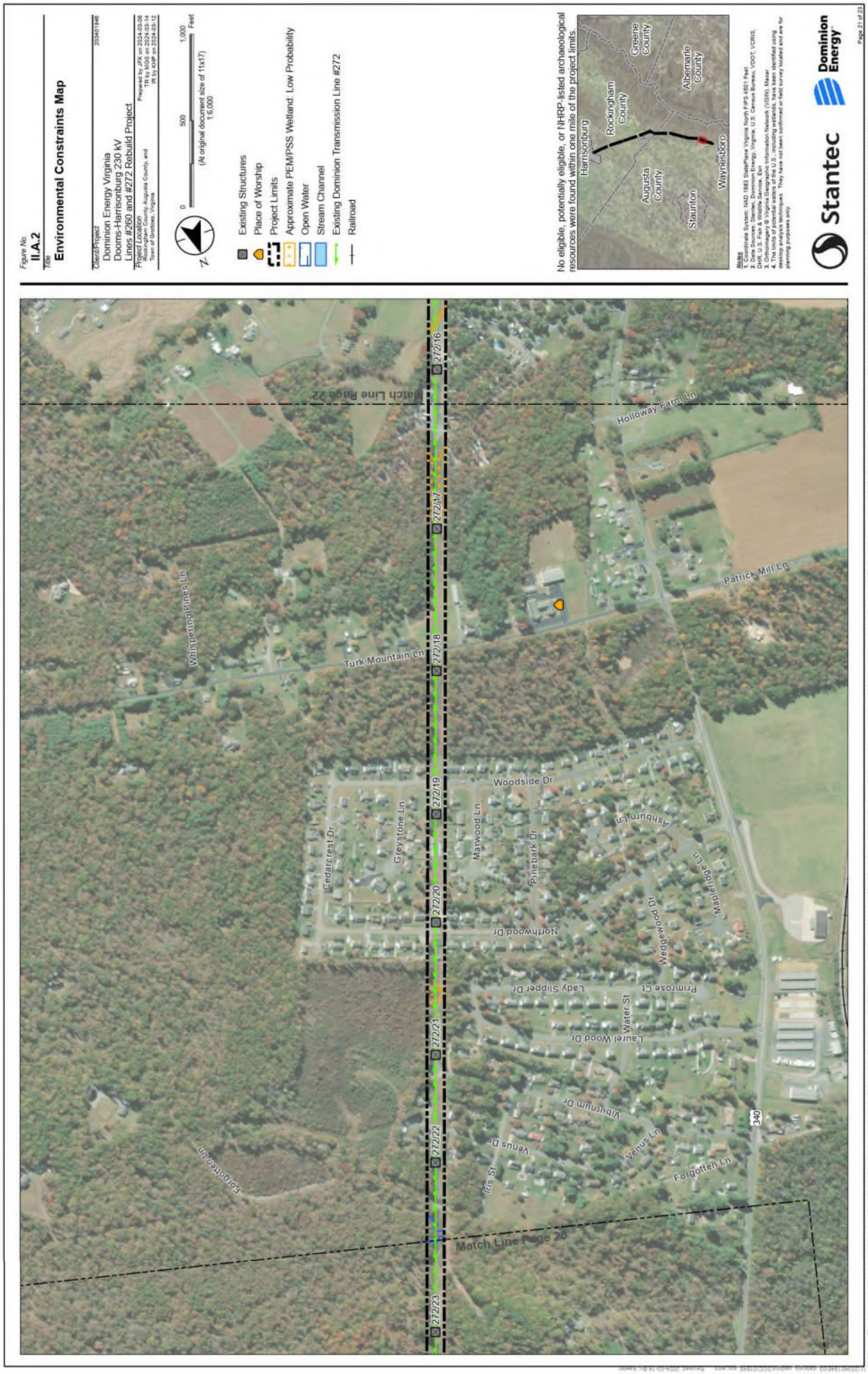


Figure No.
II.A.2
Title
Environmental Constraints Map
Client/Project
Dominion Energy Virginia
Dooms-Harrisonburg 230 kV
Lines #260 and #272 Rebuild Project
Project Location
Rockingham County, Augusta County, and Town of Grottoes, Virginia
0
500
1,000
Feet
(At original document size of 11x17)
1:6,000
Existing Structures
Project Limits
Approximate PEM/PSS Wetland: Low Probability
Stream Channel
Existing Dominion Transmission Line #272
No eligible, potentially eligible, or NHRP-listed archaeological resources were found within one mile of the project limits.
Harrisonburg
Rockingham County
Greene County
Augusta County
Albemarle County
Staunton
Waynesboro
Stantec
Dominion Energy
Match Line Page 19
Match Line Page 21
272/23
272/24
272/25
272/26
272/27
272/28
272/29
Thorofare Rd
Crimora Mine Rd
Mine Branch Rd
Hidden Creek Ln
Sugar Hill Ln
Rock Wall Ln
Shangri La Ln
Crest Dr
Hope Dr
Park Ln
Forest Chapel Ln
Loop Cir
340
Page 20 of 23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II.A.2
Title
Environmental Constraints Map
Client/Project
Dominion Energy Virginia
Dooms-Harrisonburg 230 kV
Lines #260 and #272 Rebuild Project
Project Location
0
500
1,000
Feet
(At original document size of 11x17)
1:6,000
Existing Structures
Place of Worship
Project Limits
Approximate PEM/PSS Wetland: Low Probability
Open Water
Stream Channel
Existing Dominion Transmission Line #272
Railroad
No eligible, potentially eligible, or NRHP-listed archaeological resources were found within one mile of the project limits.
Harrisonburg
Rockingham County
Greene County
Albemarle County
Augusta County
Staunton
Waynesboro
Stantec
Dominion Energy
Match Line Page 22
Match Line Page 20
272/16
272/17
272/18
272/19
272/20
272/21
272/22
272/23
Holloway Farm Ln
Patrick Mill Ln
Turk Mountain Ln
Whispering Pines Ln
Woodside Dr
Ashburn Ln
Cedarcrest Dr
Greystone Ln
Marwood Ln
Pinebark Dr
Mapleridge Ln
Northwood Dr
Wedgewood Dr
Lady Slipper Dr
Primrose Ct
Water St
Laurel Wood Dr
Viburnum Dr
Venus Dr
Venus Ln
Iris St
Forgotten Ln
340

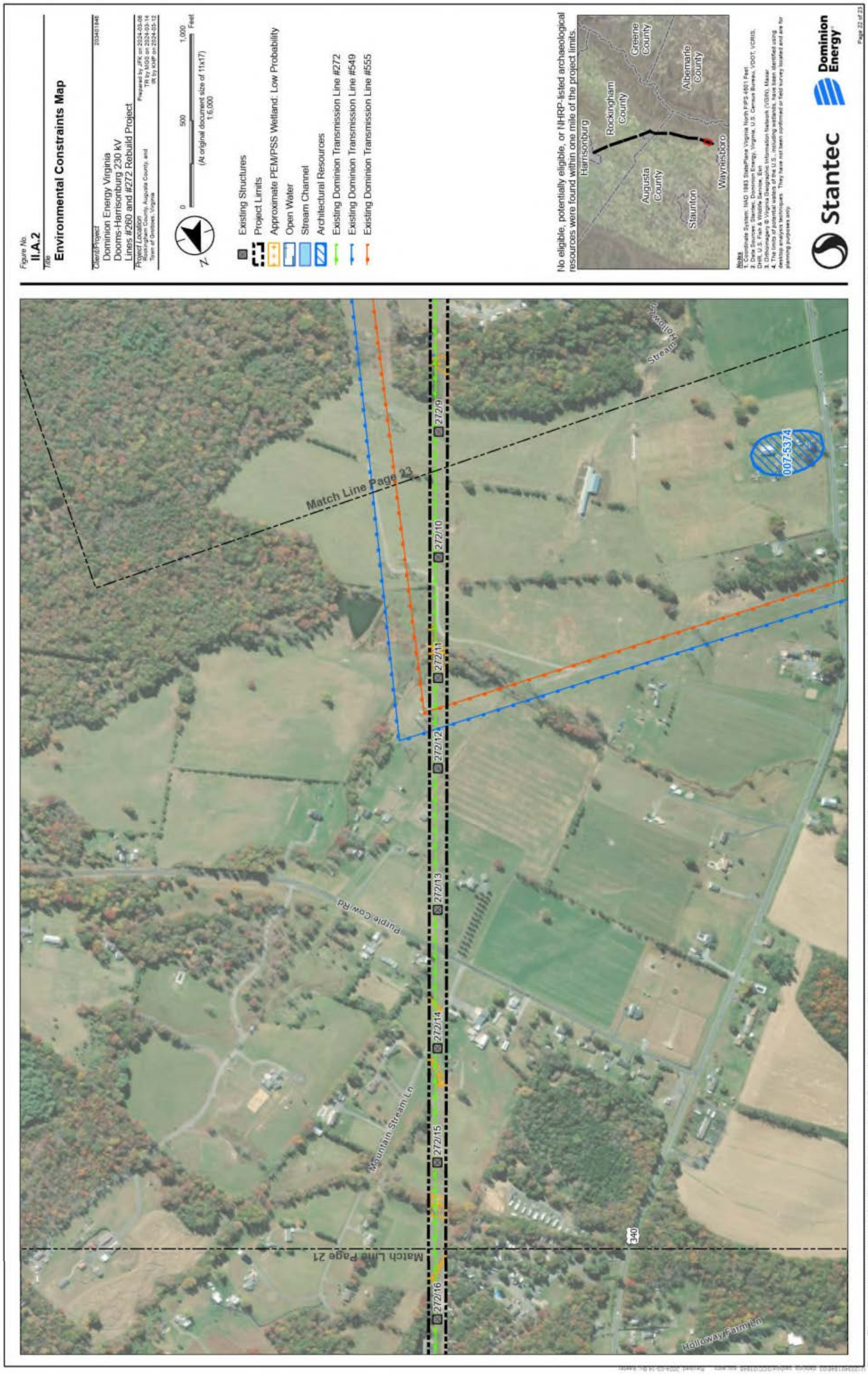


Figure No.
II.A.2
Title
Environmental Constraints Map
Client/Project
Dominion Energy Virginia
Dooms-Harrisonburg 230 kV
Lines #260 and #272 Rebuild Project
Project Location
0
500
1,000
Feet
(At original document size of 11x17)
1:6,000
N
Existing Structures
Project Limits
Approximate PEM/PSS Wetland: Low Probability
Open Water
Stream Channel
Architectural Resources
Existing Dominion Transmission Line #272
Existing Dominion Transmission Line #549
Existing Dominion Transmission Line #555
No eligible, potentially eligible, or NHRP-listed archaeological resources were found within one mile of the project limits.
Harrisonburg
Rockingham County
Greene County
Augusta County
Albemarle County
Staunton
Waynesboro
Notes
Stantec
Dominion Energy
Match Line Page 23
Match Line Page 21
007-5374
272/9
272/10
272/11
272/12
272/13
272/14
272/15
272/16
Purple Cow Rd
Mountain Stream Ln
Holloway Farm Ln
Stream Hollow
340

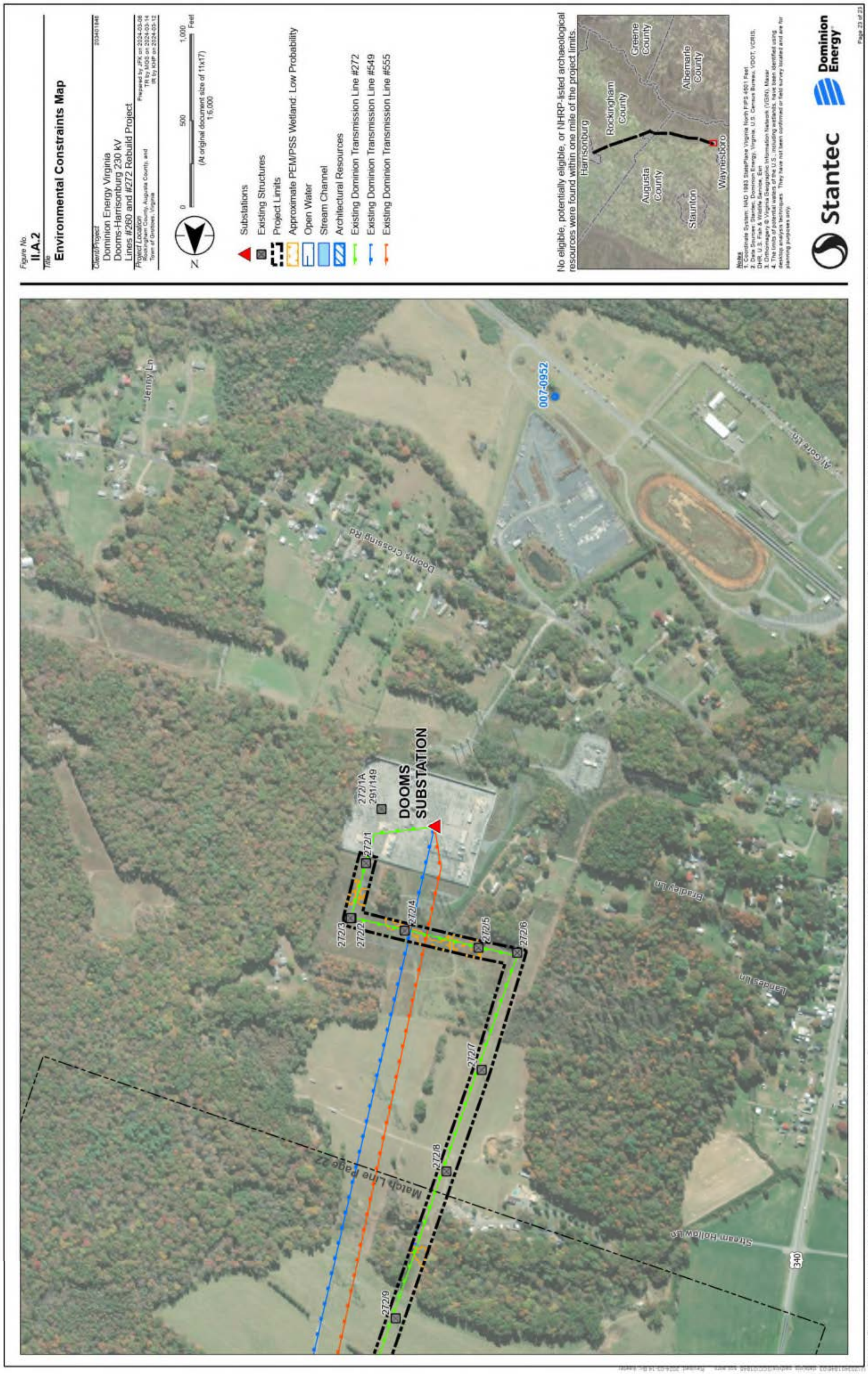


Figure No.
II.A.2
Title
Environmental Constraints Map
Client/Project
203401846
Dominion Energy Virginia
Dooms-Harrisonburg 230 kV
Lines #260 and #272 Rebuild Project
Project Location
Rockingham County, Augusta County, and Town of Grottoes, Virginia
Prepared by JFK on 2024-03-08
TR by MGG on 2024-03-14
IR by KHP on 2024-03-12
N
0
500
1,000
Feet
(At original document size of 11x17)
1:6,000
Substations
Existing Structures
Project Limits
Approximate PEM/PSS Wetland: Low Probability
Open Water
Stream Channel
Architectural Resources
Existing Dominion Transmission Line #272
Existing Dominion Transmission Line #549
Existing Dominion Transmission Line #555
No eligible, potentially eligible, or NHRP-listed archaeological resources were found within one mile of the project limits.
Harrisonburg
Rockingham County
Greene County
Albemarle County
Augusta County
Staunton
Waynesboro
Notes
Stantec
Dominion Energy
Page 23 of 23
DOOMS SUBSTATION
272/1A
291/149
272/1
272/2
272/3
272/4
272/5
272/6
272/7
272/8
272/9
007-0952
Jenny Ln
Dooms Crossing Rd
Bradley Ln
Landes Ln
Al Gore Ln
Stream Hollow Ln
Match Line Page 22
340

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. The Rebuild Project is located within existing rights-of-way or on Company-owned property and no additional rights-of-way are needed.

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;

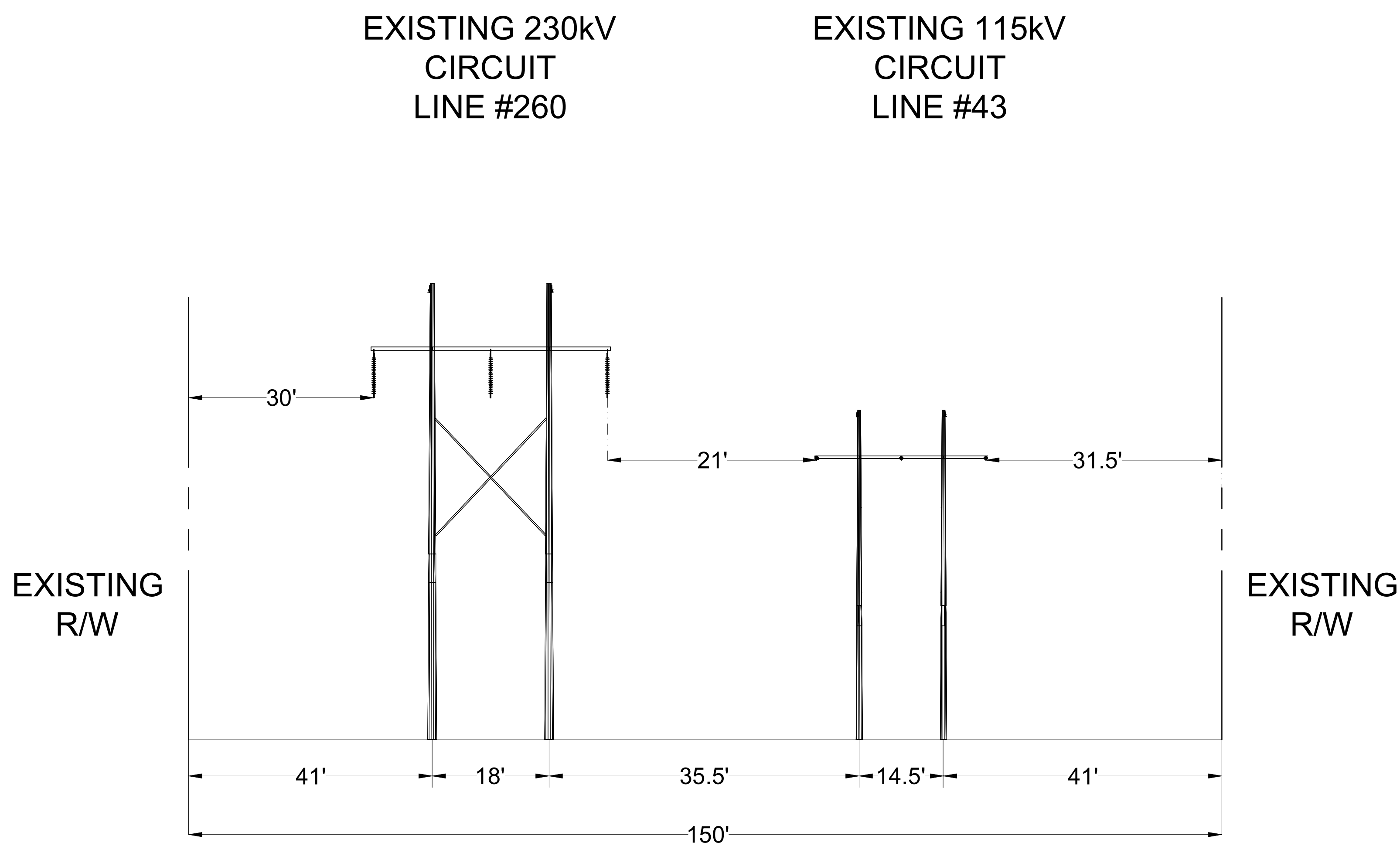
b. Lateral distance between the conductors and edge of ROW;

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 Attachment II.A.5.a through Attachment II.A.5.l.

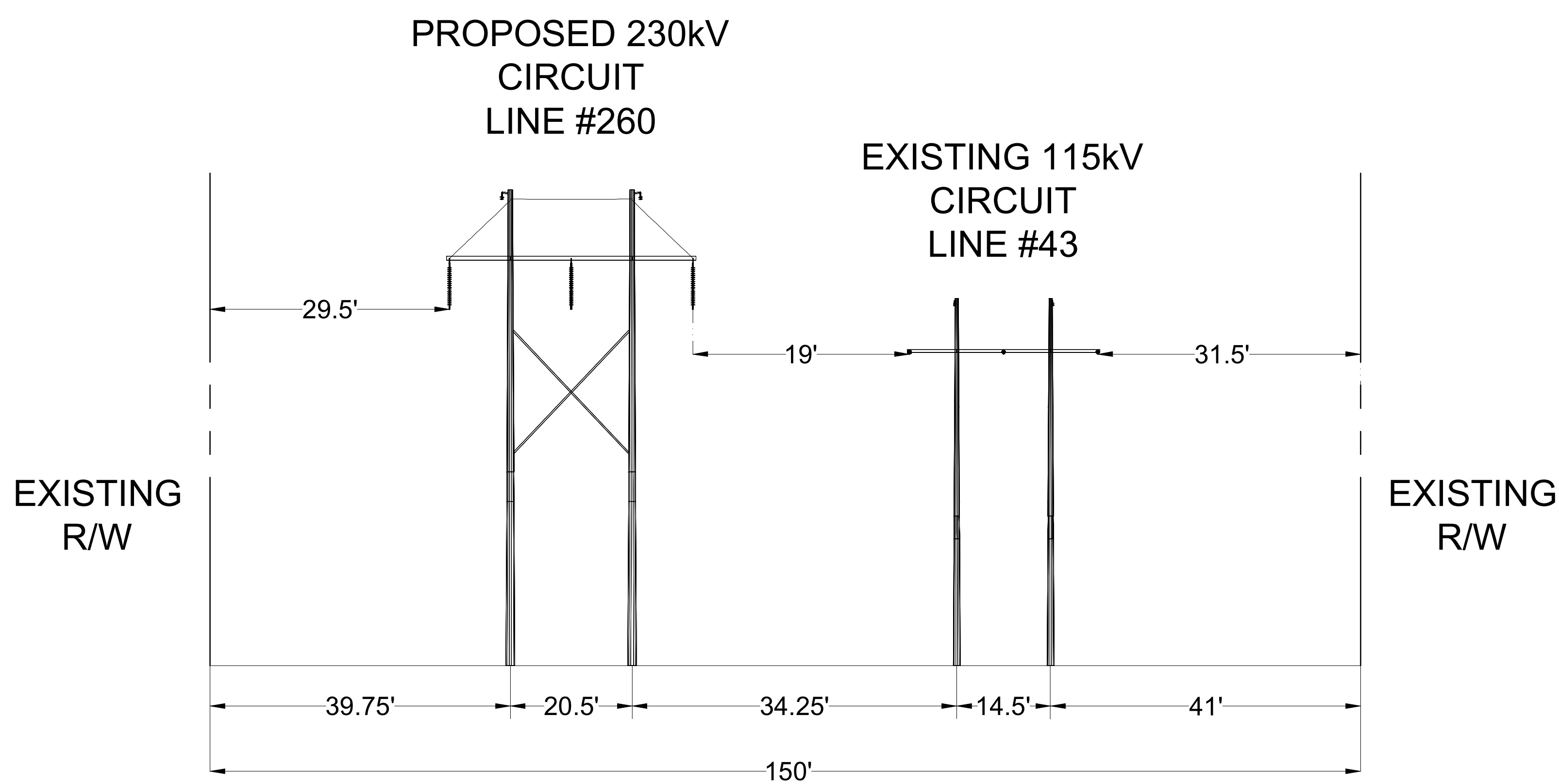
GROTTOES - HARRISONBURG, LINE #260
EXISTING CONFIGURATION



TYPICAL RIGHT OF WAY LOOKING TOWARD GROTTOES FROM HARRISONBURG FOR STR. 260/2

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

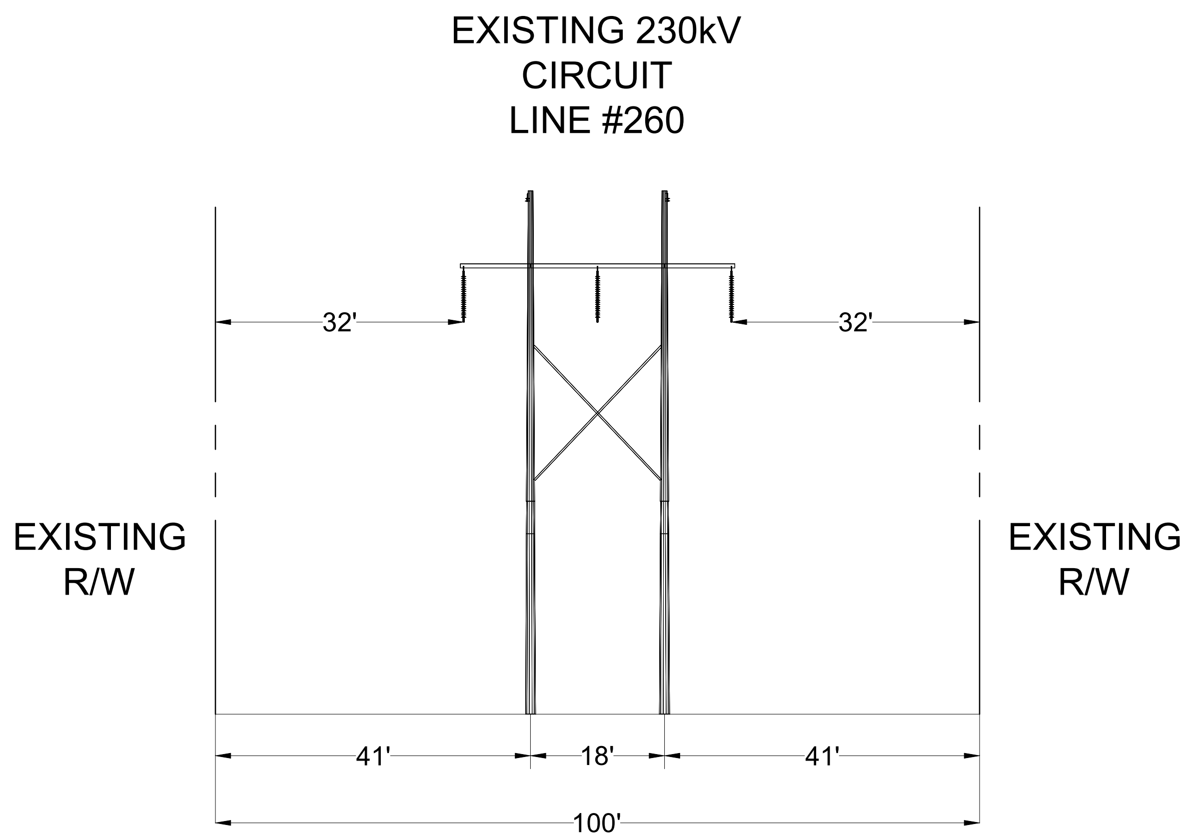
GROTTOES - HARRISONBURG, LINE #260
PROPOSED CONFIGURATION



TYPICAL RIGHT OF WAY LOOKING TOWARD GROTTOES FROM HARRISONBURG FOR STR. 260/2

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

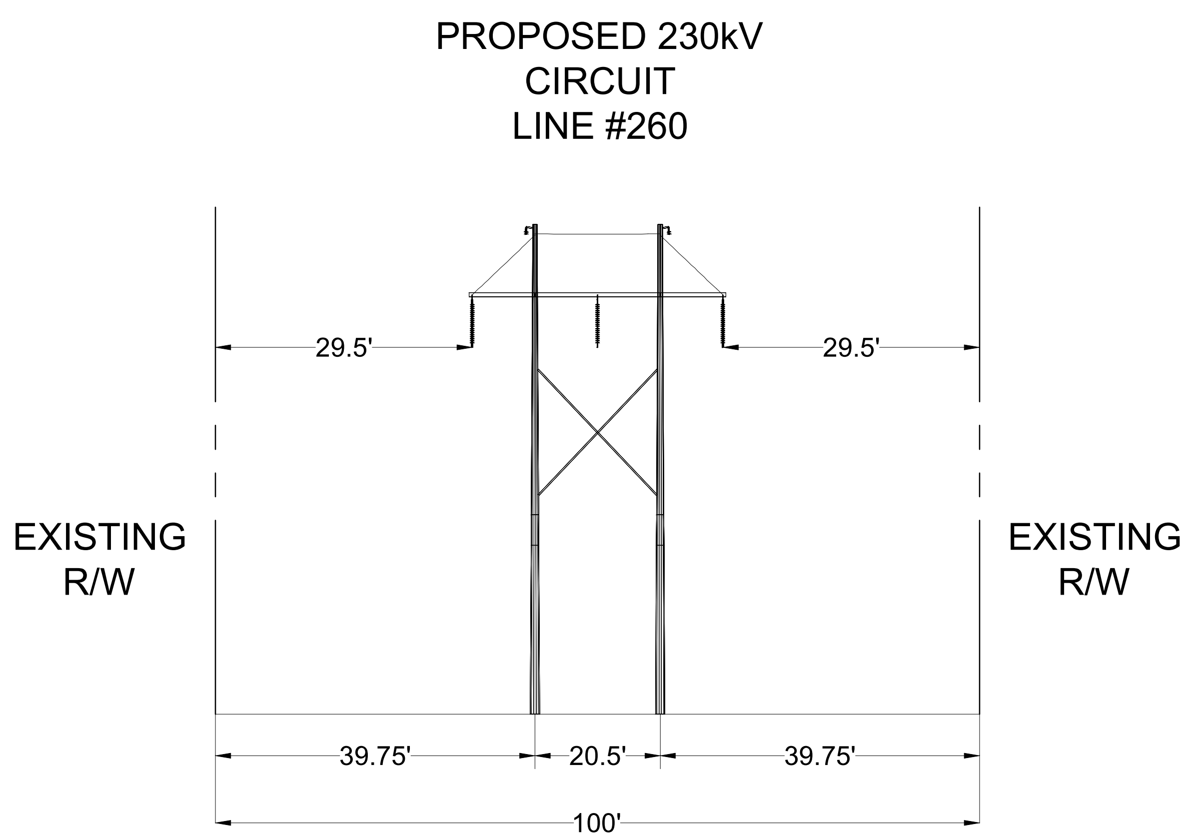
GROTTOES - HARRISONBURG, LINE #260
EXISTING CONFIGURATION



TYPICAL RIGHT OF WAY LOOKING TOWARD GROTTOES FROM HARRISONBURG

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

GROTTOES - HARRISONBURG, LINE #260
PROPOSED CONFIGURATION

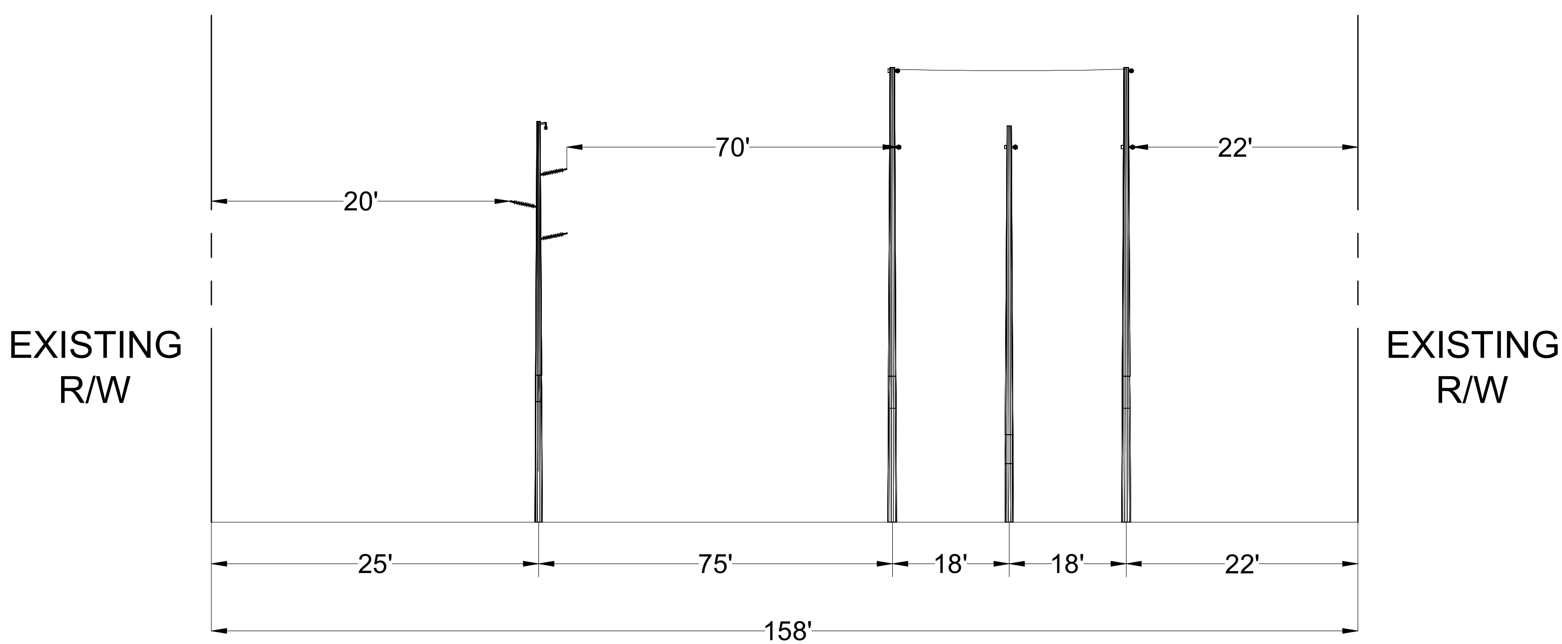


TYPICAL RIGHT OF WAY LOOKING TOWARD GROTTOES FROM HARRISONBURG

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

Attachment II.A.5.d

GROTTOES - HARRISONBURG, LINE #260
EXISTING CONFIGURATION

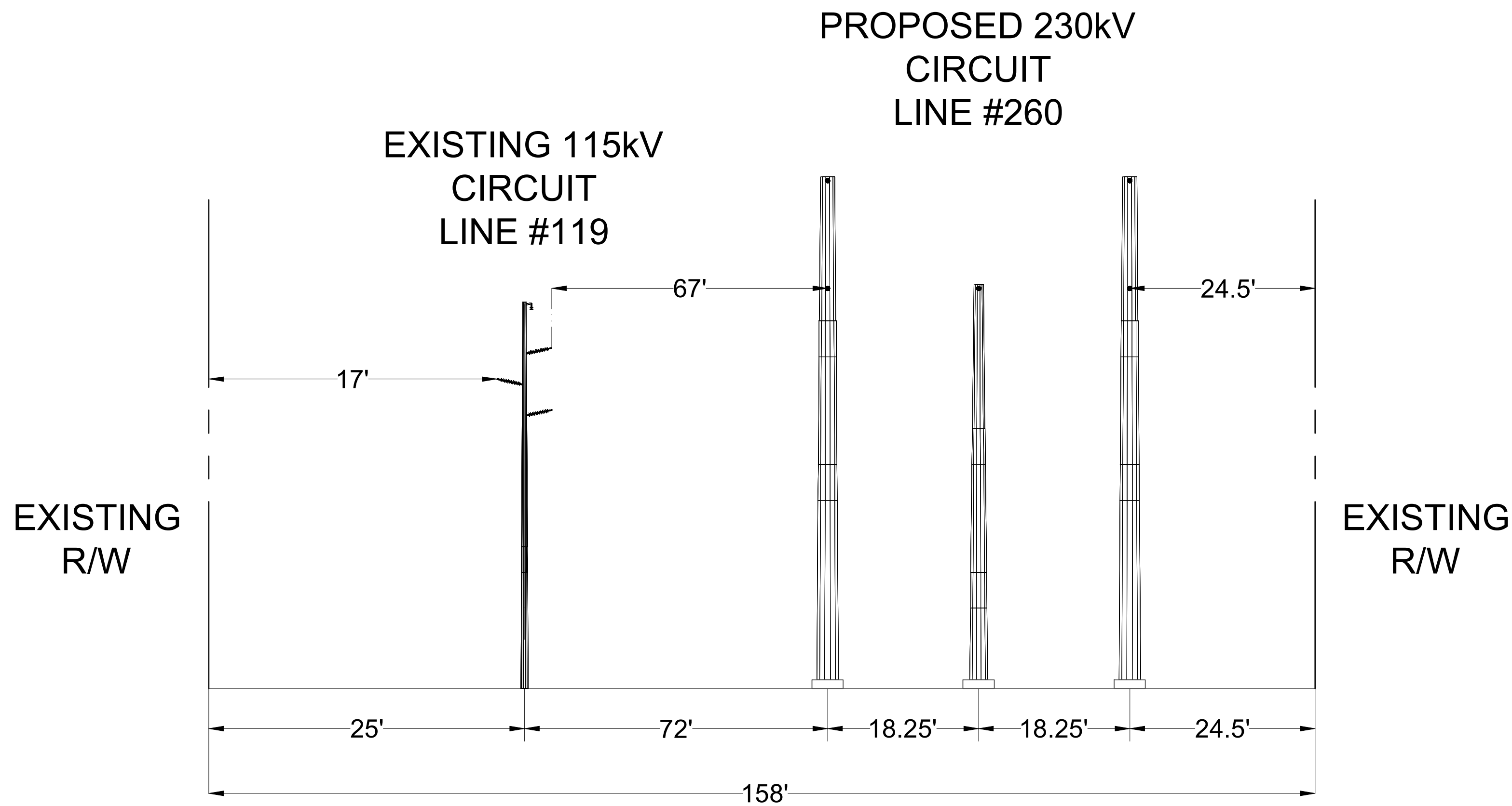


TYPICAL RIGHT OF WAY LOOKING TOWARD GROTTOES FROM HARRISONBURG FOR STR. 260/81

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

Attachment II.A.5.e

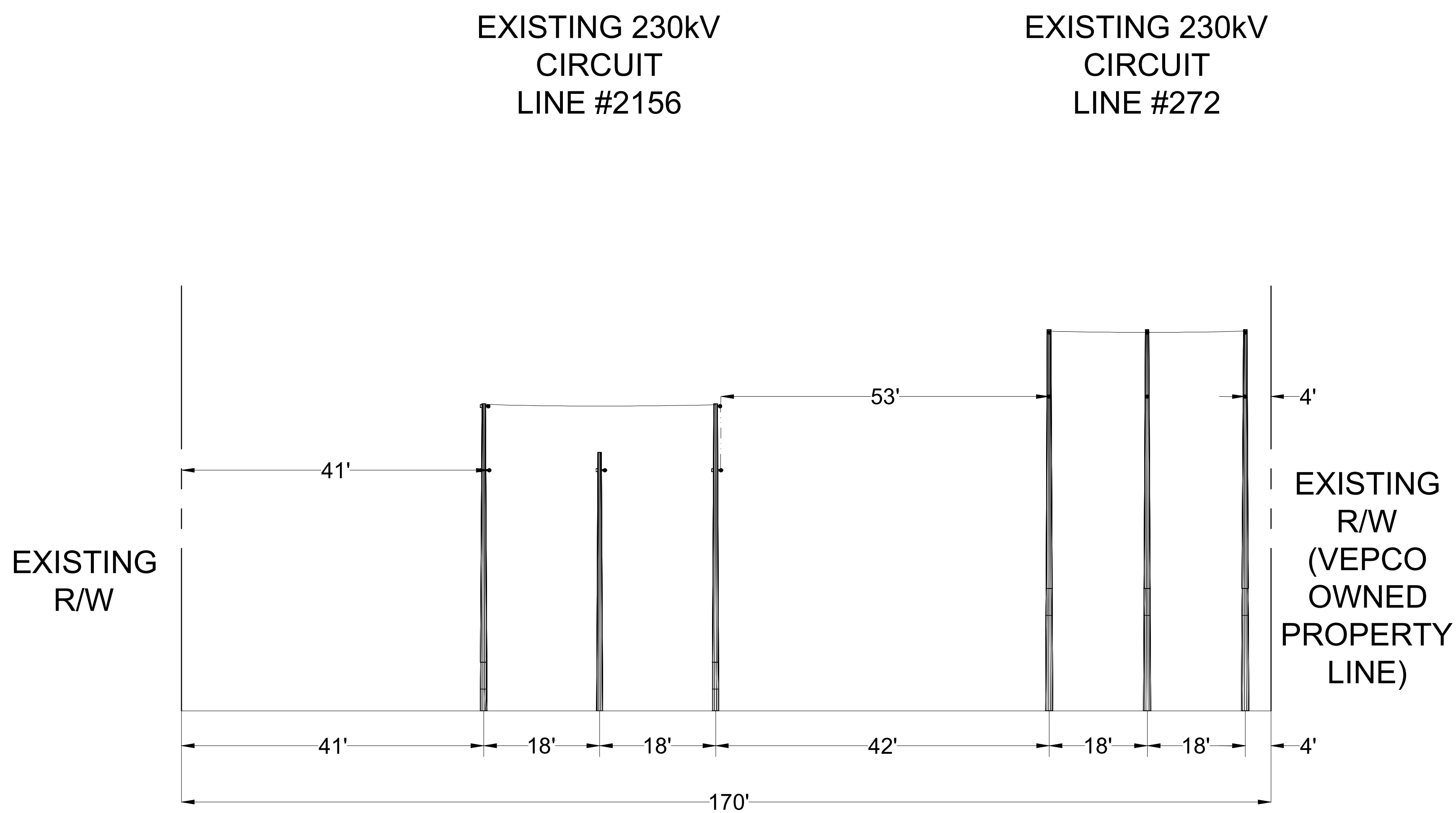
GROTTOES - HARRISONBURG, LINE #260
PROPOSED CONFIGURATION



TYPICAL RIGHT OF WAY LOOKING TOWARD GROTTOES FROM HARRISONBURG FOR STR. 260/81

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

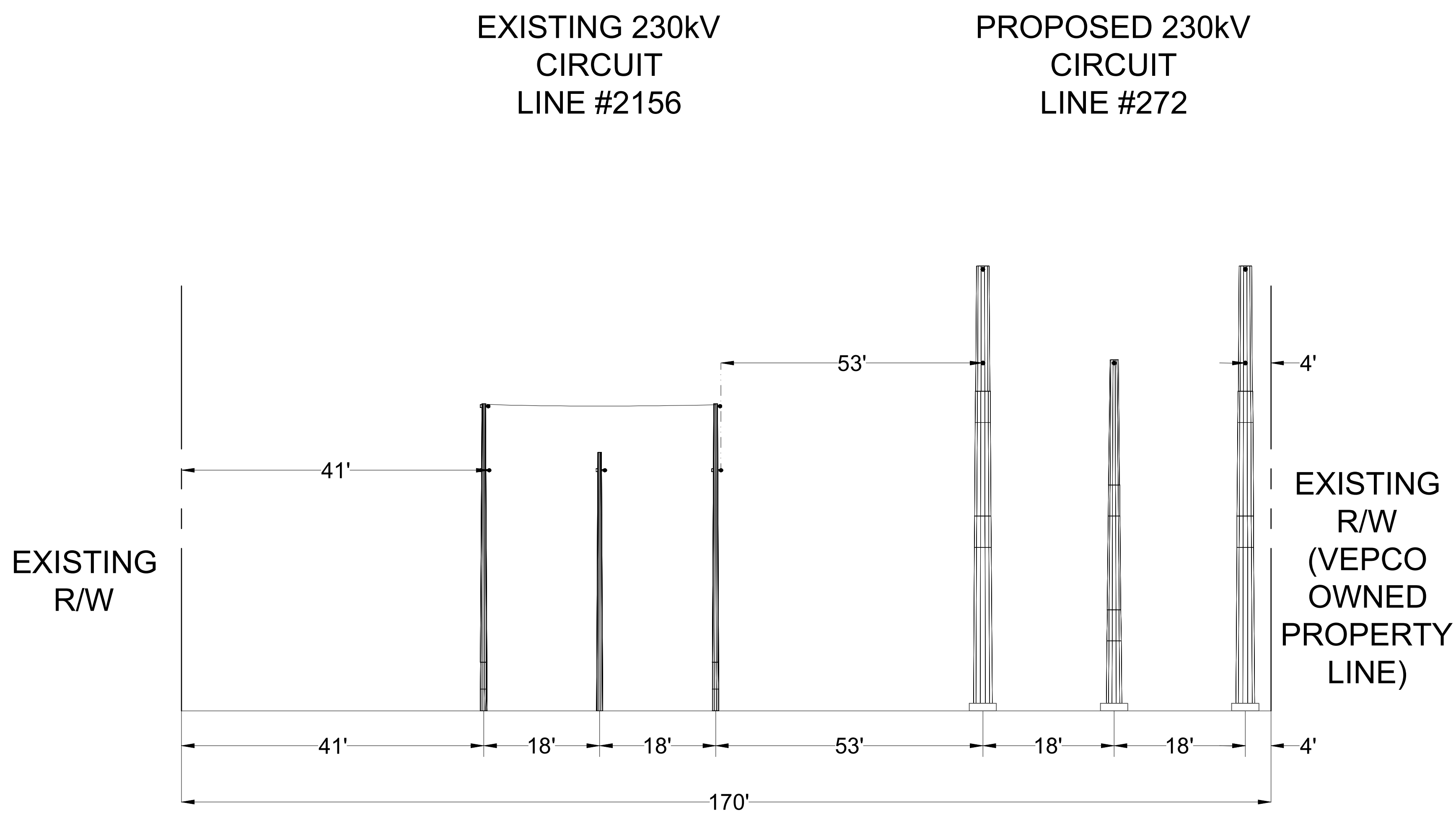
DOOMS - GROTTOES, LINE #272
EXISTING CONFIGURATION



TYPICAL RIGHT OF WAY LOOKING FROM DOOMS TO GROTTOES FOR STR. 272/7

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

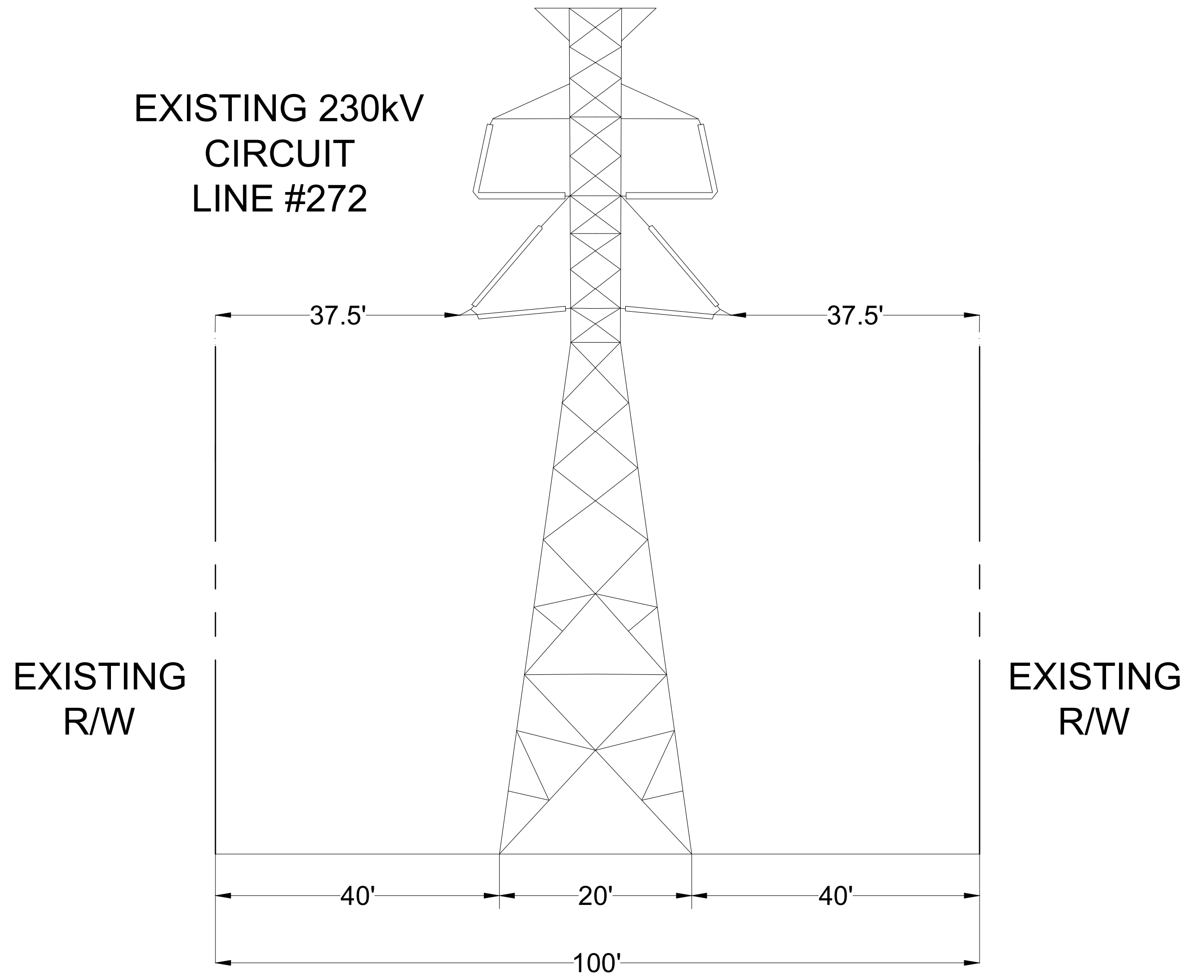
DOOMS - GROTTOES, LINE #272
PROPOSED CONFIGURATION



TYPICAL RIGHT OF WAY LOOKING FROM DOOMS TO GROTTOES FOR STR. 272/7

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

DOOMS - GROTTOES, LINE #272
EXISTING CONFIGURATION

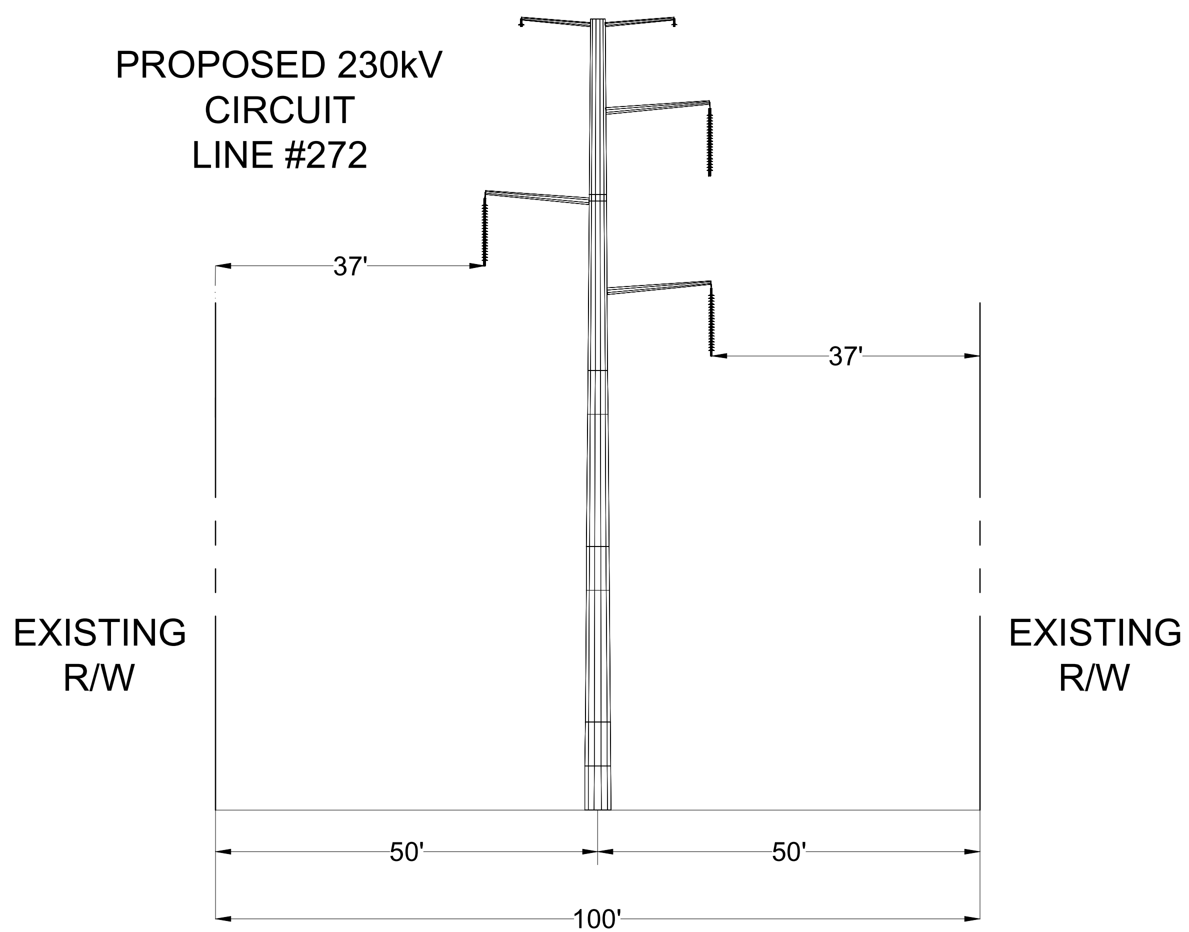


TYPICAL RIGHT OF WAY LOOKING FROM DOOMS TO GROTTOES

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

Attachment II.A.5.j

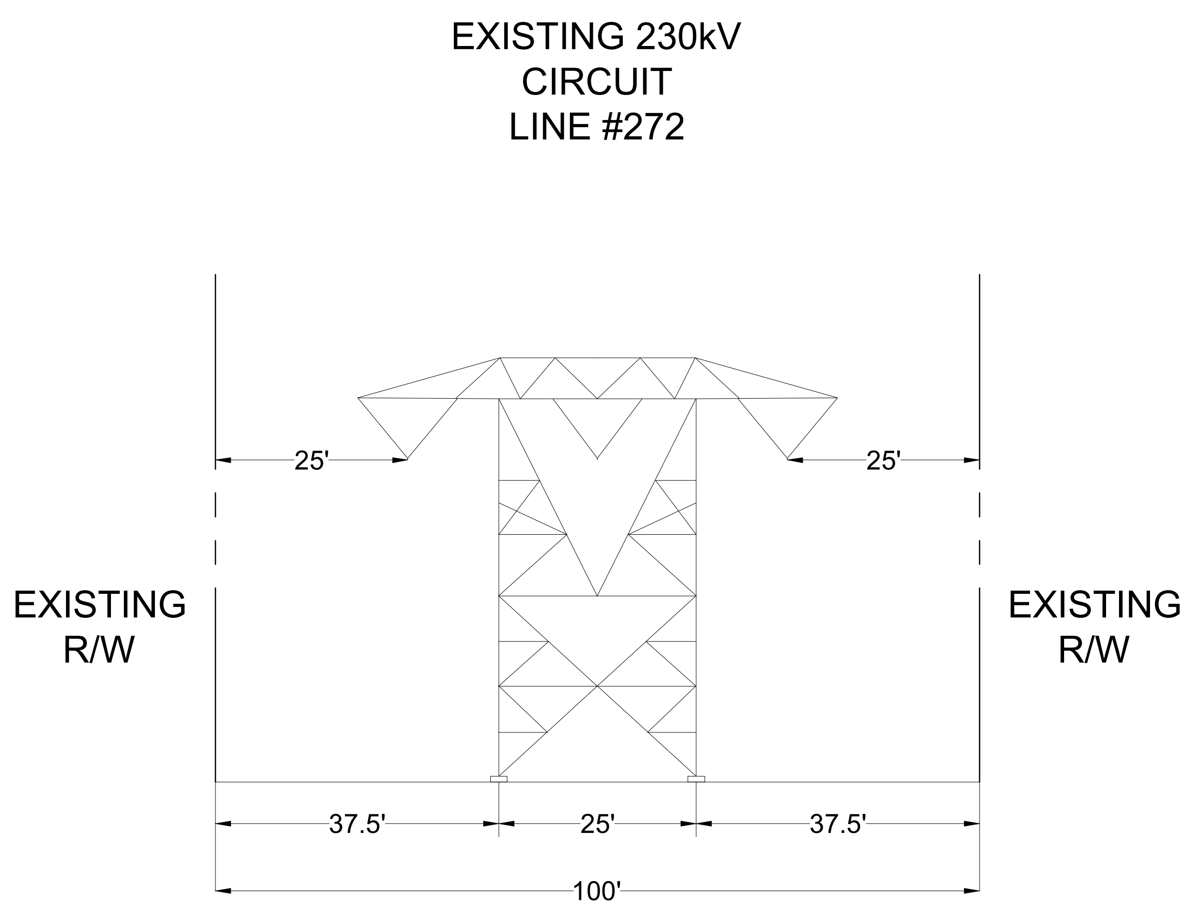
DOOMS - GROTTOES, LINE #272
PROPOSED CONFIGURATION



TYPICAL RIGHT OF WAY LOOKING FROM DOOMS TO GROTTOES FOR STR. 272/8 THROUGH STR. 272/78

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

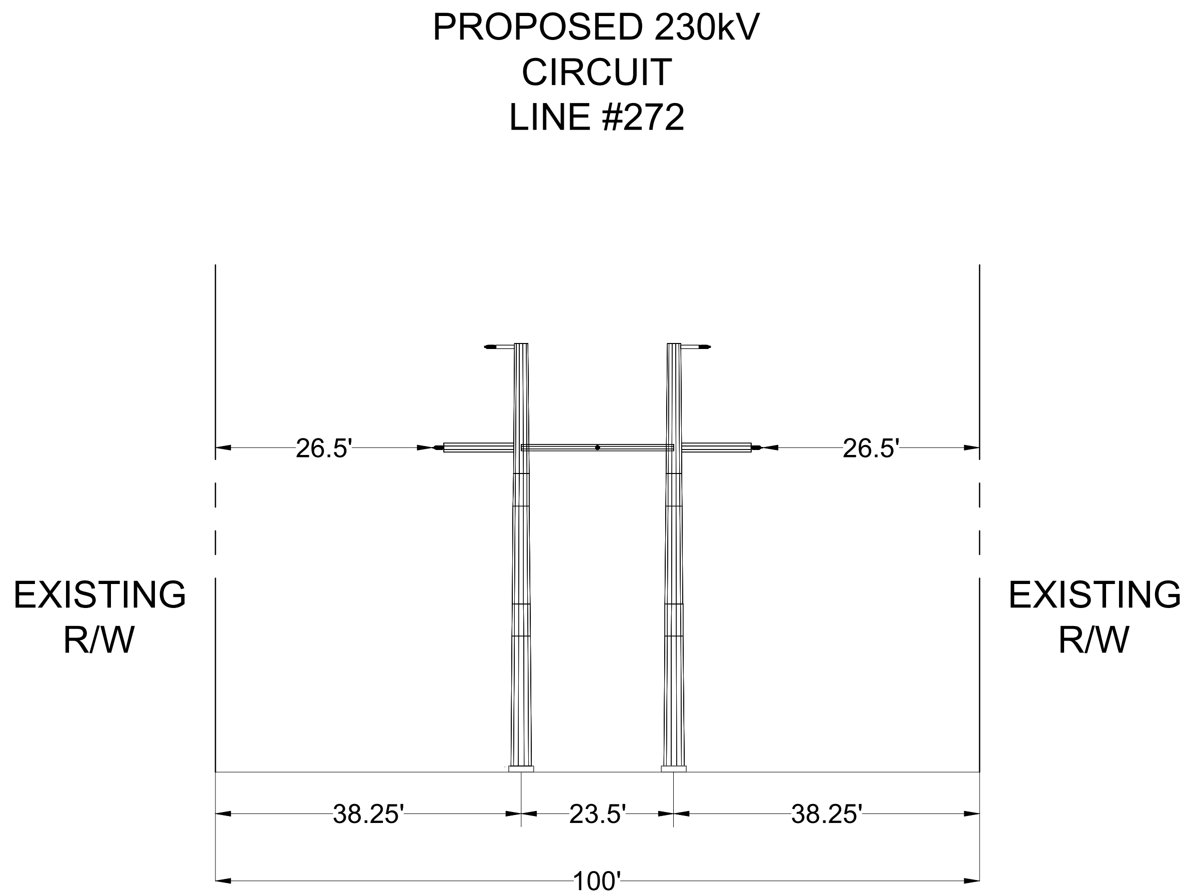
DOOMS - GROTTOES, LINE #272
EXISTING CONFIGURATION



TYPICAL RIGHT OF WAY LOOKING FROM DOOMS TO GROTTOES FOR STR. 272/12

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

DOOMS - GROTTOES, LINE #272
PROPOSED CONFIGURATION



TYPICAL RIGHT OF WAY LOOKING FROM DOOMS TO GROTTOES FOR STR. 272/12

NOTE: INFORMATION CONTAINED ON DRAWING IS CONSIDERED PRELIMINARY IN NATURE AND SUBJECT TO CHANGE 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 most of its easements along the existing right-of-way of the Project corridor in 1937 and 1946. 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.

The existing right-of-way intersects an easement held by the Virginia Department of Historic Resources ("VDHR"), as shown on Attachment II.A.6. The Company's easements obtained in 1937 and 1946 precede the VDHR easement obtained in 2009.

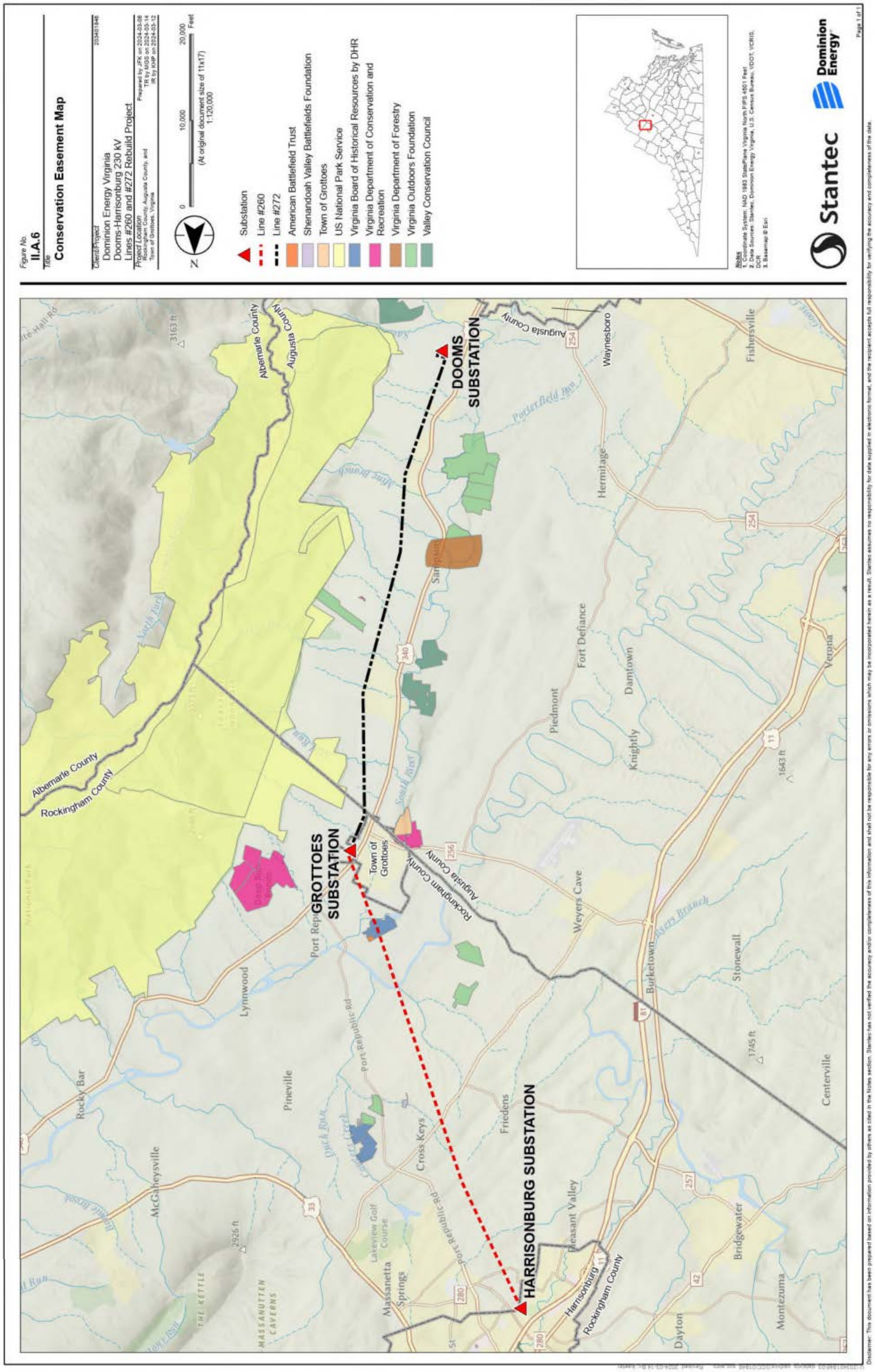


Figure No.
II.A.6
Title
Conservation Easement Map
Client/Project
203401846
Dominion Energy Virginia
Dooms-Harrisonburg 230 kV
Lines #260 and #272 Rebuild Project
Project Location
Rockingham County, Augusta County, and Town of Grottoes, Virginia
Prepared by JFK on 2024-03-06
TR by MGG on 2024-03-14
IR by KHP on 2024-03-12
0
10,000
20,000
Feet
(At original document size of 11x17)
1:120,000
Substation
Line #260
Line #272
American Battlefield Trust
Shenandoah Valley Battlefields Foundation
Town of Grottoes
US National Park Service
Virginia Board of Historical Resources by DHR
Virginia Department of Conservation and Recreation
Virginia Department of Forestry
Virginia Outdoors Foundation
Valley Conservation Council
Notes
1. Coordinate System: NAD 1983 StatePlane Virginia North FIPS 4501 Feet
2. Data Sources: Stantec, Dominion Energy Virginia, U.S. Census Bureau, VDOT, VCRIS, DCR
3. Basemap © Esri
Stantec
Dominion Energy
Page 1 of 1
DOOMS SUBSTATION
GROTTOES SUBSTATION
HARRISONBURG SUBSTATION
Town of Grottoes
Albemarle County
Rockingham County
Augusta County
Waynesboro
Fishersville
Hermitage
Sampson
Fort Defiance
Piedmont
Damtown
Knightly
Verona
Weyers Cave
Burketown
Stonewall
Centerville
Friedens
Cross Keys
Pineville
Lynnwood
Port Republic Rd
Rocky Bar
McGaheysville
Massanetta Springs
Lakeview Golf Course
Pleasant Valley
Harrisonburg
Bridgewater
Dayton
Montezuma
Massanutten Caverns
The Kettle
South River
Porterfield Run
Mine Branch
Duck Run
Cub Run
Meyers Branch
3163 ft
2926 ft
1745 ft
1643 ft

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 100-foot width of the existing transmission line corridor is currently cleared and maintained for operation of the existing transmission facilities.

Trimming of tree limbs along the edge of the right-of-way may be conducted to support construction activities for the Rebuild Project. When clearing is required, 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 where applicable on an ongoing basis during all clearing and construction activities accompanied by weekly Virginia Stormwater Management program inspections.

Erosion control will be maintained and temporary stabilization for all soil-disturbing activities will be used until the right-of-way has been restored. Upon completion of the Rebuild Project, the Company will restore the right-of-way utilizing site rehabilitation procedures outlined in the Company's 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/or herbicide application.

II. DESCRIPTION OF THE PROPOSED PROJECT

A. Right-of-way (“ROW”)

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

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

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

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

- Agriculture;
- Hiking Trails;
- Fences;
- Perpendicular Road Crossings;
- Perpendicular Utility Crossings;
- Residential Driveways; and
- Wildlife / Pollinator Habitat.

II. DESCRIPTION OF THE PROPOSED PROJECT

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

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

Response: The Company's route selection for transmission line rebuild projects begins with a review of the existing right-of-way. This approach generally minimizes impacts on the natural and human environments. This approach also is consistent with FERC Guideline #1 (included as Attachment 1 to these Guidelines), which states that existing rights-of-way should be given priority when adding new transmission facilities, and §§ 56-46.1 and 56-529 of the Code of Virginia, which promote the use of existing rights-of-way for new transmission facilities. For the proposed Rebuild Project, the existing transmission corridor right-of-way that currently contains Line #260 and Line #272 is adequate.

Because the existing right-of-way and Company-owned property are adequate to construct the Rebuild Project, no new right-of-way is necessary. Given no need for new 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 right-of-way for this Rebuild Project.

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

II. DESCRIPTION OF THE PROPOSED PROJECT

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

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

Response: To limit service disruption to the affected load area, the Company plans to take Lines #260 and #272 out of service in two continuous outages. The outages are scheduled to allow the adjacent infrastructure to adequately provide service to connected customers while Lines #260 and #272 are out of service. The Company expects Line #260 will be out of service between approximately April 2026 and November 2026, and Line #272 will be out of service between November 2026 and July 2027.

Assuming a final order by December 31, 2024, as requested in Section I.H, the Company expects to start construction in October 2025, and to complete construction of the Rebuild Project by December 2027. 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. It is customary for PJM to hold requests for outages and approve only before the outages are expected to occur and, therefore, the requested outages are 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. which 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 several 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")

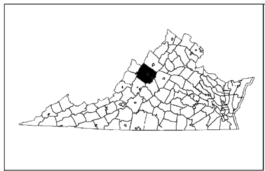
12. a. Detail counties and localities through which the line will pass. If any portion of the line will be located outside of the Applicant's certificated service area: (1) identify each electric utility affected; (2) state whether any affected electric utility objects to such construction; and (3) identify 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.

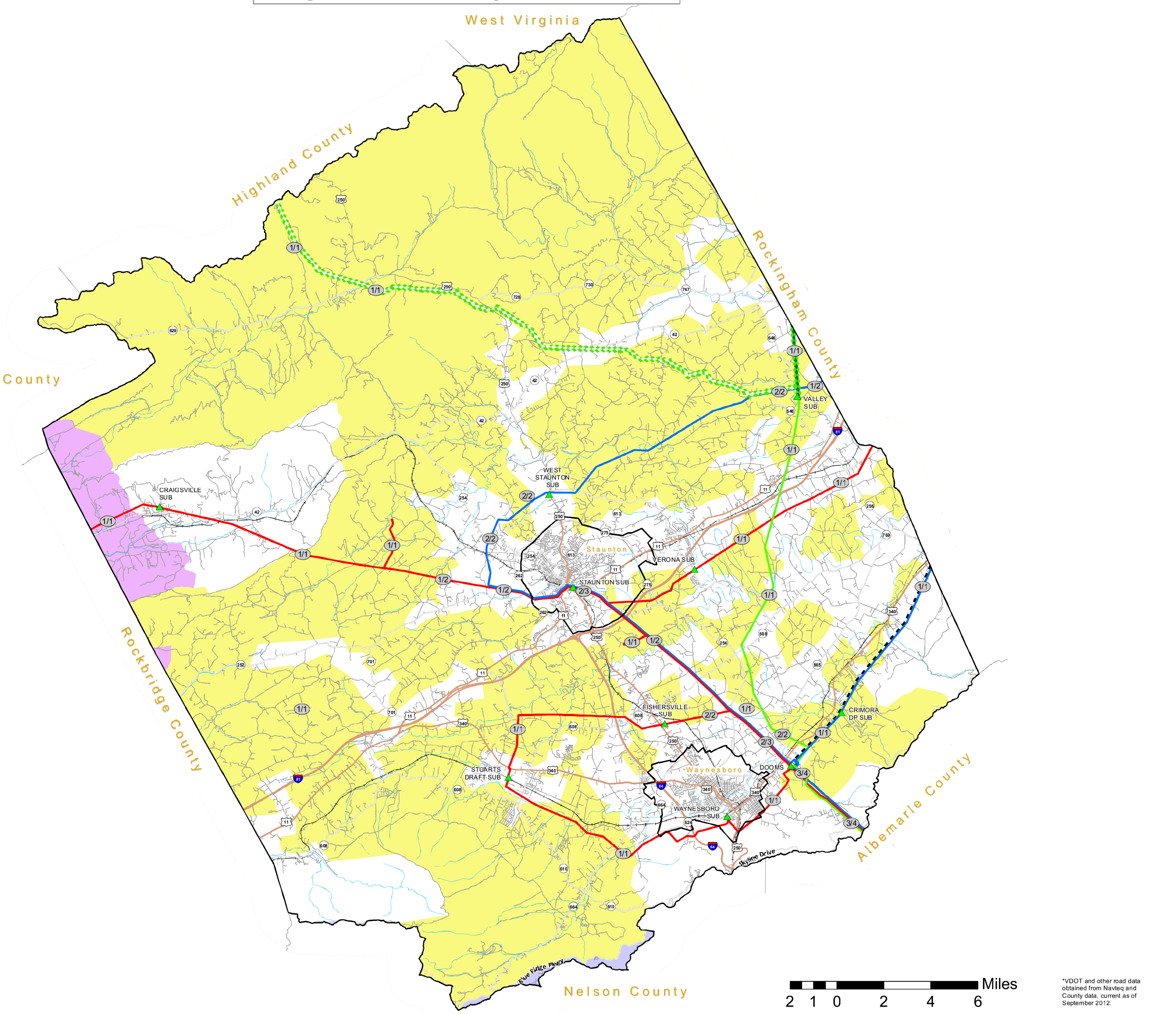
Response: a. The proposed Rebuild Project traverses Augusta and Rockingham Counties and the Town of Grottoes for a total of approximately 22.1 miles and is located entirely within the Company's service territory.

b. Electronic versions of the Virginia Department of Transportation ("VDOT") "General Highway Map" for Augusta and Rockingham Counties has been marked as required and filed with the Application. Reduced copies of the maps are provided as <u>Attachments II.A.12.a-b</u>.

Augusta County Road Map



This digital map depicts the Virginia Electric and Power Company ("Company") transmission facilities in this county as approved by the Virginia State Corporation Commission ("SCC"), and any proposed transmission facilities in this county, as of 2024-04-12. Other Company facilities previously authorized by the SCC may be depicted on prior SCC approved county maps.



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

SHENANDOAH VALLEY ELECTRIC COOPERATIVE IS NOT OPPOSED TO SUCH CONSTRUCTION IN ITS SERVICE TERRITORY.

SIGNATURE

DATE 04/22/2024 TITLE President & CEO

Legend

- Substation
- Number of Lines of Structures/Number of Circuits
- Proposed Rebuild
- 115 kV
- 230 kV
- 500 kV
- 500 kV
  BATH COUNTY POWER PROJECT JOINT TRANSMISSION FACILITIES STATE CORPORATION COMMISSION APPROVED JOINT OWNERSHIP BY ORDER DATED 9-11-81 JOINTLY OWNED LINE VIRGINIA ELECTRIC & POWER COMPANY 60% ALLEGHENY ENERGY 40%
- 500 kV
  BATH COUNTY POWER PROJECT JOINT TRANSMISSION FACILITIES STATE CORPORATION COMMISSION APPROVED JOINT OWNERSHIP BY ORDER DATED 9-11-81 JOINTLY OWNED LINE VIRGINIA ELECTRIC & POWER COMPANY 61.54% POTOMAC EDISON 38.46%

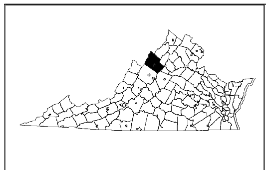
Provider Service Territory

- BARC
- CVEC
- SVEC
- VEPCO

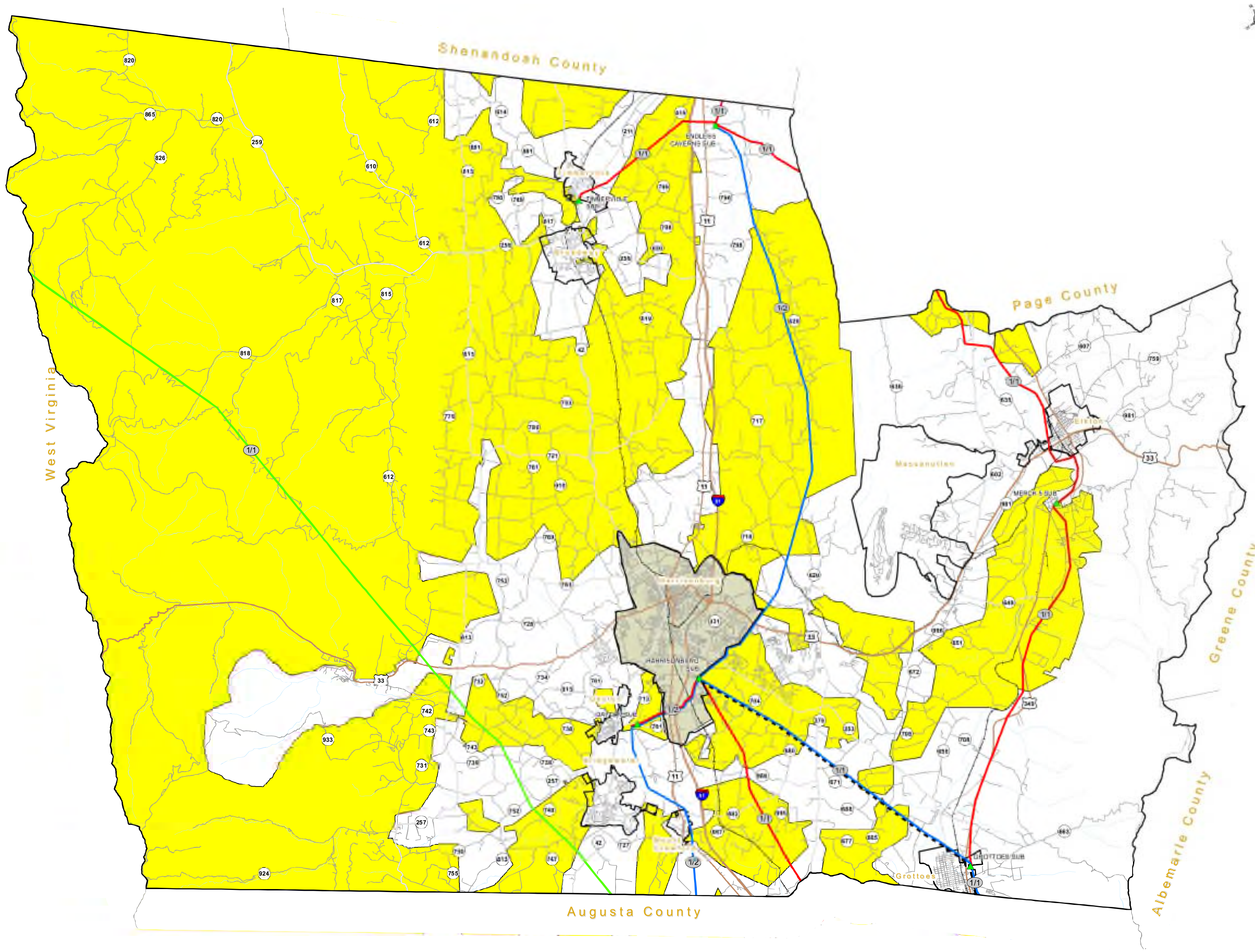
*VDOT and other road data obtained from Navteq and County data, current as of September 2012.

Augusta

Rockingham County Road Map



This digital map depicts the Virginia Electric and Power Company ("Company") transmission facilities in this county as approved by the Virginia State Corporation Commission ("SCC"), and any proposed transmission facilities in this county, as of 2024-04-12. Other Company facilities previously authorized by the SCC may be depicted on prior SCC approved county maps.



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

SHENANDOAH VALLEY ELECTRIC COOPERATIVE IS NOT OPPOSED TO SUCH CONSTRUCTION IN ITS SERVICE TERRITORY.

SIGNATURE

DATE 04/22/2024 TITLE President & CEO

Legend

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

Provider Service Territory

- Harrisonburg ElecCom
- SVEC
- VEPCO

Miles: 2 1 0 2 4 6

*VDOT and other road data obtained from Navteq and County data, current as of September 2011.

Rockingham

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 230 kV Lines #260 and #272 will be designated and operated at 230 kV and will have a summer transfer capability of 1,573 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 Lines #260 and #272 will be 2-768.2 ACSS/TW (20/7) MAUMEE. See Attachments II.B.3.a-i for more details on conductor configurations for each structure type.

II. DESCRIPTION OF THE PROPOSED PROJECT

B. Line Design and Operational Features

3. With regard to the proposed supporting structures over each portion of the ROW for the preferred route, provide diagrams (including foundation reveal) and descriptions of all the structure types, to include:

a. mapping that identifies each portion of the preferred route;

b. the rationale for the selection of the structure type;

c. the number of each type of structure and the length of each portion of the ROW;

d. the structure material and rationale for the selection of such material;

e. the foundation material;

f. the average width at cross arms;

g. the average width at the base;

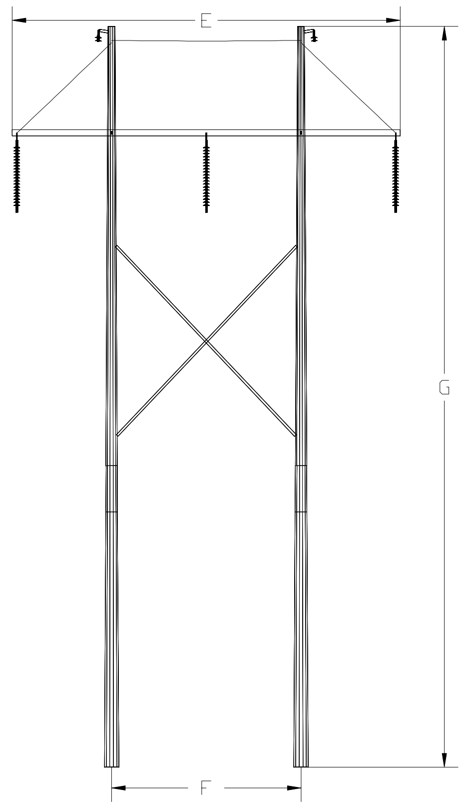
h. the maximum, minimum and average structure heights;

i. the average span length; and

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

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

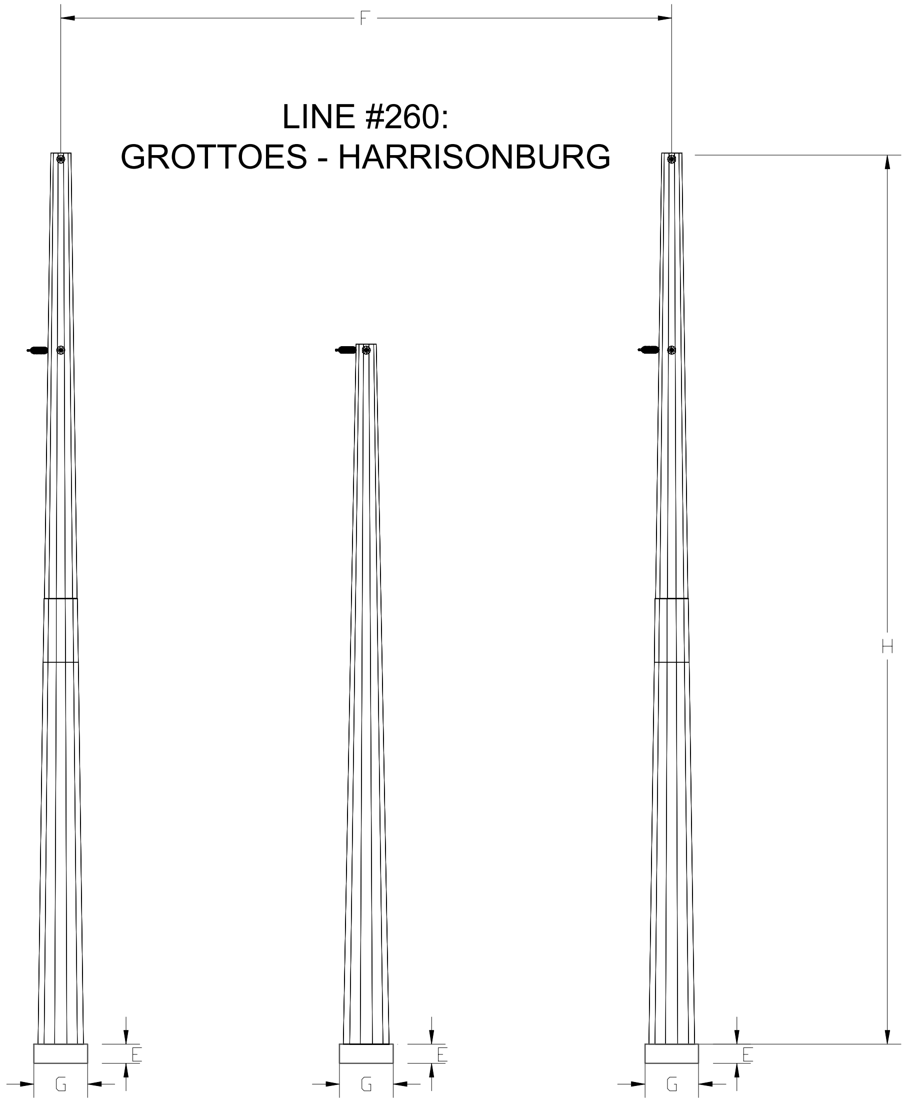
LINE #260:
GROTTOES -
HARRISONBURG



230 kV SC H-FRAME SUSPENSION STRUCTURE

A.	MAPPING OF THE ROUTE:	SEE ATTACHMENT II.B.5
B.	RATIONALE FOR STRUCTURE TYPE:	TYPICAL CONFIGURATION FOR SINGLE CIRCUIT H-FRAME SUSPENSION STRUCTURES.
C.	LENGTH OF R/W (STRUCTURE QTY):	10.8 MILES (72 STRUCTURES)
D.	STRUCTURE MATERIAL:	WEATHERING STEEL
	RATIONALE FOR MATERIAL:	WEATHERING STEEL WAS SELECTED TO MATCH OTHER LINES IN THE AREA AND IS COMPANY'S STANDARD.
E.	AVERAGE WIDTH AT CROSS ARM:	42'
F.	AVERAGE WIDTH AT BASE:	20.5'
G.	MINIMUM STRUCTURE HEIGHT:	65'
	MAXIMUM STRUCTURE HEIGHT:	100'
	AVERAGE STRUCTURE HEIGHT:	80'
	AVERAGE SPAN LENGTH (RANGE):	689' (248'-920') (SEE NOTE 4)
H.	MINIMUM CONDUCTOR-TO-GROUND:	22.5' (AT MAXIMUM OPERATING TEMPERATURE)

NOTES:
1. INFORMATION CONTAINED ON DRAWING IS PRELIMINARY IN NATURE AND SUBJECT TO CHANGE DURING FINAL DESIGN.
2. STRUCTURE HEIGHTS ARE MEASURED FROM STRUCTURE GROUNDLINE AND DO NOT INCLUDE EMBEDDED PORTION UNDERGROUND.
3. THE SPAN ASSOCIATED WITH EACH STRUCTURE IS THE AHEAD SPAN.

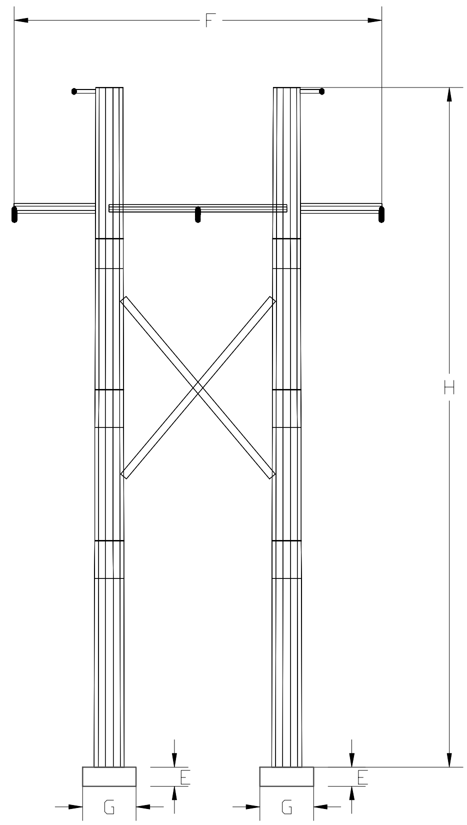


230 kV SC ENGINEERED 3-POLE DDE STRUCTURE

A.	MAPPING OF THE ROUTE:	SEE ATTACHMENT II.B.5
B.	RATIONALE FOR STRUCTURE TYPE:	TYPICAL CONFIGURATION FOR SINGLE CIRCUIT THREE POLE DOUBLE DEADEND STRUCTURES
C.	LENGTH OF R/W (STRUCTURE QTY):	11.50 MILES (9 STRUCTURES)
D.	STRUCTURE MATERIAL:	WEATHERING STEEL
	RATIONALE FOR MATERIAL:	WEATHERING STEEL WAS SELECTED TO MATCH OTHER LINES IN THE AREA AND IS COMPANY'S STANDARD.
E.	FOUNDATION MATERIAL:	CONCRETE
	AVERAGE FOUNDATION REVEAL:	SEE NOTE 2
F.	AVERAGE STRUCTURE WIDTH:	48'
G.	AVERAGE WIDTH AT BASE:	SEE NOTE 2
H.	MINIMUM STRUCTURE HEIGHT:	65'
	MAXIMUM STRUCTURE HEIGHT:	95'
	AVERAGE STRUCTURE HEIGHT:	75'
I.	AVERAGE SPAN LENGTH (RANGE):	648' (105'-871') (SEE NOTE 4)
J.	MINIMUM CONDUCTOR-TO-GROUND:	22.5' (AT MAXIMUM OPERATING TEMPERATURE)

NOTES:
1. INFORMATION CONTAINED ON DRAWING IS PRELIMINARY IN NATURE AND SUBJECT TO CHANGE DURING FINAL DESIGN.
2. A MINIMUM FOUNDATION REVEAL SHALL BE 1.5 FEET. FOUNDATION DIAMETER SHALL BE BASED ON FINAL ENGINEERING.
3. STRUCTURE HEIGHTS ARE MEASURED FROM STRUCTURE CENTERLINE AND DO NOT INCLUDE FOUNDATION REVEAL.
4. THE SPAN ASSOCIATED WITH EACH STRUCTURE IS THE AHEAD SPAN.

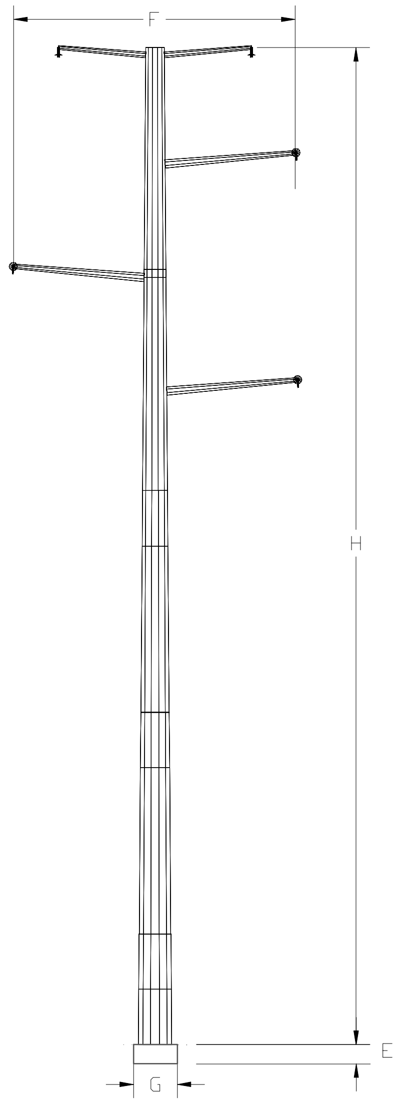
LINE #260:
GROTTOES -
HARRISONBURG



230 kV SC H-FRAME DDE STRUCTURE

A.	MAPPING OF THE ROUTE:	SEE ATTACHMENT II.B.5
B.	RATIONALE FOR STRUCTURE TYPE:	TYPICAL CONFIGURATION FOR SINGLE CIRCUIT H-FRAME DDE STRUCTURE.
C.	LENGTH OF R/W (STRUCTURE QTY):	10.8 MILES (1 STRUCTURES)
D.	STRUCTURE MATERIAL:	WEATHERING STEEL
	RATIONALE FOR MATERIAL:	WEATHERING STEEL WAS SELECTED TO MATCH OTHER LINES IN THE AREA AND IS COMPANY'S STANDARD.
E.	FOUNDATION MATERIAL:	CONCRETE
	AVERAGE FOUNDATION REVEAL:	SEE NOTE 2
F.	AVERAGE WIDTH AT CROSSARM :	49'
G.	AVERAGE WIDTH AT BASE:	SEE NOTE 2
H.	MINIMUM STRUCTURE HEIGHT:	90'
	MAXIMUM STRUCTURE HEIGHT:	90'
	AVERAGE STRUCTURE HEIGHT:	90'
I.	AVERAGE SPAN LENGTH (RANGE):	867' (867'-867') (SEE NOTE 4)
J.	MINIMUM CONDUCTOR-TO-GROUND:	22.5' (AT MAXIMUM OPERATING TEMPERATURE)

NOTES:
1. INFORMATION CONTAINED ON DRAWING IS PRELIMINARY IN NATURE AND SUBJECT TO CHANGE DURING FINAL DESIGN.
2. A MINIMUM FOUNDATION REVEAL SHALL BE 1.5 FEET. FOUNDATION DIAMETER SHALL BE BASED ON FINAL ENGINEERING.
3. STRUCTURE HEIGHTS ARE MEASURED FROM STRUCTURE GROUNDLINE AND DO NOT INCLUDE EMBEDDED PORTION UNDERGROUND.
4. THE SPAN ASSOCIATED WITH EACH STRUCTURE IS THE AHEAD SPAN.



LINE #272:
DOOMS -
GROTTOES

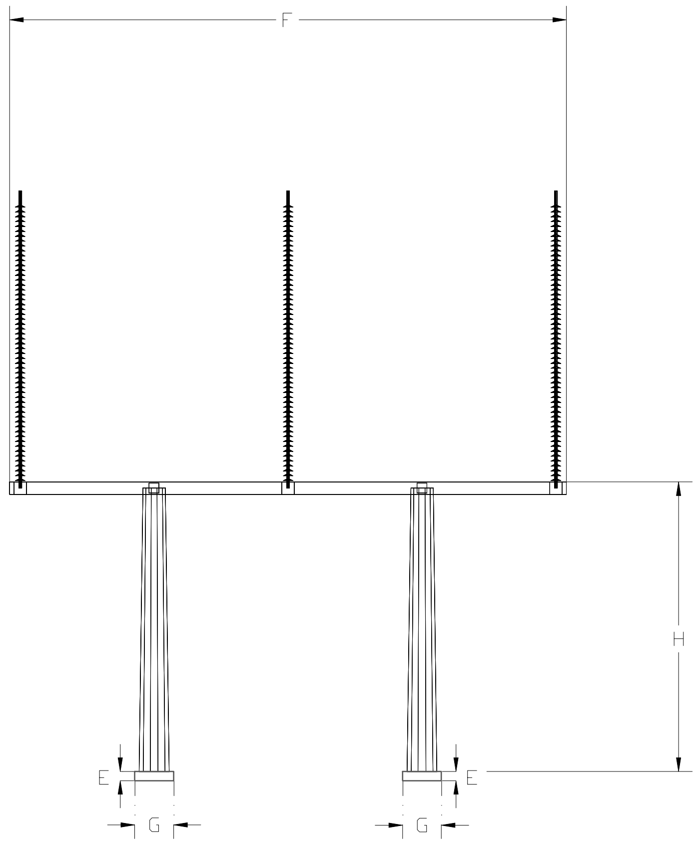
230 kV SC ENGINEERED MONOPOLE DOUBLE DEAD END STRUCTURE

A.	MAPPING OF THE ROUTE:	SEE ATTACHMENT II.B.5.iv
B.	RATIONALE FOR STRUCTURE TYPE:	TYPICAL CONFIGURATION FOR SINGLE CIRCUIT MONOPOLE DOUBLE DEADEND STRUCTURES.
C.	LENGTH OF R/W (STRUCTURE QTY):	11.50 MILES (7 STRUCTURES)
D.	STRUCTURE MATERIAL:	WEATHERING STEEL
	RATIONALE FOR MATERIAL:	WEATHERING STEEL WAS SELECTED TO MATCH OTHER LINES IN THE AREA AND IS COMPANY'S STANDARD.
E.	FOUNDATION MATERIAL:	CONCRETE
	AVERAGE FOUNDATION REVEAL:	SEE NOTE 2
F.	AVERAGE WIDTH AT CROSS ARM:	28'
G.	AVERAGE WIDTH AT BASE:	SEE NOTE 2
H.	MINIMUM STRUCTURE HEIGHT:	75'
	MAXIMUM STRUCTURE HEIGHT:	115'
	AVERAGE STRUCTURE HEIGHT:	90'
I.	AVERAGE SPAN LENGTH (RANGE):	714' (223'-965') (SEE NOTE 4)
J.	MINIMUM CONDUCTOR-TO-GROUND:	22.5' (AT MAXIMUM OPERATING TEMPERATURE)

NOTES:
1. INFORMATION CONTAINED ON DRAWING IS PRELIMINARY IN NATURE AND SUBJECT TO CHANGE DURING FINAL DESIGN.
2. A MINIMUM FOUNDATION REVEAL SHALL BE 1.5 FEET. FOUNDATION DIAMETER SHALL BE BASED ON FINAL ENGINEERING.
3. STRUCTURE HEIGHTS ARE MEASURED FROM STRUCTURE CENTERLINE AND DO NOT INCLUDE FOUNDATION REVEAL.
4. THE SPAN ASSOCIATED WITH EACH STRUCTURE IS THE AHEAD SPAN.

PROPOSED 230kV CIRCUITS

LINE #272:
DOOMS - GROTTOES



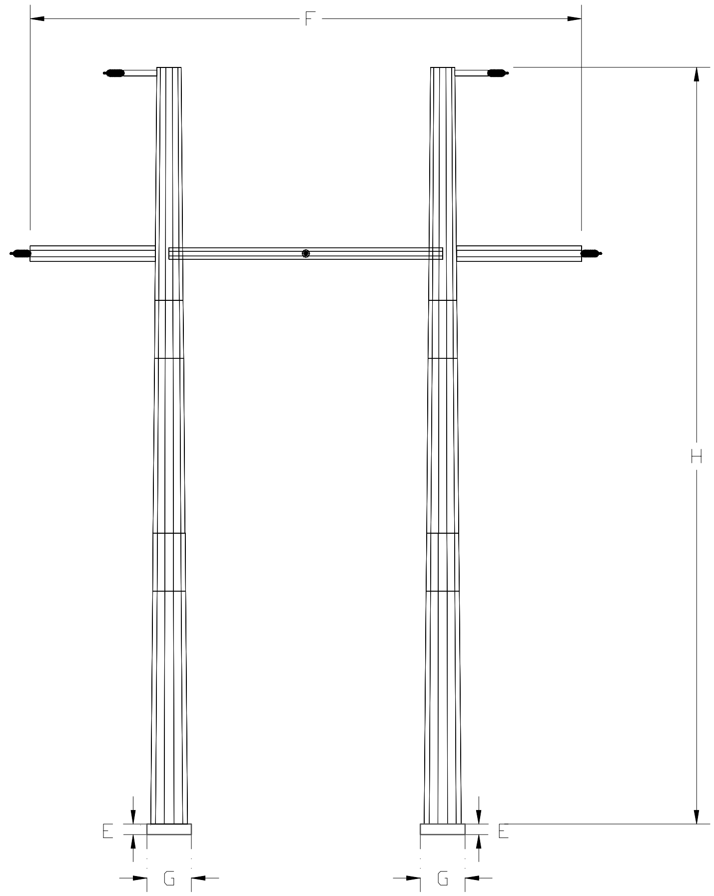
230 kV SC ENGINEERED SWITCH STRUCTURE

A.	MAPPING OF THE ROUTE:	SEE ATTACHMENT II.B.5.iv
B.	RATIONALE FOR STRUCTURE TYPE:	TYPICAL CONFIGURATION FOR SINGLE CIRCUIT SWITCH STRUCTURES.
C.	LENGTH OF R/W (STRUCTURE QTY):	11.50 MILES (2 STRUCTURES)
D.	STRUCTURE MATERIAL:	GALVANIZED STEEL
	RATIONALE FOR MATERIAL:	GALVANIZED STEEL IS UTILIZED FOR ALL SWITCH STRUCTURES
E.	FOUNDATION MATERIAL:	CONCRETE
	AVERAGE FOUNDATION REVEAL:	SEE NOTE 2
F.	AVERAGE WIDTH AT CROSS ARM:	38'
G.	AVERAGE WIDTH AT BASE:	SEE NOTE 2
H.	MINIMUM STRUCTURE HEIGHT:	19'
	MAXIMUM STRUCTURE HEIGHT:	19'
	AVERAGE STRUCTURE HEIGHT:	19'
I.	AVERAGE SPAN LENGTH (RANGE):	N/A
J.	MINIMUM CONDUCTOR-TO-GROUND:	22.5' (AT MAXIMUM OPERATING TEMPERATURE)

NOTES:
1. INFORMATION CONTAINED ON DRAWING IS PRELIMINARY IN NATURE AND SUBJECT TO CHANGE DURING FINAL DESIGN.
2. A MINIMUM FOUNDATION REVEAL SHALL BE 1.5 FEET. FOUNDATION DIAMETER SHALL BE BASED ON FINAL ENGINEERING.
3. STRUCTURE HEIGHTS ARE MEASURED FROM STRUCTURE CENTERLINE AND DO NOT INCLUDE FOUNDATION REVEAL.
4. THE SPAN ASSOCIATED WITH EACH STRUCTURE IS THE AHEAD SPAN.

PROPOSED 230kV CIRCUITS

LINE #272:
DOOMS - GROTTOES



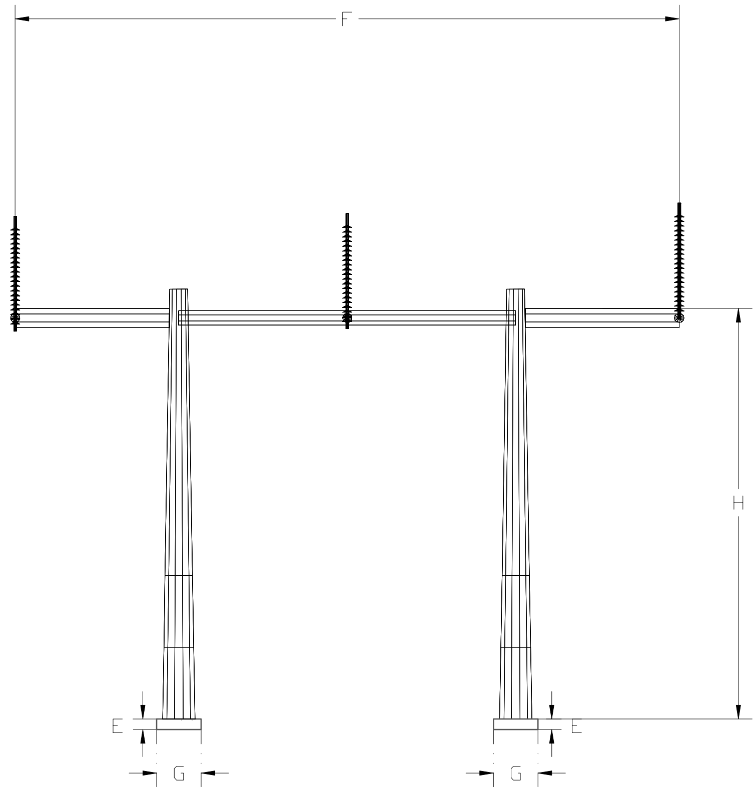
230 kV SC ENGINEERED H-FRAME DDE STRUCTURE WITH STATIC

A.	MAPPING OF THE ROUTE:	SEE ATTACHMENT II.B.5.iv
B.	RATIONALE FOR STRUCTURE TYPE:	TYPICAL CONFIGURATION FOR SINGLE CIRCUIT H-FRAME DOUBLE DEADEND STRUCTURES WITH STATIC.
C.	LENGTH OF R/W (STRUCTURE QTY):	11.50 MILES (6 STRUCTURES)
D.	STRUCTURE MATERIAL:	WEATHERING STEEL
	RATIONALE FOR MATERIAL:	WEATHERING STEEL WAS SELECTED TO MATCH OTHER LINES IN THE AREA AND IS COMPANY'S STANDARD.
E.	FOUNDATION MATERIAL:	CONCRETE
	AVERAGE FOUNDATION REVEAL:	SEE NOTE 2
F.	AVERAGE WIDTH AT CROSS ARM:	48'
G.	AVERAGE WIDTH AT BASE:	SEE NOTE 2
H.	MINIMUM STRUCTURE HEIGHT:	45'
	MAXIMUM STRUCTURE HEIGHT:	75'
	AVERAGE STRUCTURE HEIGHT:	60'
I.	AVERAGE SPAN LENGTH (RANGE):	355' (165'-770') (SEE NOTE 4)
J.	MINIMUM CONDUCTOR-TO-GROUND:	22.5' (AT MAXIMUM OPERATING TEMPERATURE)

NOTES:
1. INFORMATION CONTAINED ON DRAWING IS PRELIMINARY IN NATURE AND SUBJECT TO CHANGE DURING FINAL DESIGN.
2. A MINIMUM FOUNDATION REVEAL SHALL BE 1.5 FEET. FOUNDATION DIAMETER SHALL BE BASED ON FINAL ENGINEERING.
3. STRUCTURE HEIGHTS ARE MEASURED FROM STRUCTURE CENTERLINE AND DO NOT INCLUDE FOUNDATION REVEAL.
4. THE SPAN ASSOCIATED WITH EACH STRUCTURE IS THE AHEAD SPAN.

PROPOSED 230kV CIRCUITS

LINE #272:
DOOMS - GROTTOES

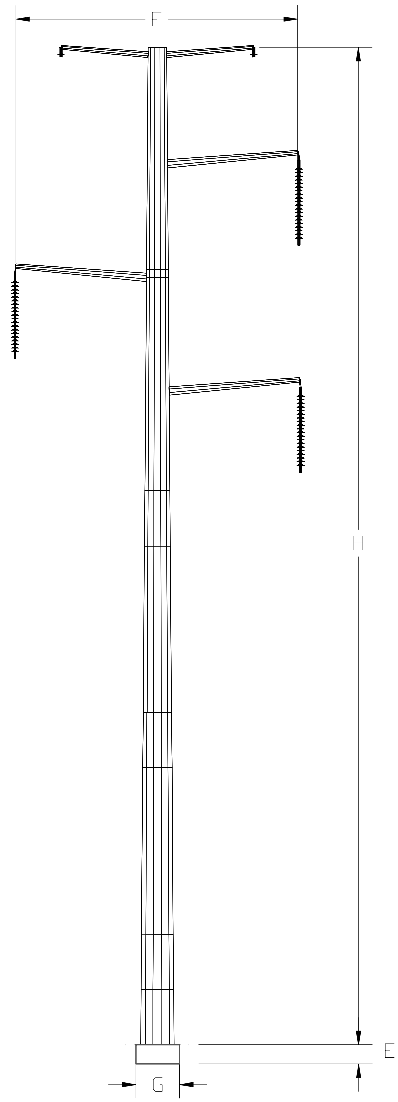


230 kV SC ENGINEERED H-FRAME DDE STRUCTURE WITHOUT STATIC

A.	MAPPING OF THE ROUTE:	SEE ATTACHMENT II.B.5.iv
B.	RATIONALE FOR STRUCTURE TYPE:	TYPICAL CONFIGURATION FOR SINGLE CIRCUIT H-FRAME DOUBLE DEADEND STRUCTURE WITHOUT STATIC.
C.	LENGTH OF R/W (STRUCTURE QTY):	11.50 MILES (1 STRUCTURE)
D.	STRUCTURE MATERIAL:	WEATHERING STEEL
	RATIONALE FOR MATERIAL:	WEATHERING STEEL WAS SELECTED TO MATCH OTHER LINES IN THE AREA AND IS COMPANY'S STANDARD.
E.	FOUNDATION MATERIAL:	CONCRETE
	AVERAGE FOUNDATION REVEAL:	SEE NOTE 2
F.	AVERAGE WIDTH AT CROSS ARM:	46.5'
G.	AVERAGE WIDTH AT BASE:	SEE NOTE 2
H.	MINIMUM STRUCTURE HEIGHT:	30'
	MAXIMUM STRUCTURE HEIGHT:	30'
	AVERAGE STRUCTURE HEIGHT:	30'
I.	AVERAGE SPAN LENGTH (RANGE):	280' (SEE NOTE 4)
J.	MINIMUM CONDUCTOR-TO-GROUND:	22.5' (AT MAXIMUM OPERATING TEMPERATURE)

NOTES:
1. INFORMATION CONTAINED ON DRAWING IS PRELIMINARY IN NATURE AND SUBJECT TO CHANGE DURING FINAL DESIGN.
2. A MINIMUM FOUNDATION REVEAL SHALL BE 1.5 FEET. FOUNDATION DIAMETER SHALL BE BASED ON FINAL ENGINEERING.
3. STRUCTURE HEIGHTS ARE MEASURED FROM STRUCTURE CENTERLINE AND DO NOT INCLUDE FOUNDATION REVEAL.
4. THE SPAN ASSOCIATED WITH EACH STRUCTURE IS THE AHEAD SPAN.

PROPOSED 230kV CIRCUITS



LINE #272:
DOOMS -
GROTTOES

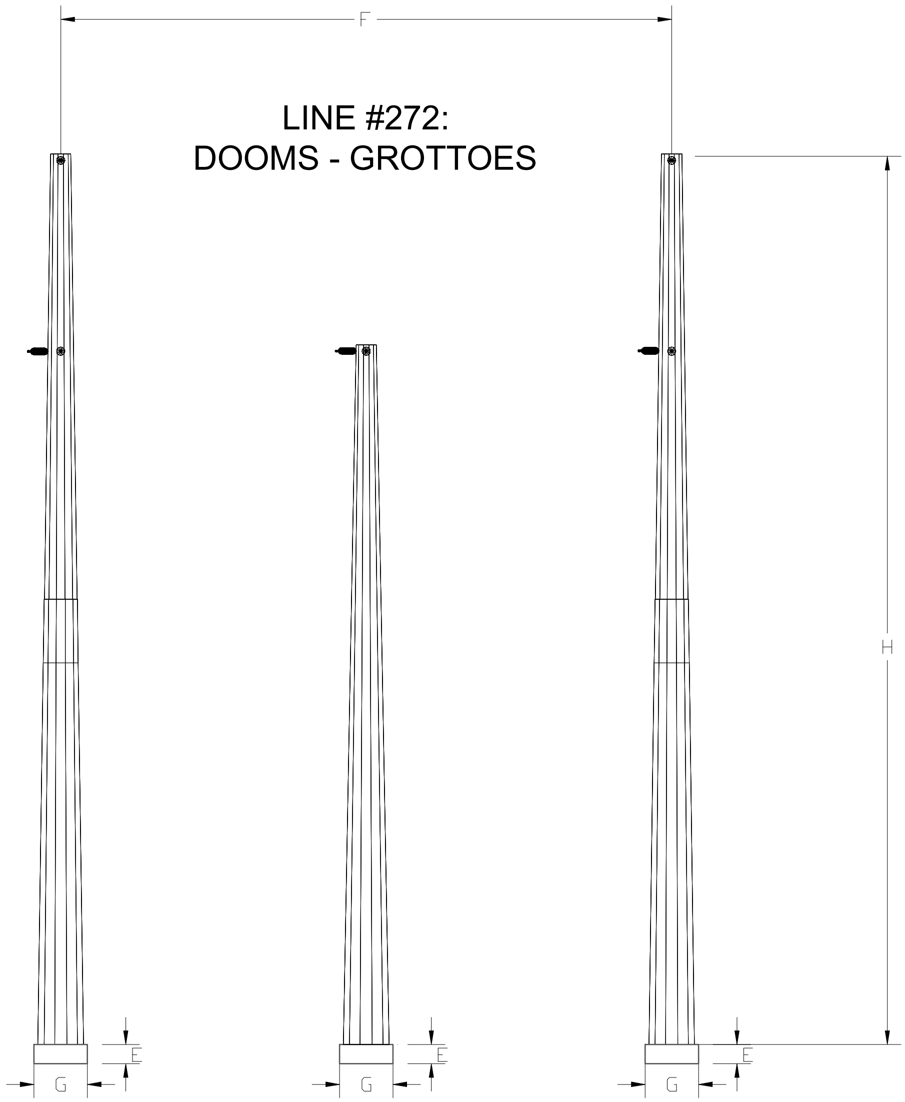
230 kV SC ENGINEERED MONOPOLE SUSPENSION STRUCTURE

A. MAPPING OF THE ROUTE:	SEE ATTACHMENT II.B.5.iv
B. RATIONALE FOR STRUCTURE TYPE:	TYPICAL CONFIGURATION FOR SINGLE CIRCUIT MONOPOLE SUSPENSION STRUCTURES
C. LENGTH OF R/W (STRUCTURE QTY):	11.50 MILES (63 STRUCTURES)
D. STRUCTURE MATERIAL:	WEATHERING STEEL
RATIONALE FOR MATERIAL:	WEATHERING STEEL WAS SELECTED TO MATCH OTHER LINES IN THE AREA AND IS COMPANY'S STANDARD.
E. FOUNDATION MATERIAL:	CONCRETE
AVERAGE FOUNDATION REVEAL:	SEE NOTE 2
F. AVERAGE WIDTH AT CROSS ARM:	26'
G. AVERAGE WIDTH AT BASE:	SEE NOTE 2
H. MINIMUM STRUCTURE HEIGHT:	75'
MAXIMUM STRUCTURE HEIGHT:	115'
AVERAGE STRUCTURE HEIGHT:	95'
I. AVERAGE SPAN LENGTH (RANGE):	822' (521'-1045') (SEE NOTE 4)
J. MINIMUM CONDUCTOR-TO-GROUND:	22.5' (AT MAXIMUM OPERATING TEMPERATURE)

NOTES:

1. INFORMATION CONTAINED ON DRAWING IS PRELIMINARY IN NATURE AND SUBJECT TO CHANGE DURING FINAL DESIGN.
2. A MINIMUM FOUNDATION REVEAL SHALL BE 1.5 FEET. FOUNDATION DIAMETER SHALL BE BASED ON FINAL ENGINEERING.
3. STRUCTURE HEIGHTS ARE MEASURED FROM STRUCTURE CENTERLINE AND DO NOT INCLUDE FOUNDATION REVEAL.
4. THE SPAN ASSOCIATED WITH EACH STRUCTURE IS THE AHEAD SPAN.

PROPOSED 230kV CIRCUITS



230 kV SC ENGINEERED 3-POLE DDE STRUCTURE

A.	MAPPING OF THE ROUTE:	SEE ATTACHMENT II.B.5.iv
B.	RATIONALE FOR STRUCTURE TYPE:	TYPICAL CONFIGURATION FOR SINGLE CIRCUIT THREE POLE DOUBLE DEADEND STRUCTURES
C.	LENGTH OF R/W (STRUCTURE QTY):	11.50 MILES (2 STRUCTURES)
D.	STRUCTURE MATERIAL:	WEATHERING STEEL
	RATIONALE FOR MATERIAL:	WEATHERING STEEL WAS SELECTED TO MATCH OTHER LINES IN THE AREA AND IS COMPANY'S STANDARD.
E.	FOUNDATION MATERIAL:	CONCRETE
	AVERAGE FOUNDATION REVEAL:	SEE NOTE 2
F.	AVERAGE STRUCTURE WIDTH:	48'
G.	AVERAGE WIDTH AT BASE:	SEE NOTE 2
H.	MINIMUM STRUCTURE HEIGHT:	50'
	MAXIMUM STRUCTURE HEIGHT:	70'
	AVERAGE STRUCTURE HEIGHT:	60'
I.	AVERAGE SPAN LENGTH (RANGE):	455' (246'-664') (SEE NOTE 4)
J.	MINIMUM CONDUCTOR-TO-GROUND:	22.5' (AT MAXIMUM OPERATING TEMPERATURE)

NOTES:
1. INFORMATION CONTAINED ON DRAWING IS PRELIMINARY IN NATURE AND SUBJECT TO CHANGE DURING FINAL DESIGN.
2. A MINIMUM FOUNDATION REVEAL SHALL BE 1.5 FEET. FOUNDATION DIAMETER SHALL BE BASED ON FINAL ENGINEERING.
3. STRUCTURE HEIGHTS ARE MEASURED FROM STRUCTURE CENTERLINE AND DO NOT INCLUDE FOUNDATION REVEAL.
4. THE SPAN ASSOCIATED WITH EACH STRUCTURE IS THE AHEAD SPAN.

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
272/1	70	75	N/A - IN DOMINION SUBSTATION
272/2	76	65	II.B.3.f
272/3	N/A	39	II.B.3.e
272/4	53	50	II.B.3.i
272/5	59	55	II.B.3.f
272/6	70	60	II.B.3.f
272/7	80	70	II.B.3.i
272/8	80	85	II.B.3.h
272/9	80	85	II.B.3.h
272/10	87	90	II.B.3.h
272/11	95	95	II.B.3.h
272/12	51	45	II.B.3.f
272/12A	N/A	37	II.B.3.g
272/13	66	60	II.B.3.f
272/14	100	105	II.B.3.h
272/15	90	105	II.B.3.h
272/16	80	85	II.B.3.h
272/17	90	95	II.B.3.h
272/18	100	105	II.B.3.h
272/19	90	100	II.B.3.h
272/20	90	90	II.B.3.h

Structure Number	Existing Structure Height (FT)	Proposed Structure Height (FT)	Attachment II.B.3 Structure Type
272/21	81	85	II.B.3.h
272/22	80	85	II.B.3.h
272/23	112	105	II.B.3.h
272/24	82	80	II.B.3.h
272/25	80	85	II.B.3.h
272/26	81	75	II.B.3.d
272/27	101	105	II.B.3.h
272/28	111	115	II.B.3.h
272/29	100	90	II.B.3.h
272/30	100	95	II.B.3.h
272/31	100	100	II.B.3.h
272/32	122	100	II.B.3.h
272/33	80	90	II.B.3.h
272/34	95	95	II.B.3.h
272/35	82	100	II.B.3.h
272/36	82	85	II.B.3.h
272/37	81	85	II.B.3.d
272/38	100	105	II.B.3.h
272/39	95	95	II.B.3.h
272/40	95	95	II.B.3.h
272/41	101	105	II.B.3.h
272/42	81	95	II.B.3.h
272/43	100	100	II.B.3.h
272/44	101	100	II.B.3.h
272/45	120	115	II.B.3.d
272/46	100	105	II.B.3.h
272/47	81	85	II.B.3.h
272/48	102	105	II.B.3.h
272/49	100	100	II.B.3.h
272/50	97	95	II.B.3.h
272/51	95	100	II.B.3.h
272/52	90	90	II.B.3.h
272/53	97	100	II.B.3.h
272/54	100	100	II.B.3.h
272/55	80	95	II.B.3.h
272/56	80	90	II.B.3.h

Structure Number	Existing Structure Height (FT)	Proposed Structure Height (FT)	Attachment II.B.3 Structure Type
272/57	81	80	II.B.3.d
272/58	94	95	II.B.3.h
272/59	101	100	II.B.3.h
272/60	100	105	II.B.3.h
272/61	110	105	II.B.3.h
272/62	90	105	II.B.3.h
272/63	120	110	II.B.3.h
272/64	100	110	II.B.3.h
272/65	89	85	II.B.3.d
272/66	96	105	II.B.3.h
272/67	100	100	II.B.3.h
272/68	100	105	II.B.3.h
272/69	95	95	II.B.3.h
272/70	100	100	II.B.3.h
272/71	85	95	II.B.3.h
272/72	102	95	II.B.3.h
272/73	82	90	II.B.3.d
272/74	100	95	II.B.3.h
272/75	80	85	II.B.3.h
272/76	100	100	II.B.3.h
272/77	80	75	II.B.3.h
272/78	79	85	II.B.3.h
272/79	101	100	II.B.3.d
272/80	75	40	II.B.3.e
272/81	N/A	76	II.B.3.f
272/82	70	76	N/A - IN DOMINION SUBSTATION
260/1A	75	75	N/A - IN DOMINION SUBSTATION
260/1B	100	100	N/A - IN DOMINION SUBSTATION
260/1	60	65	II.B.3.b
260/2	54	61	II.B.3.a
260/3	70	75	II.B.3.a
260/4	78	89	II.B.3.c

Structure Number	Existing Structure Height (FT)	Proposed Structure Height (FT)	Attachment II.B.3 Structure Type
260/5	65	70	II.B.3.a
260/6	61	66	II.B.3.a
260/7	57	97	II.B.3.a
260/8	56	70	II.B.3.a
260/9	70	70	II.B.3.a
260/10	64	70	II.B.3.a
260/11	56	70	II.B.3.a
260/12	60	66	II.B.3.a
260/13	73	79	II.B.3.a
260/14	79	90	II.B.3.b
260/15	56	84	II.B.3.a
260/16	65	75	II.B.3.a
260/17	72	75	II.B.3.a
260/18	62	66	II.B.3.a
260/19	50	66	II.B.3.a
260/20	79	97	II.B.3.a
260/21	73	66	II.B.3.a
260/22	78	84	II.B.3.a
260/23	77	84	II.B.3.a
260/24	75	79	II.B.3.a
260/25	56	67	II.B.3.b
260/26	47	60	II.B.3.b
260/27	70	97	II.B.3.a
260/28	69	75	II.B.3.a
260/29	67	93	II.B.3.a
260/30	69	97	II.B.3.a
260/31	81	75	II.B.3.a
260/32	65	88	II.B.3.a
260/33	65	66	II.B.3.a
260/34	74	79	II.B.3.a
260/35	64	79	II.B.3.a
260/36	65	75	II.B.3.a
260/37	65	70	II.B.3.a
260/38	61	79	II.B.3.a
260/39	47	70	II.B.3.a
260/40	65	70	II.B.3.a

Structure Number	Existing Structure Height (FT)	Proposed Structure Height (FT)	Attachment II.B.3 Structure Type
260/41	64	80	II.B.3.b
260/42	64	70	II.B.3.a
260/43	65	75	II.B.3.a
260/44	64	84	II.B.3.a
260/45	78	84	II.B.3.a
260/46	70	79	II.B.3.a
260/47	64	84	II.B.3.a
260/48	50	70	II.B.3.a
260/49	68	70	II.B.3.a
260/50	59	70	II.B.3.a
260/51	60	70	II.B.3.a
260/52	64	79	II.B.3.a
260/53	64	75	II.B.3.a
260/54	64	70	II.B.3.a
260/55	63	79	II.B.3.a
260/56	67	79	II.B.3.a
260/57	60	70	II.B.3.a
260/58	54	73	II.B.3.b
260/59	71	79	II.B.3.a
260/60	58	70	II.B.3.a
260/61	50	66	II.B.3.a
260/62	79	88	II.B.3.a
260/63	79	79	II.B.3.a
260/64	65	84	II.B.3.a
260/65	61	75	II.B.3.a
260/66	66	75	II.B.3.a
260/67	69	79	II.B.3.a
260/68	74	79	II.B.3.a
260/69	56	65	II.B.3.b
260/70	76	93	II.B.3.a
260/71	70	75	II.B.3.a
260/72	56	65	II.B.3.b
260/73	66	75	II.B.3.a
260/74	75	84	II.B.3.a
260/75	73	79	II.B.3.a
260/76	77	75	II.B.3.a

Structure Number	Existing Structure Height (FT)	Proposed Structure Height (FT)	Attachment II.B.3 Structure Type
260/77	66	70	II.B.3.a
260/78	68	79	II.B.3.a
260/79	70	79	II.B.3.a
260/80	74	88	II.B.3.a
260/81	68	66	II.B.3.a
260/82	65	75	II.B.3.b
260/83	67	75	N/A - IN DOMINION SUBSTATION
Minimum	47	37	
Maximum	122	120	
Average	77	84	

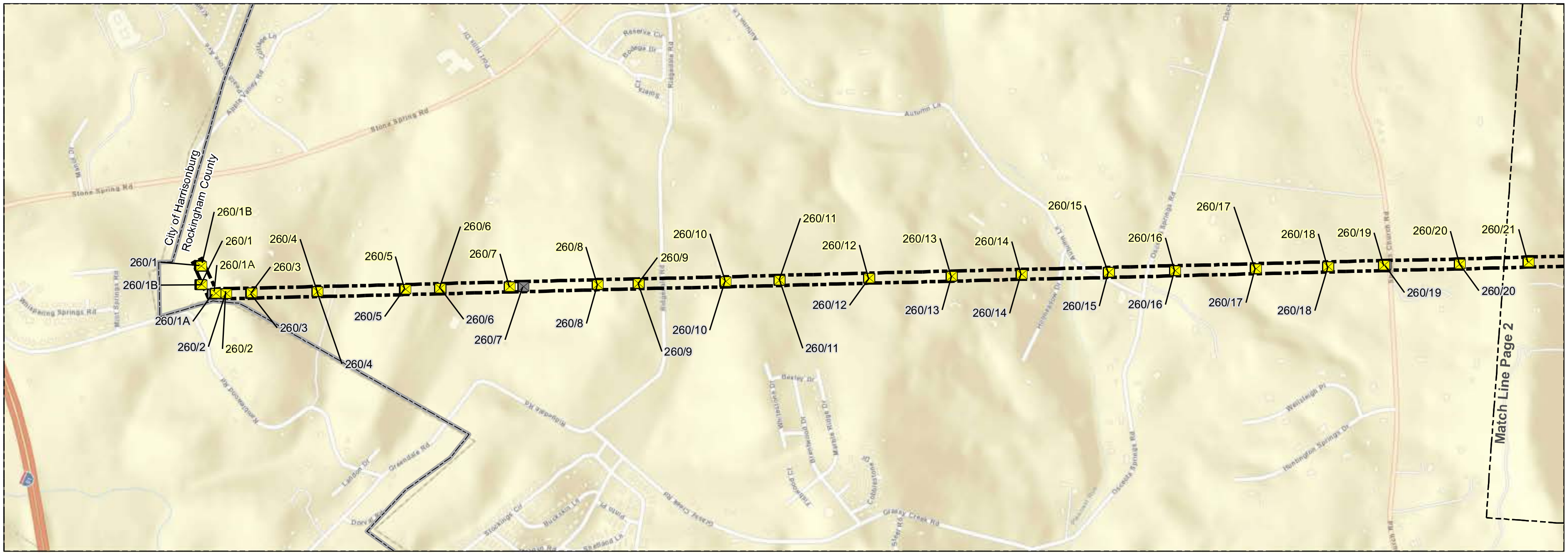
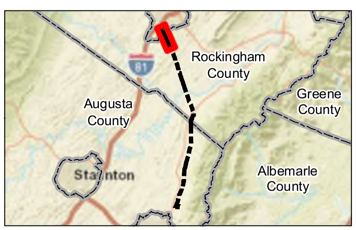


Table II.B.5

Existing Structure Number	260/1	260/1B	260/1A	260/2	260/3	260/4	260/5	260/6	260/7	260/8	260/9	260/10	260/11	260/12	260/13	260/14	260/15	260/16	260/17	260/18	260/19	260/20	260/21
Existing Structure Height (ft)	60	100	75	54.4	69.5	78.1	65.2	60.7	57.5	55.6	70	64.4	56.3	59.7	72.6	78.8	56.1	65	72	62	50	78.6	72.9

Proposed Structure Number	260/1B	260/1A	260/1	260/2	260/3	260/4	260/5	260/6	260/7	260/8	260/9	260/10	260/11	260/12	260/13	260/14	260/15	260/16	260/17	260/18	260/19	260/20	260/21
Proposed Structure Height (ft)	100	75	64.8	61	74.5	89.5	70	65.5	97	70	70	70	70	65.5	79	90	83.5	74.5	74.5	65.5	65.5	97	65.5



Existing Structure
Proposed Structure
Project Limits

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Notes
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Rockingham County, Augusta County, and Town of Grottoes, Virginia

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IR by KHP on 2024-03-28

Client/Project
203401846
Dominion Energy Virginia
Dooms-Harrisonburg 230 kV
Lines #260 and #272 Rebuild Project

Figure No.
II.B.5

Title
Existing and Proposed Structures

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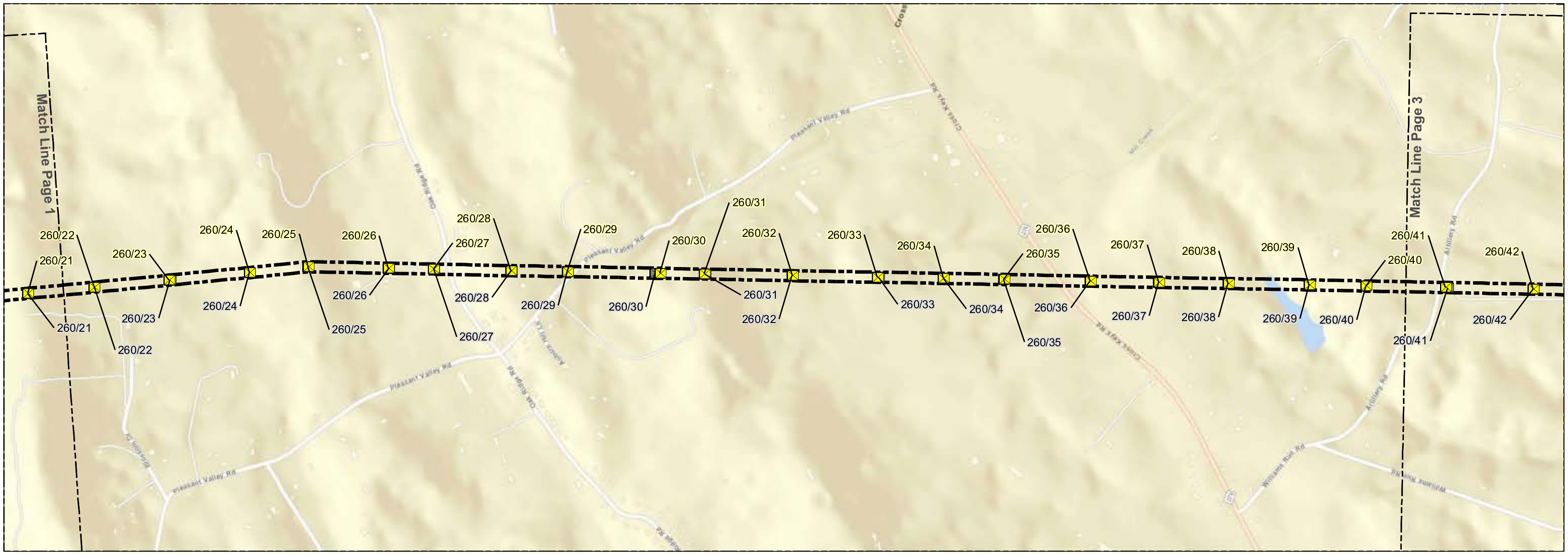
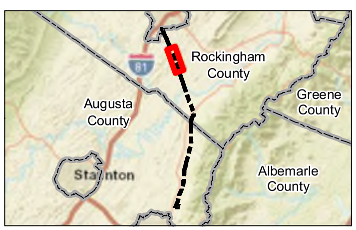


Table II.B.5

Existing Structure Number	260/21	260/22	260/23	260/24	260/25	260/26	260/27	260/28	260/29	260/30	260/31	260/32	260/33	260/34	260/35	260/36	260/37	260/38	260/39	260/40	260/41	260/42
Existing Structure Height (ft)	72.9	77.7	77	74.6	55.9	47.2	69.9	69.2	66.7	68.7	81	65	65.4	74	64.2	64.8	64.8	60.6	47	65.2	64.4	63.5

Proposed Structure Number	260/21	260/22	260/23	260/24	260/25	260/26	260/27	260/28	260/29	260/30	260/31	260/32	260/33	260/34	260/35	260/36	260/37	260/38	260/39	260/40	260/41	260/42
Proposed Structure Height (ft)	65.5	83.5	83.5	79	66.5	60.2	97	74.5	92.5	97	74.5	88	65.5	79	79	74.5	70	79	70	70	80.5	70



Existing Structure
Proposed Structure
Project Limits

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Dooms-Harrisonburg 230 kV
Lines #260 and #272 Rebuild Project

Figure No.
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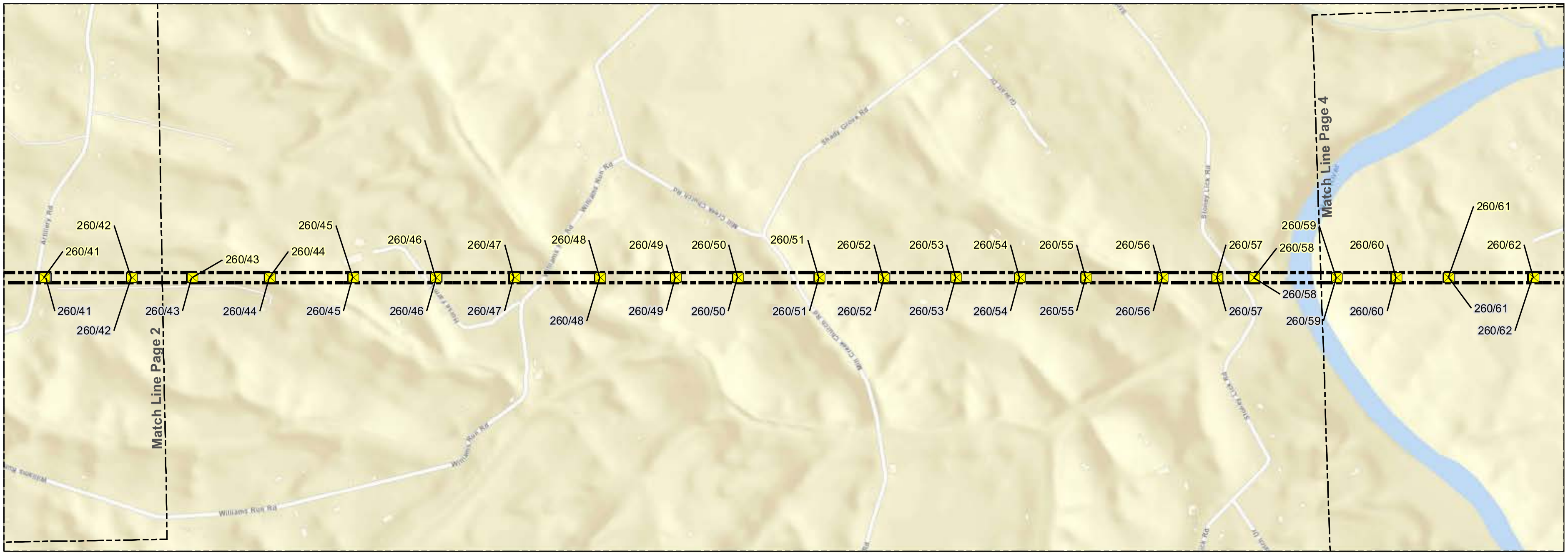
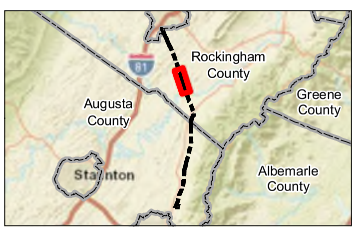


Table II.B.5

Existing Structure Number	260/41	260/42	260/43	260/44	260/45	260/46	260/47	260/48	260/49	260/50	260/51	260/52	260/53	260/54	260/55	260/56	260/57	260/58	260/59	260/60	260/61	260/62
Existing Structure Height (ft)	64.4	63.5	65.4	64.2	78.5	69.8	64.1	49.5	67.7	58.8	59.8	64.3	64.1	63.7	62.6	67.4	59.6	54.1	70.8	57.5	50.4	78.5

Proposed Structure Number	260/41	260/42	260/43	260/44	260/45	260/46	260/47	260/48	260/49	260/50	260/51	260/52	260/53	260/54	260/55	260/56	260/57	260/58	260/59	260/60	260/61	260/62
Proposed Structure Height (ft)	80.5	70	74.5	83.5	83.5	79	83.5	70	70	70	70	79	74.5	70	79	79	70	73	79	70	65.5	88



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Proposed Structure
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Dooms-Harrisonburg 230 kV
Lines #260 and #272 Rebuild Project

Figure No.
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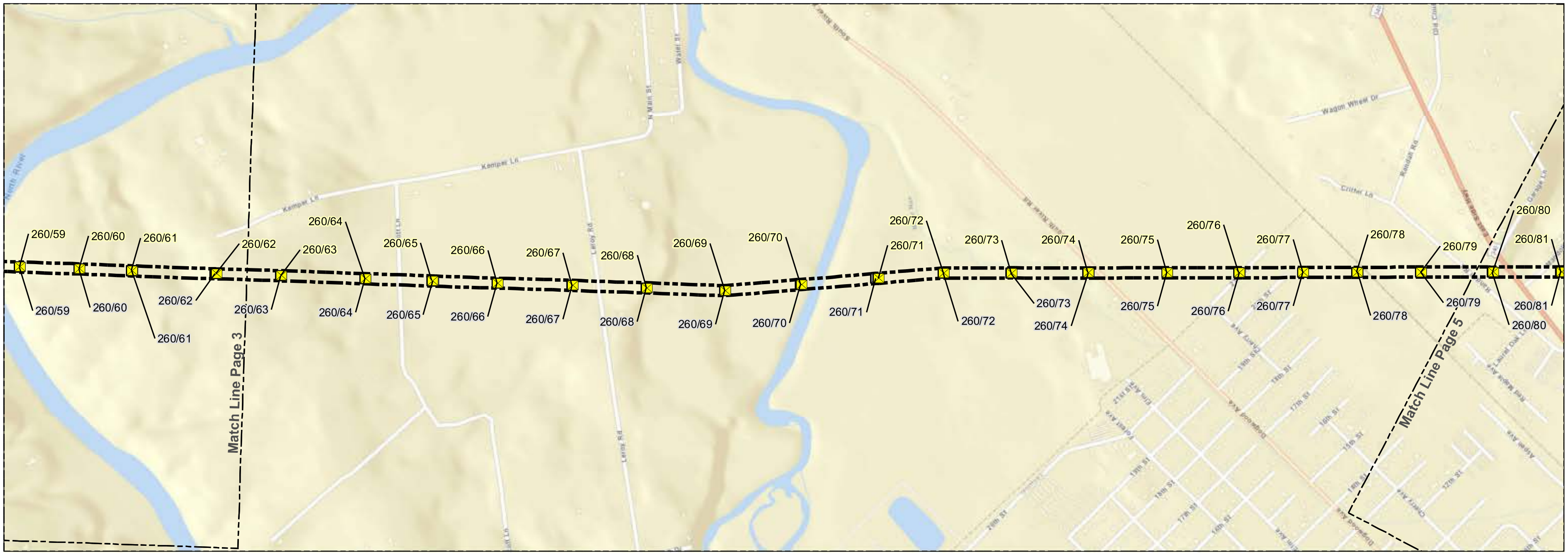
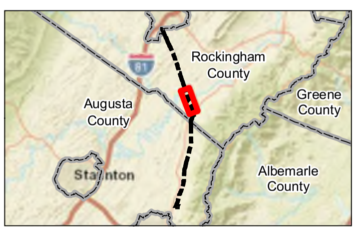


Table II.B.5

Existing Structure Number	260/59	260/60	260/61	260/62	260/63	260/64	260/65	260/66	260/67	260/68	260/69	260/70	260/71	260/72	260/73	260/74	260/75	260/76	260/77	260/78	260/79	260/80	260/81
Existing Structure Height (ft)	70.8	57.5	50.4	78.5	79.4	64.6	60.7	65.9	69.5	74.2	55.6	75.6	70.2	56.3	66.3	74.7	73.4	77.3	66.1	68.4	69.8	74.3	68.2

Proposed Structure Number	260/59	260/60	260/61	260/62	260/63	260/64	260/65	260/66	260/67	260/68	260/69	260/70	260/71	260/72	260/73	260/74	260/75	260/76	260/77	260/78	260/79	260/80	260/81
Proposed Structure Height (ft)	79	70	65.5	88	79	83.5	74.5	74.5	79	79	65.3	92.5	74.5	65	74.5	83.5	79	74.5	70	79	79	88	65.5



Existing Structure
Proposed Structure
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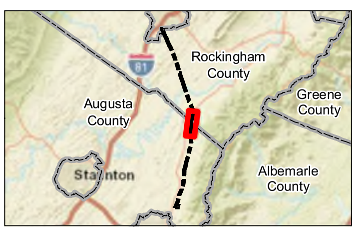
Table II.B.5

Existing Structure Number	260/80	260/81	260/82	260/83 272/80	272/79	272/78	272/77	272/76	272/75	272/74	272/73	272/72	272/71	272/70	272/69	272/68	272/67	272/66	272/65	272/64	272/63	272/62
Existing Structure Height (ft)	74.3	68.2	64.8	67	100.5	78.8	79.9	100.1	79.8	100.5	81.7	102.1	85	100.1	95	100.4	100	95.6	89.4	100.4	120.2	90.3

Proposed Structure Number	260/80	260/81	260/82	260/83	272/82	272/81	272/80	272/79	272/78	272/77	272/76	272/75	272/74	272/73	272/72	272/71	272/70	272/69	272/68	272/67	272/66	272/65	272/64	272/63
Proposed Structure Height (ft)	88	65.5	75.3	75	76	76	39.8	100	85	75	100	85	95	90	95	95	100	95	105	100	105	85	110	110



Existing Structure
Proposed Structure
Project Limits

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Dominion Energy Virginia
Dooms-Harrisonburg 230 kV
Lines #260 and #272 Rebuild Project

Figure No.
II.B.5

Title
Existing and Proposed Structures

Notes
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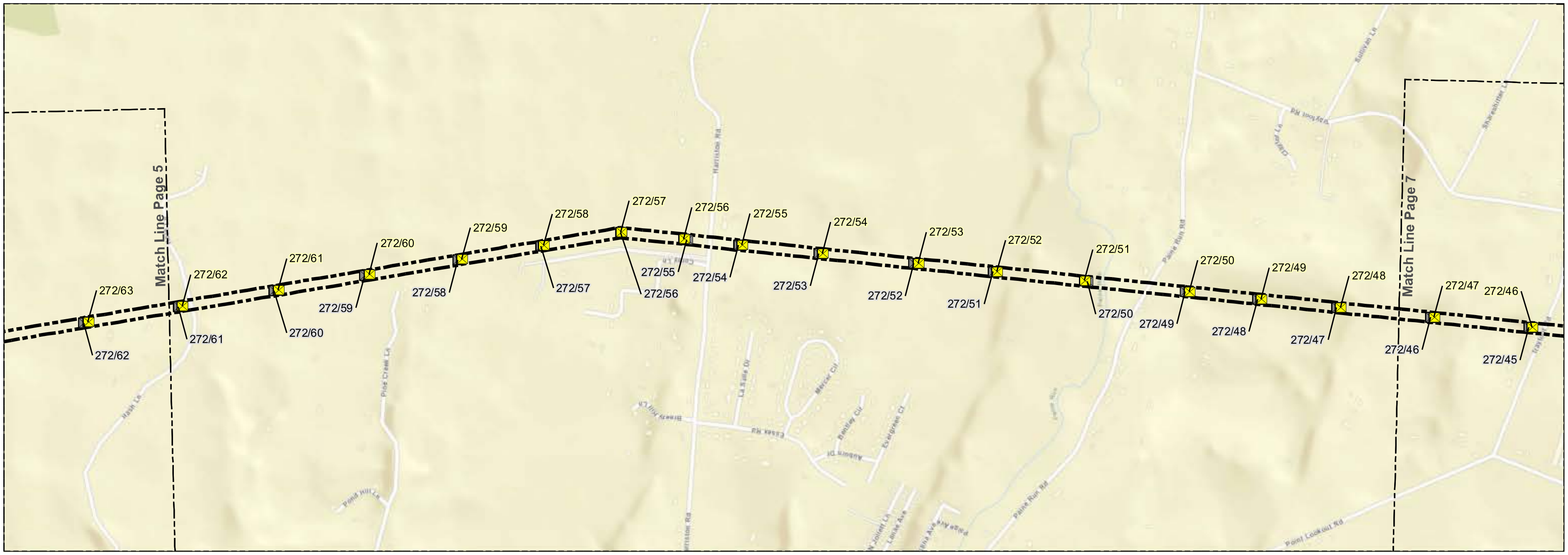
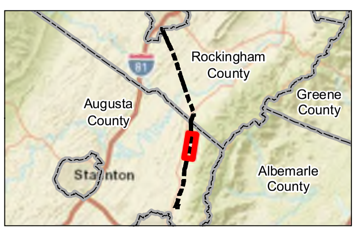


Table II.B.5

Existing Structure Number	272/62	272/61	272/60	272/59	272/58	272/57	272/56	272/55	272/54	272/53	272/52	272/51	272/50	272/49	272/48	272/47	272/46	272/45
Existing Structure Height (ft)	90.3	109.8	100.4	101.3	94	81.4	80.4	80.2	100.2	96.7	90	95.3	96.8	100.3	101.9	81	100.3	120.1

Proposed Structure Number	272/63	272/62	272/61	272/60	272/59	272/58	272/57	272/56	272/55	272/54	272/53	272/52	272/51	272/50	272/49	272/48	272/47	272/46
Proposed Structure Height (ft)	110	105	105	105	100	95	80	90	95	100	100	90	100	95	100	105	85	105



Existing Structure
Proposed Structure
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Figure No.
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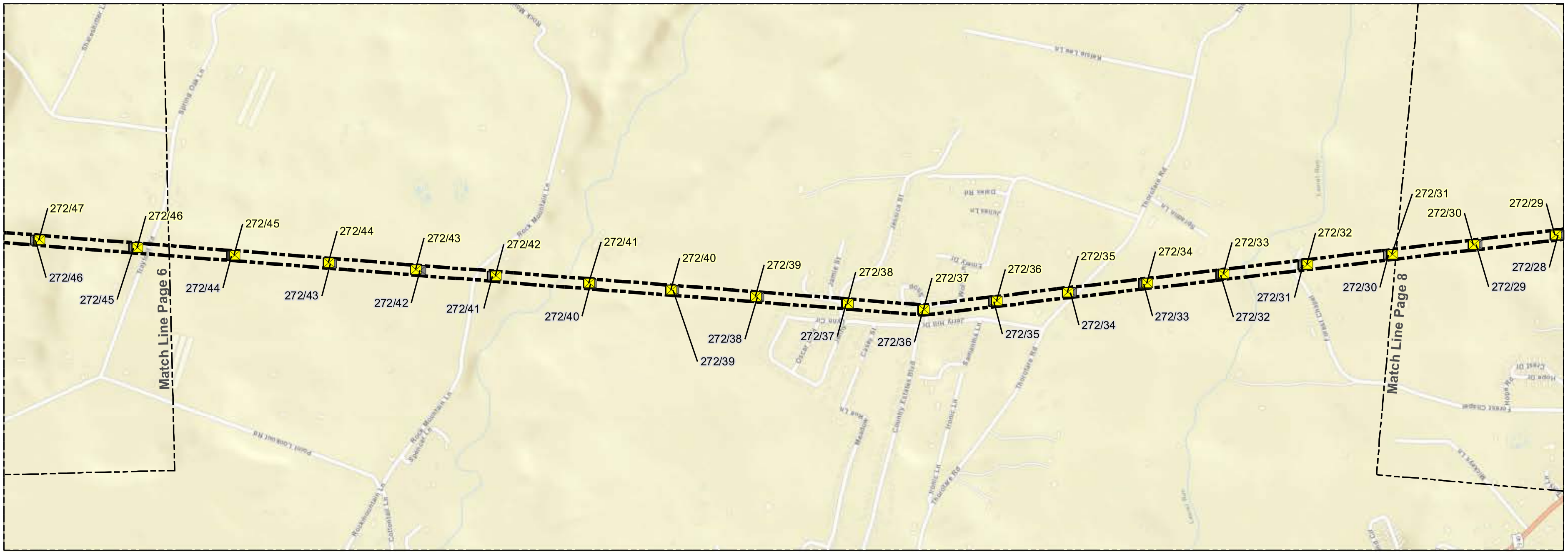
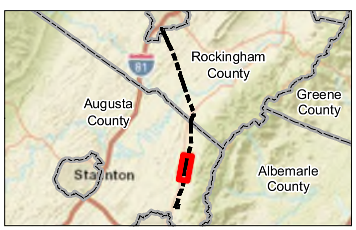


Table II.B.5

Existing Structure Number	272/46	272/45	272/44	272/43	272/42	272/41	272/40	272/39	272/38	272/37	272/36	272/35	272/34	272/33	272/32	272/31	272/30	272/29	272/28
Existing Structure Height (ft)	100.3	120.1	100.7	100.4	81.1	101.5	95.1	95.4	100.2	80.8	81.7	81.5	95.2	79.9	122.2	100.2	100.5	100.5	111.2

Proposed Structure Number	272/47	272/46	272/45	272/44	272/43	272/42	272/41	272/40	272/39	272/38	272/37	272/36	272/35	272/34	272/33	272/32	272/31	272/30	272/29
Proposed Structure Height (ft)	85	105	115	100	100	95	105	95	95	105	85	85	100	95	90	100	100	95	90



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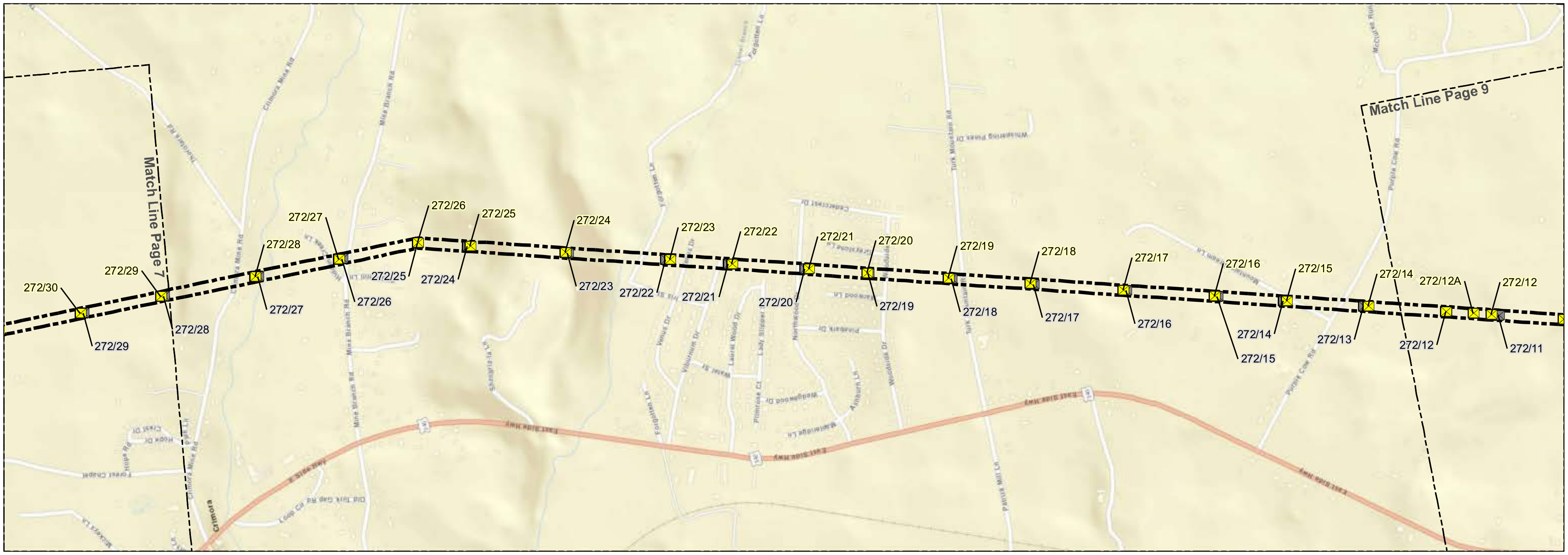
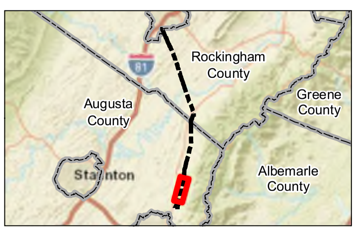


Table II.B.5

Existing Structure Number	272/29	272/28	272/27	272/26	272/25	272/24	272/23	272/22	272/21	272/20	272/19	272/18	272/17	272/16	272/15	272/14	272/13	272/12	272/11
Existing Structure Height (ft)	100.5	111.2	100.8	80.5	80.4	81.7	111.5	80.5	80.5	90.1	89.8	100.3	90.2	79.8	89.5	100.4	65.8	51.4	95.1

Proposed Structure Number	272/30	272/29	272/28	272/27	272/26	272/25	272/24	272/23	272/22	272/21	272/20	272/19	272/18	272/17	272/16	272/15	272/14	272/13	272/12A	272/12	272/11
Proposed Structure Height (ft)	95	90	115	105	75	85	80	105	85	85	90	100	105	95	85	105	105	60.3	37.2	45.1	95



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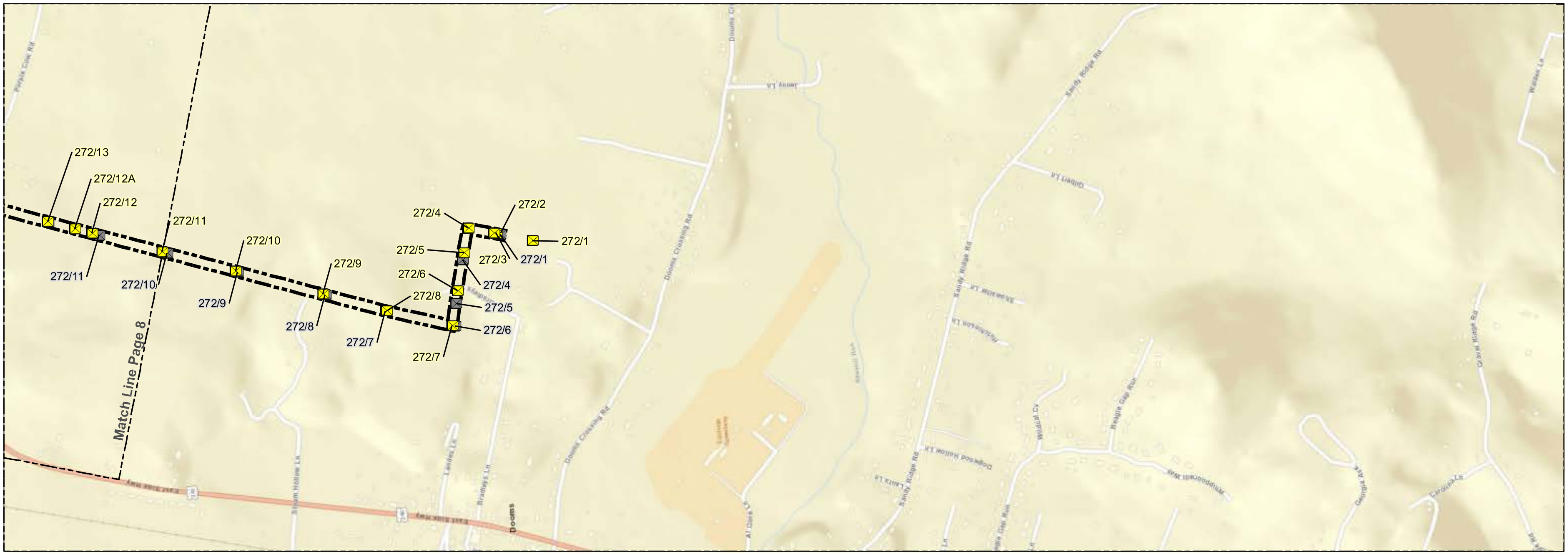
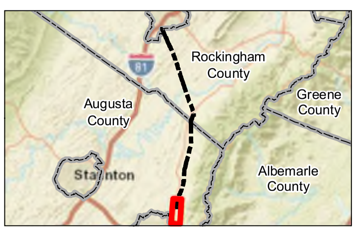


Table II.B.5

Existing Structure Number	272/12	272/11	272/10	272/9	272/8	272/7	272/6	272/5	272/4	272/2	272/1
Existing Structure Height (ft)	51.4	95.1	86.5	79.7	80	79.5	70	58.6	52.5	75.5	69.9

Proposed Structure Number	272/13	272/12A	272/12	272/11	272/10	272/9	272/8	272/7	272/6	272/5	272/4	272/3	272/2	272/1
Proposed Structure Height (ft)	60.3	37.2	45.1	95	90	85	85	70.5	60.1	55.3	50	39.2	65.3	75



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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-iv for representative photographs of typical existing structures.

(b) Comparable photographs or representations for proposed structures.

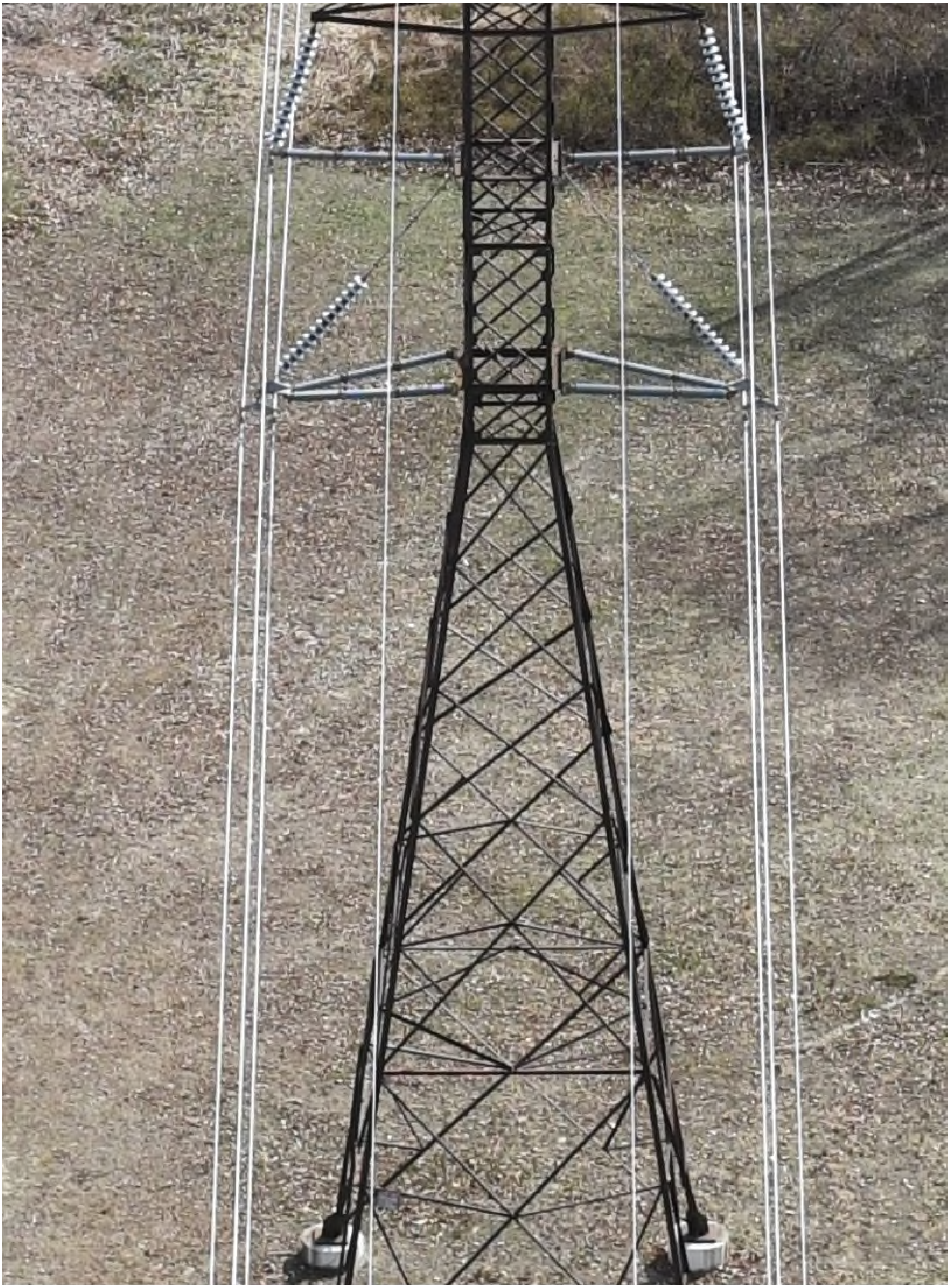
See Attachments II.B.6.b.i-vi, for representative photographs of the proposed structures for the Rebuild Project.

(c) Visual simulations showing the appearance of all planned transmission structures at identified historic locations within one mile of the proposed centerline and in key locations.

Visual simulations showing the appearance of the proposed transmission structures are provided for identified historic properties where expected to be visible. These simulations were created using GIS modeling to depict whether the existing and proposed structures are or will be visible from historic properties. Attachment II.B.6.c includes maps illustrating the photo simulation locations, as well as photographs of existing structures and simulations of the proposed structures from selected key observation points ("KOPs"), where visible. The table below identifies the historic properties evaluated.

VDHR #	Resource Name	OP	Comments
007-0944	John Nicholas Coiner and Mill	20	No Impact
007-0964	Crimora Elementary School, Route 612	2	No impact
082-0010	College Camp	11	No Impact
082-0123	Port Republic Historic District	12	Minimal impact
082-0368	Dr. Joseph B. Webb House, 3327 Cross Keys Road	11	Minimal impact

VDHR #	Resource Name	OP	Comments
082-0369	William VanLear Farm/Kiblinger House, 3591 Cross Keys Road	10	Minimal impact
082-0376	Cross Keys Battlefield	4,5,6,7	Minimal impact
082-0401	William Saufley Farm, 7358 Shady Grove Road	10	Minimal impact
082-5075	Kyle's Mill House, 1764 Cross Keys Road	12	No impact
082-5096	Peter Heil House/ Springdale Farm, 4090 Cross Keys Road	9	Minimal impact
082-5156	Dundore House, 1582 Ridgedale Road	13	Minimal impact
082-5204	German Reformed Church Parsonage, 4067 Cross Keys Road	8	Minimal impact
082-5430	Port Republic Battlefield	6	Minimal impact
115-5055	Argubright Barn (demolished), 740 Stone Spring Road		N/A
228-0015	Grottoes Elementary School	15	No Impact
228-5022	Steven Hainsberger House, Holly Avenue	4	No Impact



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, and none of the impacted substations are being expanded. The Rebuild Project will require the following substation work:

At the Harrisonburg, Grottoes, and Dooms Substations, the Company will upgrade the circuit-breaker and line leads to 4000A.

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 traverses approximately 22.1 miles through Augusta and Rockingham Counties and the Town of Grottoes in an area that is largely characterized by agricultural and forested land close to mountains. The Rebuild Project runs from Harrisonburg Substation to Dooms Substation. The route crosses primarily rural farmlands with scattered low to medium density residential development, including manufactured home parks. Near the Dooms Substation, several other transmission lines are present, including those noted in Section II.A.2.

Farmlands/Forests

Within the existing transmission right-of-way, the majority of land is zoned as agricultural. According to the Natural Resources Conservation Service Data ("NRCS"), approximately 58.22 acres of prime farmland, no acres of prime farmland if drained, and 103.54 acres of farmland of statewide importance are located within the right-of-way.

See Attachment III.A.1 for a map depicting prime farmland and farmland of statewide importance in the Rebuild Project area, and Section 2.L of the DEQ Supplement for the estimated amount of farmland and forestland within the right-of-way that the proposed Rebuild Project would impact.

Wetlands

The proposed Rebuild Project is located within the South Fork Shenandoah River watershed, Hydrologic Unit Code 02070005. According to the U.S. Geological Survey ("USGS") topographic quadrangles Waynesboro East, Crimora, Grottoes, Harrisonburg, and Bridgewater, the existing transmission line corridor crosses Tunnel Branch, Mine Branch, Laurel Run, Meadow Run, Paine Run, Stull Run, Miller Run, South River, North River, and Pleasant Run.

Within the Rebuild Project corridor, the Company performed an off-site analysis of wetlands and other potential jurisdictional water resources using current and historic aerial imagery, topographic quadrangles, U.S. Fish and Wildlife Service ("USFWS") National Wetland Inventory ("NWI"), and the Natural Resources Conservation Service ("NRCS") Soil Survey. The study determined the approximate locations and extents of potential jurisdictional water resources.

Approximate wetlands and other surface waters within the proposed Rebuild Project corridor are provided in Attachment 2.D.1 to the DEQ Supplement.

Prior to construction, the Company will delineate wetlands and other waters of the United States using the *Routine Determination Method*, as outlined in the *1987 Corps of Engineers Wetland Delineation Manual* and methods described in the *2012 Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Eastern Mountains and Piedmont Region* (Version 2.0), or other applicable guidance. Prior to construction, the Company will obtain any necessary permits to impact jurisdictional waters.

For additional description of the character of the area that will be traversed by the Rebuild Project and the related impacts, see Section 2.D of the DEQ Supplement.

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 April 2024 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.

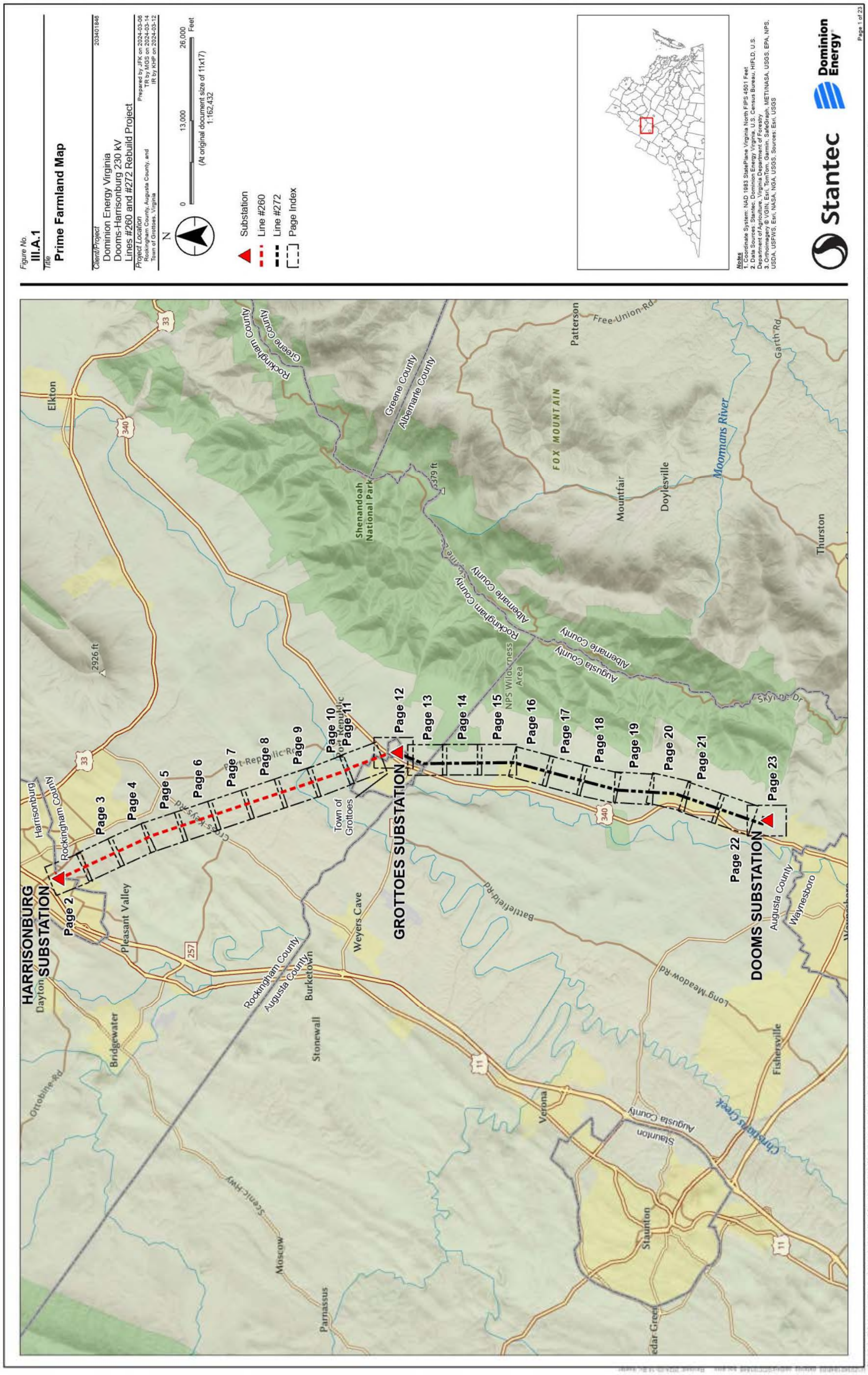
For all segments of the Rebuild Project, the background archival research identified no National Historic Landmarks ("NHLs") within the 1.5-mile radius; four NRHP-listed resources and three battlefields within the one-mile radius; and one NRHP-listed resource, two battlefields, and no NRHP-eligible resources within the 0.5-mile radius.

Threatened and Endangered Species

Online database searches for threatened and endangered species in the vicinity of the Rebuild Project, including the USFWS Information, Planning, and Conservation ("IPaC") system, the Virginia Department of Wildlife Resources ("DWR") Virginia Fish and Wildlife Information Service ("VAFWIS"), and the Center for Conservation Biology ("CCB") Bald Eagle Nest Locator, were conducted. A request was also submitted to the Virginia Department of Conservation and Recreation ("DCR') to conduct a search of their Biotics Data System for occurrences of natural heritage resources within the Rebuild Project. The database searches 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 provided in 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 the relevant GIS parcel and zoning data and aerial interpretations, there are approximately 472 dwellings located within 500 feet of the centerline of the existing right-of-way, 256 dwellings located within 250 feet of the centerline of the existing right-of-way, and 111 dwellings located within 100 feet of the centerline of the existing right-of-way. This count is based on desktop data and has not been field verified. Four dwellings are located within the existing right-of-way.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Client/Project
Dominion Energy Virginia
Dooms-Harrisonburg 230 kV
Lines #260 and #272 Rebuild Project
Project Location
Rockingham County, Augusta County, and Town of Grottoes, Virginia
203401846
Substation
Line #260
Line #272
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HARRISONBURG SUBSTATION
GROTTOES SUBSTATION
DOOMS SUBSTATION
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IR by KHP on 2024-03-12
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Harrisonburg
Rockingham County
Greene County
Albemarle County
Augusta County
Staunton
Waynesboro
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3. Orthoimagery © Virginia Geographic Information Network (VGIN)
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HARRISONBURG SUBSTATION
260/1
260/1A
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260/8
260/9
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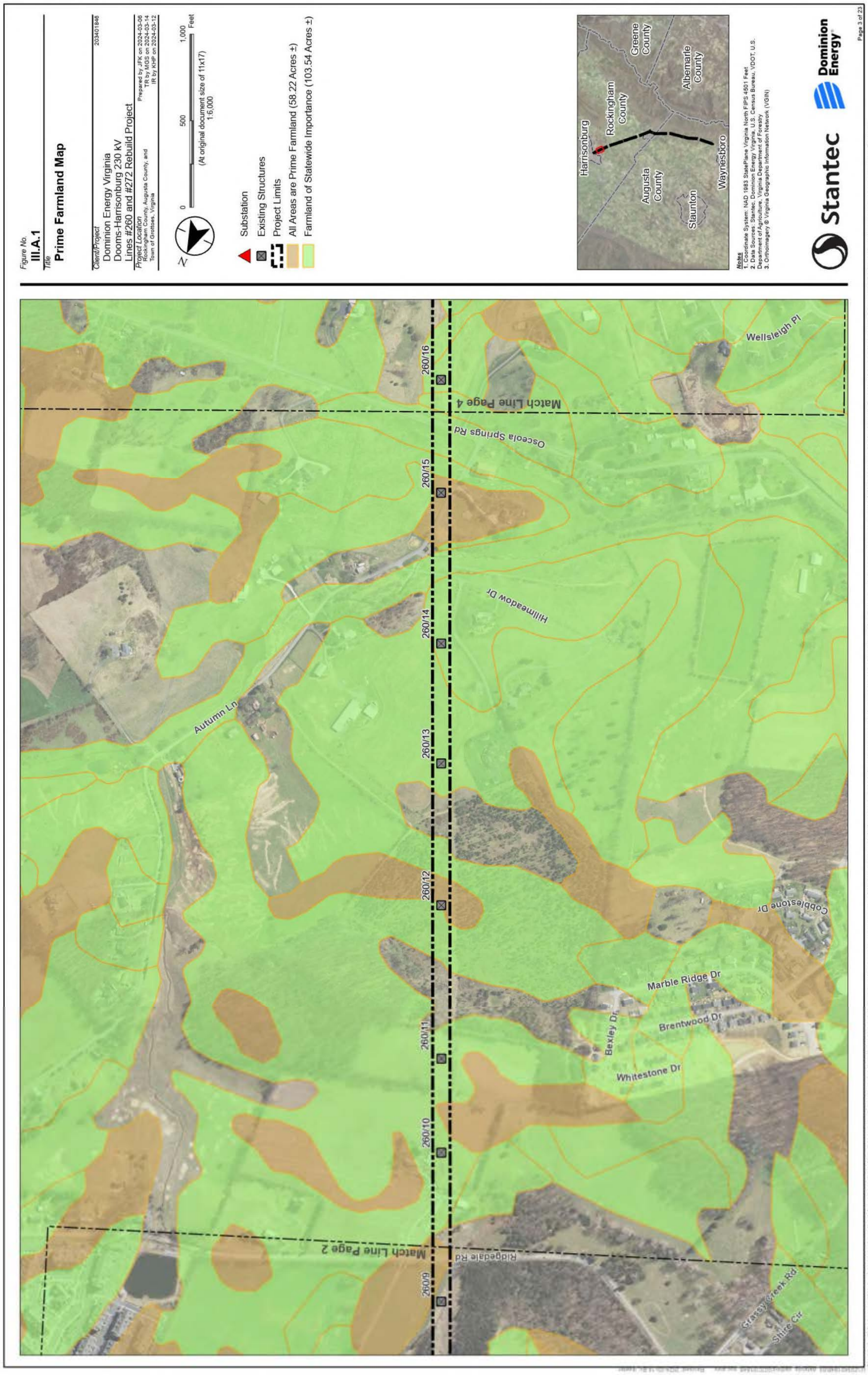
Ridgedale Rd
Grassy Creek Rd
Shire Cir
Dromedary Dr
Pinto Pl
Buckskin Ln
Stockings Cir
Greendale Rd
Landon Dr
Dorval Rd
City of Harrisonburg
Ramblewood Rd
Apple Valley Rd
Peach Grove Ave
Mint Springs Rd
Manor Dr
280



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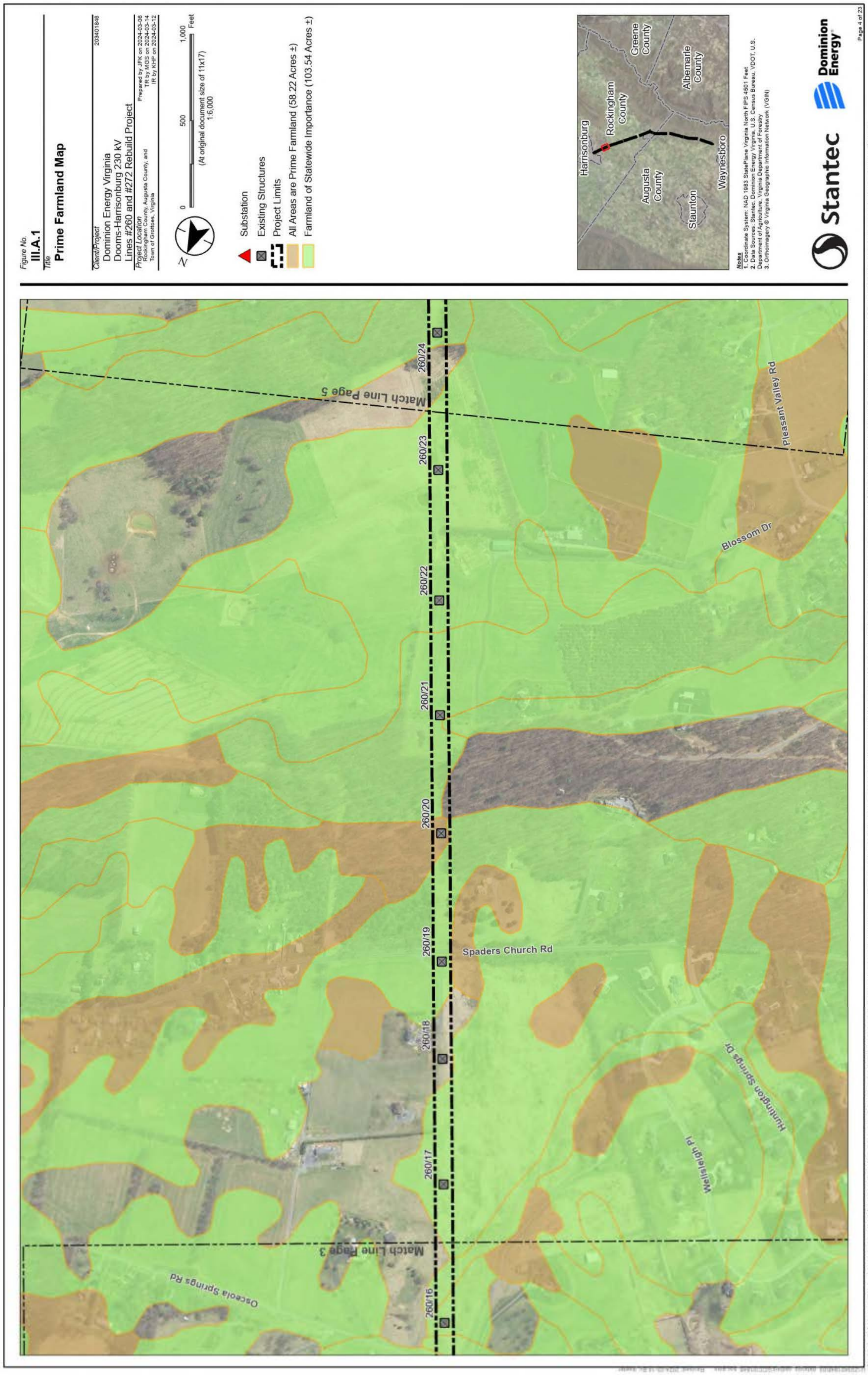
260/15
260/16
Match Line Page 2
Match Line Page 4
Ridgedale Rd
Grassy Creek Rd
Shire Cir
Whitestone Dr
Bexley Dr
Brentwood Dr
Marble Ridge Dr
Cobblestone Dr
Autumn Ln
Hillmeadow Dr
Osceola Springs Rd
Wellsleigh Pl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260/21
260/22
260/23
260/24
Match Line Page 3
Match Line Page 5
Osceola Springs Rd
Spaders Church Rd
Wellsleigh Pl
Huntington Springs Dr
Blossom Dr
Pleasant Valley Rd
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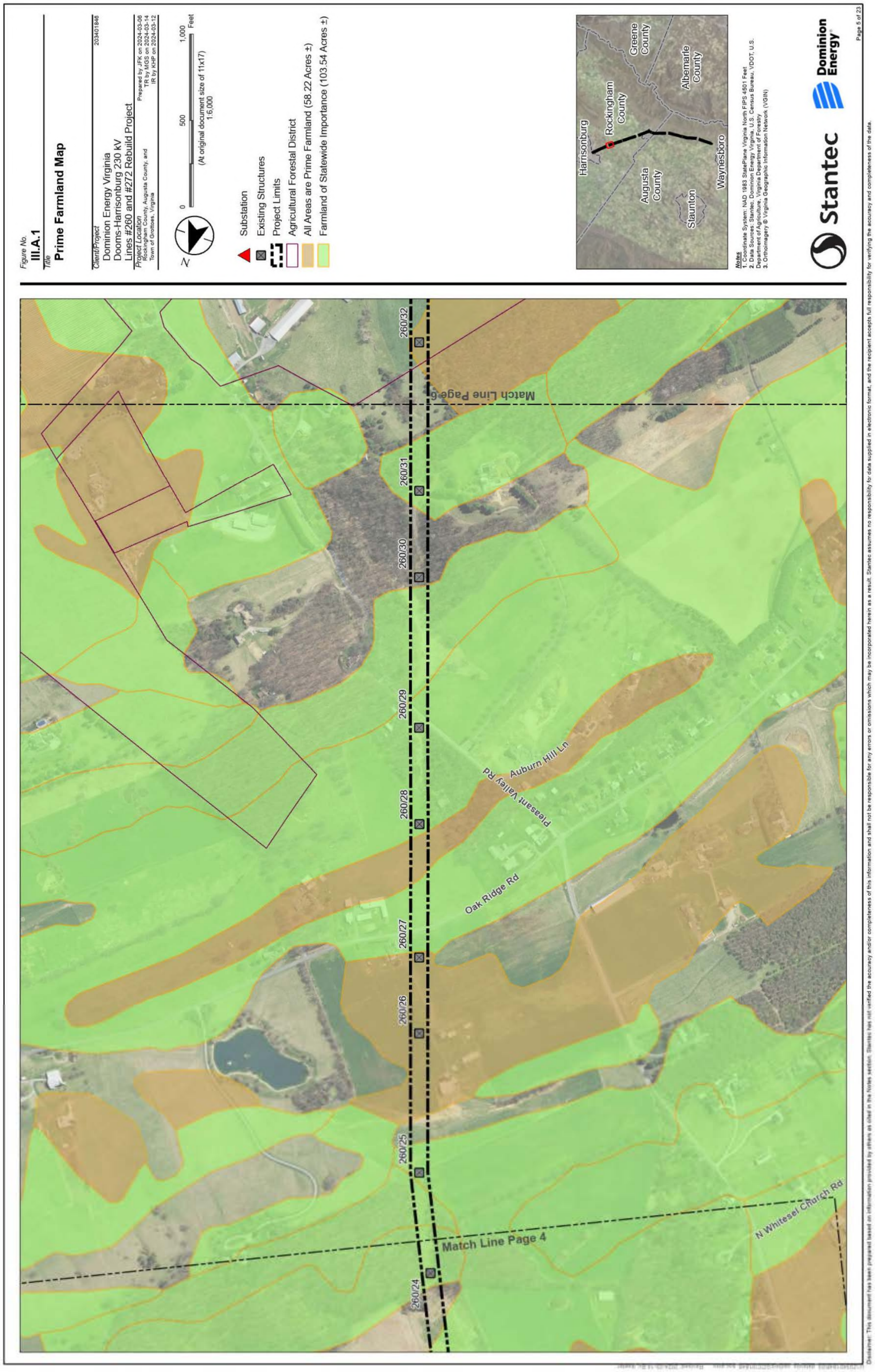
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260/27
260/28
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Auburn Hill Ln
Pleasant Valley Rd
Oak Ridge Rd
N Whitesel Church Rd
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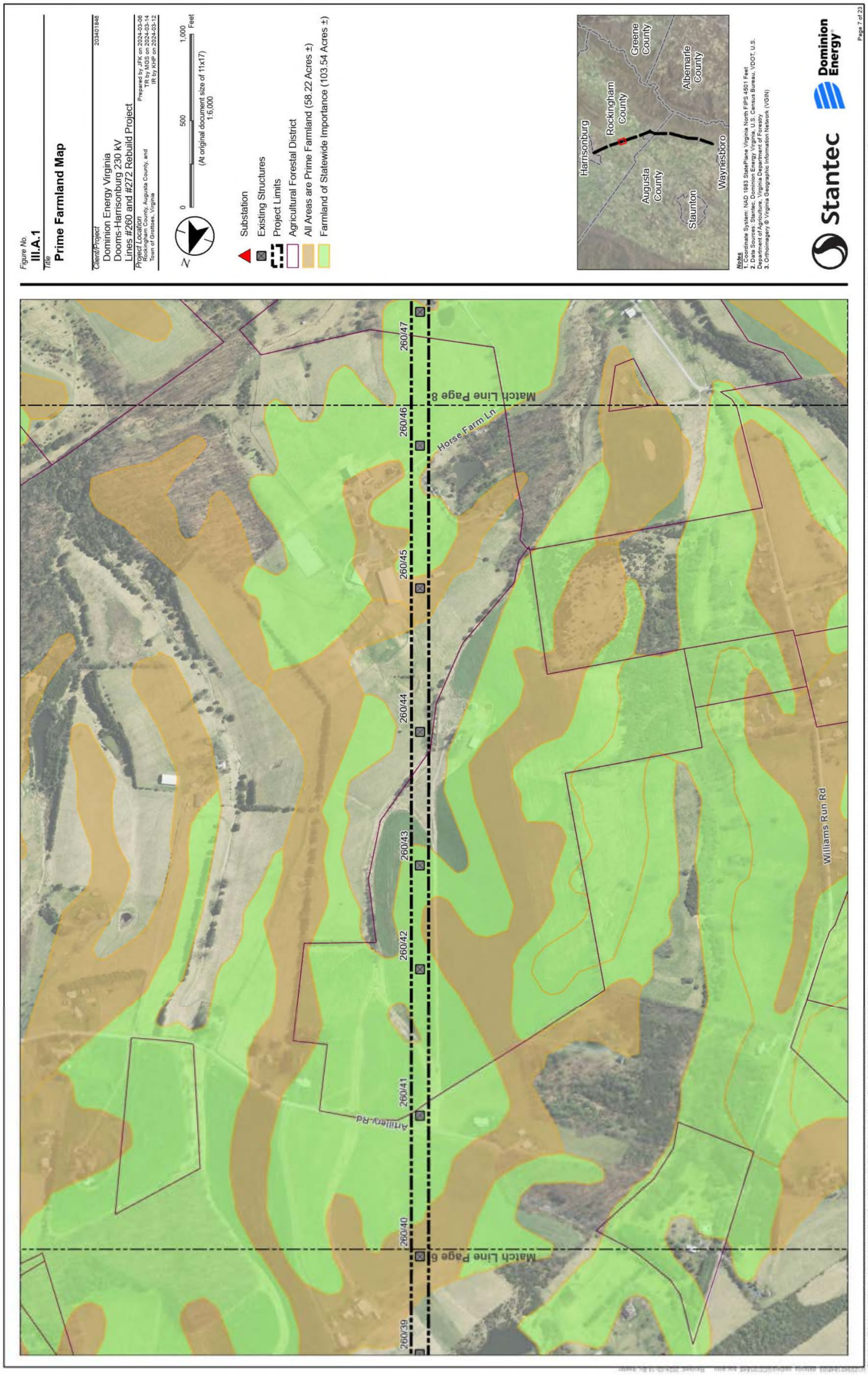
260/40
Match Line Page 5
Match Line Page 7
Pleasant Valley Rd
Williams Run Rd
Artillery Rd
276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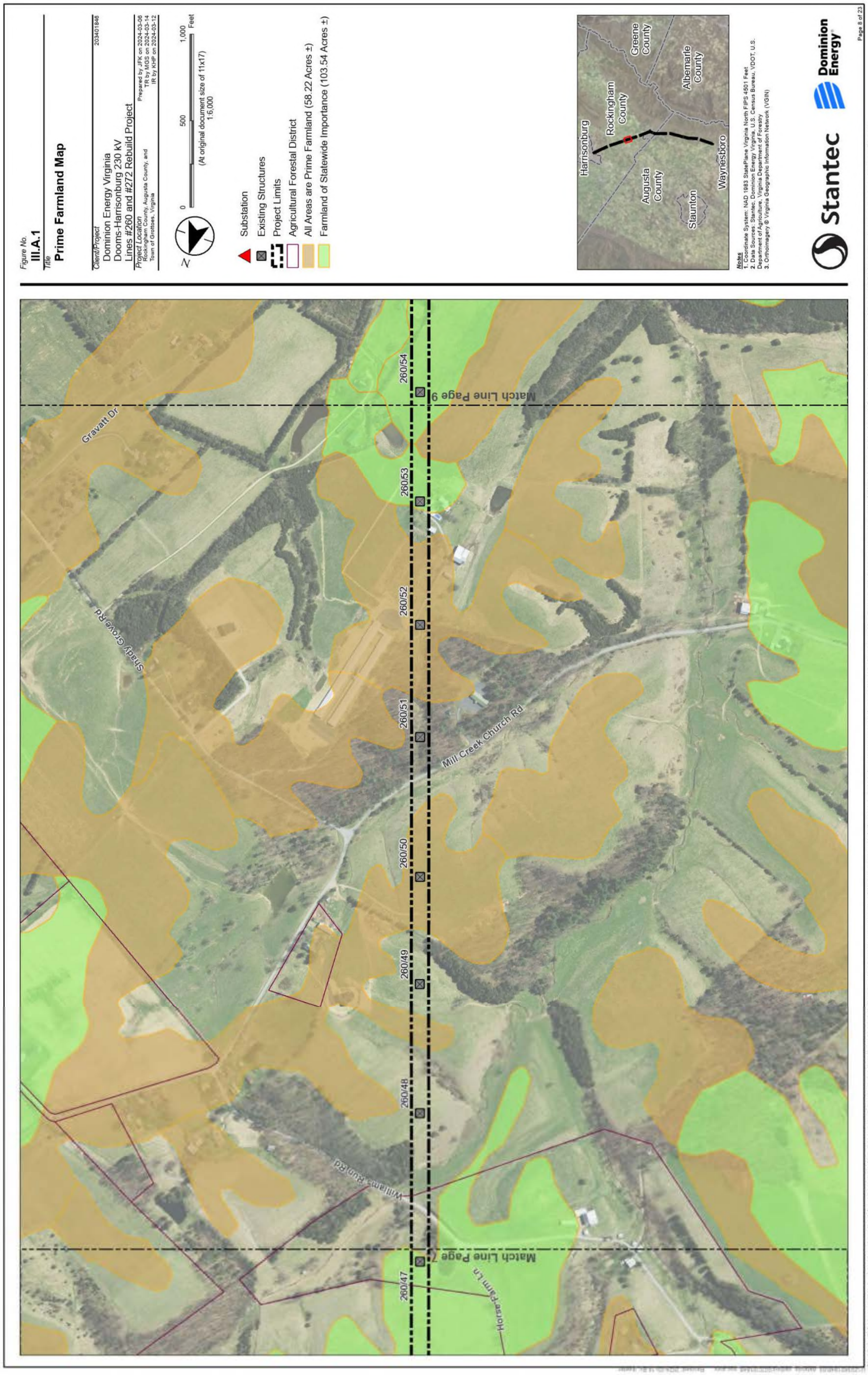
Artillery Rd
Horse Farm Ln
Williams Run Rd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Gravatt Dr
Shady Grove Rd
Mill Creek Church Rd
Williams Run Rd
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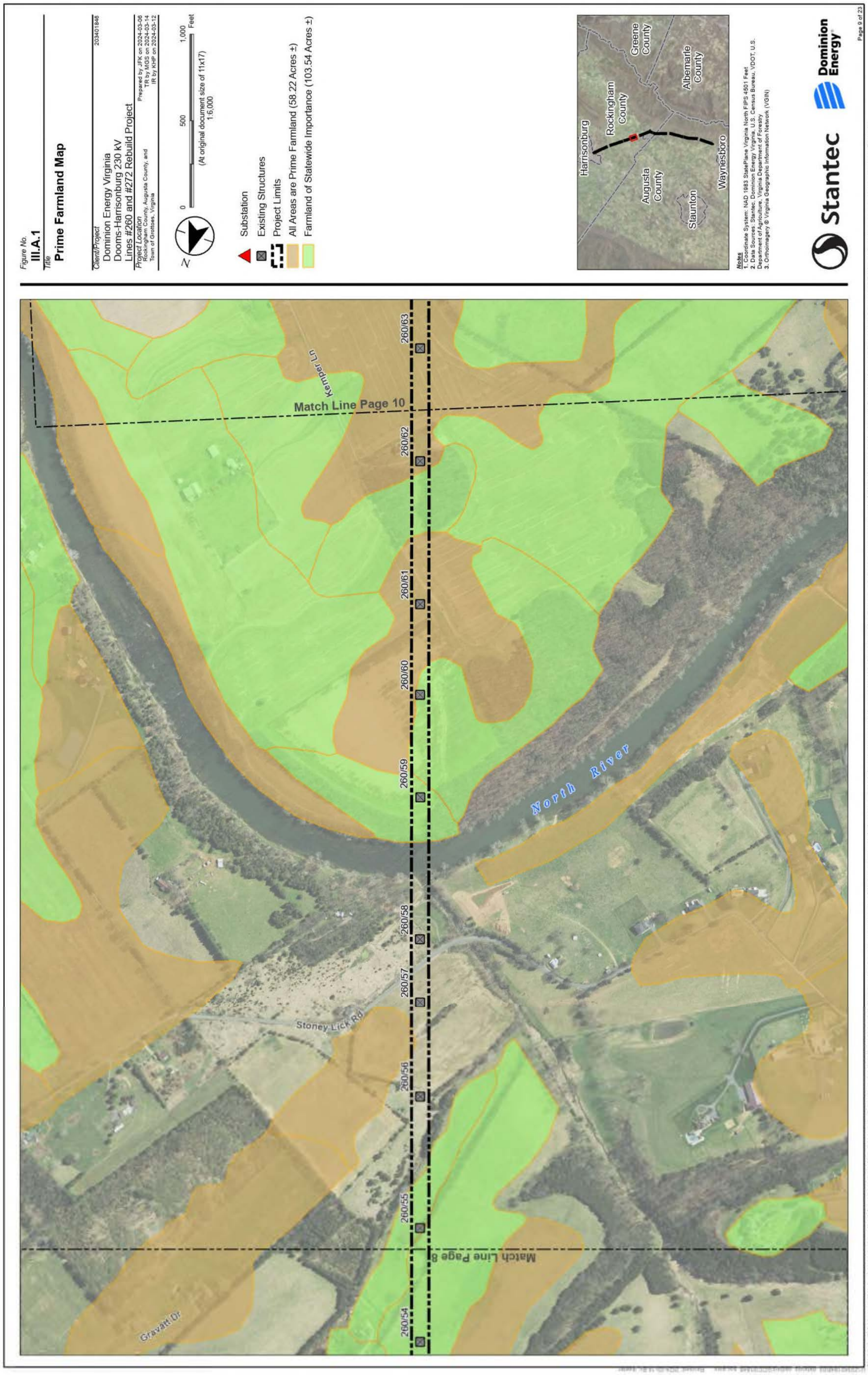
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Stoney Lick Rd
Kemper Ln
North River
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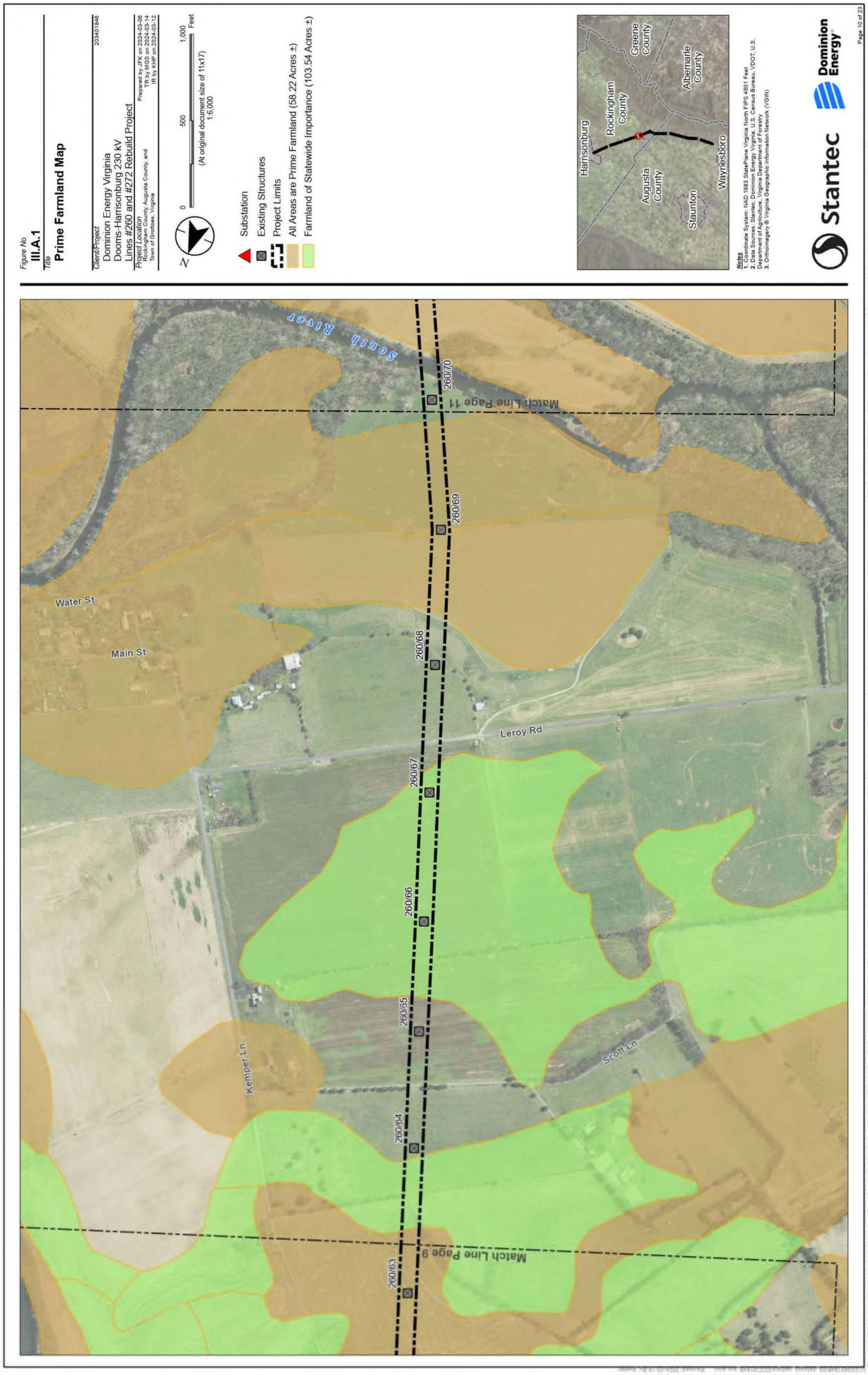
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Water St
Main St
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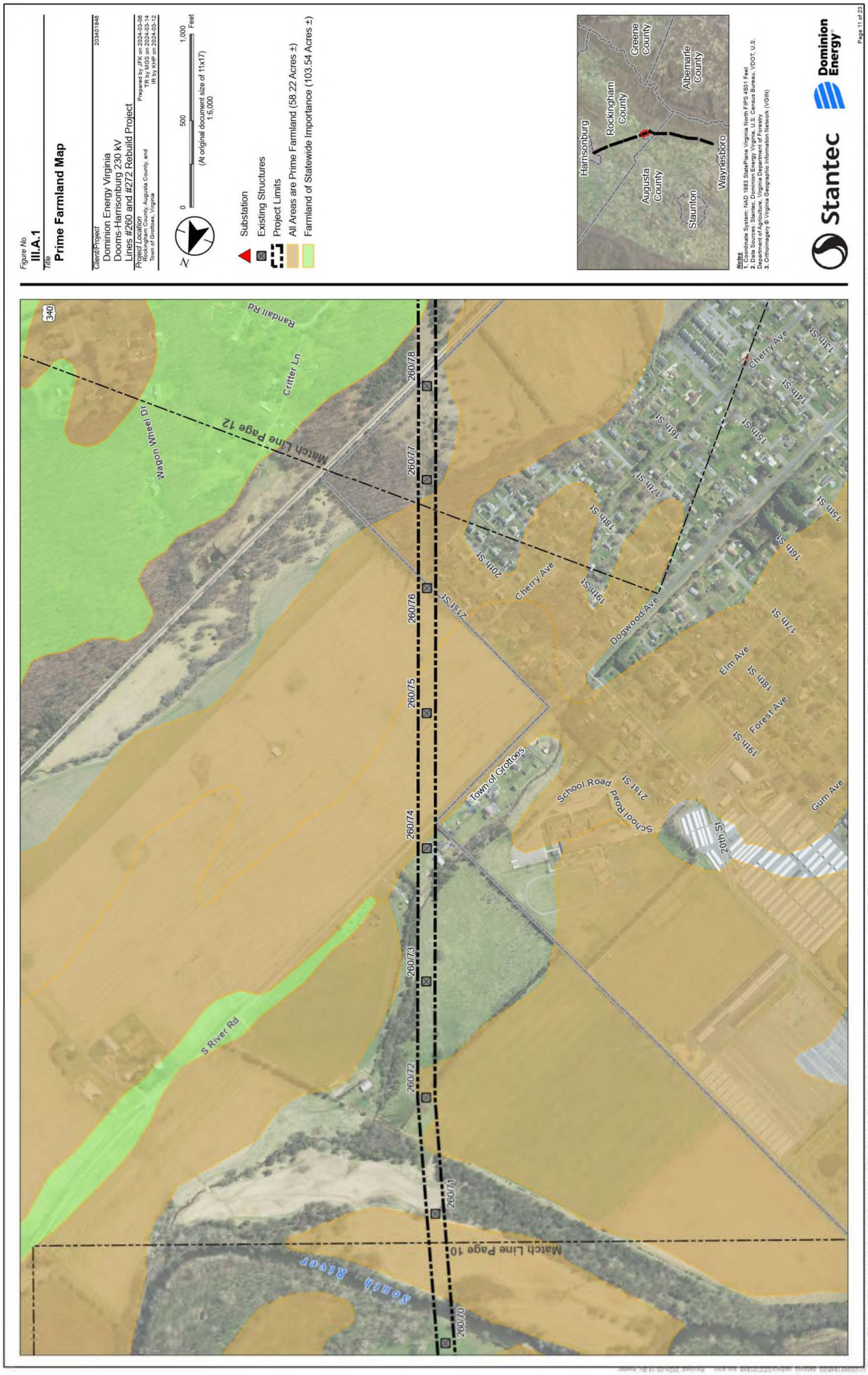
Kemper Ln
Scott Ln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Randall Rd
Critter Ln
Wagon Wheel Dr
S River Rd
South River
Town of Grottoes
School Road
21st St
20th St
Gum Ave
19th St
Forest Ave
18th St
Elm Ave
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16th St
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Cherry Ave
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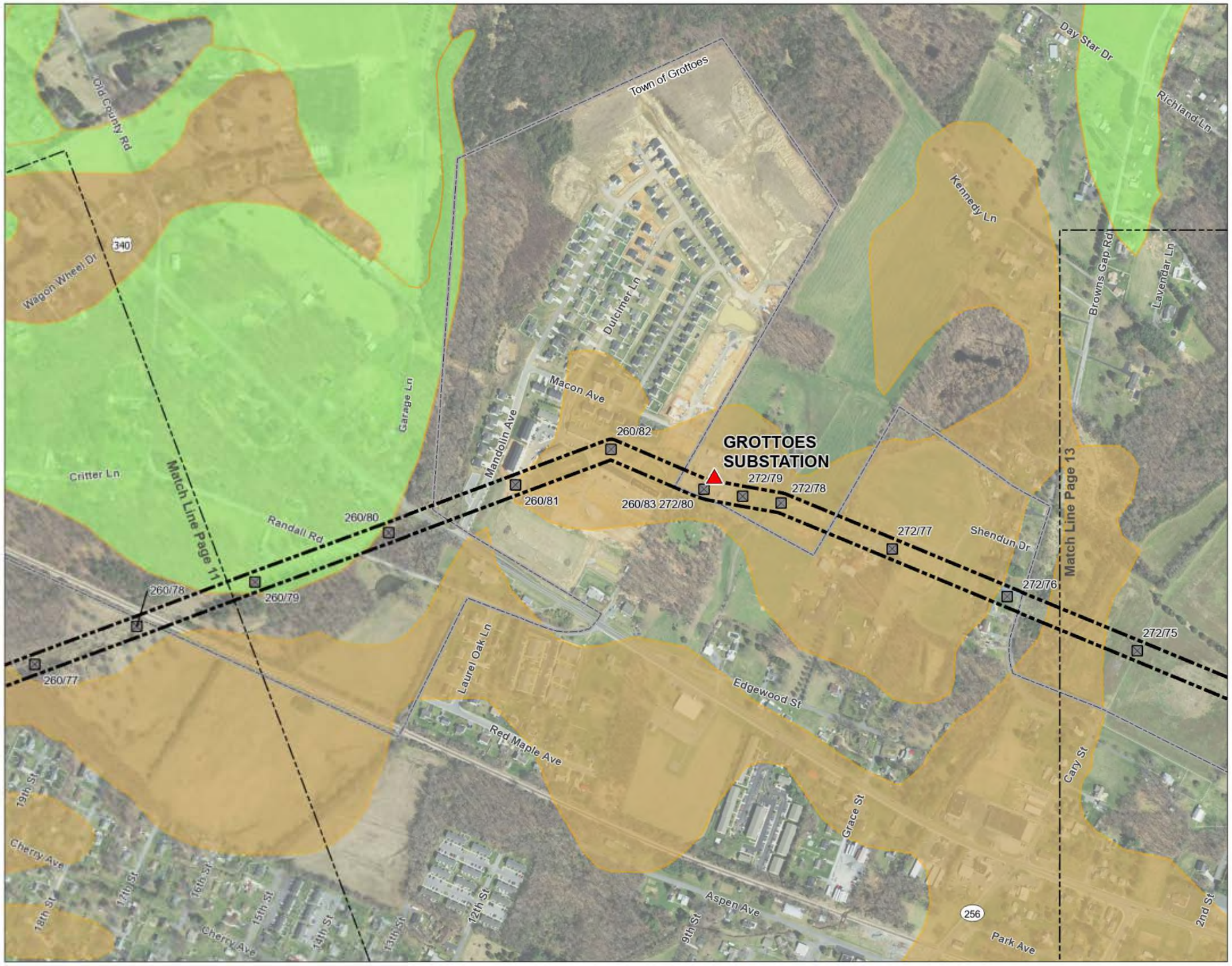

Figure No.
III.A.1

Title
Prime Farmland Map

Client/Project 203401846
Dominion Energy Virginia
Dooms-Harrisonburg 230 kV
Lines #260 and #272 Rebuild Project

Project Location
Rockingham County, Augusta County, and Town of Grottoes, Virginia

Prepared by JFK on 2024-03-06
TR by MGS on 2024-03-14
IR by KHP on 2024-03-12

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- Substation
- Existing Structures
- Project Limits
- All Areas are Prime Farmland (58.22 Acres ±)
- Farmland of Statewide Importance (103.54 Acres ±)

Notes
1. Coordinate System: NAD 1983 StatePlane Virginia North FIPS 4501 Feet
2. Data Sources: Stantec, Dominion Energy Virginia, U.S. Census Bureau, VDOT, U.S. Department of Agriculture, Virginia Department of Forestry
3. Orthoimagery © Virginia Geographic Information Network (VGIN)

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Page 12 of 23

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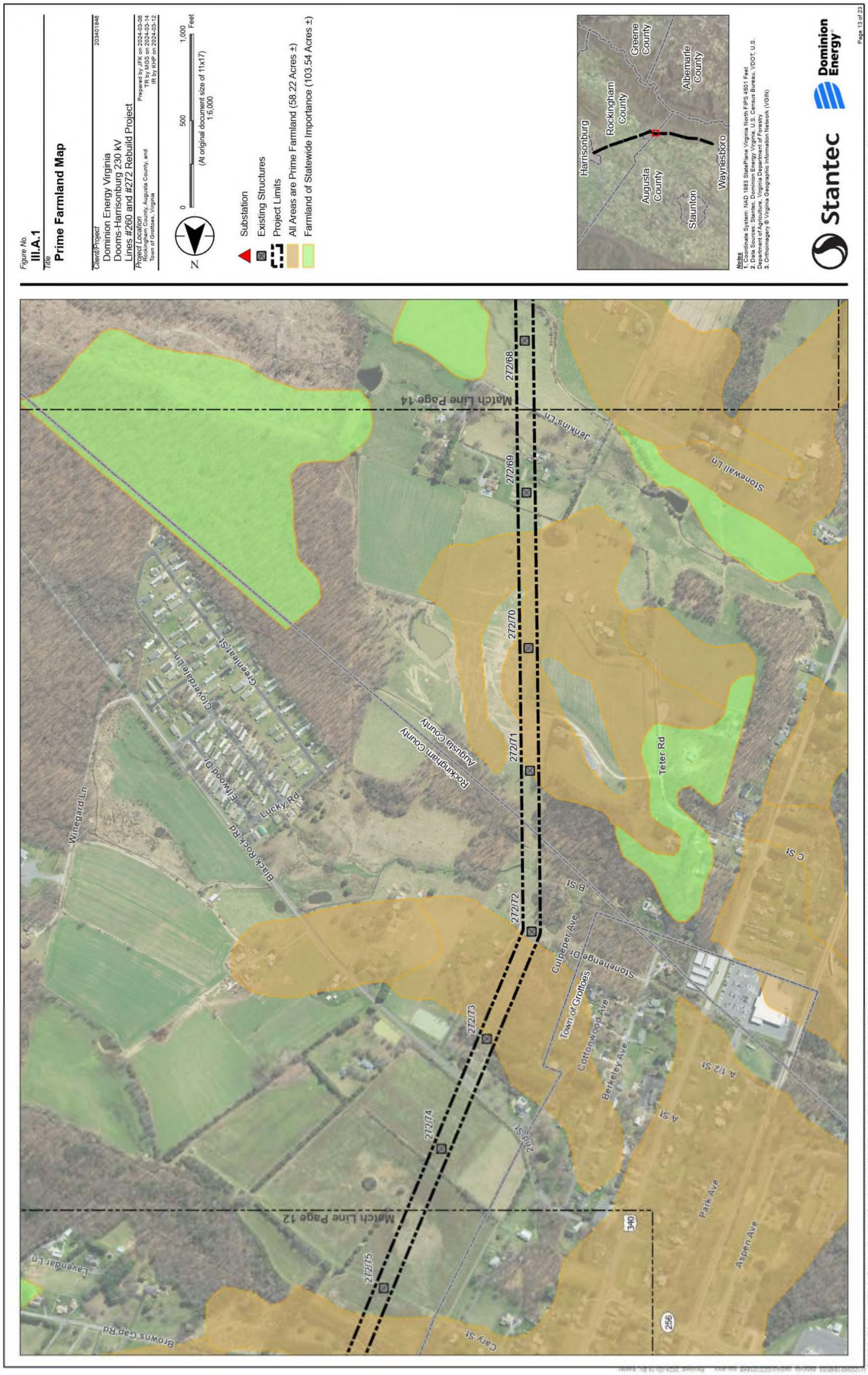
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Page 13 of 23
Match Line Page 14
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272/68
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272/70
272/71
272/72
272/73
272/74
272/75
Jenkins Ln
Stonewall Ln
Greenleaf St
Cloverdale Ln
Elmwood Dr
Lucky Rd
Black Rock Rd
Winegard Ln
Augusta County
Rockingham County
Teter Rd
C St
B St
Culpeper Ave
Stonehenge Dr
Town of Grottoes
Cottonwood Ave
Berkeley Ave
A 1/2 St
A St
Park Ave
Aspen Ave
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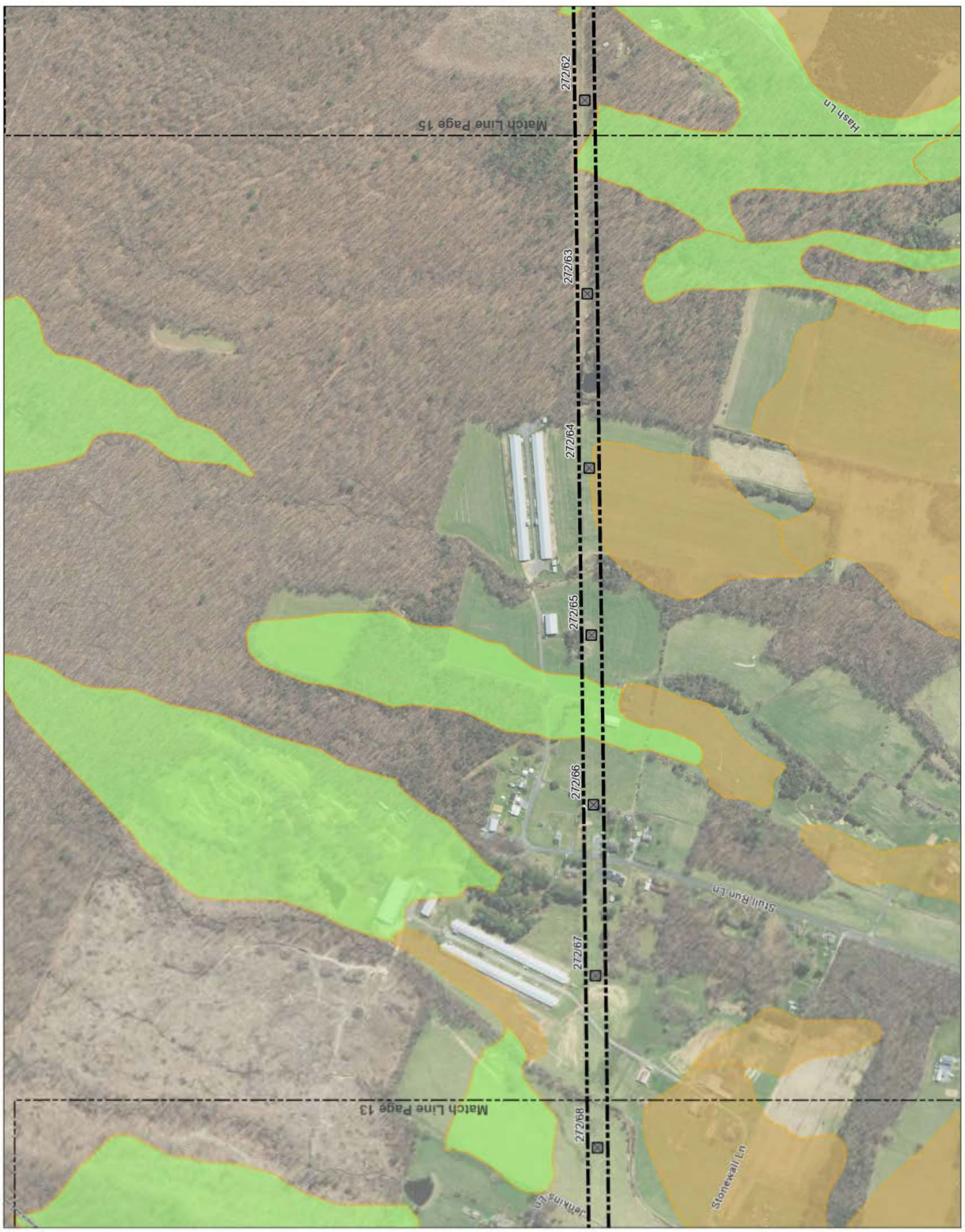
Lavendar Ln
Browns Gap Rd
Cary St



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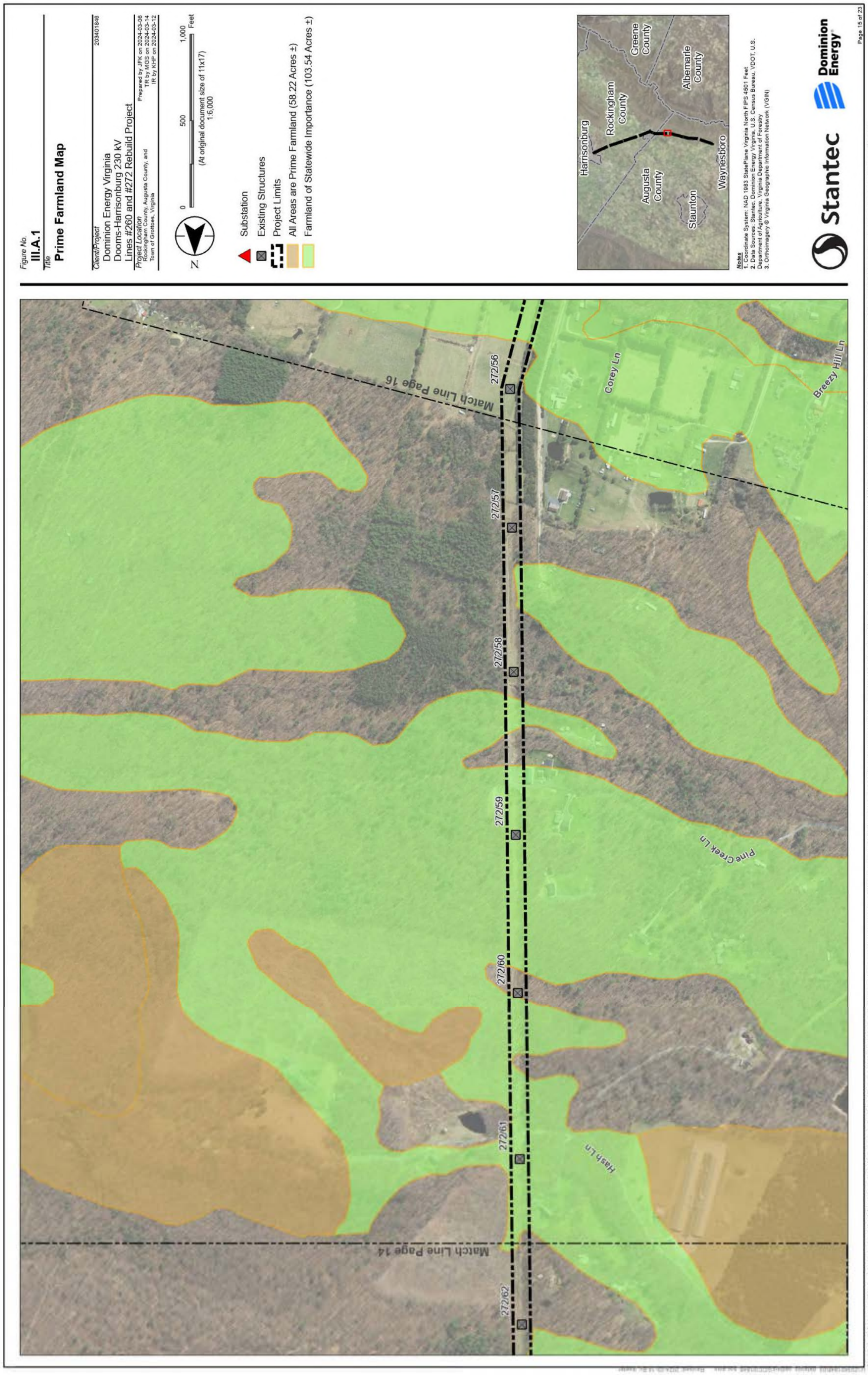
Page 14 of 23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272/58
272/59
272/60
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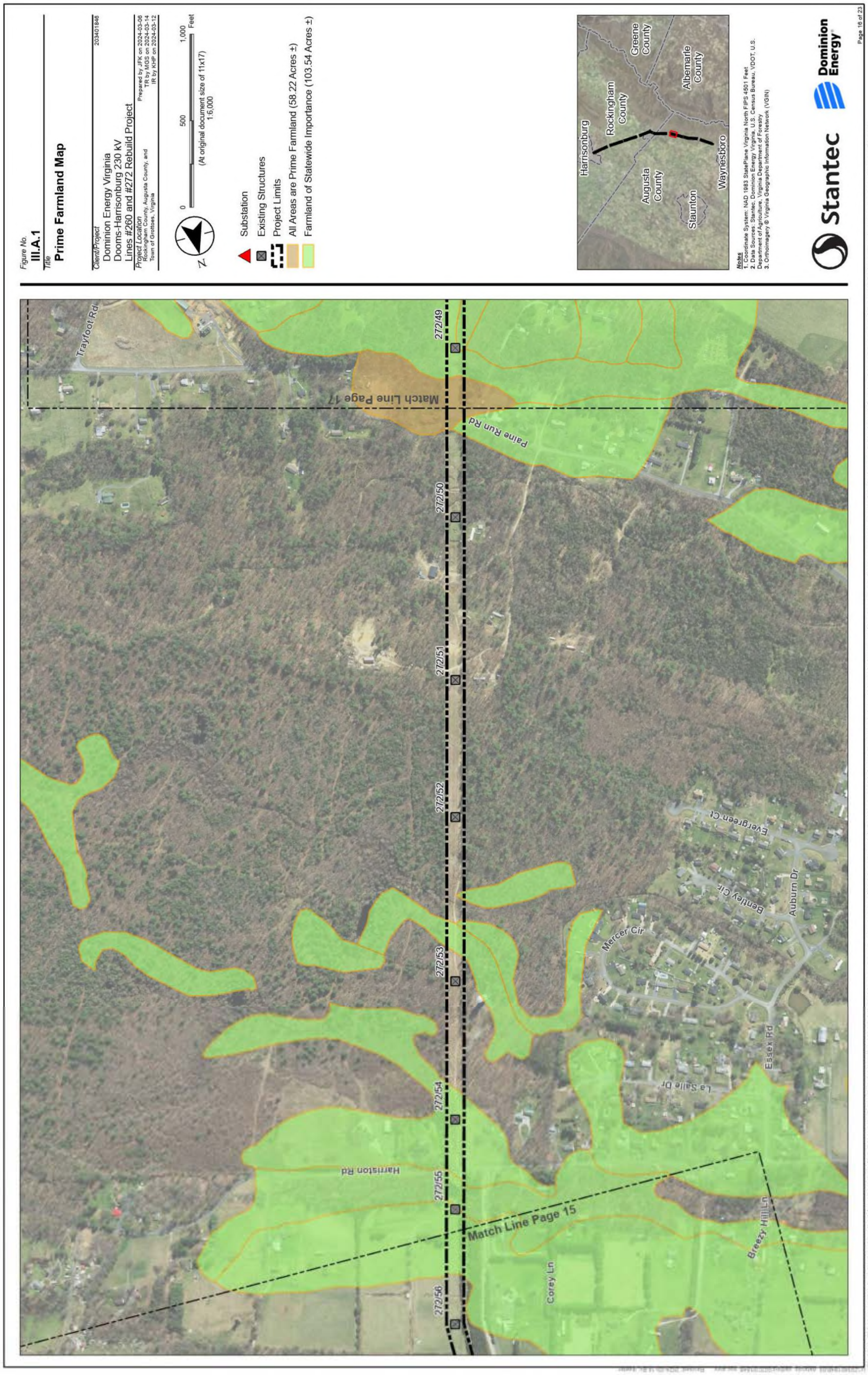
272/62
Corey Ln
Breezy Hill Ln
Pine Creek Ln
Hash Ln
Stantec
Dominion Energy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Stantec
Dominion Energy
Page 16 of 23
Trayfoot Rd
Match Line Page 17
Paine Run Rd
272/49
272/50
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Evergreen Ct
Bentley Cir
Auburn Dr
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Essex Rd
La Salle Dr
Harriston Rd
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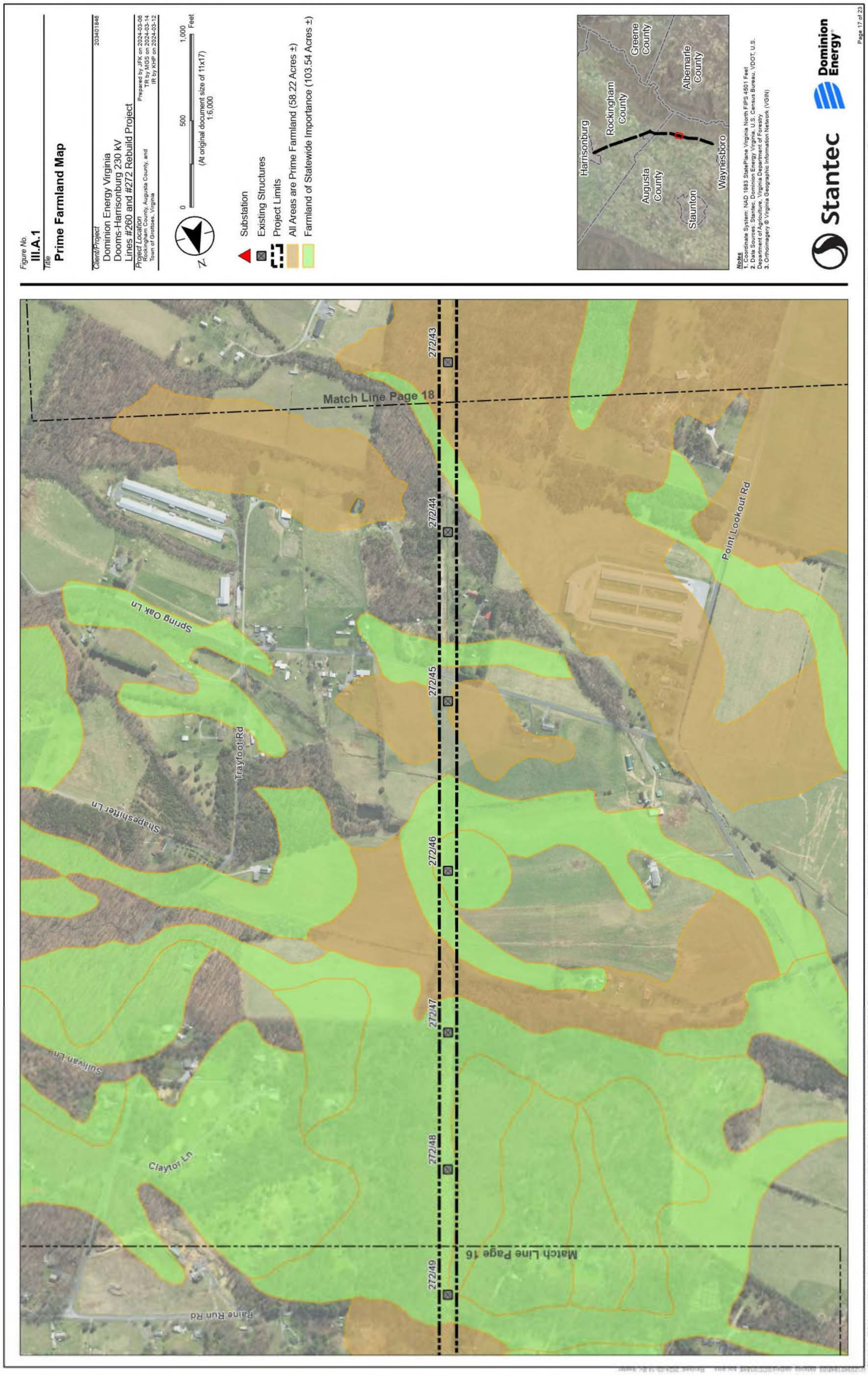
Breezy Hill Ln
Corey Ln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Dominion Energy
Page 17 of 23
Match Line Page 18
Match Line Page 16
272/43
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272/49
Spring Oak Ln
Trayfoot Rd
Shapeshifter Ln
Sullivan Ln
Claytor Ln
Paine Run Rd
Point Lookout Rd
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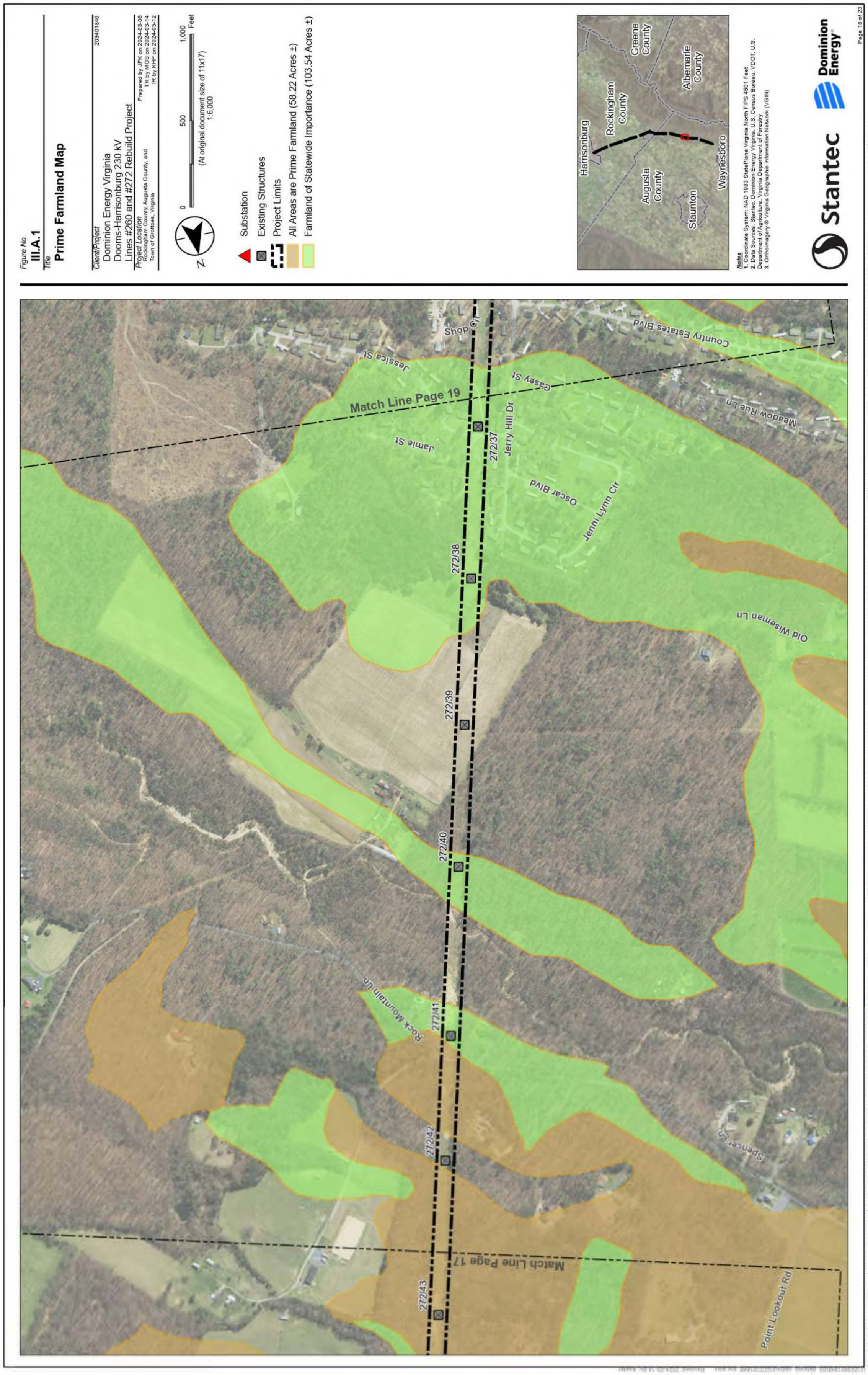
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Stantec
Dominion Energy
Page 18 of 23
Match Line Page 19
Match Line Page 17
Shop Cir
Jessica St
Casey St
Country Estates Blvd
Meadow Rue Ln
Jamie St
Jerry Hill Dr
Oscar Blvd
Jenni Lynn Cir
Old Wiseman Ln
Rock Mountain Ln
Spencer Ln
Point Lookout Rd
2T2/37
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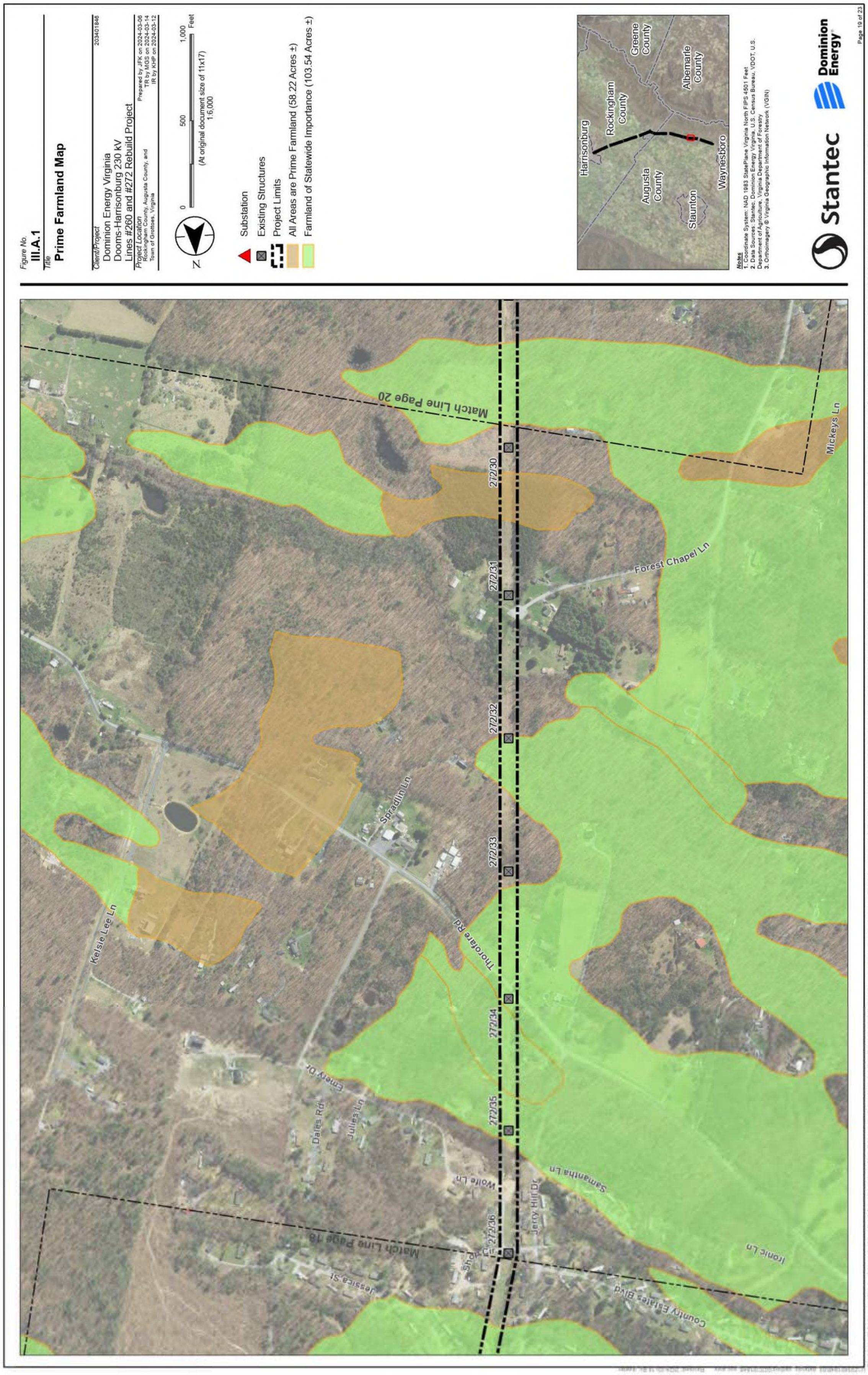
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Stantec
Dominion Energy
Page 19 of 23
Match Line Page 20
Match Line Page 18
272/30
272/31
272/32
272/33
272/34
272/35
272/36
Forest Chapel Ln
Mickeys Ln
Spradlin Ln
Thorofare Rd
Kelsie Lee Ln
Emery Dr
Dales Rd
Julies Ln
Wolfe Ln
Jerry Hill Dr
Samantha Ln
Ironic Ln
Jessica St
Country Estates Blvd
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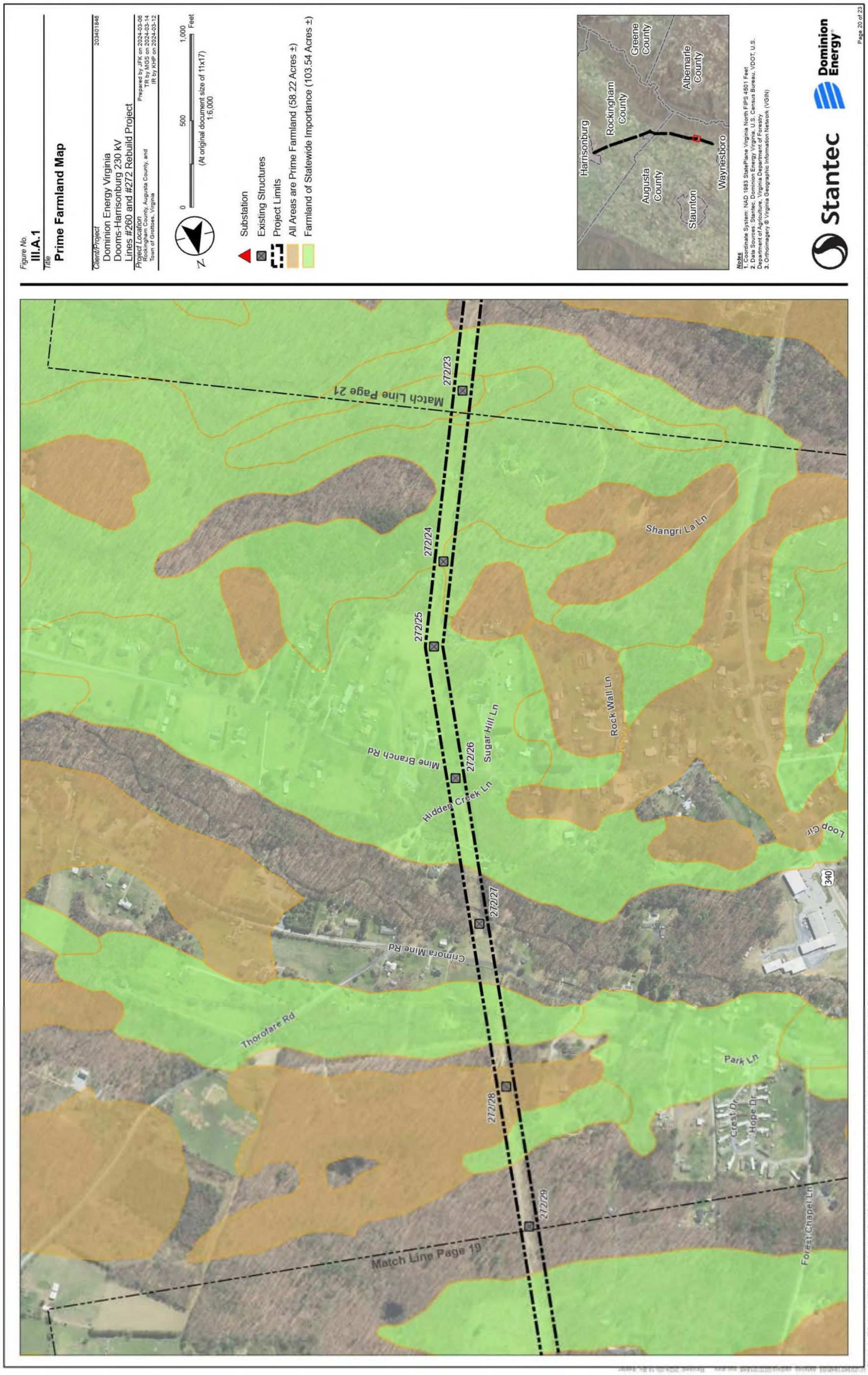
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Greene County
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Dominion Energy
Page 20 of 23
Match Line Page 21
Match Line Page 19
272/23
272/24
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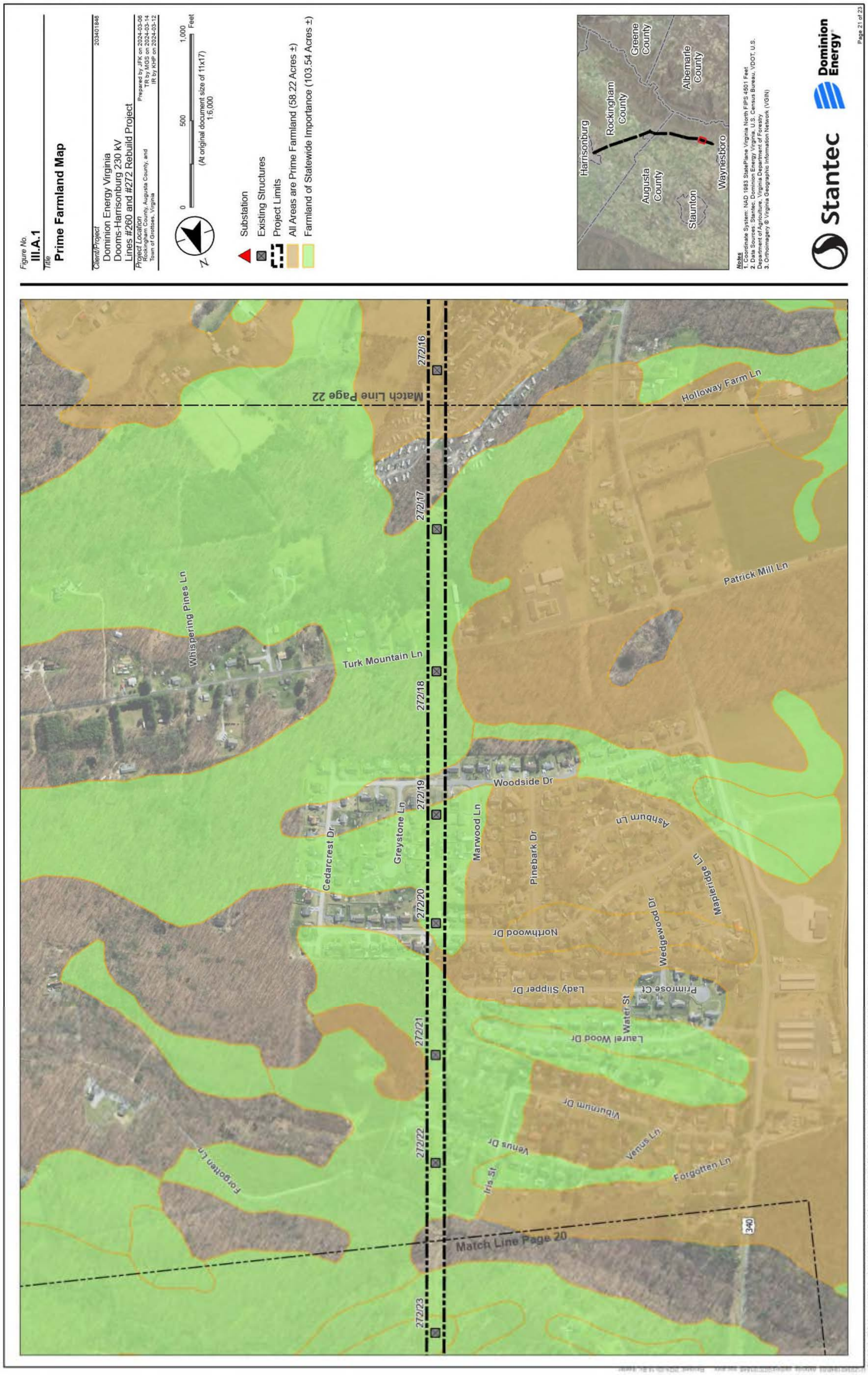
272/26
272/27
272/28
272/29
Shangri La Ln
Rock Wall Ln
Sugar Hill Ln
Mine Branch Rd
Hidden Creek Ln
Loop Cir
340
Crimora Mine Rd
Thorofare Rd
Park Ln
Crest Dr
Hope Dr
Forest Chapel Ln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Augusta County
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272/16
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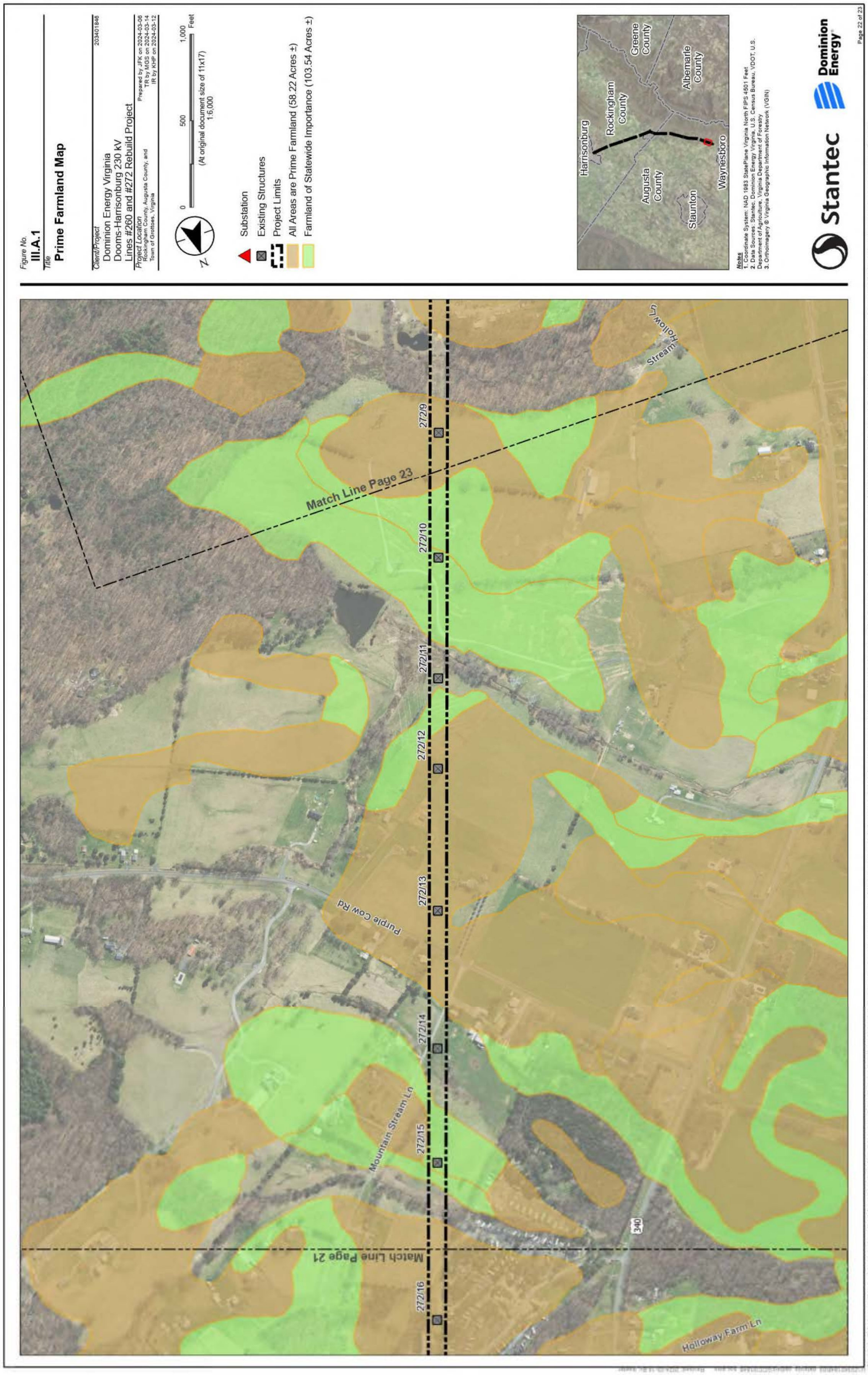
272/20
272/21
272/22
272/23
Whispering Pines Ln
Turk Mountain Ln
Patrick Mill Ln
Holloway Farm Ln
Woodside Dr
Ashburn Ln
Cedarcrest Dr
Greystone Ln
Marwood Ln
Pinebark Dr
Mapleridge Ln
Northwood Dr
Wedgewood Dr
Lady Slipper Dr
Primrose Ct
Water St
Laurel Wood Dr
Viburnum Dr
Venus Dr
Venus Ln
Iris St
Forgotten Ln
340
Stantec
Dominion Energy
Page 21 of 23



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Stantec
Dominion Energy
Page 22 of 23
Match Line Page 23
Match Line Page 21
272/9
272/10
272/11
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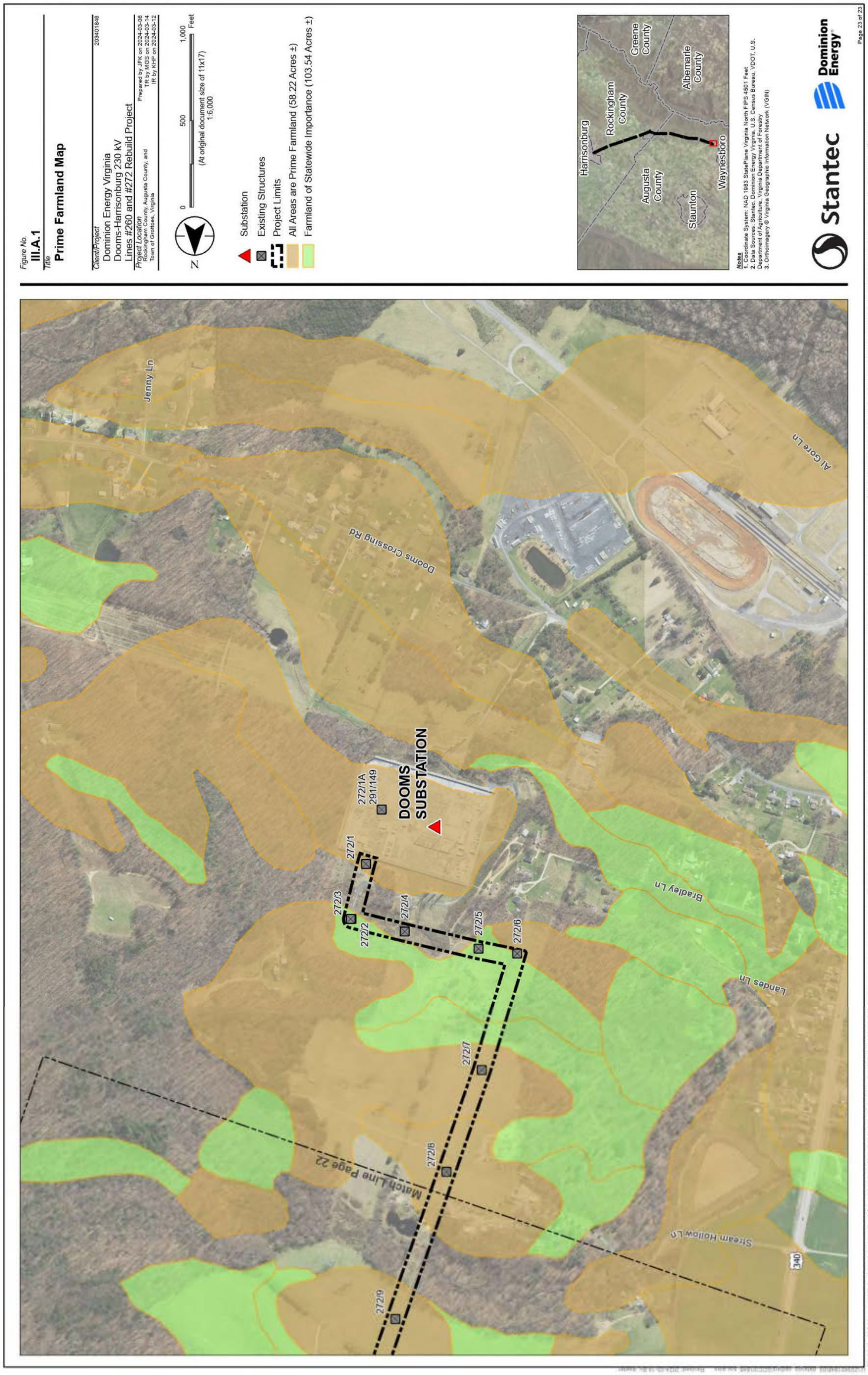
272/15
272/16
Purple Cow Rd
Mountain Stream Ln
Stream Hollow Ln
Holloway Farm Ln
340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Stantec
Dominion Energy
Page 23 of 23
Jenny Ln
Dooms Crossing Rd
Al Gore Ln
DOOMS SUBSTATION
272/1A
291/149
272/1
272/2
272/3
272/4
272/5
272/6
272/7
272/8
272/9
Bradley Ln
Landes Ln
Match Line Page 22
Stream Hollow Ln
340

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

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

Response: In February 2023, the Company informed Augusta and Rockingham Counties, as well as the City of Harrisonburg, of the proposed Rebuild Project.

In February 2023, the Company launched an internet website dedicated to the proposed Rebuild Project: DominionEnergy.com/doomsharrisonburg. The website includes a description of the proposed Rebuild Project and its benefits, an explanation of need, an overview map, photo simulations, an interactive tool to view individual structure height changes, and information on the Commission review process.

Since February 2023, the Company announced the proposed Rebuild Project to more than 700 property owners through a project announcement letter (Attachment III.B.1). These letters and subsequent mailings were sent to property owners within 1,500 feet of proposed Rebuild Project. In late February 2024, a postcard invitation in (Attachment III.B.2) was mailed to inform the public of two community meetings.

In-person community meetings were held on March 12, 2024 and March 19, 2024, with 18 people attending over the course of the two meetings. The meetings were held at South River Elementary School from 5-7 p.m. In an effort to accommodate property owners' schedules, the mailers included invitations to both scheduled community meetings. At both in-person community meetings, the Company was available to discuss the project need, project timing, and the Commission approval process. Community meeting materials have been posted on the website for the proposed Rebuild Project, including simulations from key locations. The key location simulations are included as Attachment III.B.3.

Newspaper print advertisements for the community meetings were placed in the News Leader (City of Staunton and Augusta County, Circulation 7,098), Daily News Record (17,904 Circulation), and the Journal (10,000 Circulation). In addition, digital advertisements for the community meetings targeted residents in the 22801, 22841, 24471, 24441, 24431, and 22980 zip codes in the City of Harrisonburg and Augusta and Rockingham Counties, which are the zip codes most closely associated with the Rebuild Project. A copy of the digital and print ads is included as Attachment III.B.4.

An overview of the digital campaign results as of April 5, 2024 is as follows.

- Pre-Event campaign results:
  - 649,588 Impressions Delivered

  - 6,729 Link Clicks
  - 1.04% Clickthrough Rate
  - 72,447 Video Completions
  - 51,248 Ad Engagements

- Post-Event campaign results:
  - 427,101 Impressions Delivered
  - 4,533 Link Clicks
  - 1.07% Clickthrough Rate
  - 38.101 Video Completions
  - 29,417 Ad Engagements

As part of preparing for the Rebuild Project, the Company researched the demographics of the surrounding communities using the Environmental Protection Agency's EJ mapping and screening tool, EJScreen 2.2 and census data from the U.S. Census Bureau 2017-2021 American Community Survey data. This information revealed that there are twenty-four Census Block Groups within the Rebuild Project area that fall within one mile of the existing transmission line corridor. A review of ethnicity, income, age, and education census data identified populations within the study area that meet the Virginia Environmental Justice Act threshold to be defined as Environmental Justice Communities ("EJ Communities"). Communities of color have been identified in fourteen Census Block Groups within the one-mile search area. Eight of twenty-four Census Block Groups within the one-mile search area appear to be low-income as defined by the Virginia Environmental Justice Act. No Census Block Groups lack available income data.

Pursuant to Va. Code §§ 56-46.1 C and 56-259 C, as well as in Attachment 1 of these Guidelines, there is a strong preference for the use of existing utility right-of-way whenever feasible. The Rebuild Project is within the existing right-of-way or on Company-owned property and will not require any of the following: additional permanent or temporary right-of-way, the construction of a temporary line, or an increase in operating voltage. The structural height average will increase by 7 feet from 77 feet to 84 feet. Height differences will vary per structural location. Based on the analysis of the Rebuild Project, the Company does not anticipate disproportionately high or adverse impacts to the surrounding community and the EJ Communities located within the study area, consistent with the Rebuild Project design to reasonably minimize impacts.

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

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

Feb. 19, 2024

Proposed Dooms-Harrisonburg 230 kV Electric Transmission Rebuild Project

Dear Neighbor,

At Dominion Energy, we are dedicated to maintaining safe, reliable electric service to the communities we serve. You are receiving this letter because we are preparing to rebuild a 230 kilovolt (kV) electric transmission line in your area.

The existing line has been in operation for more than five decades and spans more than 20 miles between our Harrisonburg Substation in the City of Harrisonburg and our Dooms Substation in Augusta County. To maintain reliable electric service, we plan to rebuild the existing structures with new steel structures.

We plan to file an application with the Virginia State Corporation Commission (SCC) in early summer 2024. Prior to filing our application, we will host community meetings in your area. We invite you to meet with our project team and ask our subject matter experts your specific questions. We welcome your feedback on this important reliability project. More information about the upcoming meetings will be shared in the coming weeks.

In advance of the community meetings, we encourage you to visit our project website at DominionEnergy.com/doomsharrisonburg to learn more about the project. For questions, contact our team by sending an email to powerline@dominionenergy.com or by calling 888-291-0190.

Sincerely,

The Electric Transmission Project Team

Enclosure: Project Fact Sheet

Attachment III.B.1.

Dooms-Harrisonburg 230 kV Electric Transmission Rebuild Project

CITY OF HARRISONBURG, AUGUSTA AND ROCKINGHAM COUNTIES, VIRGINIA

Dominion Energy
Powering Your Every Day.

AT DOMINION ENERGY, we are committed to providing safe, reliable, and affordable electric service to the communities we proudly serve. The existing 230 kilovolt (kV) electric transmission line between our Dooms Substation and Harrisonburg Substations is reaching its end of its service life and needs rebuilding to ensure continued reliable electric service to the area.

SCAN HERE TO LEARN MORE

QUICK FACTS

- **Harrisonburg-Grottoes Phase: 10.5 miles**
- **Grottoes-Dooms Phase: 11.5 miles**
- **Total project length: 22 miles**
- **Project will utilize existing right of way corridor**
- **Voltage will remain 230 kV**
- **Interruption to your electric service is not anticipated as a result of this project**

HARRISONBURG-GROTTOES PHASE

TYPICAL EXISTING

- **Wooden and steel H-Frame structures**
- **Existing average structure height: 66 feet**

TYPICAL PROPOSED

- **Weathering steel H-frame structures**
- **Proposed average structure height: 76 feet**
- **Average height Increase: 10 feet**
- **Total structures to be replaced: 83**

NOTE: New structures will be located in close proximity to existing structures.
Proposed structure heights are based on preliminary engineering calculations and are subject to change with final engineering design.
View each individual structure change on our Backyard Application on our website.

CONTINUED ON BACK

Dooms-Harrisonburg 230 kV Electric Transmission Rebuild Project CONTINUED

GROTTOES-DOOMS PHASE

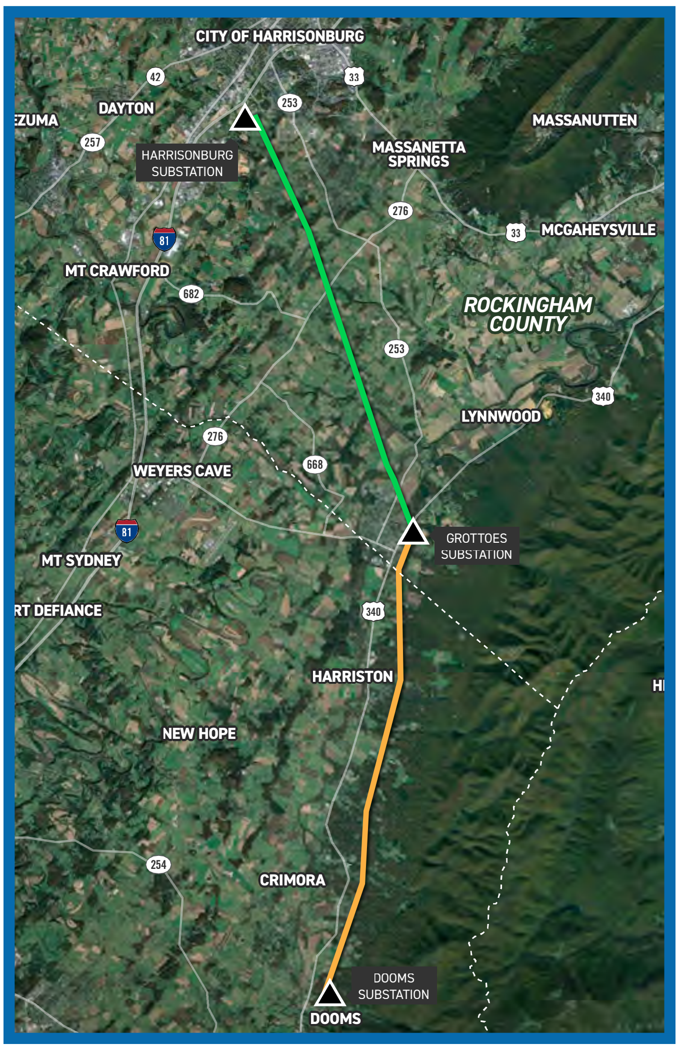
TYPICAL EXISTING

- **Weathering steel lattice structures**
- **Existing average structure height: 87 feet**

TYPICAL PROPOSED

- **Weathering steel monopole structures**
- **Proposed average structure height: 90 feet**
- **Average height Increase: 3 feet**
- **Total structures to be replaced: 79**

NOTE: New structures will be located in close proximity to existing structures.
Proposed structure heights are based on preliminary engineering calculations and are subject to change with final engineering design.
View each individual structure change on our Backyard Application on our website.



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

PROJECT SCHEDULE

SUBJECT TO CHANGE

DATE	ACTIVITY
Early 2024	Project announcement
March 2024	Community meetings
Early Summer 2024	File application with the Virginia State Corporation Commission (SCC)
Early 2025	Anticipated SCC ruling
Late 2024 – Late 2025	• Permitting • Finalize engineering • Pre-construction outreach
Early 2026	Construction to begin
Summer 2027	Construction complete, restoration begins

FOR MORE INFORMATION

Visit our website at DominionEnergy.com/doomsharrisonburg. You may also contact us by sending an email to powerline@dominionenergy.com or calling 888-291-0190.

DOOMS-HARRISONBURG
Electric Transmission Rebuild Project

Photo Location Map

1 Viewpoint Location — Harrisonburg-Grottoes Section — Grottoes-Dooms Section ▲ Existing Substation

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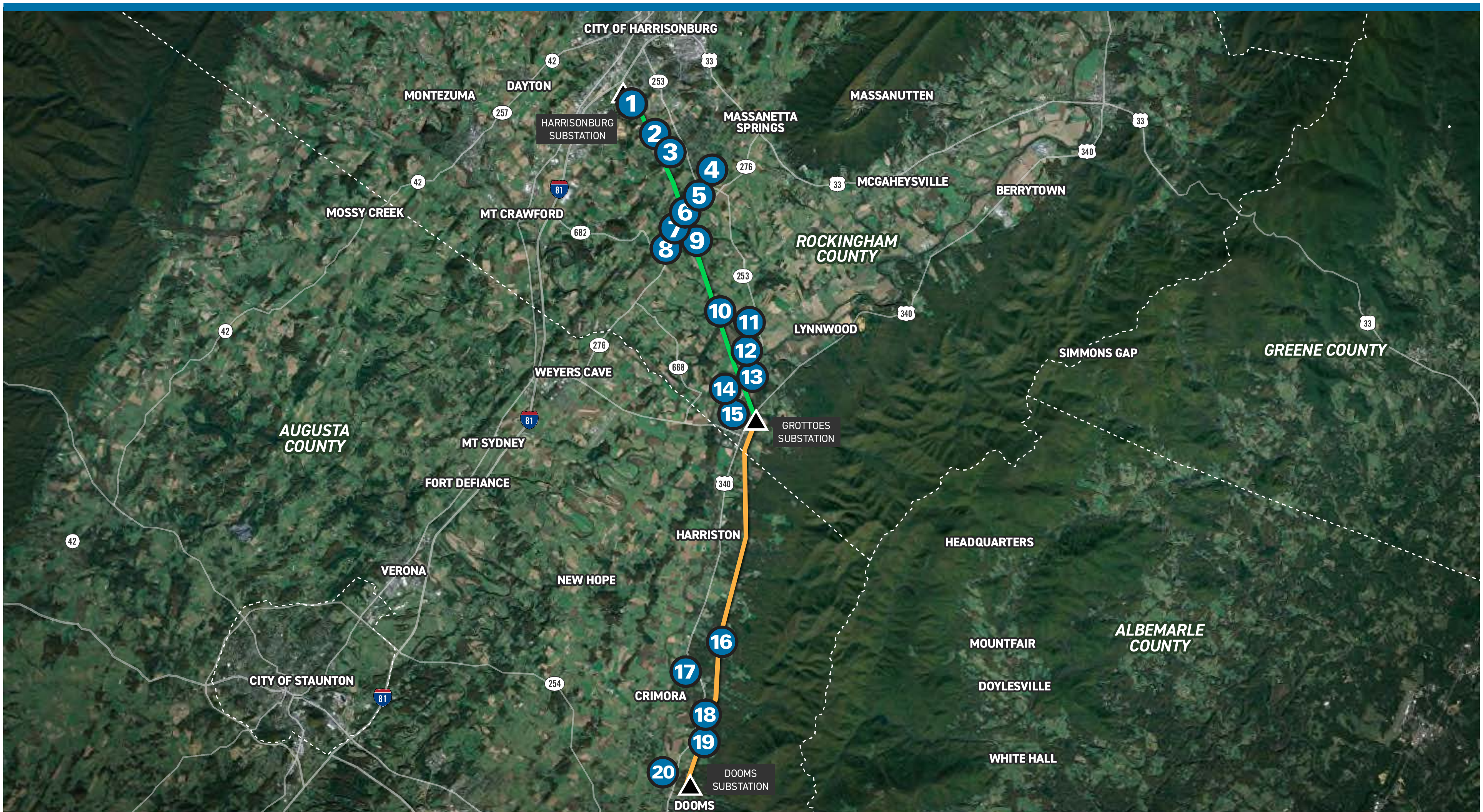
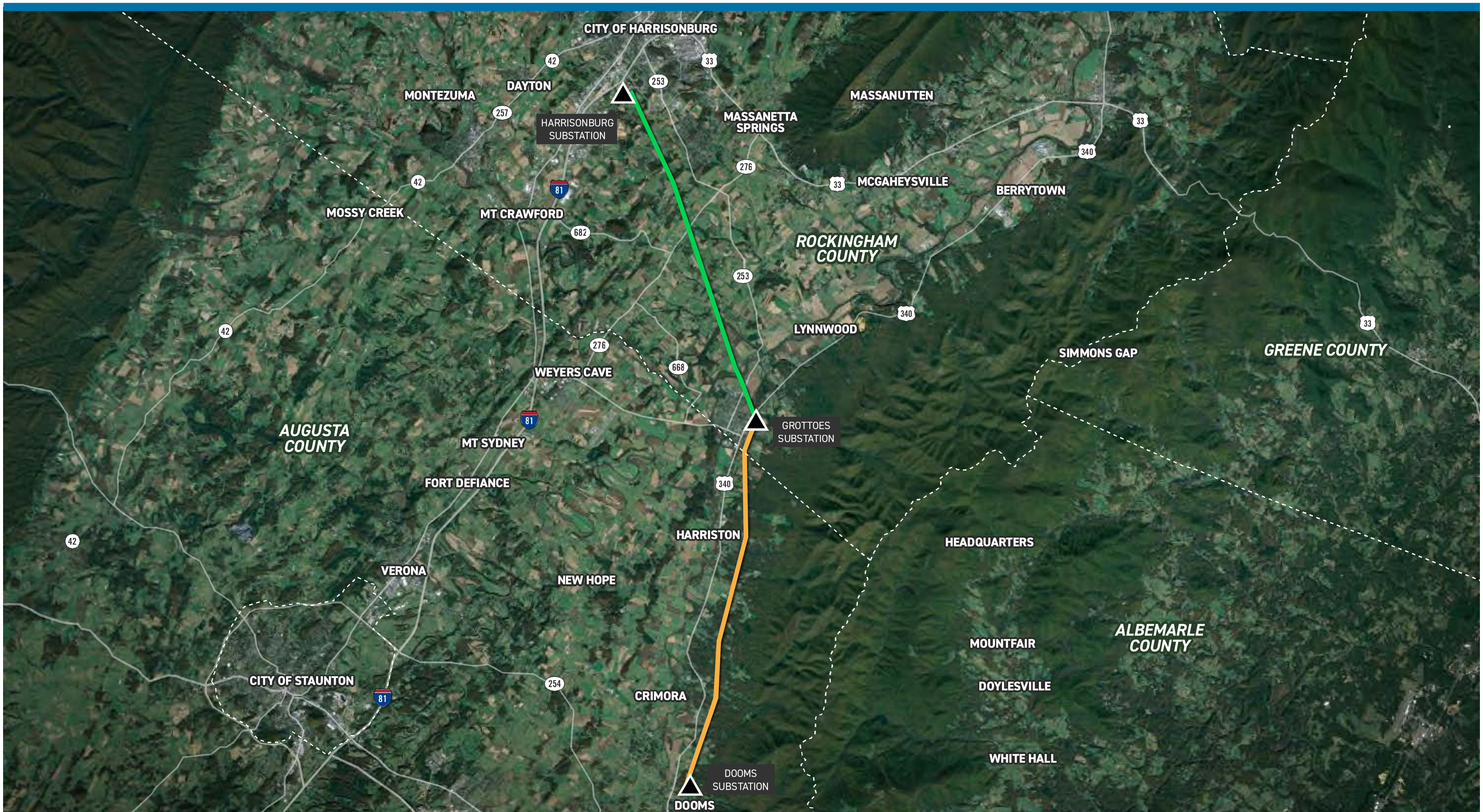


DOOMS-HARRISONBURG

Electric Transmission Rebuild Project

Photo Location Map

1 Viewpoint Location — Harrisonburg-Grottoes Section — Grottoes-Dooms Section ▲ Existing Substation



DOOMS-HARRISONBURG
Electric Transmission Rebuild Project

Viewpoint 1 DHR ID: 82-5156

Date: 11/09/2023 **Time:** 10:14 am **Viewing Direction:** Northeast

Viewpoint Location — Harrisonburg-Grottoes Section

Property Name: Dundore House

Dominion Energy

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

DOOMS-HARRISONBURG
Electric Transmission Rebuild Project

Viewpoint 2

Date: 11/09/2023 **Time:** 10:26 am **Viewing Direction:** Northwest

2 Viewpoint Location — Harrisonburg-Grottoes Section

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EXISTING CONDITIONS


PROPOSED CONDITIONS

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DOOMS-HARRISONBURG
Electric Transmission Rebuild Project

Viewpoint 3

Date: 11/09/2023 **Time:** 10:34 am **Viewing Direction:** Northwest

3 Viewpoint Location — Harrisonburg-Grottoes Section

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EXISTING CONDITIONS

PROPOSED CONDITIONS

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DOOMS-HARRISONBURG
Electric Transmission Rebuild Project

Viewpoint 4 DHR ID: 082-5075; 082-0376

Date: 11/09/2023 **Time:** 10:47 am **Viewing Direction:** Southwest

4 Viewpoint Location — Harrisonburg-Grottoes Section

Property Name: Kyle's Mill House; Cross Keys Battlefield

Dominion Energy

DOOMS-HARRISONBURG
Electric Transmission Rebuild Project

Viewpoint 5 DHR ID: 082-0368; 082-0376

Date: 11/09/2023 **Time:** 10:58 am **Viewing Direction:** Southwest

5 Viewpoint Location — Harrisonburg-Grottoes Section

Property Name: Dr. Joseph B. Webb House; Cross Keys Battlefield

Dominion Energy

EXISTING CONDITIONS

PROPOSED CONDITIONS

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DOOMS-HARRISONBURG
Electric Transmission Rebuild Project

Viewpoint 5 DHR ID: 082-0368; 082-0376

Date: 11/09/2023 **Time:** 10:58 am **Viewing Direction:** Southwest

5 Viewpoint Location — Harrisonburg-Grottoes Section

Property Name: Dr. Joseph B. Webb House; Cross Keys Battlefield

Dominion Energy

EXISTING CONDITIONS

PROPOSED CONDITIONS OVERLAY

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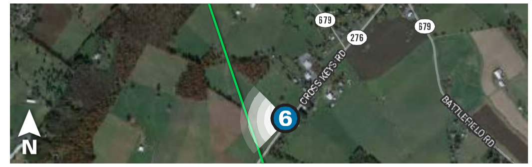
DOOMS-HARRISONBURG
Electric Transmission Rebuild Project

Viewpoint 6 DHR ID: 082-0369; 082-0376

Date: 11/09/2023 **Time:** 11:05 am **Viewing Direction:** West

6 Viewpoint Location — Harrisonburg-Grottoes Section

Property Name: William VanLear Farm/Kiblinger (Kublinger) House; Cross Keys Battlefield



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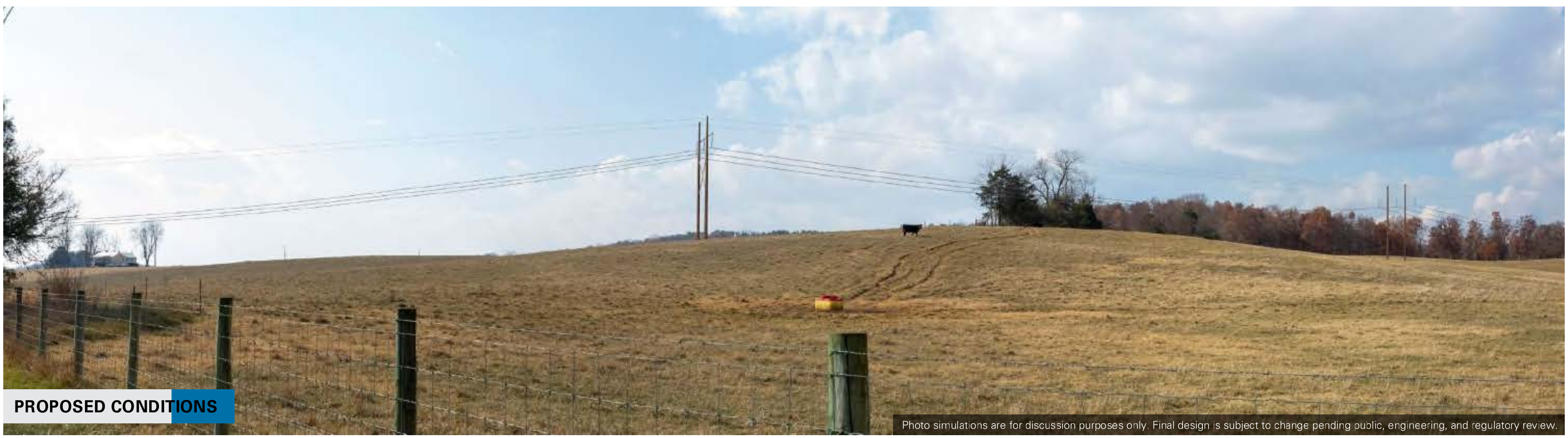


DOOMS-HARRISONBURG

Electric Transmission Rebuild Project

Viewpoint 7 DHR ID: 082-5096; 082-0376

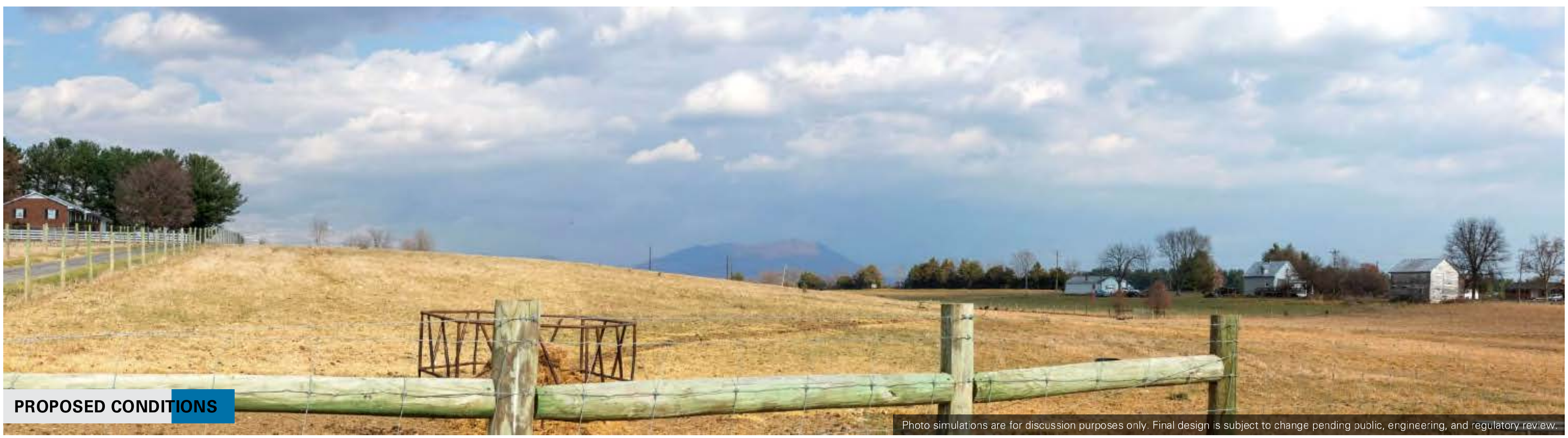
Date: 11/09/2023 **Time:** 11:20 am **Viewing Direction:** Northeast

7 Viewpoint Location — Harrisonburg-Grottoes Section

Property Name: Peter Hiel House/Springdale Farm; Cross Keys Battlefield

Dominion Energy

EXISTING CONDITIONS



PROPOSED CONDITIONS

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DOOMS-HARRISONBURG
Electric Transmission Rebuild Project

Viewpoint 7 DHR ID: 082-5096; 082-0376

Date: 11/09/2023 **Time:** 11:20 am **Viewing Direction:** Northeast

7 Viewpoint Location — Harrisonburg-Grottoes Section

Property Name: Peter Hiel House/Springdale Farm; Cross Keys Battlefield

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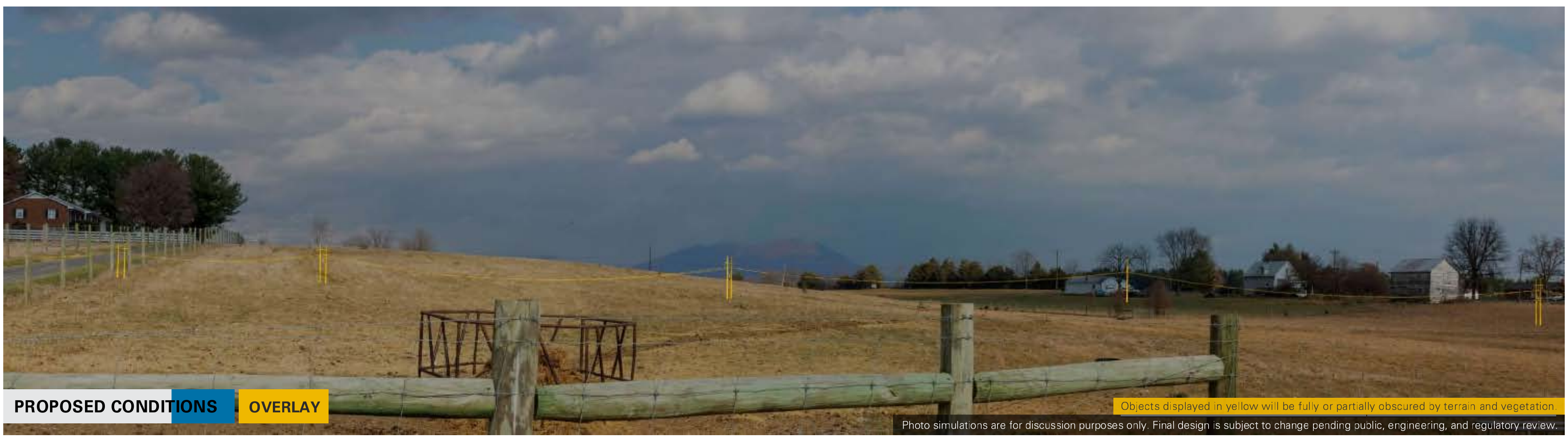


DOOMS-HARRISONBURG
Electric Transmission Rebuild Project

Viewpoint 8 DHR ID: 082-5204; 082-0376

Date: 11/09/2023 **Time:** 11:23 am **Viewing Direction:** Northeast

8 Viewpoint Location — Harrisonburg-Grottoes Section

Property Name: German Reformed Church Parsonage; Cross Keys Battlefield

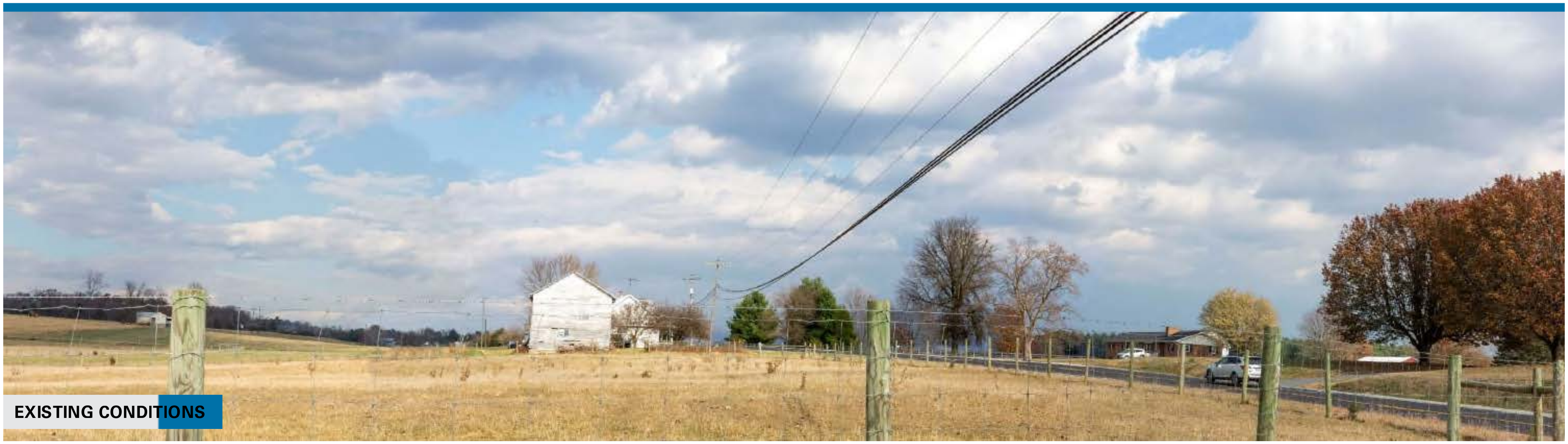


Photo simulations are for discussion purposes only. Final design is subject to change pending public, engineering, and regulatory review.

DOOMS-HARRISONBURG
Electric Transmission Rebuild Project

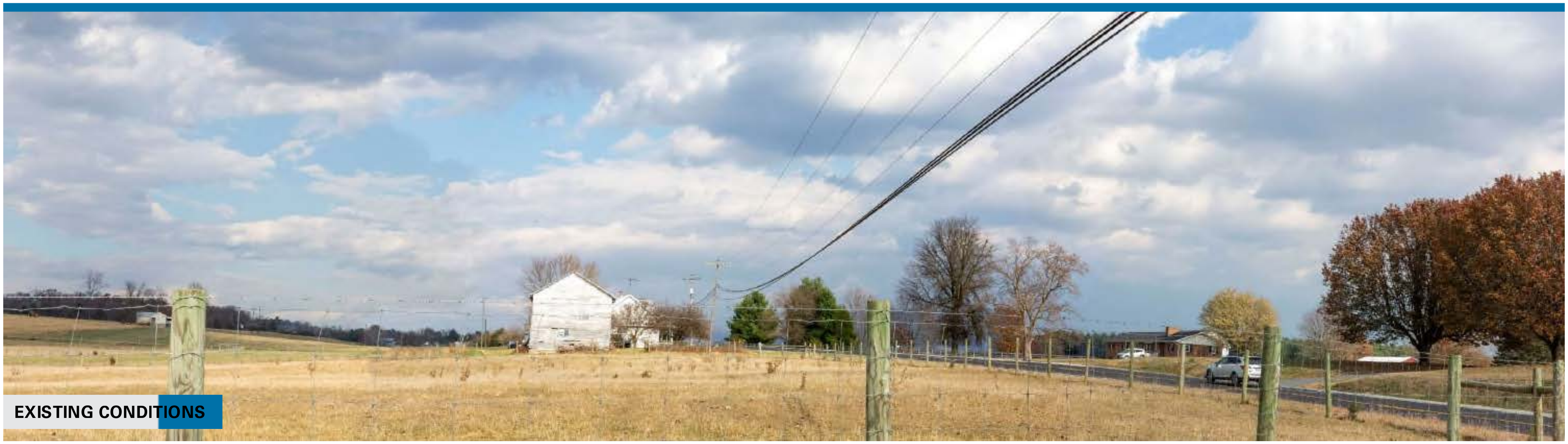
Viewpoint 8 DHR ID: 082-5204; 082-0376

Date: 11/09/2023 **Time:** 11:23 am **Viewing Direction:** Northeast

8 Viewpoint Location — Harrisonburg-Grottoes Section

Property Name: German Reformed Church Parsonage; Cross Keys Battlefield

Dominion Energy



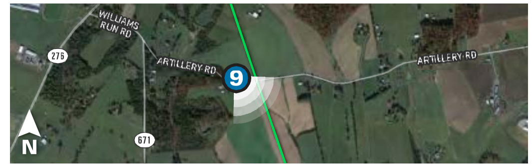
DOOMS-HARRISONBURG

Electric Transmission Rebuild Project

Viewpoint 9

Date: 11/09/2023 **Time:** 11:28 am **Viewing Direction:** Southeast

9 Viewpoint Location — Harrisonburg-Grottoes Section



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EXISTING CONDITIONS

PROPOSED CONDITIONS

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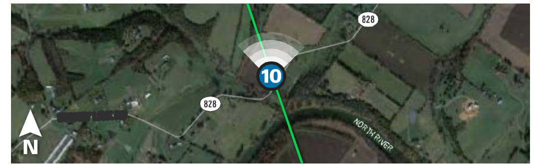
DOOMS-HARRISONBURG
Electric Transmission Rebuild Project

Viewpoint 10 DHR ID: 082-0401

Date: 11/09/2023 **Time:** 11:50 am **Viewing Direction:** North

10 Viewpoint Location — Harrisonburg-Grottoes Section

Property Name: William Sautley Farm



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EXISTING CONDITIONS

PROPOSED CONDITIONS

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DOOMS-HARRISONBURG
Electric Transmission Rebuild Project

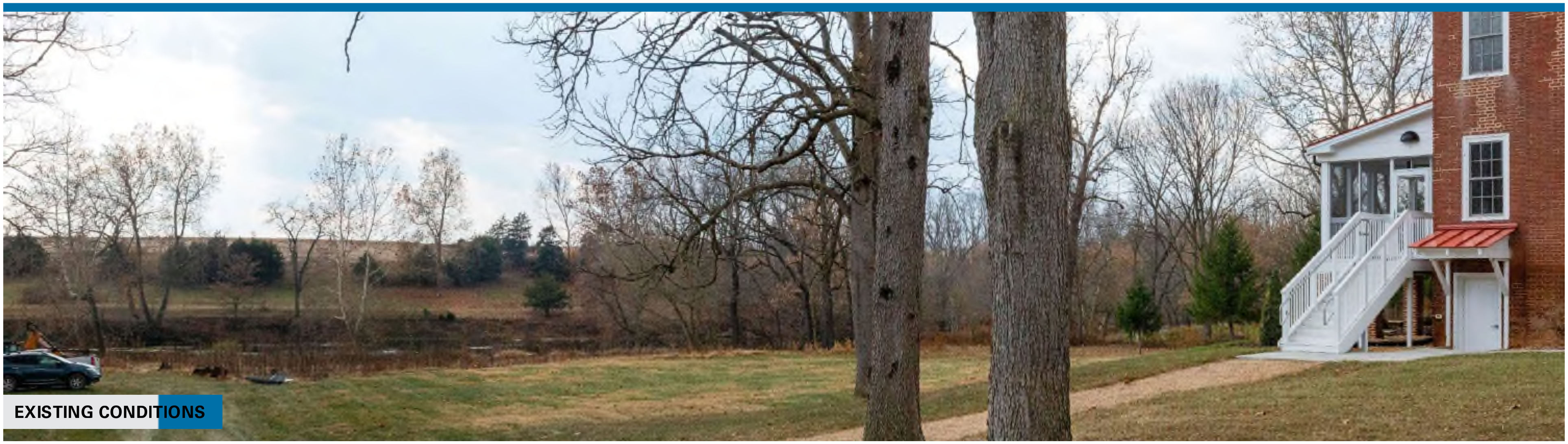
Viewpoint 11 DHR ID: 082-0010; 082-5430

Date: 11/09/2023 **Time:** 12:03 pm **Viewing Direction:** Southwest

11 Viewpoint Location — Harrisonburg-Grottoes Section

Property Name: College Camp; Port Republic Battlefield

Dominion Energy



EXISTING CONDITIONS

PROPOSED CONDITIONS OVERLAY

Objects displayed in yellow will be fully or partially obscured by terrain and vegetation

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DOOMS-HARRISONBURG
Electric Transmission Rebuild Project

Viewpoint 12 DHR ID: 082-0123; 082-5430

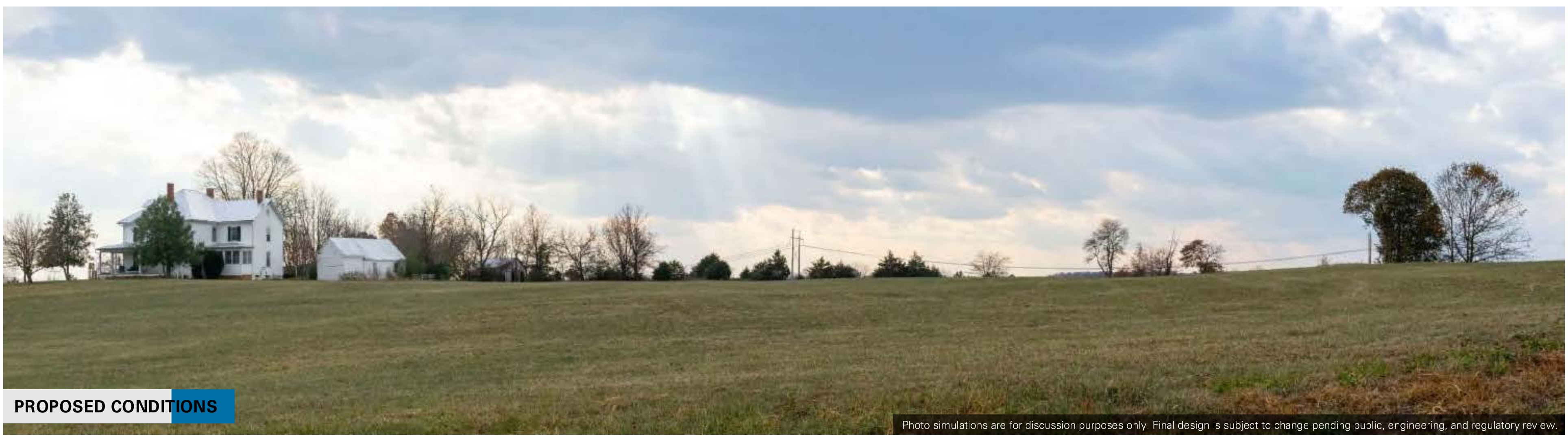
Date: 11/09/2023 **Time:** 12:11 pm **Viewing Direction:** Southwest

12 Viewpoint Location — Harrisonburg-Grottoes Section

Property Name: Port Republic Historic District; Port Republic Battlefield

Dominion Energy

EXISTING CONDITIONS



PROPOSED CONDITIONS

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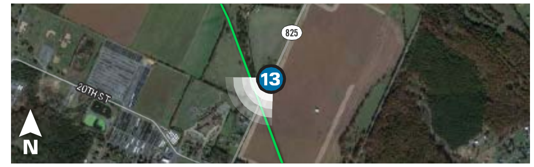
DOOMS-HARRISONBURG
Electric Transmission Rebuild Project

Viewpoint 13

Date: 11/09/2023 **Time:** 12:26 pm **Viewing Direction:** Southwest

13 Viewpoint Location — Harrisonburg-Grottoes Section



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EXISTING CONDITIONS

PROPOSED CONDITIONS

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DOOMS-HARRISONBURG
Electric Transmission Rebuild Project

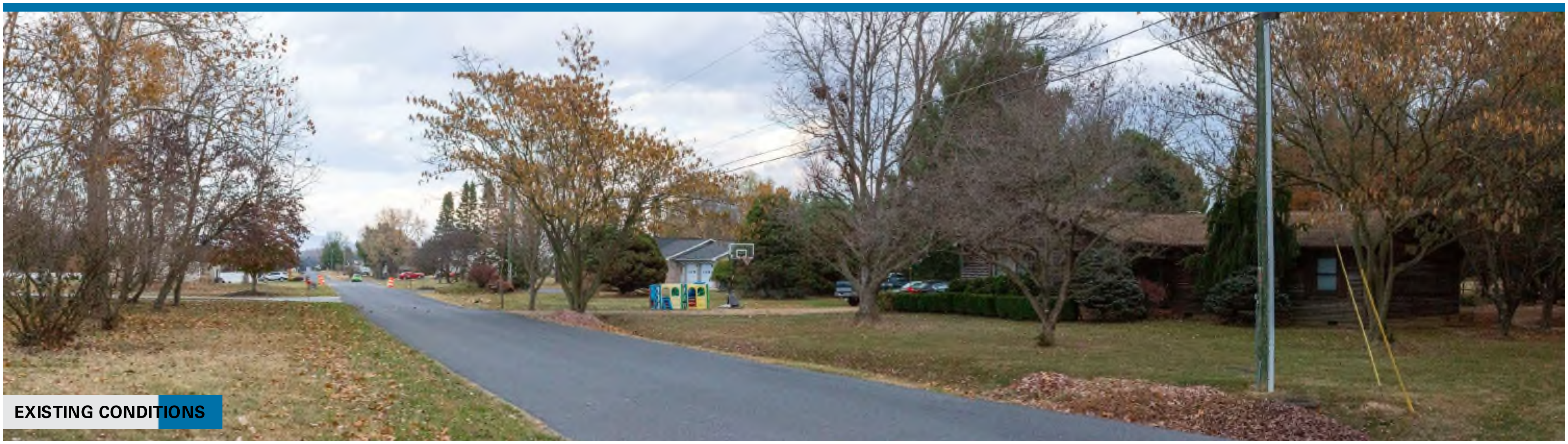
Viewpoint 14 DHR ID: 228-5022

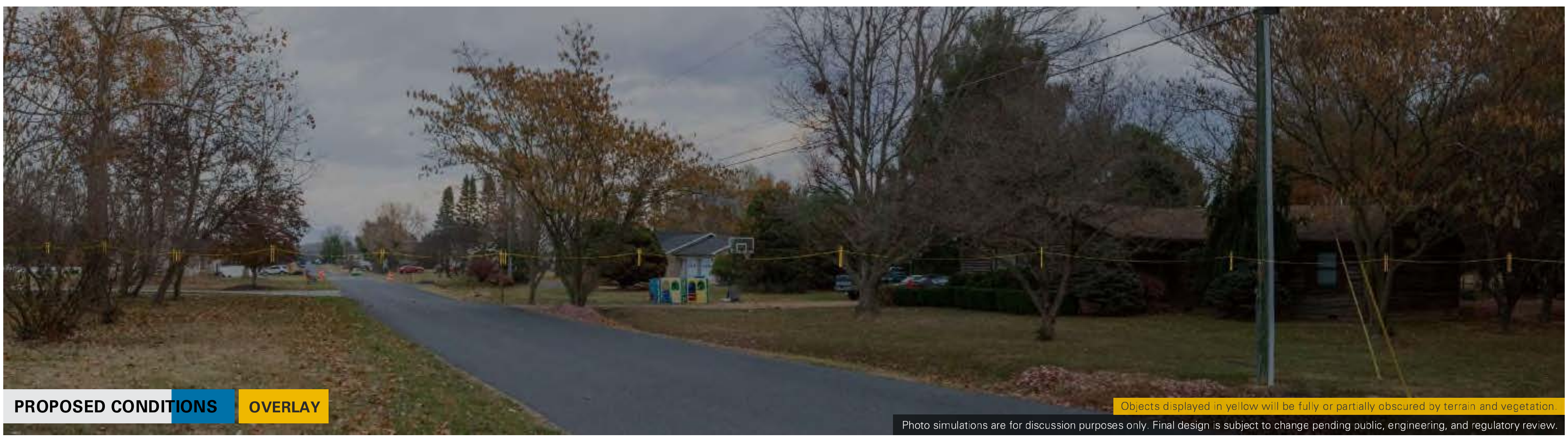
Date: 11/09/2023 **Time:** 12:57 pm **Viewing Direction:** Northeast

14 Viewpoint Location — Harrisonburg-Grottoes Section

Property Name: Steven Hainsberger House

Dominion Energy





DOOMS-HARRISONBURG
Electric Transmission Rebuild Project

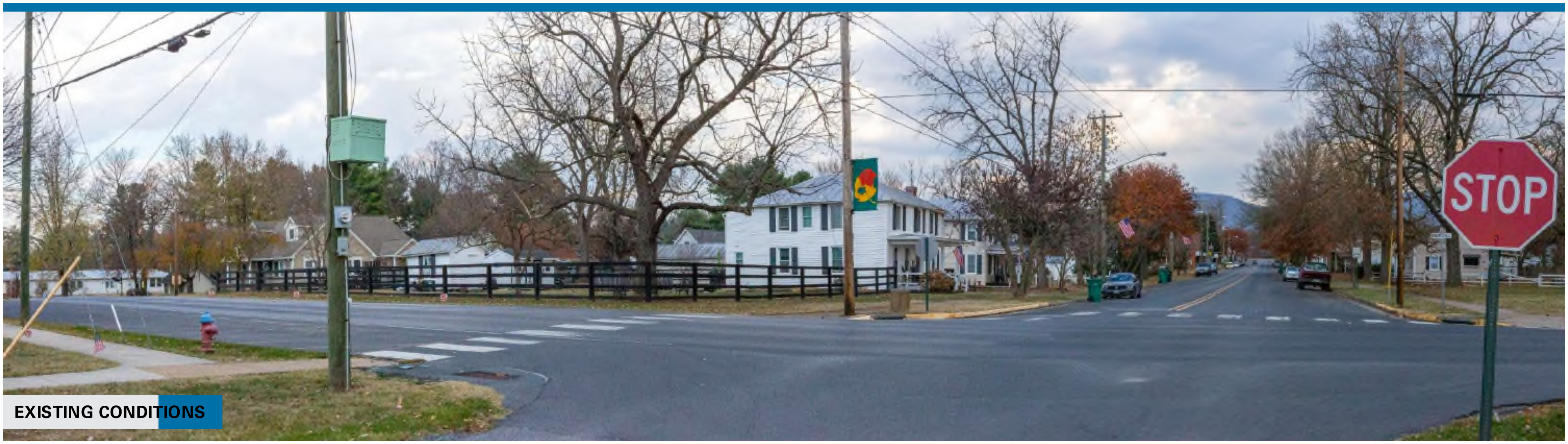
Viewpoint 15 DHR ID: 228-0015

Date: 11/09/2023 **Time:** 1:05 pm **Viewing Direction:** East

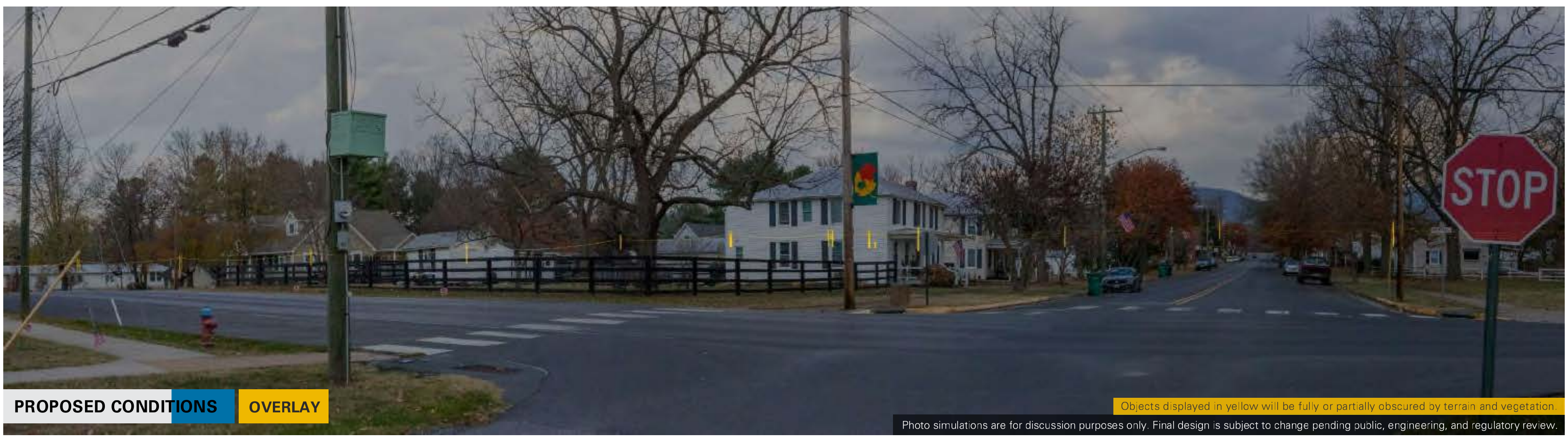
15 Viewpoint Location — Harrisonburg-Grottoes Section
— Grottoes-Dooms Section ▲ Existing Substation

Property Name: Grottoes Elementary Schoo

Dominion Energy



EXISTING CONDITIONS



PROPOSED CONDITIONS OVERLAY

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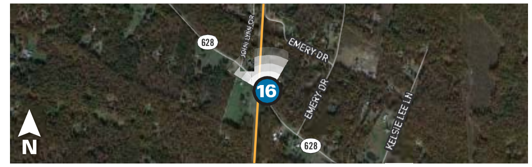
DOOMS-HARRISONBURG
Electric Transmission Rebuild Project

Viewpoint 16

Date: 10/24/2023 **Time:** 1:39 pm **Viewing Direction:** Northwest

16 Viewpoint Location — Grottoes-Dooms Section



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EXISTING CONDITIONS

PROPOSED CONDITIONS

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DOOMS-HARRISONBURG
Electric Transmission Rebuild Project

Viewpoint 17 DHR ID: 007-0964

Date: 11/09/2023 **Time:** 1:23 pm **Viewing Direction:** East

17 Viewpoint Location — Grottoes-Dooms Section

Property Name: Crimora Elementary School

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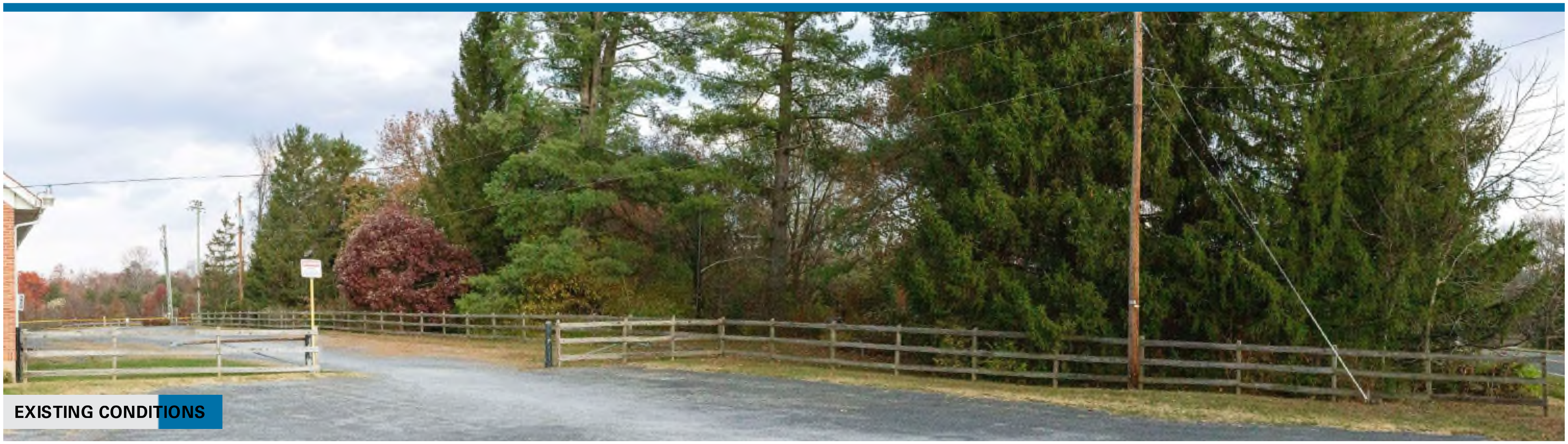

EXISTING CONDITIONS

PROPOSED CONDITIONS OVERLAY

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DOOMS-HARRISONBURG
Electric Transmission Rebuild Project

Viewpoint 18

Date: 10/24/2023 **Time:** 1:05 pm **Viewing Direction:** East

18 Viewpoint Location — Grottoes-Dooms Section

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EXISTING CONDITIONS

PROPOSED CONDITIONS

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

DOOMS-HARRISONBURG
Electric Transmission Rebuild Project

Viewpoint 19

Date: 10/24/2023 **Time:** 10:14 pm **Viewing Direction:** Northeast

19 Viewpoint Location — Grottoes-Dooms Section

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EXISTING CONDITIONS

PROPOSED CONDITIONS

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

DOOMS-HARRISONBURG
Electric Transmission Rebuild Project

Viewpoint 20 DHR ID: 007-0944

Date: 11/09/2023 **Time:** 1:36 pm **Viewing Direction:** East

20 Viewpoint Location — Grottoes-Dooms Section ▲ Existing Substation

Property Name: John Nicholas Coiner House and Mill

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EXISTING CONDITIONS

PROPOSED CONDITIONS OVERLAY

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Dominion Energy image. Not project specific.

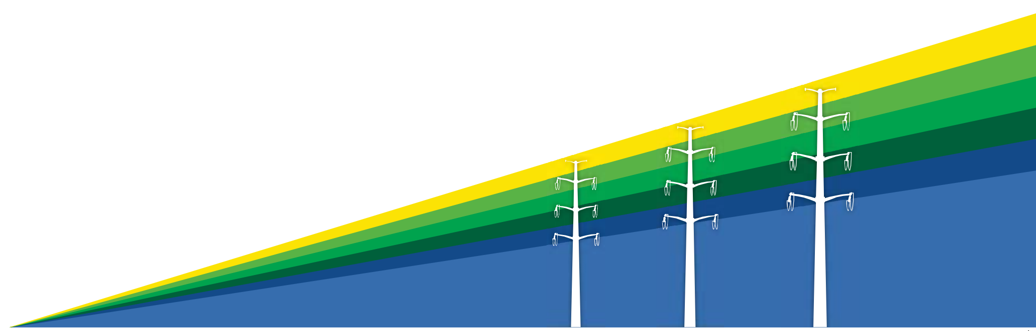
Dominion Energy®

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

Local Power Line Project Information Enclosed

YOU'RE INVITED TO A COMMUNITY MEETING

SCAN HERE
TO LEARN
MORE



SAVE THE DATES — Join us at a Community Meeting

Dooms-Harrisonburg 230 kV Electric Transmission Rebuild Project

At Dominion Energy, we are committed to keeping the communities we serve informed of projects in their area. We recently announced a new project that will rebuild the existing electric transmission line between our Harrisonburg Substation in the City of Harrisonburg and Dooms Substation in Augusta County, Virginia.

SCAN HERE TO LEARN MORE

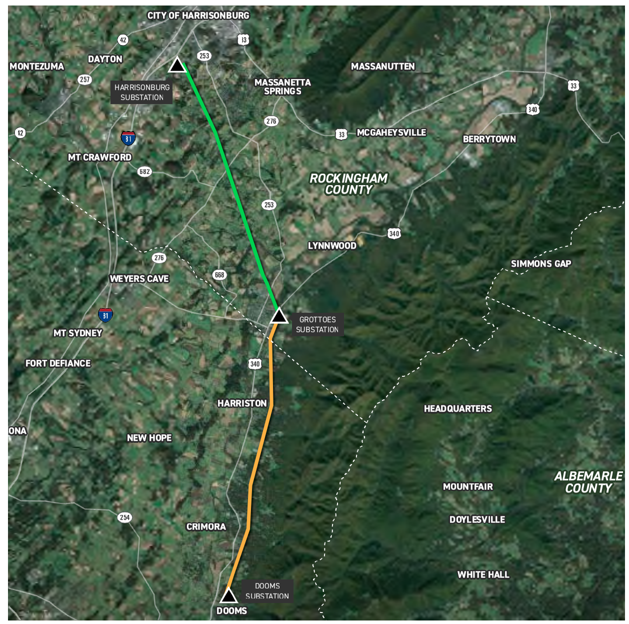
We invite you to learn more about the project at two upcoming community meetings. Our subject matter experts will be available to answer any questions you may have. Both meetings will cover the same content and will be hosted in an open-house style. Feel free to drop by anytime between the hours of 5 and 7 p.m.

We look forward to sharing more about the project and listening to your feedback as we move forward with project planning.

UNABLE TO ATTEND? NO PROBLEM.

Here are other ways to engage with our team:

- View meeting content at your convenience on our project website.
- Contact us by email or phone to discuss the project.
- Contact us and request a meeting with a smaller group in your community.



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

MEETING DETAILS

COMMUNITY MEETING #1
Tuesday, March 12, 2024

COMMUNITY MEETING #2
Tuesday, March 19, 2024

5 – 7 p.m.

Drop by anytime during these hours.

South River Elementary
2101 Elm Ave, Grottoes, VA 24441

The meetings will be held in the cafeteria.

Save the dates | Infrastructure upgrades | Ask Questions

CONTACT US

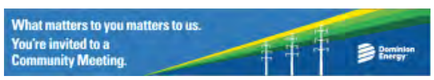
Website: DominionEnergy.com/doomsharrisonburg
Phone: 888-291-0190
Email: powerline@dominionenergy.com

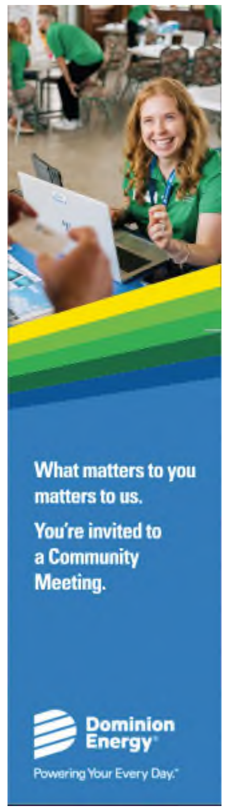
charles ryan associates

Dominion Energy Electric Transmission Contact:
Ann Gordon Mickel, Ann.Gordon.Mickel@dominionenergy.com

Dominion Energy
Electric Transmission

Dooms-Harrisonburg Electric
Transmission Line Project
Display A

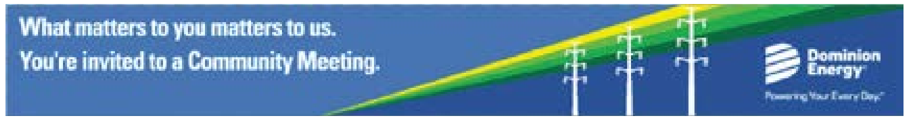


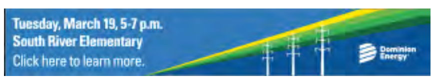


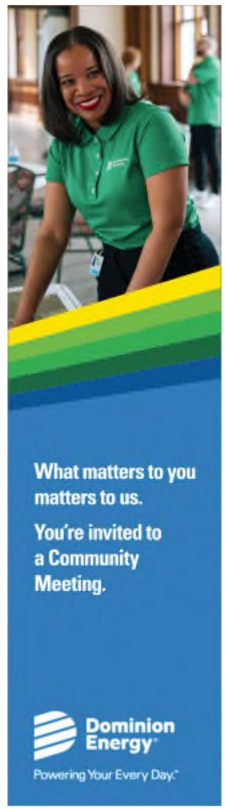
charles ryan associates

Dominion Energy
Electric Transmission

Dooms-Harrisonburg Electric
Transmission Line Project
Display B







Dominion Energy
Electric Transmission

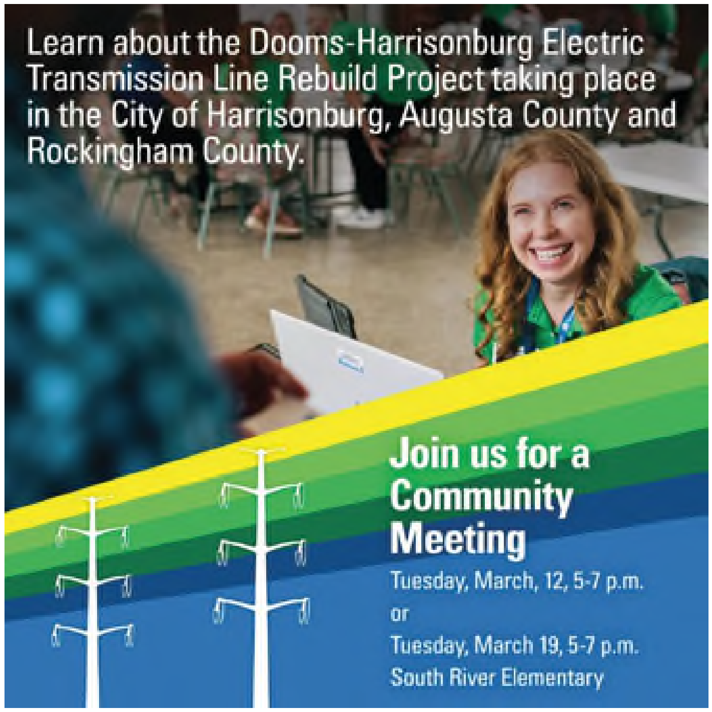
Dooms-Harrisonburg Electric Transmission Line Project Nextdoor Imagery

Event Image A:

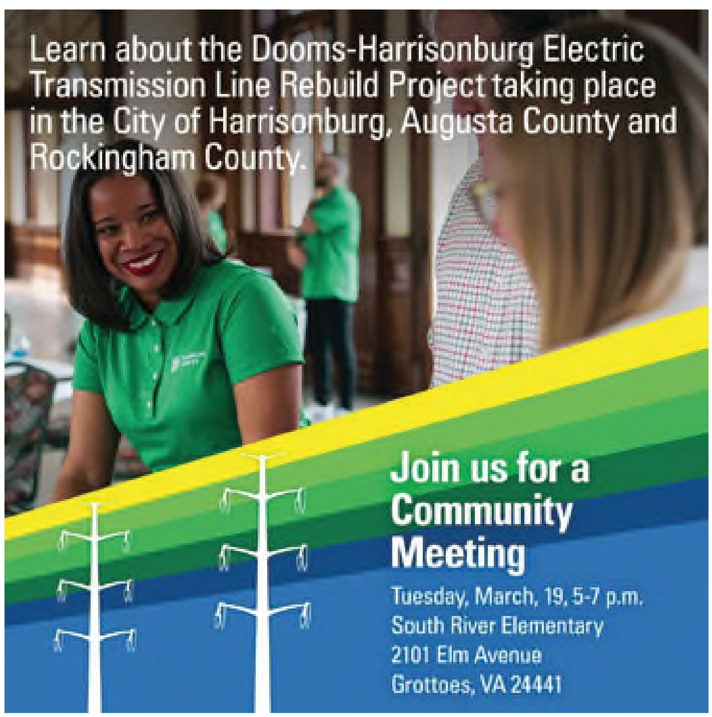
Event Image B:

Dominion Energy
Electric Transmission

Dooms-Harrisonburg Electric Transmission Line Project Social Videos



Pre-event Video A (Click to Play)



Pre-event Video B (Click to Play)

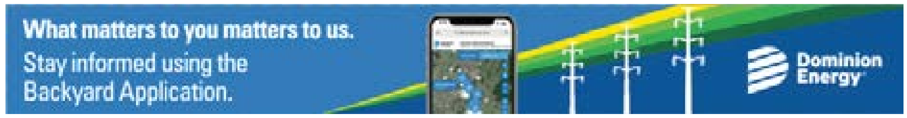
charles ryan associates

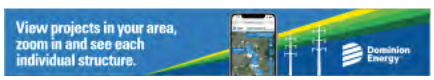
Dominion Energy
Electric Transmission

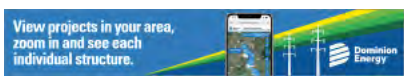
Dooms-Harrisonburg Electric
Transmission Line Project
Print Ads

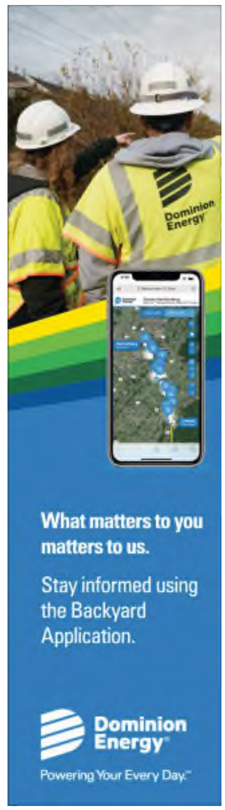
Dominion Energy
Electric Transmission

Dooms-Harrisonburg Electric
Transmission Line Project
Backyard Display





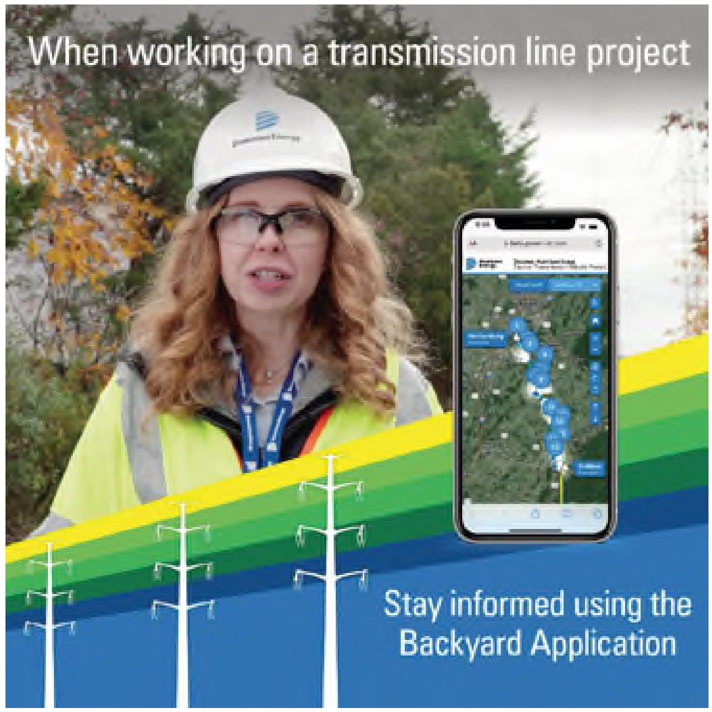




charles ryan associates

Dominion Energy
Electric Transmission

Dooms-Harrisonburg Electric Transmission Line Project Backyard Social Videos



Post-event Video (Click to Play)

Nextdoor Imagery

Backyard Image:

Environmental Justice: Ongoing Commitment to Our Communities

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

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

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

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

November 2018

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

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

Response: During the Company's initial review of the existing transmission corridor for the Rebuild Project, the Company identified 85 unauthorized encroachments within the Rebuild Project corridor which include sheds, barns, dilapidated vehicles and RVs, landscaping, plantings, etc. The encroachments will need to be addressed with the respective property owners as the Company continues to investigate the right-of-way.

The Company is not aware of any residences encroaching on the existing corridor and does not expect to have any residences demolished or relocated in connection with the Rebuild Project.

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

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

Response: Construction of Line #260 and Line #272 was completed in 1970 and 1967, respectively, and the right-of-way has been in continuous use since that time. The proposed Rebuild Project parallels Line #43 for approximately 0.1 miles out of Harrisonburg Substation, Line #119 for approximately 0.1 miles out of Grottoes Substation, and Lines #549 and #555 for approximately 0.7 miles north of the Dooms Substation. A gas pipeline intersects the right-of-way between Structures #260/14 and #260/15.

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

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

Response: The Augusta County Comprehensive Plan, dated January 28, 2009, was reviewed to evaluate the potential effect the Rebuild Project could have on future development. The future land use map designates the ROW as low density residential, urban open space, medium density residential, and agricultural conservation area. The comprehensive plan states one of Augusta County's goals is to coordinate with utility providers including electric services to provide adequate services. The Rockingham County Comprehensive Plan's 2050 land use plan designates the area as community residential, mixed-use center, and agricultural reserve, but electric utilities are not discussed therein. The Rebuild Project passes through the area east of Grottoes which is within the Urban Growth Boundary and designated as mixed-use and residential zoning. The Rebuild Project is not expected to impact the character of the community as the transmission corridor has been in use for over 50 years.

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

F. Government Bodies

A. Indicate if the Applicant determined from the governing bodies of each county, city and town in which the proposed facilities will be located whether those bodies have designated the important farmlands within their jurisdictions, as required by § 3.2-205 B of the Code.

2. If so, and if any portion of the proposed facilities will be located on any such important farmland:

a. Include maps and other evidence showing the nature and extent of the impact on such farmlands;

b. Describe what alternatives exist to locating the proposed facilities on the affected farmlands, and why those alternatives are not suitable; and

c. Describe the Applicant's proposals to minimize the impact of the facilities on the affected farmland.

Response: 1. Neither Augusta nor Rockingham Counties, nor the Town of Grottoes, have designated important farmland within their jurisdiction pursuant to Va. Code § 3.2-205 B.

2. Not applicable.

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

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

1. Any district, site, building, structure, or other object included in the National Register of Historic Places maintained by the U.S. Secretary of the Interior;

2. Any historic architectural, archeological, and cultural resources, such as historic landmarks, battlefields, sites, buildings, structures, districts or objects listed or determined eligible by the Virginia Department of Historic Resources ("DHR");

3. Any historic district designated by the governing body of any city or county;

4. Any state archaeological site or zone designated by the Director of the DHR, or its predecessor, and any site designated by a local archaeological commission, or similar body;

5. Any underwater historic assets designated by the DHR, or predecessor agency or board;

6. Any National Natural Landmark designated by the U.S. Secretary of the Interior;

7. Any area or feature included in the Virginia Registry of Natural Areas maintained by the Virginia Department of Conservation and Recreation ("DCR");

8. Any area accepted by the Director of the DCR for the Virginia Natural Area Preserves System;

9. Any conservation easement or open space easement qualifying under §§ 10.1-1009 – 1016, or §§ 10.1-1700 – 1705, of the Code (or a comparable prior or subsequent provision of the Code);

10. Any state scenic river;

11. Any lands owned by a municipality or school district; and

12. Any federal, state or local battlefield, park, forest, game or wildlife preserve, recreational area, or similar facility. Features, sites, and the like listed in 1 through 11 above need not be identified again.

Response:

1. NRHP-listed resources that are within and adjacent to the Rebuild Project are provided in Table 4 of the DEQ Supplement. Section 2.I of the DEQ Supplement provides additional discussion.
2. Resources that are eligible or potentially eligible for listing in the NRHP that are within and adjacent to the Rebuild Project are provided in Table 4 of the DEQ Supplement. Section 2.I of the DEQ Supplement provides additional discussion.
3. None.
4. Archaeological site 44RM0127 is located adjacent to the right-of-way. Section 2.I of the DEQ Supplement provides additional discussion.
5. None.
6. The Grand Caverns are located in the Town of Grottoes and expands a total of 125 acres into Augusta County and Rockingham County. The Rebuild Project is located approximately 0.8 miles from The Grand Caverns.
7. The Furnace Mountain - Turk Mountain - Harriston - Mt Bethel Ponds Conservation Site is located within the Rebuild Project area. The natural heritage resource of concern associated with this site is the sessile-leaf tick-trefoil.
8. None.
9. There is a VDHR easement on the north side of the South River. Section 2.L of the DEQ Supplement provides additional information regarding recreation, agricultural, and forest resources potentially crossed by the Rebuild Project.
10. None.
11. The Rockingham County School district owns tax map #160-A-7C, known as South River Elementary School, located in the Town of Grottoes approximately 250 feet from the right-of-way.
12. Shenandoah National Park is located approximately 0.5 miles from the Rebuild Project.

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

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

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

The Company has reviewed the FAA's website[13] to identify airports within 10.0 nautical miles of the proposed Rebuild Project. The following airports were identified:

- Shenandoah Valley Regional Airport (SHD) is approximately 3.9 miles from Structure 260/69.
- Bridgewater Air Park (VBW) is approximately 4.5 miles from Structure 260/15.

In an email dated March 29, 2024, the Virginia Department of Aviation ("DOAv") stated that a Form 7460 will need to be submitted to the FAA to initiate an aeronautical study to ensure that the proposed Rebuild Project will not constitute a hazard to air navigation. This correspondence is provided as Attachment 2.O.2 of the DEQ Supplement. The Company will submit Form 7460 to the FAA prior to construction to initiate aeronautical studies and will design the proposed structures to avoid interference with air navigation.

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[13] *See* https://oeaaa.faa.gov/oeaaa/external/portal.jsp.

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

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

Response: The Rebuild Project does not cross any scenic Virginia byways. Route 256 in Grottoes is a designated Scenic Road but ends approximately 0.2 miles from the Rebuild Project centerline. Use of the existing right-of-way minimizes or eliminates permanent incremental impacts at road crossings.

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

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

Response: As described in Sections III.B and V.D, the Company solicited feedback from Augusta and Rockingham Counties as well as the Cities of Harrisonburg, Grottoes, and Dooms regarding the proposed Rebuild Project. Below is a list of coordination efforts that have occurred with municipal, state, and federal agencies:

- A Wetland and Waters Review has been completed and sent to DEQ's Office of Wetlands and Stream Protection to initiate the wetlands impact consultation. See Attachment 2.D.1 of the DEQ Supplement.

- A Stage I Pre-Application Analysis has been prepared and submitted to VDHR. See Attachment 2.I.2 of the DEQ Supplement.

- The Company solicited comments from the Virginia Marine Resources Commission ("VMRC") and the Corps regarding the proposed Rebuild Project. See Attachment 2 of the DEQ Supplement.

- The Company requested comments from the USFWS, DWR, and DCR regarding the proposed Rebuild Project. See Attachment 2 of the DEQ Supplement.

- Letters were submitted to Augusta and Rockingham Counties and the Cities of Harrisonburg, Grottoes, and Dooms pursuant to Va. Code § 15.2-2202 E to describe the Rebuild Project and request comment. See Section V.D of this Appendix.

- The Company solicited comments from the DOAv regarding the proposed Rebuild Project. See Attachment 2 of the DEQ Supplement.

- Letters were submitted to the agencies listed in Section V.C in March 2024 describing the Rebuild Project and requesting comment.

- In March 2024, the Company sent letters to the Virginia Department of Historic Resources.

- On February 9, 2024, the Company solicited comments via letter from several federally and state recognized Native American tribes, including:

  Cheroenhaka (Nottoway) Indian Tribe
  Chickahominy Indian Tribe
  Chickahominy Indian Tribe Eastern Division
  Chickahominy Tribe
  Mattaponi Tribe

Monacan Indian Nation
Nansemond Indian Nation
Nottoway Indian Tribe of Virginia
Pamunkey Indian Tribe
Pamunkey Indian Tribal Resource Office
Patawomeck Indian Tribe of Virginia
Rappahannock Tribe
Upper Mattaponi Indian Tribe
Catawba Indian Nation
Delaware Nation, Oklahoma

A copy of the letter is included as Attachment III.J.1. On March 12, 2024, the project team received a response from Caitlin Rogers with the Catawba Nation. A copy of this letter is included as Attachment III.J.2.

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

Feb. 9, 2024

Proposed Dooms-Harrisonburg 230 kV Electric Transmission Rebuild Project

Dear Chief Anderson,

At Dominion Energy, we are dedicated to finding the best solution for our long-term needs in the communities we serve. As a valued stakeholder with a vested interest in the community, we invite you to participate in the development of an electric transmission rebuild project in Augusta and Rockingham counties and the City of Harrisonburg, Virginia.

We are currently in the planning stages of the project. We are seeking input prior to submitting an application with the Virginia State Corporation Commission (SCC) in early summer 2024. Doing so allows us to hear any concerns you may have as we work to meet the project's needs. We are committed to purposeful and early inclusion of Tribal communities in project communication processes. By reaching out early and encouraging meaningful conversation, we hope to keep Tribal communities informed and engaged.

Enclosed you will find an overview map of the project. Please provide your comments by March 15, 2024, so we have adequate time to review and consider your comments in our project design and as part of our SCC application. We appreciate your assistance as we move through the planning process.

We will host community meetings in early spring 2024 prior to submitting the SCC application in early summer 2024. Please visit the project website at DominionEnergy.com/doomsharrisonburg for more project information.

If you would like any additional information, have questions, or would like to set up a meeting to discuss the project, please contact me by email at ann.gordon.mickel@dominionenergy.com or by calling 804-363-9783. You may also contact Ken Custalow, our Tribal Liaison Manager. He can be reached by email at ken.custalow@dominionenergy.com.

Sincerely,

Ann Gordon Mickel

Ann Gordon Mickel
Electric Transmission Communications

Enclosure: Project Fact Sheet
cc Ken Custalow

Dooms-Harrisonburg 230 kV Electric Transmission Rebuild Project

CITY OF HARRISONBURG, AUGUSTA AND ROCKINGHAM COUNTIES, VIRGINIA

Dominion Energy®
Powering Your Every Day.℠

AT DOMINION ENERGY, we are committed to providing safe, reliable, and affordable electric service to the communities we proudly serve. The existing 230 kilovolt (kV) electric transmission line between our Dooms Substation and Harrisonburg Substations is reaching its end of its service life and needs rebuilding to ensure continued reliable electric service to the area.

SCAN HERE TO LEARN MORE

QUICK FACTS

- **Harrisonburg-Grottoes Phase: 10.5 miles**
- **Grottoes-Dooms Phase: 11.5 miles**
- **Total project length: 22 miles**
- **Project will utilize existing right of way corridor**
- **Voltage will remain 230 kV**
- **Interruption to your electric service is not anticipated as a result of this project**

HARRISONBURG-GROTTOES PHASE

TYPICAL EXISTING

- **Wooden and steel H-Frame structures**
- **Existing average structure height: 66 feet**

TYPICAL PROPOSED

- **Weathering steel H-frame structures**
- **Proposed average structure height: 76 feet**
- **Average height Increase: 10 feet**
- **Total structures to be replaced: 83**

NOTE: New structures will be located in close proximity to existing structures.
Proposed structure heights are based on preliminary engineering calculations and are subject to change with final engineering design.
View each individual structure change on our Backyard Application on our website.

CONTINUED ON BACK

Dooms-Harrisonburg 230 kV Electric Transmission Rebuild Project CONTINUED

GROTTOES-DOOMS PHASE

TYPICAL EXISTING

- **Weathering steel lattice structures**
- **Existing average structure height: 87 feet**

TYPICAL PROPOSED

- **Weathering steel monopole structures**
- **Proposed average structure height: 90 feet**
- **Average height Increase: 3 feet**
- **Total structures to be replaced: 79**

NOTE: New structures will be located in close proximity to existing structures.
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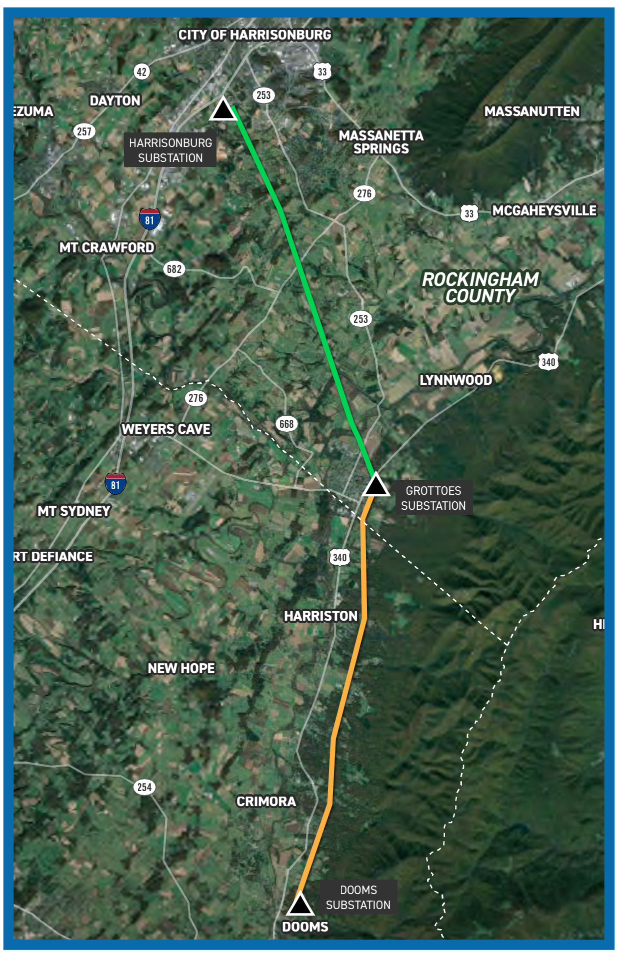

This map is intended to serve as a representation of the project area and is not intended for detailed engineering purposes.

PROJECT SCHEDULE

SUBJECT TO CHANGE

DATE	ACTIVITY
Early 2024	Project announcement
March 2024	Community meetings
Early Summer 2024	File application with the Virginia State Corporation Commission (SCC)
Early 2025	Anticipated SCC ruling
Late 2024 – Late 2025	• Permitting • Finalize engineering • Pre-construction outreach
Early 2026	Construction to begin
Summer 2027	Construction complete, restoration begins

FOR MORE INFORMATION

Visit our website at DominionEnergy.com/doomsharrisonburg. You may also contact us by sending an email to powerline@dominionenergy.com or calling 888-291-0190.

Catawba Indian Nation
Tribal Historic Preservation Office
1536 Tom Steven Road
Rock Hill, South Carolina 29730

Office 803-328-2427

March 12, 2024

Attention: Ann Gordon Mickel
Dominion Energy
P.O. Box 26666
Richmond, VA 23261

Re. THPO #	TCNS #	Project Description
2024-1108-4		Proposed Dooms-Harrisonburg 230 kV Electric Transmission Rebuild Project

Dear Ms. Mickel,

The Catawba have no immediate concerns with regard to traditional cultural properties, sacred sites or Native American archaeological sites within the boundaries of the proposed project areas. **However, the Catawba are to be notified if Native American artifacts and / or human remains are located during the ground disturbance phase of this project.**

If you have questions, please contact Caitlin Rogers at 803-328-2427 ext. 226, or e-mail Caitlin.Rogers@catawba.com.

Sincerely,

Caitlin Rogers for

Wenonah G. Haire
Tribal Historic Preservation Officer

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

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

Response: In February 2024, the Company solicited comments via letter from the nongovernmental organizations and private citizen groups identified below. A copy of the letter template and overview map is included as Attachment III.K.1.

The community leaders, environmental groups, and business groups identified below also were included in the Company's public mailing (see Attachment III.B.2), which invited communities to the public meetings.

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

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

Dominion Energy®

Feb. 12, 2024

Proposed Dooms-Harrisonburg 230 kV Electric Transmission Rebuild Project

Dear Ms. Kostelny,

At Dominion Energy, we are dedicated to finding the best solution for our long-term needs in the communities we serve. As a valued stakeholder with a vested interest in the community, we invite you to participate in the development of a new electric transmission line in Augusta and Rockingham Counties and the City of Harrisonburg, Virginia.

We are currently in the conceptual phase and are seeking input prior to submitting an application with the Virginia State Corporation Commission (SCC) in early summer 2024. Doing so allows us to hear any concerns you may have as we work to meet the project's needs. Please feel free to notify other relevant organizations that may have an interest in the project area. For reference, other recipients of this letter include countywide and statewide historic, cultural, and scenic organizations, as well as Native American Tribes.

Enclosed, you will find a project fact. Please provide your comments by March 15, 2024, so we have adequate time to review and consider your comments in our project design and as part of our SCC application. We appreciate your assistance as we move through the planning process.

We will host community meetings in early spring 2024 prior to submitting the SCC application in early summer 2024. Please visit the project website at DominionEnergy.com/doomsharrisonburg for more project information.

If you would like any additional information, have questions, or would like to set up a meeting to discuss the project, please do not hesitate to contact me by sending an email to ann.gordon.mickel@dominionenergy.com or calling 804-363-9783.

Sincerely,

Ann Gordon Mickel

Ann Gordon Mickel
Communications Consultant
The Electric Transmission Project Team

Enclosure: Project Fact Sheet

Dooms-Harrisonburg 230 kV Electric Transmission Rebuild Project

CITY OF HARRISONBURG, AUGUSTA AND ROCKINGHAM COUNTIES, VIRGINIA

Dominion Energy
Powering Your Every Day.℠

AT DOMINION ENERGY, we are committed to providing safe, reliable, and affordable electric service to the communities we proudly serve. The existing 230 kilovolt (kV) electric transmission line between our Dooms Substation and Harrisonburg Substations is reaching its end of its service life and needs rebuilding to ensure continued reliable electric service to the area.

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CONTINUED ON BACK

Dooms-Harrisonburg 230 kV Electric Transmission Rebuild Project CONTINUED

GROTTOES-DOOMS PHASE

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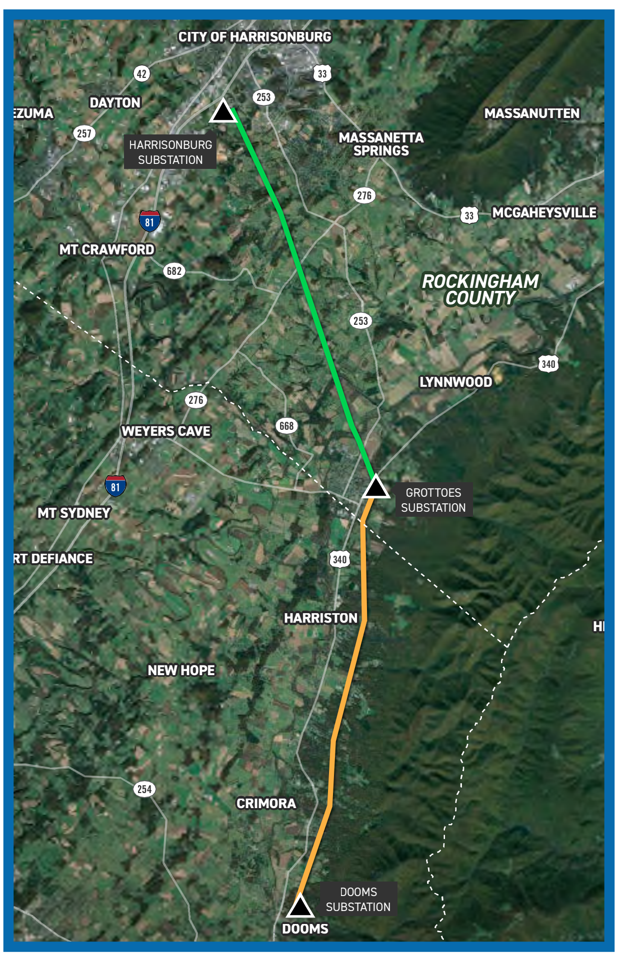

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PROJECT SCHEDULE

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FOR MORE INFORMATION

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

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

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

Potential Permits

Activity	Permit	Agency
Impacts to wetlands and waters of the U.S.	Nationwide Permit 57	U.S. Army Corps of Engineers
Impacts to wetlands and waters of the U.S.	Virginia Water Protection Permit	Virginia Department of Environmental Quality
Work within, over or under state subaqueous bottom and tidal waters	Subaqueous Bottom Permit	Virginia Marine Resources Commission
Discharges of Stormwater from Construction Activities	Construction General Permit	Virginia Department of Environmental Quality
Work within VDOT right-of-way	Land Use Permit	Virginia Department of Transportation
Work within railroad corridor	Right-of-Entry Permit	Norfolk Southern
Airspace obstruction evaluation	FAA 7460-1	Federal Aviation Administration

IV. HEALTH ASPECTS OF ELECTROMAGNETIC FIELDS ("EMF")

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

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

This section describes the levels of EMF associated with the existing and proposed transmission line. EMF levels are provided for both historical (2022) and future (2028) annual average and maximum (peak) loading conditions.

Existing line – Historical Average Loading in 2022

EMF levels were calculated for the existing line at the ***historical average*** load condition of 71.01 amps for Line #260 and 120.98 amps for Line #272, at an operating voltage of 230 kV when supported on the existing structures – see Attachment II.A.5.a, c, e, g, i, and k.

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

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

Existing Line #260 - Historic Average Loading (2022)

	Left Edge ROW Per II.A.5 Drawing View		**Right Edge ROW Per II.A.5 Drawing View**	
Attachment	Electric Field (kV/m)	Magnetic Field (mG)	Electric Field (kV/m)	Magnetic Field (mG)
II.A.5.a	2.2	5.9	0.6	3.1
II.A.5.c	1.9	5.7	1.9	5.7
II.A.5.e	0.65	10	0.95	3.5

Existing Line #272 - Historic Average Loading (2022)

	Left Edge ROW Per II.A.5 Drawing View		**Right Edge ROW Per II.A.5 Drawing View**	
Attachment	Electric Field (kV/m)	Magnetic Field (mG)	Electric Field (kV/m)	Magnetic Field (mG)
II.A.5.g	1.2	4	1.8	6
II.A.5.i	1.2	5.8	1.2	7
II.A.5.k	1.5	49	1.7	36

Existing line – Historical Peak Loading in 2022

EMF levels were calculated for the existing line at the ***historical peak*** load condition of 316.72 amps for Line #260 and 404.36 amps for Line #272, and at an operating voltage of 230 kV when supported on the existing structures **–** see Attachment II.A.5.a, c, e, g, i, and k.

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

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

Existing Line #260- Historic Peak Loading (2022)

	Left Edge ROW Per II.A.5 Drawing View		**Right Edge ROW Per II.A.5 Drawing View**	
Attachment	Electric Field (kV/m)	Magnetic Field (mG)	Electric Field (kV/m)	Magnetic Field (mG)
II.A.5.a	2.2	27	0.6	13
II.A.5.c	1.9	26	1.9	26
II.A.5.e	0.65	28	0.95	14

Existing Line #272 - Historic Peak Loading (2022)

	Left Edge ROW Per II.A.5 Drawing View		**Right Edge ROW Per II.A.5 Drawing View**	
Attachment	Electric Field (kV/m)	Magnetic Field (mG)	Electric Field (kV/m)	Magnetic Field (mG)
II.A.5.g	1.2	14	1.8	14
II.A.5.i	1.2	18	1.2	24
II.A.5.k	1.5	52	1.7	52

Proposed Rebuild Project – Projected Average Loading in 2028

EMF levels were calculated for the proposed Rebuild Project at the ***projected average*** load condition of 35.04 amps for Line #260 and 73.56 amps for Line #272 and at an operating voltage of 230 kV when supported on the proposed Rebuild Project structures – see Attachments II.A.5.b, d, f, h, j, and l.

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

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

Proposed Rebuild Project Line #260 - Projected Average Loading (2028)

	Left Edge ROW Per II.A.5 Drawing View		**Right Edge ROW Per II.A.5 Drawing View**	
Attachment	Electric Field (kV/m)	Magnetic Field (mG)	Electric Field (kV/m)	Magnetic Field (mG)
II.A.5.b	2.2	2.6	0.6	4.4
II.A.5.d	1.9	2.9	1.9	2.9
II.A.5.f	0.65	10.2	0.95	2

Proposed Rebuild Project Line #272 - Projected Average Loading (2028)

	Left Edge ROW Per II.A.5 Drawing View		**Right Edge ROW Per II.A.5 Drawing View**	
Attachment	Electric Field (kV/m)	Magnetic Field (mG)	Electric Field (kV/m)	Magnetic Field (mG)
II.A.5.h	1.2	2.4	1.8	3
II.A.5.j	1.2	3.5	1.2	4.5
II.A.5.l	1.5	51	1.7	35

Proposed Rebuild Project – Projected Peak Loading in 2028

EMF levels were calculated for the proposed Rebuild Project at the ***projected peak*** load condition of 58.4 amps for Line #260 and 122.6 amps for Line #272 and at an operating voltage of 230 kV when supported on the proposed Rebuild Project structures – see Attachments II.A.5.b, d, f, h, j, and l.

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

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

Proposed Rebuild Project Line #260 - Projected Peak Loading (2028)

Attachment	Left Edge ROW Per II.A.5 Drawing View		Right Edge ROW Per II.A.5 Drawing View	
	Electric Field (kV/m)	Magnetic Field (mG)	Electric Field (kV/m)	Magnetic Field (mG)
II.A.5.b	2.2	4.0	0.6	8
II.A.5.d	1.9	4.7	1.9	4.7
II.A.5.f	0.65	17.8	0.95	3.8

Proposed Rebuild Project Line 272 - Projected Peak Loading (2028)

Attachment	Left Edge ROW Per II.A.5 Drawing View		Right Edge ROW Per II.A.5 Drawing View	
	Electric Field (kV/m)	Magnetic Field (mG)	Electric Field (kV/m)	Magnetic Field (mG)
II.A.5.h	1.2	3.8	1.8	5
II.A.5.j	1.2	5.8	1.2	7.4
II.A.5.l	1.5	49	1.7	34

IV. HEALTH ASPECTS OF ELECTROMAGNETIC FIELDS ("EMF")

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

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

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

The reviews of EMF-related biological and health research have been conducted by numerous scientific and health agencies, including, for example, the European Health Risk Assessment Network on Electromagnetic Fields Exposure ("EFHRAN"), the International Commission on Non-Ionizing Radiation Protection ("ICNIRP"), the World Health Organization ("WHO"), the International Committee on Electromagnetic Safety ("ICES"), the Scientific Committee on Emerging and Newly Identified Health Risks ("SCENIHR") of the European Commission, and the Swedish Radiation Safety Authority ("SSM") [(formerly the Swedish Radiation Protection Authority ("SSI")) (WHO, 2007; SCENIHR, 2009, 2015; EFHRAN, 2010, 2012; ICNRIP, 2010; SSM, 2015, 2016, 2018, 2019, 2020, 2021, 2022; ICES, 2019). The general scientific consensus of the agencies that have reviewed this research, relying on generally accepted scientific methods, is that the scientific evidence does not show that common sources of EMF in the environment, including transmission lines and other parts of the electric system, appliances, etc., are a cause of any adverse health effects.

The most recent reviews on this topic include the 2015 report by SCENIHR and annual reviews published by SSM (e.g., for the years 2015 through 2022). These reports, similar to previous reviews, found that the scientific evidence does not confirm the existence of any adverse health effects caused by environmental or community exposure to EMF.

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

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

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IV. HEALTH ASPECTS OF ELECTROMAGNETIC FIELDS ("EMF")

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

1. **Became available for consideration since the completion of the Virginia Department of Health's most recent review of studies on EMF and its subsequent report to the Virginia General Assembly in compliance with 1985 Senate Joint Resolution No. 126;**

2. **Include findings regarding EMF that have not been reported previously and/or provide substantial additional insight into findings; and**

3. **Have been subjected to peer review.**

Response: The Virginia Department of Health ("VDH") conducted its most recent review and issued its report on the scientific evidence on potential health effects of extremely low frequency ("ELF") EMF in 2000: "[T]he Virginia Department of Health is of the opinion that there is no conclusive and convincing evidence that exposure to extremely low frequency EMF emanated from nearby high voltage transmission lines is causally associated with an increased incidence of cancer or other detrimental health effects in humans."[14]

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

- The WHO, which published one of the most comprehensive and detailed reviews of the relevant scientific peer-reviewed literature in 2007.
- SCENIHR, a committee of the European Commission, that published its assessments in 2009 and 2015;
- The SSM, which has published annual reviews of the relevant peer-reviewed scientific literature since 2003, with its most recent review published in 2022; and,
- EFHRAN, that published its reviews in 2010 and 2012.

The above reviews provide detailed analyses and summaries of relevant recent peer-reviewed scientific publications. The conclusions of these reviews that the evidence overall does not confirm the existence of any adverse health effects due

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[14] *See* http://www.vdh.virginia.gov/content/uploads/sites/12/2016/02/highfinal.pdf.

to exposure to EMF are consistent with the conclusions of the VDH report. With respect to the statistical association observed in some of the childhood leukemia epidemiologic studies, the most recent comprehensive review of the literature by SCENIHR, published in 2015, concluded that "no mechanisms have been identified and no support is existing [*sic*] from experimental studies that could explain these findings, which, together with shortcomings of the epidemiological studies prevent a causal interpretation" (SCENIHR, 2015, p. 16).

While research is continuing on multiple aspects of EMF exposure and health, many of the recent publications have focused on an epidemiologic assessment of the relationship between EMF exposure and childhood leukemia and neurodegenerative diseases. Of these, the following recent publications, published following the inclusion date (June 2014) for the SCENIHR (2015) report through May 2023, provided additional evidence and contributed to clarification of previous findings. Overall, new research studies have not provided evidence to alter the previous conclusions of scientific and health organizations, including the WHO and SCENIHR.

Epidemiologic studies of EMF and childhood leukemia published during the above referenced period include:

- Bunch et al. (2015) assessed the potential association between residential proximity to high-voltage underground cables and development of childhood cancer in the United Kingdom largely using the same epidemiologic data as in a previously published study on overhead transmission lines (Bunch et al., 2014). No statistically significant associations or trends were reported with either distance to underground cables or calculated magnetic fields from underground cables for any type of childhood cancers.

- Pedersen et al. (2015) published a case-control study that investigated the potential association between residential proximity to power lines and childhood cancer in Denmark. The study included all cases of leukemia (n=1,536), central nervous system tumor, and malignant lymphoma (n=417) diagnosed before the age of 15 between 1968 and 2003 in Denmark, along with 9,129 healthy control children matched on sex and year of birth. Considering the entire study period, no statistically significant increases were reported for any of the childhood cancer types.

- Salvan et al. (2015) compared measured magnetic-field levels in the bedroom for 412 cases of childhood leukemia under the age of 10 and 587 healthy control children in Italy. Although the statistical power of the study was limited because of the small number of highly exposed subjects, no consistent statistical associations or trends were reported between measured magnetic-field levels and the occurrence of leukemia among children in the study.

- Bunch et al. (2016) and Swanson and Bunch (2018) published additional analyses using data from an earlier study (Bunch et al., 2014). Bunch et al.

(2016) reported that the association with distance to power lines observed in earlier years was linked to calendar year of birth or year of cancer diagnosis, rather than the age of the power lines. Swanson and Bunch (2018) re-analyzed data using finer exposure categories (e.g., cut-points of every 50-meter distance) and broader groupings of diagnosis date (e.g., 1960-1979, 1980-1999, and 2000-on) and reported no overall associations between exposure categories and childhood leukemia for the later time periods (1980 and on), and consistent pattern for time periods prior to 1980.

- Crespi et al. (2016) conducted a case-control epidemiologic study of childhood cancers and residential proximity to high-voltage power lines (60 kV to 500 kV) in California. Childhood cancer cases, including 5,788 cases of leukemia and 3,308 cases of brain tumor, diagnosed under the age of 16 between 1986 and 2008, were identified from the California Cancer Registry. Controls, matched on age and sex, were selected from the California Birth Registry. Overall, no consistent statistically significant associations for leukemia or brain tumor and residential distance to power lines were reported.

- Kheifets et al. (2017) assessed the relationship between calculated magnetic-field levels from power lines and development of childhood leukemia within the same study population evaluated in Crespi et al. (2016). In the main analyses, which included 4,824 cases of leukemia and 4,782 controls matched on age and sex, the authors reported no consistent patterns, or statistically significant associations between calculated magnetic-field levels and childhood leukemia development. Similar results were reported in subgroup and sensitivity analyses. In two subsequent studies (Amoon et al., 2018a, 2019), the potential impact of residential mobility (i.e., moving residences between birth and diagnosis) on the associations reported in Crespi et al. (2016) and Kheifets et al. (2017) were examined. Amoon et al. (2019) concluded that while uncontrolled confounding by residential mobility had some impact on the association between EMF exposure and childhood leukemia, it was unlikely to be the primary driving force behind the previously reported associations.

- Amoon et al. (2018b) conducted a pooled analysis of 29,049 cases and 68,231 controls from 11 epidemiologic studies of childhood leukemia and residential distance from high-voltage power lines. The authors reported no statistically-significant association between childhood leukemia and proximity to transmission lines of any voltage. Among subgroup analyses, the reported associations were slightly stronger for leukemia cases diagnosed before 5 years of age and in study periods prior to 1980. Adjustment for various potential confounders (e.g., socioeconomic status, dwelling type, residential mobility) had little effect on the estimated associations.

- Kyriakopoulou et al. (2018) assessed the association between childhood acute leukemia and parental occupational exposure to social contacts, chemicals, and electromagnetic fields. The study was conducted at a major pediatric hospital in Greece and included 108 cases and 108 controls matched for age, gender, and ethnicity. Statistically non-significant associations were observed between paternal exposure to magnetic fields and childhood acute leukemia for any of the exposure periods examined (1 year before conception; during pregnancy; during breastfeeding; and from birth until diagnosis); maternal exposure was not assessed due to the limited sample size. No associations were observed between childhood acute leukemia and exposure to social contacts or chemicals.

- Auger et al. (2019) examined the relationship between exposure to EMF during pregnancy and risk of childhood cancer in a cohort of 784,000 children born in Quebec. Exposure was defined using residential distance to the nearest high-voltage transmission line or transformer station. The authors reported statistically non-significant associations between proximity to transformer stations and any cancer, hematopoietic cancer, or solid tumors. No associations were reported with distance to transmission lines.

- Crespi et al. (2019) investigated the relationship between childhood leukemia and distance from high-voltage lines and calculated magnetic-field exposure, separately and combined, within the California study population previously analyzed in Crespi et al. (2016) and Kheifets et al. (2017). The authors reported that neither close proximity to high-voltage lines nor exposure to calculated magnetic fields alone were associated with childhood leukemia; an association was observed only for those participants who were both close to high-voltage lines (< 50 meters) and had high calculated magnetic fields (≥ 0.4 microtesla ["μT"]) (i.e., ≥ 4 milligauss ["mG"]). No associations were observed with low-voltage power lines (< 200 kV). In a subsequent study, Amoon et al. (2020) examined the potential impact of dwelling type on the associations reported in Crespi et al. (2019). Amoon et al. (2020) concluded that while the type of dwelling at which a child resides (e.g., single-family home, apartment, duplex, mobile home) was associated with socioeconomic status and race or ethnicity, it was not associated with childhood leukemia and did not appear to be a potential confounder in the relationship between childhood leukemia and magnetic-field exposure in this study population.

- Swanson et al. (2019) conducted a meta-analysis of 41 epidemiologic studies of childhood leukemia and magnetic-field exposure published between 1979 and 2017 to examine trends in childhood leukemia development over time. The authors reported that while the estimated risk of childhood leukemia initially increased during the earlier period, a statistically non-significant decline in estimated risk has been observed from the mid-1990s until the present (i.e., 2019).

- Talibov et al. (2019) conducted a pooled analysis of 9,723 cases and 17,099 controls from 11 epidemiologic studies to examine the relationship between parental occupational exposure to magnetic fields and childhood leukemia. No statistically significant association was found between either paternal or maternal exposure and leukemia (overall or by subtype). No associations were observed in the meta-analyses.

- Nunez-Enriquez et al. (2020) assessed the relationship between residential magnetic-field exposure and B-lineage acute lymphoblastic leukemia ("BALL") in children under 16 years of age in Mexico. The study included 290 cases and 407 controls matched on age, gender, and health institution; magnetic-field exposure was assessed through the collection of 24-hour measurements in the participants' bedrooms. While the authors reported some statistically significant associations between elevated magnetic-field levels and development of B-ALL, the results were dependent on the chosen cut-points.

- Seomun et al. (2021) performed a meta-analysis based on 33 previously published epidemiologic studies investigating the potential relationship between magnetic-field exposure and childhood cancers, including leukemia and brain cancer. For childhood leukemia, the authors reported statistically significant associations with some, but not all, of the chosen cut-points for magnetic-field exposure. The associations between magnetic-field exposure and childhood brain cancer were statistically non-significant. The study provided limited new insight as most of the studies included in the current meta-analysis, were included in previously conducted meta- and pooled analyses.

- Amoon et al. (2022) conducted a pooled analysis of four studies of residential exposure to magnetic fields and childhood leukemia published following a 2010 pooled analysis by Kheifets et al. (2010). The study by Amoon et al. (2022) compared the exposures of 24,994 children with leukemia to the exposures of 30,769 controls without leukemia in California, Denmark, Italy, and the United Kingdom. Exposure was assessed by measured or calculated magnetic fields at their residences. The exposure of these two groups to magnetic fields were found not to significantly differ. A decrease in the combined effect estimates in epidemiologic studies was observed over time, and the authors concluded that their findings, based on the most recent studies, were "not in line" with previous pooled analyses that reported an increased risk of childhood leukemia.

- Brabant et al. (2022) performed a literature review and meta-analysis of studies of childhood leukemia and magnetic-field exposure. The overall analysis included 21 epidemiologic studies published from 1979 to 2020. The authors reported a statistically significant association, which they noted was "mainly explained by the studies conducted before 2000." The authors reported a statistically significant association between childhood leukemia and measured or calculated magnetic-field exposures > 0.4 μT (4 mG); no statistically significant overall associations were reported between childhood leukemia and lower magnetic-field exposures (< 0.4 μT [4 mG]), residential distance from power lines, or wire coding configuration. An association between childhood leukemia and electric blanket use was also reported. The overall results were likely influenced by the inclusion of a large number of earlier studies; 10 of the 21 studies in the main analysis were published prior to 2000. Studies published prior to 2000 included fewer studies deemed to be of higher study quality, as determined by the authors, compared to studies published after 2000.

- Nguyen et al. (2022) investigated whether potential pesticide exposure from living in close proximity to commercial plant nurseries confounds the association between magnetic-field exposure and childhood leukemia development reported within the California study population previously analyzed in Crespi et al. (2016) and Kheifets et al. (2017). The authors in Nguyen et al. (2022) noted that while the association between childhood leukemia and magnetic-field exposure was "slightly attenuated" after adjusting for nursery proximity or when restricting to subjects living > 300 meters from nurseries, their results "do not support plant nurseries as an explanation for observed childhood leukemia risks." The authors further noted that close residential proximity to nurseries may be an independent risk factor for childhood leukemia.

- Zagar et al. (2023) examined the relationship between magnetic fields and childhood cancers, including childhood leukemia, in Slovenia. Cancer cases, including 194 cases of leukemia, were identified from the Slovenian Cancer Registry; cases were then classified into one of five calculated magnetic-field exposure levels (ranging from < 0.1 µT to ≥ 0.4 µT) based on residential distance to high-voltage (e.g., 110-kV, 220-kV, and 400-kV) power lines. The authors reported that less than 1% of Slovenian children and adolescents lived in an area near high-voltage power lines. No differences in the development of childhood cancers, including leukemia, brain tumors, or all cancers combined, were reported across the five exposure categories.

Epidemiologic studies of EMF and neurodegenerative diseases published during the above referenced period include:

- Seelen et al. (2014) conducted a population-based case-control study in the Netherlands and included 1,139 cases diagnosed with amyotrophic lateral sclerosis ("ALS") between 2006 and 2013 and 2,864 frequency-matched controls. The shortest distance from the case and control residences to the nearest high-voltage power line (50 kV to 380 kV) was determined by geocoding. No statistically significant associations between residential proximity to power lines with voltages of either 50 to 150 kV or 220 to 380 kV and ALS were reported.

- Sorahan and Mohammed (2014) analyzed mortality from neurodegenerative diseases in a cohort of approximately 73,000 electricity supply workers in the United Kingdom. Cumulative occupational exposure to magnetic-fields was calculated for each worker in the cohort based on their job titles and job locations. Death certificates were used to identify deaths from neurodegenerative diseases. No associations or trends for any of the included neurodegenerative diseases (Alzheimer's disease, Parkinson's disease, and ALS) were observed with various measures of calculated magnetic fields.

- Koeman et al. (2015, 2017) analyzed data from the Netherlands Cohort Study of approximately 120,000 men and women who were enrolled in the cohort in 1986 and followed up until 2003. Lifetime occupational history, obtained through questionnaires, and job-exposure matrices on ELF magnetic fields and other occupational exposures were used to assign exposure to study subjects. Based on 1,552 deaths from vascular dementia, the researchers reported a statistically not significant association of vascular dementia with estimated exposure to metals, chlorinated solvents, and ELF magnetic fields. However, because no exposure-response relationship for cumulative exposure was observed and because magnetic fields and solvent exposures were highly correlated with exposure to metals, the authors attributed the association with ELF magnetic fields and solvents to confounding by exposure to metals (Koeman et al., 2015). Based on a total of 136 deaths from ALS among the cohort members, the authors reported a statistically significant, approximately two-fold association with ELF magnetic fields in the highest exposure category. This association, however, was no longer statistically significant when adjusted for exposure to insecticides (Koeman et al., 2017).

- Fischer et al. (2015) conducted a population-based case-control study that included 4,709 cases of ALS diagnosed between 1990 and 2010 in Sweden and 23,335 controls matched to cases on year of birth and sex. The study subjects' occupational exposures to ELF magnetic fields and electric shocks were classified based on their occupations, as recorded in the censuses and corresponding job-exposure matrices. Overall, neither magnetic fields nor electric shocks were related to ALS.

- Vergara et al. (2015) conducted a mortality case-control study of occupational exposure to electric shock and magnetic fields and ALS. They analyzed data on 5,886 deaths due to ALS and over 58,000 deaths from other causes in the United States between 1991 and 1999. Information on occupation was obtained from death certificates and job-exposure matrices were used to categorize exposure to electric shocks and magnetic fields. Occupations classified as "electric occupations" were moderately associated with ALS. The authors reported no consistent associations for ALS, however, with either electric shocks or magnetic fields, and they concluded that their findings did not support the hypothesis that exposure to either electric shocks or magnetic fields explained the observed association of ALS with "electric occupations."

- Pedersen et al. (2017) investigated the occurrence of central nervous system diseases among approximately 32,000 male Danish electric power company workers. Cases were identified through the national patient registry between 1982 and 2010. Exposure to ELF magnetic fields was determined for each worker based on their job titles and area of work. A statistically significant increase was reported for dementia in the high exposure category when compared to the general population, but no exposure-response pattern was identified, and no similar increase was reported in the internal comparisons among the workers. No other statistically significant increases among workers were reported for the incidence of Alzheimer's disease, Parkinson's disease, motor neuron disease, multiple sclerosis, or epilepsy, when compared to the general population, or when incidence among workers was analyzed across estimated exposure levels.

- Vinceti et al. (2017) examined the association between ALS and calculated magnetic-field levels from high-voltage power lines in Italy. The authors included 703 ALS cases and 2,737 controls; exposure was assessed based on residential proximity to high-voltage power lines. No statistically significant associations were reported and no exposure-response trend was observed. Similar results were reported in subgroup analyses by age, calendar period of disease diagnosis, and study area.

- Checkoway et al. (2018) investigated the association between Parkinsonism[15] and occupational exposure to magnetic fields and several other agents (endotoxins, solvents, shift work) among 800 female textile workers in Shanghai. Exposure to magnetic fields was assessed based on the participants' work histories. The authors reported no statistically significant associations between Parkinsonism and occupational exposure to any of the agents under study, including magnetic fields.

- Gunnarsson and Bodin (2018) conducted a meta-analysis of occupational risk factors for ALS. The authors reported a statistically significant association between occupational exposures to EMF, estimated using a job-exposure matrix, and ALS among the 11 studies included. Statistically significant associations were also reported between ALS and jobs that involve working with electricity, heavy physical work, exposure to metals (including lead) and chemicals (including pesticides), and working as a nurse or physician. The authors reported some evidence for publication bias. In a subsequent publication, Gunnarsson and Bodin (2019) updated their previous meta-analysis to also include Parkinson's disease and Alzheimer's disease. A slight, statistically significant association was reported between occupational exposure to EMF and Alzheimer's disease; no association was observed for Parkinson's disease.

- Huss et al. (2018) conducted a meta-analysis of 20 epidemiologic studies of ALS and occupational exposure to magnetic fields. The authors reported a weak overall association; a slightly stronger association was observed in a subset analysis of six studies with full occupational histories available. The authors noted substantial heterogeneity among studies, evidence for publication bias, and a lack of a clear exposure-response relationship between exposure and

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

ALS.

- Jalilian et al. (2018) conducted a meta-analysis of 20 epidemiologic studies of occupational exposure to magnetic fields and Alzheimer's disease. The authors reported a moderate, statistically significant overall association; however, they noted substantial heterogeneity among studies and evidence for publication bias.

- Röösli and Jalilian (2018) performed a meta-analysis using data from five epidemiologic studies examining residential exposure to magnetic fields and ALS. A statistically non-significant negative association was reported between ALS and the highest exposed group, where exposure was defined based on distance from power lines or calculated magnetic-field level.

- Gervasi et al. (2019) assessed the relationship between residential distance to overhead power lines in Italy and risk of Alzheimer's dementia and Parkinson's disease. The authors included 9,835 cases of Alzheimer's dementia and 6,810 cases of Parkinson's disease; controls were matched by sex, year of birth, and municipality of residence. A weak, statistically non-significant association was observed between residences within 50 meters of overhead power lines and both Alzheimer's dementia and Parkinson's disease, compared to distances of over 600 meters.

- Peters et al. (2019) examined the relationship between ALS and occupational exposure to both magnetic fields and electric shock in a pooled study of data from three European countries. The study included 1,323 ALS cases and 2,704 controls matched for sex, age, and geographic location; exposure was assessed based on occupational title and defined as low (background), medium, or high. Statistically significant associations were observed between ALS and ever having been exposed above background levels to either magnetic fields or electric shocks; however, no clear exposure-response trends were observed with exposure duration or cumulative exposure. The authors also noted significant heterogeneity in risk by study location.

- Filippini et al. (2020) investigated the associations between ALS and several environmental and occupational exposures, including electromagnetic fields, within a case-control study in Italy. The study included 95 cases and 135 controls matched on age, gender, and residential province; exposure to electromagnetic fields was assessed using the participants' responses to questions related to occupational use of electric and electronic equipment, occupational EMF exposure, and residential distance to overhead power lines. The authors reported a statistically significant association between ALS and residential proximity to overhead power lines and a statistically non-significant association between ALS and occupational exposure to EMF; occupational use of electric and electronic equipment was associated with a statistically nonsignificant decrease in ALS development.

- Huang et al. (2020) conducted a meta-analysis of 43 epidemiologic studies examining potential occupational risk factors for dementia or mild cognitive impairment. The authors included five cohort studies and seven case-control studies related to magnetic-field exposure. For both study types, the authors reported positive associations between dementia and work-related magnetic field exposures. The paper, however, provided no information on the occupations held by the study participants, their magnetic-field exposure levels, or how magnetic-field levels were assessed; therefore, the results are difficult to interpret. The authors also reported a high level of heterogeneity among studies. Thus, this analysis adds little, if any, to the overall weight of evidence on a potential association between dementia and magnetic fields.

- Jalilian et al. (2020) conducted a meta-analysis of ALS and occupational exposure to both magnetic fields and electric shocks within 27 studies from Europe, the United States, and New Zealand. A weak, statistically significant association was reported between magnetic-field exposure and ALS; however, the authors noted evidence of study heterogeneity and publication bias. No association was observed between ALS and electric shocks.

- Chen et al. (2021) conducted a case-control study to examine the association between occupational exposure to electric shocks, magnetic fields, and motor neuron disease ("MND") in New Zealand. The study included 319 cases with a MND diagnosis (including ALS) and 604 controls, matched on age and gender; exposure was assessed using the participants' occupational history questionnaire responses and previously developed job-exposure matrices for electric shocks and magnetic fields. The authors reported no associations between MND and exposure to magnetic fields; positive associations were reported between MND and working at a job with the potential for electric shock exposure.

- Grebeneva et al. (2021) evaluated disease rates among electric power company workers in the Republic of Kazakhstan. The authors included three groups of "exposed" workers who "were in contact with equipment generating [industrial frequency EMF]" (a total of 161 workers), as well as 114 controls "who were not associated with exposure to electromagnetic fields." Disease rates were assessed "based on analyzing the sick leaves of employees" from 2010 to 2014 and expressed as "incidence rate per 100 employees." The authors reported a higher "incidence rate" of "diseases of the nervous system" in two of the exposed categories compared to the non-exposed group. No meaningful conclusions from the study could be drawn, however, because no specific diagnoses within "*diseases of the nervous system*" were identified in the paper and no clear description was provided on how the authors defined and calculated "incidence rate" for the evaluated conditions. In addition, no measured or calculated magnetic-field levels were presented by the authors.

- Filippini et al. (2021) conducted a meta-analysis to assess the dose-response relationship between residential exposure to magnetic fields and ALS. The authors identified six ALS epidemiologic studies, published between 2009 and 2020, that assessed exposure to residential magnetic fields by either distance from overhead power lines or magnetic-field modeling. They reported a decrease in risk of ALS in the highest exposure categories for both distance-based and modeling-based exposure estimates. The authors also reported that their dose-response analyses “showed little association between distance from power lines and ALS”; the data were too sparse to conduct a dose-response analysis for modeled magnetic-field estimates. The authors noted that their study was limited by small sample size, “imprecise” exposure categories, the potential for residual confounding, and by “some publication bias.”

- Jalilian et al. (2021) conducted a meta-analysis of occupational exposure to ELF magnetic fields and electric shocks and development of ALS. The authors included 27 studies from Europe, the United States, and New Zealand that were published between 1983 and 2019. A weak, statistically significant association was reported between magnetic-field exposure and ALS, and no association was observed between electric shocks and ALS. Indications of publication bias and “moderate to high” heterogeneity were identified for the studies of magnetic-field exposure and ALS, and the authors noted that “the results should be interpreted with caution.”

- Sorahan and Nichols (2022) investigated magnetic-field exposures and mortality from MND in a large cohort of employees of the former Central Electricity Generating Board of England and Wales. The study included nearly 38,000 employees first hired between 1942 and 1982 and still employed in 1987. Estimates of exposure magnitude, frequency, and duration were calculated using data from the power stations and the employees’ job histories, and were described in detail in a previous publication (Renew et al., 2003). Mortality from MND in the total cohort was observed to be similar to national rates. No statistically significant dose-response trends were observed with lifetime, recent, or distant magnetic-field exposure; statistically significant associations were observed for some categories of recent exposure, but not for the highest exposure category.

- Vasta et al. (2023) examined the relationship between residential distance to power lines and ALS development in a cohort study of 1,098 participants in Italy. The authors reported no differences in the age of ALS onset or ALS progression rate between low-exposed and high-exposed participants based on residential distance to power lines at the time of the participants’ diagnosis. Similarly, no differences were observed when exposure was based on residential distance to repeater antennas.

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V. NOTICE

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

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

The proposed route for the Rebuild Project is located within an existing 22.1-mile right-of-way corridor currently occupied by existing 230 kV Lines #272 and #260. Line #272 originates at the Company's Dooms Substation in Augusta County and heads north for approximately 11.5 miles to the Company's Grottoes Substation in the Town of Grottoes. From there, Line #260 travels north for approximately 10.6 miles and terminates at the Company's Harrisonburg Substation in Rockingham County. The Rebuild Project does not cross any major roads, but does cross the North River in Rockingham County and the South River in Augusta County.

For the proposed Rebuild Project, the minimum structure height is approximately 37 feet, the maximum structure height is approximately 120 feet and the average structure height is approximately 84 feet, based on preliminary conceptual design, inclusive of a foundation reveal, and subject to change based on final engineering design.

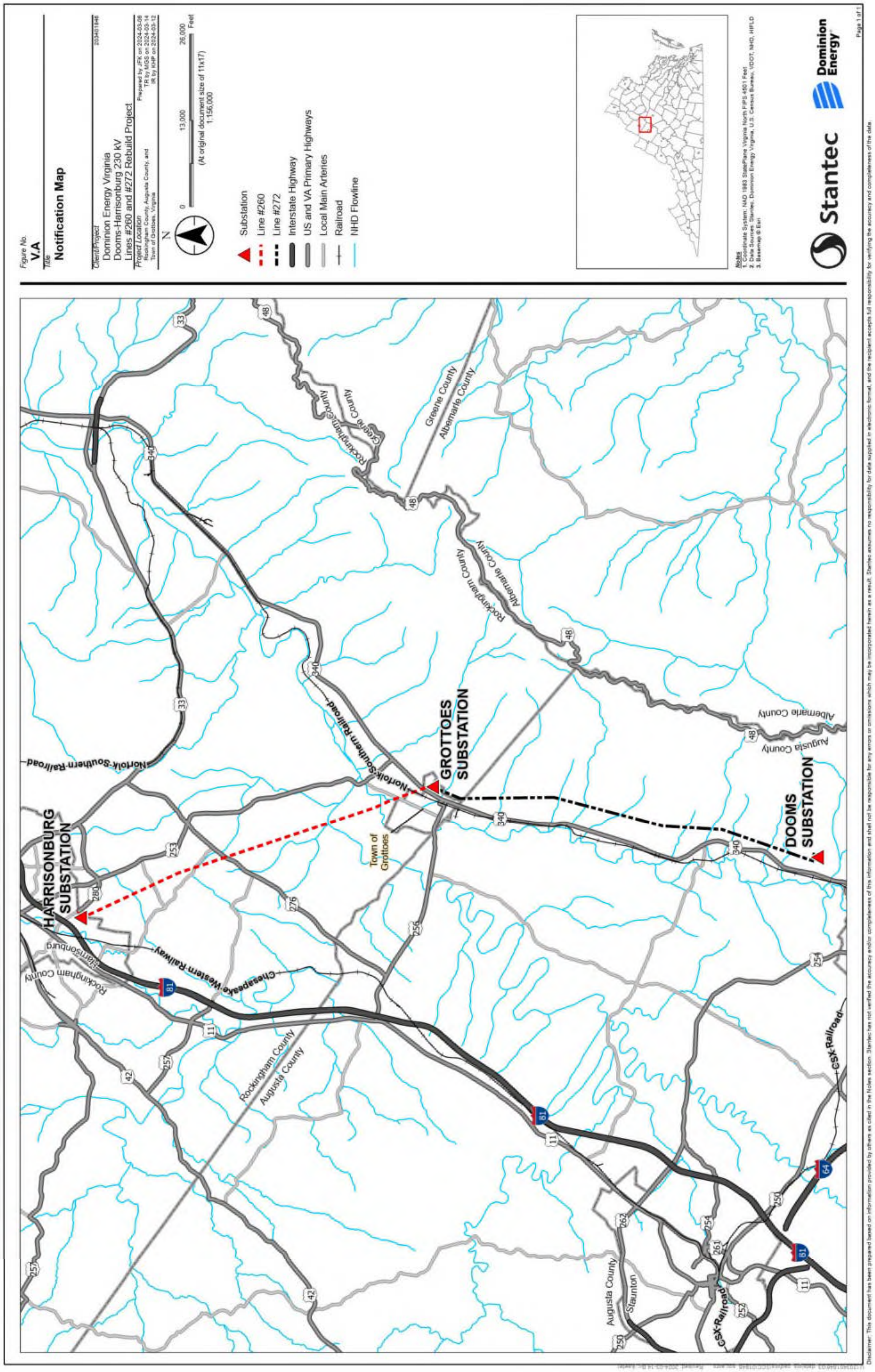
Figure No.
V.A
Title
Notification Map
Client/Project
203401846
Dominion Energy Virginia
Dooms-Harrisonburg 230 kV
Lines #260 and #272 Rebuild Project
Project Location
Rockingham County, Augusta County, and Town of Grottoes, Virginia
Prepared by JFK on 2024-03-08
TR by MGS on 2024-03-14
IR by KHP on 2024-03-12
N
0
13,000
26,000
Feet
(At original document size of 11x17)
1:156,000
Substation
Line #260
Line #272
Interstate Highway
US and VA Primary Highways
Local Main Arteries
Railroad
NHD Flowline
HARRISONBURG SUBSTATION
GROTTOES SUBSTATION
DOOMS SUBSTATION
Town of Grottoes
Norfolk-Southern-Railroad
Chesapeake-Western-Railway
CSX-Railroad
Rockingham County
Augusta County
Albemarle County
Greene County
Harrisonburg
Staunton
Stantec
Dominion Energy

V. NOTICE

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

Response: Shortly after filing, the application will be made available electronically for public inspection at the following website: www.dominionenergy.com/doomsharrisonburg.

V. NOTICE

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

Response: The following agency representatives may reasonably be expected to have an interest in the proposed Rebuild Project. Instead of furnishing a copy of the Application to these parties, the Company has sent a letter noting the availability of the Application for the proposed Rebuild Project on the Company's website.[16]

Ms. Bettina Rayfield
Virginia Department of Environmental Quality
Office of Environmental Impact Review
1111 East Main Street, Suite 1400
Richmond, Virginia 23219

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

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

Environmental Reviewer
Virginia Department of Conservation and Recreation
Planning & Recreation Bureau
600 East Main Street, 17th Floor
Richmond, Virginia 23219

Ms. Amy Martin
Virginia Department of Wildlife Resources
Wildlife Information and Environmental Services
7870 Villa Park, Suite 400
Henrico, Virginia 23228

[16] The Virginia Department of Conservation and Recreation asked to be removed from the Company's post-filing mailing list, and accordingly will not receive a copy of the notice letter.

Mr. Keith Tignor
Virginia Department of Agriculture and Consumer Services
Office of Plant Industry Services
102 Governor Street
Richmond, Virginia 23219

Clint Folks
Forestland Conservation Coordinator
Virginia Department of Forestry
900 Natural Resources Drive, Suite 800
Charlottesville, Virginia 22903

Scoping at VMRC
Virginia Marine Resources Commission
Habitat Management Division
Building 96, 380 Fenwick Road
Ft. Monroe, Virginia 23651

Mr. Troy Andersen
U.S. Fish and Wildlife Service
Virginia Field Office, Ecological Services
6669 Short Lane
Gloucester, Virginia 23061

Mr. Keith Goodwin
U.S. Army Corps of Engineers
WRDA Dominion Energy VA Liaison
803 Front Street
Norfolk, VA 23510

Mr. Phil Skorupa
Virginia Department of Mine, Minerals, and Energy
1100 Bank Street
Washington Building, 8th Floor
Richmond, Virginia 23219

Ms. Arlene Fields Warren
Virginia Department of Health
Office of Drinking Water
109 Governor Street
Richmond, VA 23219

Mr. Roger Kirchen
Director, Review and Compliance Division
Department of Historic Resources
2801 Kensington Avenue
Richmond, Virginia 23221

Ms. Martha Little
Virginia Outdoors Foundation
P.O. Box 85073, PMB 38979
Richmond, Virginia 23285-5073

Mr. Scott Denny
Airport Services Division
Virginia Department of Aviation
5702 Gulfstream Road
Richmond, Virginia 23250

Mr. Don Komara
Harrisonburg Residency Administrator
Virginia Department of Transportation
811 Commerce Road
Staunton, Virginia 24401

Ms. Susan Hammond
Lexington Residency Administrator
Virginia Department of Transportation
811 Commerce Road
Staunton, Virginia 24401

Mr. Stephen G. King
Rockingham County Administrator
20 E. Gay St.
Harrisonburg, VA 22802

Mr. Timothy Fitzgerald
Augusta County Administrator
18 Government Center Lane
P.O. Box 590
Verona, VA 24482

Ms. Stefanie McAlister
Town Manager
P.O. Box 146
Grottoes, VA 2441

V. NOTICE

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

Response: In accordance with Va. Code § 15.2-2202 E, letters dated March 28, 2024 were sent to: (1) Mr. Stephen G. King, Rockingham County Administrator; (2) Mr. Timothy Fitzgerald, Augusta County Administrator; and (3) Ms. Stefanie McAlister, Town of Grottoes Town Manager, advising of the Company's intention to file this Application and inviting the City to consult with the Company about the proposed Rebuild Project. A copy of this letter is included as <u>Attachment V.D.</u>

Dominion Energy Services, Inc.
5000 Dominion Boulevard, 3rd Floor
Glen Allen, VA 23060
DominionEnergy.com

Mr. Ande Banks
Harrisonburg City Manager
409 S Main St
Harrisonburg, VA 22801

March 28, 2024

Dear Mr. Banks,

Dominion Energy Virginia (the "Company") is proposing to wreck and rebuild existing transmission Lines #260 and #272, entirely within approximately 22.1 miles of existing right-of-way or Company owned-property between our Dooms, Grottoes, and Harrisonburg Substations in Augusta and Rockingham Counties and the Town of Grottoes. The Company proposes to rebuild Line #260, which is currently operating on single circuit wooden H-frame structures, with weathering steel H-frame structures. Line #272, which is currently operating on single circuit COR-TEN® lattice towers, will be rebuilt with weathering steel monopole structures. Collectively this work is referred to as the "Rebuild Project."

The Rebuild Project, which will replace aging infrastructure at the end of its service life, is needed to maintain the structural integrity and reliability of the networked transmission system and comply with mandatory North American Electric Reliability Corporation ("NERC") Reliability Standards.

The Company is preparing to file an application for a Certificate of Public Convenience and Necessity ("CPCN") with the Virginia State Corporation Commission ("SCC"). Pursuant to Va. Code § 15.2-2202, the Company is writing to notify you of the proposed Rebuild Project in advance of this SCC filing. We respectfully request that you submit any comments or additional information you feel would have bearing on the Rebuild Project within 30 days of the date of this letter. Once filed, the application will be available for review on the Company's website at https://www.dominionenergy.com/projects-and-facilities/electric-projects/power-line-projects/.

Enclosed is a Project Overview Map and associated GIS shapefile depicting the proposed Rebuild Project, as well as its general location. Please note that the Project Overview Map and route description depicted therein are preliminary in nature and subject to final engineering. All final materials, including maps, will be available in the Company's application filing to the SCC. Please refer to the CPCN application for any updates to the Rebuild Project description. If there are any questions, please do not hesitate to contact me directly at 804-239-6450 or Charles.H.Weil@dominionenergy.com. We appreciate your assistance with this project review and look forward to any additional information you may have to offer.

Regards,

Charles Weil, PE
Siting and Permitting Specialist
Dominion Energy Virginia

COMMONWEALTH OF VIRGINIA

STATE CORPORATION COMMISSION

APPLICATION OF VIRGINIA ELECTRIC AND POWER COMPANY For approval and certification of electric transmission facilities: Dooms-Harrisonburg 230 kV Lines #260 and #272 Rebuild Project	))))))))	Case No. PUR-2024-00074

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

Wesley Strunk

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

Charles H. Weil

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

Zhangxin Zhou

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

<u>WITNESS DIRECT TESTIMONY SUMMARY</u>

<u>Witness</u>: Wesley Strunk

<u>Title:</u> Transmission Line Design Engineer

<u>Summary</u>:

Company Witness Wesley Strunk will sponsor those portions of the Appendix providing an overview of the design characteristics of the transmission facilities for the proposed Rebuild Project, and discussing electric and magnetic field levels, as follows:

- <u>Section I.I:</u> This section provides the estimated total cost of the Rebuild Project.
- <u>Section I.L</u>: This section provides photographs illustrating the deterioration of structures and associated equipment as applicable.
- <u>Section II.A.5</u>: This section provides drawings of the right-of-way cross section showing typical transmission line structure placements.
- <u>Section II.B.1 to II.B.3</u>: These sections provide the line design and operational features of the Rebuild Project.
- <u>Section II.C:</u> This section describes and furnishes a one-line diagram of the substation associated with the Rebuild Project, if needed.
- <u>Section IV</u>: This section provides analysis on the health aspects of electric and magnetic field levels.

Additionally, Mr. Strunk co-sponsors the following portions of the Appendix:

- <u>Executive Summary (co-sponsored with Company Witnesses Zhangxin Zhou and Charles H. Weil)</u>: The Executive Summary provides a brief summary of the Rebuild Project.
- <u>Section I.A (co-sponsored with Company Witness Zhangxin Zhou)</u>: This section details the primary justifications for the Rebuild Project.
- <u>Section I.F (co-sponsored with Company Witness Zhangxin Zhou):</u> This section describes any lines or facilities that will be removed, replaced or taken out of service upon completion of the Rebuild Project and normal and emergency ratings of the facilities.
- <u>Section II.B.5 (co-sponsored with Company Witness Charles H. Weil)</u>: This section provides the mapping and structure heights for the existing and proposed overhead structures.

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

DIRECT TESTIMONY
OF
WESLEY STRUNK
ON BEHALF OF
VIRGINIA ELECTRIC AND POWER COMPANY
BEFORE THE
VIRGINIA STATE CORPORATION COMMISSION
CASE NO. PUR-2024-00074

Q. Please state your name, business address and position with Virginia Electric and Power Company ("Dominion Energy Virginia" or the "Company").

A. My name is Wesley Strunk, and I am a Transmission Line Design Engineer at the Company. As an external contractor to Dominion, I provide engineering services to the Electric Transmission Line Engineering Department of the Company. My business address is 5000 Dominion Boulevard, Glen Allen, Virginia 23060. A statement of my qualifications and background is provided as Appendix A.

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

A. I am responsible for the estimating, conceptual and final design of high voltage transmission line projects from voltages of 69 kilovolts ("kV") to 500 kV.

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

A. In order to maintain the structural integrity and reliability of its transmission systems in compliance with the Company's mandatory electric transmission planning criteria ("Planning Criteria")[1] and consistent with sound engineering judgment, the Company proposes within the Counties of Augusta and Rockingham, and the Town of Grottoes, to: (i) rebuild, entirely within existing right-of-way or on Company-owned property,

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

approximately 10.6 miles of the existing 230 kV Line #260 single circuit wooden H-frame structures with weathering steel H-frame structures; and (ii) rebuild, entirely within existing right-of-way or on Company-owned property, approximately 11.5 miles of the existing 230 kV Line #272 single circuit COR-TEN® lattice towers with weathering steel monopole structures (collectively, the "Rebuild Project").[2]

The purpose of my testimony is to describe the design characteristics of the transmission facilities for the proposed Rebuild Project, and also to discuss electric and magnetic field ("EMF") levels. I sponsor Sections I.I, I.L, II.A.5, II.B.1 to II.B.3, II.C, and IV of the Appendix. I also co-sponsor Section I.A and Section I.F of the Appendix with Company Witness Zhangxin Zhou; and Section II.B.5 with Company Witness Charles H Weil. Lastly, I co-sponsor the Executive Summary with Company Witnesses Zhangxin Zhou and Charles H. Weil.

Q. Does this conclude your testimony?

A. Yes, it does.

[2] The Company will also perform minor work associated with the Rebuild Project at the Grottoes, Harrisonburg, and Dooms Substations to support the new line ratings. This work, while not included as part of the Rebuild Project, is discussed in Section II.C of the Appendix.

APPENDIX A

BACKGROUND AND QUALIFICATIONS
OF
WESLEY STRUNK

Wesley Strunk received an undergraduate degree in Civil Engineering from the University of Kentucky in 2013. Mr. Strunk also received a master's degree in business administration from the University of Kentucky in 2014. Mr. Strunk has been employed by the Company as a contractor since 2021. Prior to joining the Company, he worked as a transmission line engineer and manager at Sargent & Lundy. His areas of expertise are overhead transmission line design and foundation design. He is an expert in drilled pier foundation design and transmission line design utilizing PLS-CADD to ensure clearances are maintained and structural analysis is adequate.

Mr. Strunk has previously submitted pre-filed testimony to the Virginia State Corporation Commission.

WITNESS DIRECT TESTIMONY SUMMARY

Witness: Charles H. Weil

Title: Engineer III – Siting and Permitting Group

Summary:

Company Witness Charles H. Weil will sponsor those portions of the Appendix providing an overview of the design of the route for the proposed Rebuild Project, and related permitting, as follows:

> Section II.A.1: This section provides the length of the proposed corridor and viable alternatives to the Rebuild Project.
>
> Section II.A.2: This section provides a map showing the route of the Rebuild Project in relation to notable points close to the Rebuild Project.
>
> Sections II.A.6 to II.A.8: These sections provide detail regarding the right-of-way for the Rebuild Project.
>
> Section II.A.9: This section describes the proposed route selection procedures and details alternative routes considered.
>
> Section II.A.11: This section details how the construction of the Rebuild Project follows the provisions discussed in Attachment 1 of the Transmission Appendix Guidelines.
>
> Section II.A.12: This section identifies the counties and localities through which the Rebuild Project will pass and provides General Highway Maps for these localities.
>
> Section II.B.6: This section provides photographs of existing facilities, representations of proposed facilities, and visual simulations.
>
> Section III: This section details the impact of the Rebuild Project on scenic, environmental, and historic features.
>
> Section V: This section provides information related to public notice of the proposed Rebuild Project.

Additionally, Mr. Weil co-sponsors the following portion of the Appendix:

> Executive Summary (co-sponsored with Company Witnesses Zhangxin Zhou and Wesley Strunk): The Executive Summary provides a brief summary of the Rebuild Project.
>
> Section II.A.3 (co-sponsored with Company Witness Zhangxin Zhou): This section provides color maps of existing or proposed rights-of-way in the vicinity of the Rebuild Project.
>
> Section II.B.5 (co-sponsored with Company Witness Wesley Strunk): This section provides the mapping and structure heights for the existing and proposed overhead structures.

Finally, Mr. Weil sponsors the DEQ Supplement filed with the Application. A statement of Mr. Weil's background and qualifications is attached to his testimony as Appendix A.

DIRECT TESTIMONY
OF
CHARLES H. WEIL
ON BEHALF OF
VIRGINIA ELECTRIC AND POWER COMPANY
BEFORE THE
STATE CORPORATION COMMISSION OF VIRGINIA
CASE NO. PUR-2024-00074

Q. Please state your name, business address and position with Virginia Electric and Power Company ("Dominion Energy Virginia" or the "Company").

A. My name is Charles H. Weil, and I am an Engineer III for Virginia Electric and Power Company ("Dominion Energy Virginia" or the "Company") in the Siting and Permitting Group. My business address is 5000 Dominion Boulevard, Glen Allen, Virginia 23060. A statement of my qualifications and background is provided as Appendix A.

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

A. I am responsible for identifying appropriate routes for transmission lines and obtaining necessary federal, state, and local approvals and environmental permits for those facilities. In this position, I work closely with government officials, permitting agencies, property owners, and other interested parties, as well as with other Company personnel, to develop facilities needed by the public so as to reasonably minimize environmental and other impacts on the public in a reliable, cost-effective manner.

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

A. In order to maintain the structural integrity and reliability of its transmission systems in compliance with the Company's mandatory electric transmission planning criteria ("Planning Criteria")[1] and consistent with sound engineering judgment, the Company

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

proposes within the Counties of Augusta and Rockingham, and the Town of Grottoes, to (i) rebuild, entirely within existing right-of-way or on Company-owned property, approximately 10.6 miles of the existing 230 kV Line #260 single circuit wooden H-frame structures with weathering steel H-frame structures; and (ii) rebuild, entirely within existing right-of-way or on Company-owned property, approximately 11.5 miles of the existing 230 kV Line #272 on single circuit COR-TEN® lattice towers with weathering steel monopole structures (collectively, the "Rebuild Project").[2]

The purpose of my testimony is to provide an overview of the route and permitting for the proposed Project. As it pertains to routing and permitting, I sponsor Sections II.A.1, II.A.2, II.A.6 to II.A.8, II.A.9, II.A.11, II.A.12, II.B.6, III, and V of the Appendix. I also sponsor the DEQ Supplement filed with the Application. I co-sponsor Section II.A.3 with Company Witness Zhangxin Zhou and Section II.B.5 of the Appendix with Company Witness Wesley Strunk. Lastly, I co-sponsor the Executive Summary with Company Witnesses Wesley Strunk and Zhangxin Zhou.

Q. Has the Company complied with Va. Code § 15.2-2202 E?

A. In accordance with Va. Code § 15.2-2202 E, letters dated March 28, 2024, were sent to (1) Mr. Stephen G. King, Rockingham County Administrator; (2) Mr. Timothy Fitzgerald, Augusta County Administrator; and (3) Ms. Stefanie McAlister, Town of Grottoes Town Manager advising of the Company's intention to file this Application and

requirements.pdf.

[2] The Company will also perform minor work associated with the Rebuild Project at the Grottoes, Harrisonburg, and Dooms Substations to support the new line ratings. This work, while not included as part of the Rebuild Project, is discussed in Section II.C of the Appendix.

inviting the counties and town to consult with the Company about the Project. A copy of this letter is included as Appendix Attachment V.D.

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

A. Yes, it does.

APPENDIX A

BACKGROUND AND QUALIFICATIONS
OF
CHARLES H. WEIL

Charles H. Weil graduated from Virginia Tech in 2012 with a Bachelor of Science in Civil and Environmental Engineering. He has a professional license in Civil Engineering. He was previously a transportation engineer with various consulting firms and the City of Suffolk, Virginia before joining Dominion Energy Virginia as an Engineer II in the Siting and Permitting Group in 2019.

Mr. Weil has previously submitted pre-filed testimony to the Virginia State Corporation Commission.

WITNESS DIRECT TESTIMONY SUMMARY

Witness: Zhangxin Zhou

Title: Engineer III – Electric Transmission Planning

Summary:

Company Witness Zhangxin Zhou sponsors those sections of the Appendix describing the Company's electric transmission system and the need for, and benefits of, the proposed Rebuild Project, as follows:

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

Additionally, Mr. Zhou co-sponsors the following portions of the Appendix:

- Executive Summary (co-sponsored with Company Witnesses Wesley Strunk and Charles H. Weil): The Executive Summary provides a brief summary of the Rebuild Project.
- Section I.A (co-sponsored with Company Witness Wesley Strunk): This section details the primary justifications for the Rebuild Project.
- Section I.F (co-sponsored with Company Witness Wesley Strunk): This section describes any lines or facilities that will be removed, replaced or taken out of service upon completion of the Rebuild Project and normal and emergency ratings of the facilities.
- Section II.A.3 (co-sponsored with Company Witness Charles H. Weil): This section provides color maps of existing or proposed rights-of-way in the vicinity of the Rebuild Project.

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

DIRECT TESTIMONY
OF
ZHANGXIN ZHOU ON BEHALF OF
VIRGINIA ELECTRIC AND POWER COMPANY
BEFORE THE
VIRGINIA STATE CORPORATION COMMISSION
CASE NO. PUR-2024-00074

Q. Please state your name, business address and position with Virginia Electric and Power Company ("Dominion Energy Virginia" or the "Company").

A. My name is Zhangxin Zhou, and I am an Engineer III in the Electric Transmission Planning Department of the Company. My business address is 5000 Dominion Boulevard, Glen Allen, Virginia 23060. A statement of my qualifications and background is provided as Appendix A.

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

A. I am responsible for planning the Company's electric transmission system for voltages of 69 kilovolts ("kV") through 500 kV.

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

A. In order to maintain the structural integrity and reliability of its transmission systems in compliance with the Company's mandatory electric transmission planning criteria ("Planning Criteria")[1] and consistent with sound engineering judgment, the Company proposes within the Counties of Augusta and Rockingham, and the Town of Grottoes, to (i) rebuild, entirely within existing right-of-way or on Company-owned property, approximately 10.6 miles of the existing 230 kV Line #260 single circuit wooden H-frame

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

structures with weathering steel H-frame structures; and (ii) rebuild, entirely within existing right-of-way or on Company-owned property, approximately 11.5 miles of the existing 230 kV Line #272 on single circuit COR-TEN® lattice towers with weathering steel monopole structures (collectively, the "Rebuild Project").[2]

The purpose of my testimony is to describe the Company's electric transmission system and the need for, and benefits of, the proposed Rebuild Project. I am sponsoring Sections I.B, I.C, I.E, I.G, I.H, I.J, and II.A.10 of the Appendix. Additionally, I also co-sponsor Sections I.A and I.F of the Appendix with Company Witness Wesley Strunk, and Section II.A.3 with Company Witness Charles H. Weil. Lastly, I co-sponsor the Executive Summary with Company Witnesses Wesley Strunk and Charles Weil.

Q. Does this conclude your testimony?

A. Yes, it does.

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[2] The Company will also perform minor work associated with the Rebuild Project at the Grottoes, Harrisonburg, and Dooms Substations to support the new line ratings. This work, while not included as part of the Rebuild Project, is discussed in Section II.C of the Appendix.

APPENDIX A

BACKGROUND AND QUALIFICATIONS
OF
ZHANGXIN ZHOU

Zhangxin Zhou received a Bachelor’s degree in Electrical Engineering & Automation from Xi'an Jiaotong University and a Master of Science degree in Electrical Engineering from Texas A&M University. He received a Ph.D. degree in Electrical Engineering from Texas A&M University in 2022. Dr. Zhou has worked with Electric Power Research Institute and Argonne National Laboratory, and he joined the Company in January 2023.

Dr. Zhou has previously submitted pre-filed testimony to the Virginia State Corporation Commission.