

APPALACHIAN POWER COMPANY
BEFORE THE
VIRGINIA STATE CORPORATION COMMISSION
CASE NO. PUR-2021 -00001

APPLICATION FOR APPROVAL AND CERTIFICATION OF
ELECTRICAL TRANSMISSION LINE

Central Virginia Transmission
Reliability Project

VOLUME 2 OF 4

Siting Studies

January 2021

Rebuild Siting Study

Central Virginia Transmission Reliability Project: Amherst – Reusens 69-kV Transmission Line Rebuild SCC Case No. PUR-2021-00001

Prepared for:



Prepared by:

POWER Engineers, Inc.
11 S. 12th Street
Richmond, Virginia 23219



December 2020

This page left intentionally blank.

TABLE OF CONTENTS

1.0	INTRODUCTION.....	1
1.1	Project Description	1
1.2	Existing and Proposed Transmission Facilities Description.....	2
1.3	Rebuild Construction Activities Description	5
1.4	Project Timeline and Overview of Regulatory Approvals	6
1.5	Goal of the Rebuild Siting Study	6
2.0	ROUTE DEVELOPMENT PROCESS.....	8
2.1	Siting Team.....	8
2.2	Route Development Process Overview	8
2.3	Data Collection	9
2.3.1	Geographic Information System (GIS) Data Collection	9
2.3.2	Federal, State and Local Government Coordination.....	10
2.3.3	Field Reconnaissance.....	12
2.3.4	Public and Stakeholder Input.....	12
2.4	Siting Guidelines.....	13
2.4.1	General Guidelines	13
2.4.2	Technical Guidelines.....	14
2.5	Public Involvement Process.....	15
2.5.1	Virtual Open House and CVTRP Website	15
2.5.1	Public Notification	15
3.0	ALTERNATIVE ROUTE IDENTIFICATION.....	17
3.1	Study Area Description	17
3.1.1	Common Rebuild	17
3.1.2	Focus Area Identification	17
3.2	Constraints and Opportunity Features	18
3.3	Routing Concepts	19
3.4	Study Segment Development.....	22

3.4.1	Amherst Substation Focus Area.....	23
3.4.2	Structures 429-47 to 76 Focus Area.....	24
3.4.3	James River Focus Area.....	26
3.5	Alternative Routes.....	27
3.5.1	Rebuild Route	27
3.5.2	Alternative Routes A and B.....	27
4.0	ROUTE COMPARISON.....	28
4.1	Natural Environment.....	29
4.2	Human Environment	34
4.2.1	Existing and Proposed Developed Land Use	34
4.2.2	Agricultural and Forestry Resources	37
4.2.3	Recreation and Conservation Lands	37
4.2.4	Historic and Archaeological Resources	37
4.3	Constructability	41
4.3.1	Engineering, Topographical, and Access Roads	41
5.0	IDENTIFICATION OF THE PROPOSED ROUTE	44
6.0	REFERENCES.....	46

Tables

Table 1.	Natural Environment Evaluation Criteria.....	33
Table 2.	Human Environment Evaluation Criteria	39
Table 3.	Constructability Evaluation Criteria	43

Figures

Figure 1.	Component 4 Location Map	2
Figure 2.	Comparable Existing and Proposed H-Frame Structure.....	3
Figure 3.	Typical Proposed Transmission Line Structures.....	4

Figure 4. Typical Access Road Construction Activities 5

Figure 5. Stakeholders Relative to Rebuild Location 12

Figure 6. Structures 429-47 to 76 Focus Area Routing Concepts,..... 20

Figure 7. Structures 429-47 to 76 Focus Area Routing Concepts,..... 21

Figure 8. Amherst Substation Focus Area Study Segments 23

Figure 9. Structures 429-47 to 76 Focus Area Study Segments (Structures 429-66 to 68) 24

Figure 10. Structures 429-47 to 76 Focus Area Study Segments (Structures 429-47 to 51) 25

Figure 11. James River Focus Area Study Segments 26

Figure 12. James River Focus Area Alternative Routes..... 30

Photos

Photo 1. James River Crossing..... 30

Photo 2. General Rolling Terrain Landscape 31

Photo 3. General Forested Landscape..... 32

Photo 4. Existing Structure 429-49, Residential Area 36

Photo 5. Commercial Trucking Lot off South Coolwell Road 36

Attachments

Attachment A. Maps

- Map 1. Central Virginia Transmission Reliability Project Overview Map
- Map 2. Study Area and Focus Areas
- Map 3. Routing Concepts and Study Segments
- Map 4. Rebuild Route and Alternative Routes
- Map 5. Land Use
- Map 6. Proposed Route

Attachment B. GIS Data Sources

Attachment C. Agency Correspondence

Attachment D. IPaC Report

Key Terminology

Alternative Routes	Assemblage of Study Segments that form routes for analysis and comparison.
Constraints	Specific areas that should be avoided to the extent reasonably practical during the route development and site selection process.
Diversion	A minor adjustment to the existing route where no other alternative is considered.
Opportunity Feature(s)	Areas where the transmission line may have less disruption to area land uses and the natural and cultural environment.
Project Endpoints	The project starting and ending point(s), which may include substations, switch stations, tap points, or other locations defined by the Company’s planners and engineers.
Proposed Route	The alignment on which the applicant/Siting Team proposes to rebuild a transmission line. The Proposed Rebuild Route (1) reasonably minimizes adverse impacts on area land uses and the natural and cultural environment; (2) minimizes special design requirements and unreasonable costs; and (3) can be constructed and operated in a timely, safe and reliable manner.
Rebuild Route	A combination of Rebuild Study Segments and/or Re-Route Study Segments to form a complete route.
Rebuild Study Segments	Rebuild Study Segments are on-centerline alignments.
Re-Route Study Segments	Re-Route Study Segments are off-centerline alignments.
Routing Concepts	Initial routes for the project that adhere to a series of general siting and technical guidelines.
Segment Endpoint	The intersection of two or more Study Segments.
Siting Team	A multidisciplinary team of experts in transmission line routing, impact assessment for a wide variety of natural resources and the human environment, impact mitigation, engineering, and construction management.
Study Area	The territory in which line route alternatives can be sited to feasibly meet the Project’s functional requirements and, at the same time, minimize environmental impacts and Project costs.

Substation	Substations are facilities that transform bulk electric voltage down to distribution levels and/or provide protection and controls for the transmission electric grid. Typical equipment includes switches, circuit breakers, buses, and transformers.
Transmission Line	An electric line that moves bulk electric power from a generating plant to a substation or between substations.

ACRONYMS

Appalachian Power Company	Appalachian Power Company
CPCN	Certificate of Public Convenience and Necessity
CVTRP	Central Virginia Transmission Reliability Project
DOF	Virginia Department of Forestry
GIS	Geographic information system
GPS	Global positioning system
IPaC	Information for Planning and Consultation
kV	kilovolt
LiDAR	Light Detection and Ranging
NERC	North American Electric Reliability Corporation
NCED	National Conservation Easement Database
NHD	National Hydrography Dataset
NLCD	National Land Cover Database
NRCS	National Resources Conservation Service
NRHP	National Register of Historic Places
NWI	National Wetlands Inventory
ROW(s)	Right(s)-of-way
SCC	Virginia State Corporation Commission
SSURGO	Soil Survey Geographic Database
U.S.	United States
USACE	United States Army Corps of Engineers
USDA	United States Department of Agriculture
USEPA	United States Environmental Protection Agency
USFWS	United States Fish and Wildlife Service
USGS	United States Geological Survey
VCRIS	Virginia Cultural Resources Information System
VDCR	Virginia Department of Conservation and Recreation

VDEQ	Virginia Department of Environmental Quality
VHDR	Virginia Department of Historical Resources
VDOT	Virginia Department of Transportation
VDWR	Virginia Department of Wildlife Resources
VOF	Virginia Outdoors Foundation

1.0 INTRODUCTION

1.1 Project Description

With the Central Virginia Transmission Reliability Project (“CVTRP”), Appalachian Power Company (Appalachian Power or the Company) is planning to upgrade the local electric transmission grid in five central Virginia counties: Amherst, Appomattox, Albemarle, Campbell and Nelson. The CVTRP provides a new electrical source for the region, increases reliability to customers and supports the retirement of aging equipment. The Company’s application to the Virginia State Corporation Commission (SCC) (Case No. PUR-2021-00001), describes the overall need and necessity for the CVTRP.

The CVTRP includes numerous components; however, the Amherst – Reusens 69-kilovolt (kV) Transmission Line Rebuild component (the “Project”) is the subject of this report and depicted on **Figure 1**. The Project involves rebuilding 12.2 miles of transmission line between the existing Amherst, Monroe, and Reusens substations. The Amherst – Reusens 69-kV Transmission Line is located primarily in Amherst County (12.1 miles) and includes a short span over the James River and into the City of Lynchburg (approximately 1,000 feet) to reach the Reusens Substation. The transmission line will be rebuilt to address thermal violations and its aging condition by replacing wooden structures with steel H-frame structures in or near existing right-of-way (ROW). In addition, the Company’s existing Monroe and Amherst substations will be expanded to accommodate future electrical upgrades associated with the CVTRP. As a result of improvements at the Amherst Substation, the Company needs to relocate and extend certain transmission tie-in lines adjacent to the substation. The Company plans to construct approximately 500 feet of a new 138-kV double-circuit transmission line (Amherst Extension 138-kV transmission line) to connect the existing Boxwood – Riverville 138-kV circuit to the substation. The construction of the proposed Amherst Extension 138-kV transmission line results in relocating approximately 1,000 feet of the Boxwood – Riverville 138-kV and 500 feet of the Amherst – Riverville 138-kV transmission lines. For the purposes of this study, a route development process was initiated for the Amherst – Reusens 69-kV Transmission Line to be rebuilt, including the double-circuit transmission line span across the James River.

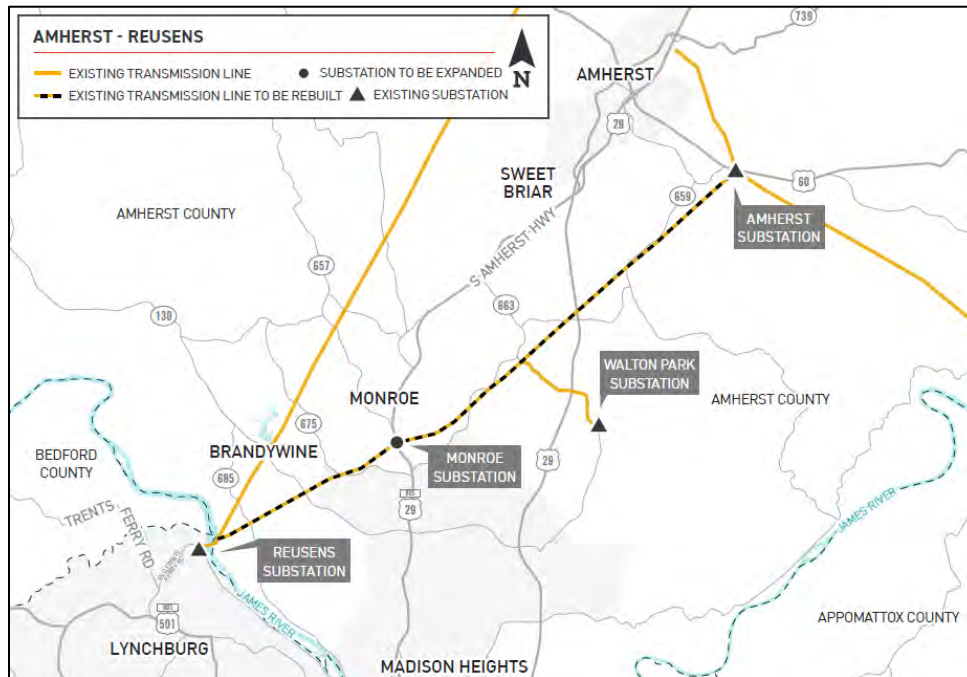


Figure 1. Component 4 Location Map

1.2 Existing and Proposed Transmission Facilities Description

The existing structures for the Amherst – Reusens 69-kV Transmission Line consist of primarily 1940s single-circuit wooden, H-frame structures (**Figure 2**). The Company plans to rebuild the existing transmission line using steel, H-frame or three-pole structures, approximately 10 to 20 feet taller (**Figure 3**). The existing H-frame transmission line structures are approximately 45 to 90 feet tall, with an average structure height of 50 feet tall. The anticipated structure heights of the proposed 69-kV transmission line range from 50 feet to 90 feet tall with an average height of approximately 65 feet tall. The proposed structures include a shield wire for lightning protection to meet current design standards (**Figures 2 and 3**) and will be taller as a result. To span over the James River near Reusens Substation and existing lines, approximately three 69-kV/138-kV double-circuit lattice towers will be necessary, and the average height is approximately 150 feet tall, with structure heights possibly ranging between 140 and 160 feet.



Figure 2. Comparable Existing and Proposed H-Frame Structure
Existing Wood H-frame (top) and Proposed Steel H-frame (bottom)



Figure 3. Typical Proposed Transmission Line Structures
H-frame (left) and Three-Pole Dead End (right)

The existing transmission line between the Amherst, Monroe, and Reusens substations will be rebuilt in or near its existing ROW, which varies between 60 feet and 100 feet wide. For the purposes of this Rebuild Siting Study, a 100-foot-wide ROW was used to assess potential natural environment, land use, and constructability impacts. In areas of constraint, the ROW may be reduced to minimize those impacts.

The Company will seek approval from the Virginia State Corporation Commission (SCC) to rebuild the transmission line generally within a 300-foot filing corridor (150 feet on either side of the route centerline) and a slightly wider corridor in some constrained areas. The filing corridor allows for design flexibility in determining the final centerline and ROW width, which will be based on ground surveys, environmental studies, additional landowner input, and final engineering. If the SCC approves the Project, the Company will complete the preliminary engineering and work with the affected landowners to update existing easements and provide fair compensation for any new easements. After receiving the above input, the Company will finalize the proposed structure locations and ROW width within the SCC-approved filing corridor. The Company will also work with the necessary local, federal, and state agencies during permitting and construction phases.

1.3 Rebuild Construction Activities Description

To prepare for the transmission line rebuild activities, ground surveying, and environmental field surveys may be necessary on the proposed ROW, access roads, and where structures will be relocated. Construction activities may include: additional ROW clearing, erosion and sediment controls installation, existing access road upgrades or new construction, crane pad grading, foundation installation, structure assembly and erection, conductor and shield wire installation, and restoration upon completion (see **Figure 4**). These activities can create temporary inconveniences such as traffic delays and detours, potentially brief electrical outages to customers, increased heavy equipment traffic, dust, and sounds. When possible, the Company will reuse existing access roads for construction and maintenance.



Figure 4. Typical Access Road Construction Activities

The Company will make every effort during the construction process to be respectful of the environment. Activities will be conducted in accordance with applicable federal, state, and/or local requirements. After the rebuild is complete, general maintenance activities include periodic ROW vegetative management and inspections to ensure the safe and reliable operation of the transmission line.

1.4 Project Timeline and Overview of Regulatory Approvals

The CVTRP was initiated in the Spring 2018 with a kick-off meeting held among the siting team members of various disciplines, described in Section 2.1. Siting team members divided the CVTRP into four main components given their geographical location in central Virginia: 1) Joshua Falls – Riverville – Gladstone 138-kV Transmission Line; 2) James River 138-kV Substation, building a new 138-kV substation in Nelson County; 3) Soapstone 138-kV Substation, building a new 138-kV substation in Nelson and 4) Amherst – Reusens 69-kV Transmission Line Rebuild (the focus of this report). Lastly, several remote substation upgrades will occur within the existing fence line and in the Project vicinity. The last part of the CVTRP involves rebuilding an existing 46-kV transmission line and expanding one substation in Albemarle County (the Esmont – Scottsville component), but is not associated with the anticipated Certificate of Public Convenience and Necessity (CPCN) Application for the CVTRP. The CVTRP components subject to SCC approval are depicted in **Map 1, Attachment A**.

The Siting Team introduced the Amherst – Reusens 69-kV Transmission Line Rebuild component to Amherst County and the City of Lynchburg in November 2019 and updated the localities during the route development process. The siting team collected resource data, developed routing criteria, conducted an opportunities and constraints analysis, and conducted field visits to identify areas to rebuild the existing centerline. The siting team identified several areas where rebuilding the 69-kV transmission line in existing ROW was constrained due to potential impacts to residential development and other utility infrastructure, as discussed in Section 3.0. The study segments and transmission line proposed to be rebuilt were announced and presented in a virtual open house on August 7, 2020, which was made available on the Company’s CVTRP website (see Section 2.5). The siting team collected information gathered during the virtual open house and other contact methods to analyze the study segments. The Siting Team completed the detailed route development process for the Project until the selection of a Proposed Route in December 2020.

The Amherst – Reusens 69-kV Transmission Line Rebuild is part of a CPCN application that will be submitted to the SCC.

1.5 Goal of the Rebuild Siting Study

Using the existing ROW for the Project to the extent possible is the primary goal and consistent with public preferences, general siting guidelines, and minimizes new environmental impacts. Therefore, the existing ROW is studied and “Focus Areas” are identified where rebuilding the line in the existing ROW might be challenging. The goal of the Amherst – Reusens 69-kV Transmission

Line Rebuild siting study (the Rebuild Siting Study) is to gain an understanding of the opportunities and constraints in the Focus Areas to facilitate the development of study segments, evaluate potential impacts associated with the study segments, and identify a proposed rebuild route and one or more alternative routes. The proposed rebuild route is the route that: (1) is most consistent with the siting guidelines (see Section 2.4); (2) reasonably minimizes adverse impacts on the natural and human environments; (3) minimizes special design requirements and unreasonable costs; and (4) can be constructed and operated in a safe, timely, and reliable manner. Section 2.0 describes the route development process to meet the goal of the Rebuild Siting Study.

A substation site selection process was not needed for the Rebuild Siting Study as substations are existing and will expand or upgrade at their current locations, as needed to accommodate the future upgrades associated with the Project.

2.0 ROUTE DEVELOPMENT PROCESS

2.1 Siting Team

The route development process begins by assembling a multi-disciplinary team with a wide range of experiences. Team member expertise includes (but is not always limited to): transmission line siting, impact assessment for a wide variety of natural resources and the human environment, impact mitigation, engineering, construction management, project management, and public relations (the **Siting Team**). The Siting Team includes AEP employees and outside consultants. Additional expertise is added depending on the project needs.

The Siting Team works together to develop rebuild requirements, siting criteria, identify siting constraints and opportunities, collect and analyze environmental and design data, solicit public input and concerns, consult with natural resource and permitting agencies, develop and revise the siting alternatives, and analyze and report on the selection of a proposed rebuild route.

2.2 Route Development Process Overview

The route development process is inherently iterative with frequent modifications made throughout the study as a result of the identification of new constraints; input from agencies, landowners, and other stakeholders; periodic re-assessment of the transmission line to be rebuilt with respect to the siting criteria; and adjustments to the overall route network. As a result of the evolving nature of the route development process, the Siting Team uses specific vocabulary to describe the routes at different stages of development. A rebuild project can be more straightforward, but generally follows the same process.

Initial route development efforts for a rebuild project start with the identification of constraints along the original ROW. These features are typically identified using a combination of readily available public data sources.

The Siting Team uses this information to first develop **Focus Areas**, which are areas along the existing route where rebuilding may not be feasible due to the presence of constraints. **Rebuild Study Segments** are identified outside the Focus Areas where constraints are not present, and the transmission line can be rebuilt on its existing centerline.

A series of **Routing Concepts** are first developed within each Focus Area. As the route development process progresses, the Siting Team continues to evaluate new data and modifies, as necessary the Routing Concepts to develop a **Study Segment Network**. The Study Segment Network includes **Rebuild Study Segments**, where the transmission line can be rebuilt on its

existing centerline, and **Re-Route Study Segments**, which are formed as constructible and alternate line routes to the existing transmission line. The Study Segment Network is presented to the public and Project stakeholders for feedback consideration during the route development process.

As the route development process progresses, Study Segments are refined into formal **Alternative Routes** to be assessed and compared with natural and human environment and constructability concerns.

Ultimately, through a quantitative and qualitative analysis and comparison of the Alternative Routes, the Siting Team identifies a **Proposed Route** which can be a combination of Re-Route Study Segments and Rebuild Study Segments, which meet the goal of the Rebuild Siting Study (see Section 1.5).

2.3 Data Collection

The following sources of information were used to develop data for the Rebuild Siting Study. Data was reviewed and collected for existing land uses, natural resources, cultural resources, transportation facilities, and existing utility and linear features. A detailed table of data sources is provided in **Attachment B – GIS Data Sources**. The Siting Team collected and reviewed the data in the following sections, to support the Rebuild Siting Study.

2.3.1 Geographic Information System (GIS) Data Collection

Aerial photography is an important tool for route selection. The primary sources of aerial imagery used in the route identification, analysis, and selection effort for the Project include:

- Esri (2020)
- Google (Imagery dates vary by location)
- Light Detection and Ranging (LiDAR) (flown in November 2019)

Updated information, such as the location of new residences, outbuildings, and other constraints, was collected through the virtual open house comment period (Section 2.5) and through landowner feedback, then transferred into the GIS, or digitized directly into the GIS as identified during field inspections from points of public access or aerial photography.

The study used information in existing GIS data sets, obtained from many sources, including federal, state, and local governments. Much of this information was obtained through official agency GIS data access websites, some was provided directly by government agencies, and the

Siting Team created some by digitizing information from paper-based maps, aerial photo interpretation, interviews with stakeholders and field inspections.

GIS data sources vary with respect to their accuracy and precision. For this reason, GIS-based calculations and maps presented throughout this study should be considered reasonable approximations of the resource or geographic feature they represent and not absolute measures or counts. The data and calculations presented in this study allow for relative comparisons among project alternatives, with the assumption that any inherent errors or inaccuracies would be generally equal across all alternatives.

2.3.2 Federal, State and Local Government Coordination

The Siting Team obtained information from or contacted various federal, state, and local agencies and/or officials to inform them of the Project, including the Amherst – Reusens 69-kV Transmission Line Rebuild Component and request data for the route planning process. The agencies contacted are listed below. Copies of letters and agency correspondence are included in **Attachment C – Agency Correspondence**.

Federal Agencies

- United States Army Corps of Engineers (USACE)
- United States Environmental Protection Agency (USEPA)
- United States Fish and Wildlife Services (USFWS)
- United States Department of Agriculture (USDA) Natural Resources Conservation Service (NRCS)
- United States Department of Transportation, Federal Highway Administration
- United States Department of Transportation, Federal Aviation Administration

State Agencies

- Virginia Department of Wildlife Resources (VDWR), previously the Department of Game and Inland Fisheries
- Virginia Department of Conservation and Recreation (VDCR)
- Virginia Department of Environmental Quality (VDEQ)
- Virginia Marine Resources Commission (VMRC)
- Virginia Department of Agriculture and Consumer Services
- Virginia Department of Historical Resources (VHDR#)
- Virginia Outdoors Foundation (VOF)
- Virginia Department of Forestry (DOF)
- Virginia Department of Aviation

- Virginia Department of Mines, Minerals, and Energy
- Virginia Department of Health
- Virginia Department of Transportation (VDOT)

Local Agencies and/or Officials

The Siting Team coordinated with Amherst County and the City of Lynchburg officials to aid the route development process. Members of the Siting Team met with the Amherst County Administrator and Director of Planning and Zoning on November 7, 2019. The purpose of the meeting was to introduce the Amherst – Reusens 69-kV Transmission Line Rebuild component of the larger Project. Additional CVTRP components are located in Amherst County, including the Joshua Falls – Riverville – Gladstone 138-kV Transmission Lines. In addition, members of the Siting Team inquired about potential stakeholders in the area that could provide input for the rebuild; however, the county officials did not indicate any specific groups. The county officials noted that rebuilding the proposed line near or within the existing ROW would be less impactful to residents. Members of the Siting Team informed the City of Lynchburg officials throughout the route development process and in combination with other transmission projects in the area. The Siting Team reviewed future land uses and specific goals to evaluate areas of constraints and opportunities for each comprehensive planning document (further detailed in Section 5.2).

Stakeholders were identified and contacted as part of the route development process. Stakeholders included an existing hydroelectric dam facility and Colonial Pipeline Company, which are located near or within the existing ROW (**Figure 5**). Colonial Pipeline Company's natural gas pipelines are present in the Study Area and cross the transmission line to be rebuilt in multiple locations. Individual landowners were contacted where off-centerline options were considered, which is further discussed in Section 3.0 as part of the public input process.

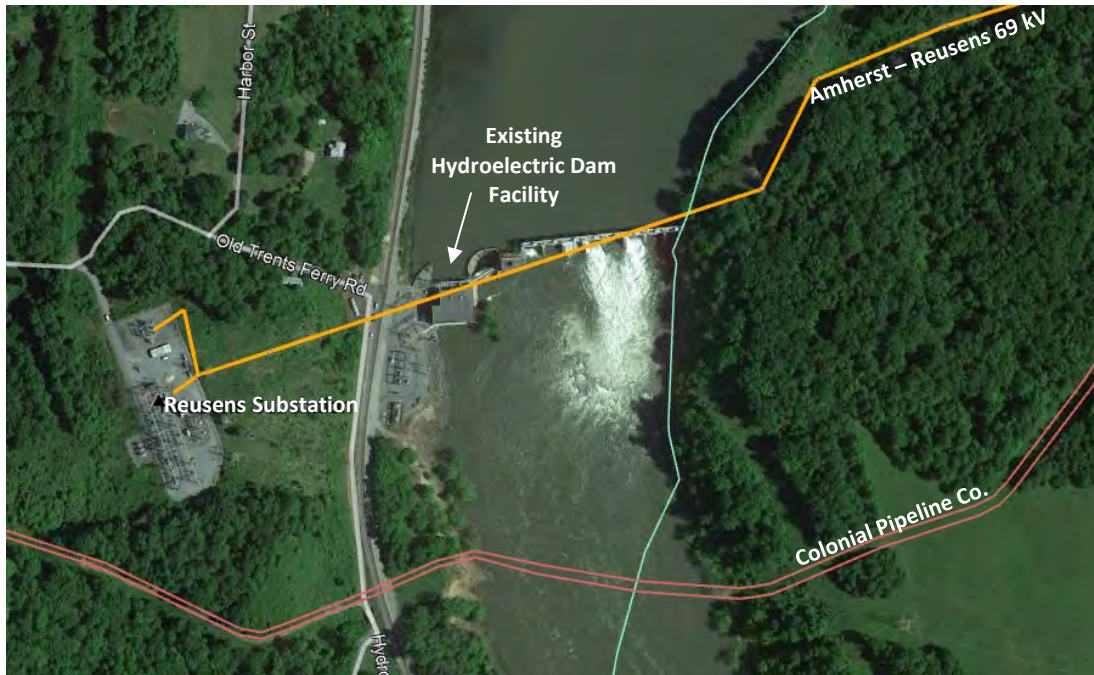


Figure 5. Stakeholders Relative to Rebuild Location

2.3.3 Field Reconnaissance

Siting Team members conducted a field inspection in January 2020 to examine Study Segments by automobile from public roads and other points of public access. The Siting Team correlated observed features to information shown on aerial photography, United States Geological Survey (USGS) 7.5-minute topographic maps, road maps, and the range of GIS sources compiled. Prior to field work, some key features such as residences, outbuildings, places of worship, cemeteries, and commercial and industrial areas were identified and mapped in GIS. These features were then field-verified and added to the GIS database using tablets with global positioning system (GPS) capabilities and annotating paper maps. Additionally, the Siting Team used LiDAR imagery for the Project (discussed in Section 4.0) to verify building and structure locations and was considered the best available data prior to filing with the Virginia SCC.

2.3.4 Public and Stakeholder Input

The consideration of public and stakeholder input is critical to the route development process. Landowners and stakeholders provide information and recommendations to aid the Siting Team in the development and refinement of study segments and alternative routes. Typically, a project-specific outreach plan is developed and can include open houses, websites, mailings,

advertising, etc. More information on how public and stakeholder input was used for the Project can be found in Section 2.5.

2.4 Siting Guidelines

2.4.1 General Guidelines

To the extent reasonable and practical, the Siting Team used the following general siting guidelines to help develop Rebuild Study Segments:

- Maximize use of the existing Amherst – Reusens 69-kV Transmission Line ROW, when reasonable.
- Consider using or paralleling existing ROWs or other linear features and infrastructure when feasible. When paralleling existing facilities, however, reliability issues and mitigation requirements must be evaluated.
- Maximize the separation distance from and/or minimize impact on dwellings and community facilities, cemeteries, schools, daycare facilities, hospitals, historic resources, and designated landmarks.
- Consider stakeholder input.
- Avoid or minimize visibility from designated scenic resources and byways, such as Elon Road.
- Minimize interference with existing and future economic activities, including agricultural and natural gas activities.
- Avoid or minimize conflict with existing and proposed future development and land uses.
- Consider paralleling property lines, land use breaks, and land cover edges.
- Avoid crossing or minimize conflict with designated public conservation and protected lands such as national and state forests and parks and local conservation easements.
- Avoid or minimize new crossings of rivers and large wetland complexes, critical and protected habitats, and other unique or distinct natural resources.
- Avoid or minimize habitat fragmentation in unfragmented areas and impacts on designated areas of biodiversity concern.
- Avoid conflicts with designated public and military aviation facilities.
- Consider safety with respect to construction, maintenance, and operation of the facilities.

- Consider construction concerns such as access, road traffic control, outages, pipeline mitigations, railroad interactions, existing telecommunication line and distribution line conflicts, etc.
- Consider routes through terrain and land use where economical construction and environmental best management practices can be employed.
- Consider state-specific regulatory siting guidelines if available.

2.4.2 Technical Guidelines

Technical guidelines are driven by the physical characteristics and engineering limitations of the structures and lines themselves, and the design criteria necessary to meet AEP design standards, North American Electric Reliability Corporation reliability standards, National Electric Safety Code, and industry best practices for construction. The technical guidelines were informed by (1) the technical expertise of engineers and other industry professionals responsible for the reliable, safe and economical construction, operation, and maintenance of electric system facilities, (2) North American Electric Reliability Corporation reliability standards as implemented by PJM, and (3) industry best practices.

The Siting Team considered the following technical guidelines during study segment and route development to the extent practical:

- Use existing access roads when possible.
- When paralleling existing pipelines, evaluate mitigation requirements.
- Consider long term operation and maintenance of the transmission line facilities.
- Minimize structure angles greater than 65 degrees.
- Minimize structures on steep slopes (generally, this is more than 20% slopes for angle structures and more than 30% for tangent structures), particularly if guy wires are required for construction.
- Minimize the number and duration of customer outage requirements during construction.
- Avoid triple circuit lines.
- Minimize distribution underbuild or co-location on transmission structures if possible.

2.5 Public Involvement Process

2.5.1 Virtual Open House and CVTRP Website

Due to the COVID-19 virus occurring during the public involvement process of the CVTRP, an in-person public open house was not possible per the travel restriction and social distancing requirements of the Centers for Disease Control and Prevention and the Executive Orders issued by the Governor of the Commonwealth. In lieu of an in-person public meeting, a virtual open house was created on the CVTRP website (www.AppalachianPower.com/CVTRP). Multiple CVTRP components, including the Amherst – Reusens 69-kV Transmission Line Rebuild, were publicly announced with a virtual open house on August 7, 2020 and concluded on September 7, 2020. Although in a digital format, the content provided during the virtual open house was made similar to that of in-person public open houses. The virtual open house provided content related to engineering and design of the structures, CVTRP need, ROW, and construction. In addition, the virtual open house allowed landowners and the public to submit comments to the Siting Team and identify properties through an address search tool.

Aerial maps at a scale of 1-inch equals 200 feet were provided on the CVTRP website during the virtual open house and were available to download. Features on the maps included existing infrastructure and the Study Segments under consideration (Section 3.5). Participants were encouraged to identify the location of their houses, places of business, properties of concern, or other sensitive resources on the website maps and submit comments to the Siting Team. Comments received through the virtual open house were digitized and entered into a GIS database.

The CVTRP website includes updates and news releases, an interactive map, fact sheet information, and the timeline for each of the CVTRP components. Questions and comments were also welcomed on the website through the contact page, in addition to the comments submitted through the virtual open house. A total of 28 comment cards were mailed back to the Company in response to the Amherst – Reusens 69-kV Transmission Line Rebuild component after the virtual open house.

2.5.1 Public Notification

A public notification for the Amherst – Reusens 69-kV Transmission Line Rebuild component was made on August 7, 2020. Landowners within a 500-foot corridor (250 feet on either side of a route centerline) of the presented study segment network were notified about the August 2020 virtual open house through the following means:

1. A news release was distributed by the Company on August 7, 2020 to announce the Amherst – Reusens 69-kV Transmission Line Rebuild component of the CVTRP and virtual open house.
2. A total of 312 letters, project fact sheets, and individual map pages were mailed to landowner addresses on August 7, 2020. A comment card with a prepaid postage enveloped were also mailed to the same landowners as an option to return feedback to the Siting Team.
3. Advertisements circulated in the greater Amherst, Lynchburg, and Charlottesville areas to introduce the remaining CVTRP components for the virtual open house. Two advertisements were published in August 2020 for each of the following: Amherst New Era Progress, Charlottesville Weekly, Daily Progress, Nelson County Times, and News & Advance.
4. One automated telephone notification from the Company was made on August 29, 2020 to notify landowners about the CVTRP virtual open house. A total of 226 landowners were reached through the message for the three CVTRP components.

3.0 ALTERNATIVE ROUTE IDENTIFICATION

3.1 Study Area Description

The boundaries of the Study Area were determined by a one-mile buffer of the existing Amherst – Reusens 69-kV Transmission Line. The rebuild begins at Amherst Substation, located off United States (U.S.) Route 60 in Amherst County, and continues southeast for about eight miles towards the Monroe Substation, located off South Amherst Highway. The existing line crosses the James River to reach the Reusens Substation, located off Old Trents Ferry Road and in the City of Lynchburg. Populous towns, including Amherst and Sweet Briar, are located north of and the town of Madison Heights is located south of the existing transmission line. The Study Area is a mix of various land uses including rural, residential, and commercial developments. The transmission line primarily crosses gentle rolling terrain. The Study Area was intended to encompass all reasonable Routing Concepts between the Project Endpoints. Given these considerations, the Siting Team identified a Study Area encompassing a one-mile buffer from the existing centerline in Amherst County and the City of Lynchburg (**Map 2, Attachment A**).

3.1.1 Common Rebuild

Rebuild Study Segments on existing centerline (within the Study Area) are those portions of the Project where constraints did not merit development of Focus Areas or reroutes. Avoiding building outside of the existing centerline minimizes new impacts from the Project. The existing line is largely straight and direct with minimal angle structures. Moving off the existing centerline required compelling reasons such as buildings within the ROW, land use considerations, environmental concerns, and constructability considerations. The Rebuild Study Segments are depicted in **Map 2, Attachment A**.

3.1.2 Focus Area Identification

Three Focus Areas were identified where rebuilding in the existing ROW was challenging (**Attachment A, Map 2**).

The **Amherst Substation Focus Area** was developed where the western expansion is proposed for the Amherst Substation, located off U.S. Highway 60, and the Company's existing Boxwood – Riverville and Amherst – Riverville 138-kV transmission lines will be relocated as part of the CVTRP upgrades. The **Structures 429-47 to 76 Focus Area** was identified between Structures 429-47 and 76 where residential areas are within or immediately adjacent to the existing ROW, particularly along South Coolwell Road, Bobwhite Road, and Burks Road. The **James River Focus Area** encompasses the existing Amherst – Reusens 69-kV Transmission Line and Reusens –

Scottsville – Bremo Bluff 138-kV Transmission Line crossings of the James River, where the existing ROW crosses a natural gas pipeline and hydroelectric dam facility to reach the Reusens Substation.

3.2 Constraints and Opportunity Features

The Siting Team identified and mapped siting constraints and opportunities along the existing route and within the Focus Areas (**Map 3, Attachment A**).

Constraints

Constraints are specific areas that should be avoided to the extent practical during the route development process. Using readily available data sources, the Siting Team initially identifies large constraints during the beginning of the route development process including, but not limited to, the following:

- Populated areas, including towns, small villages, urban areas, and other high concentrations of residential, commercial and industrial development areas.
- National Register of Historic Places (NRHP) and Districts (listed and eligible).
- VDHR’s Virginia Cultural Resources Information System (VCRIS) architectural and archaeological resources.
- Recreational areas such as parks or recreational waterways.
- Large rivers (including the James River), streams, creeks, wetlands, flood zones or unique natural resource features, and critical habitat areas.
- Existing utility infrastructure such as natural gas pipelines and hydroelectric dam facilities.
- Railroads.

The Study Area includes the following large constraints: the James River, multiple VHDR resources near the existing ROW, including the NRHP-listed Hanshill site, concentrated residential areas, and natural gas and hydroelectric facilities. No VOF or DOF conservation easements, including existing or proposed, are located in the Study Area. Additionally, no National Forests or Wildlife Management Areas are located in the Study Area.

As the Siting Team developed specific siting alignments, smaller constraints are identified (using available data sources, stakeholder input, and a field inspection). Through the iterative process of route development (described in Section 2.0), the routes were adjusted to avoid small constraints where feasible, including, but not limited to, the following:

- Individual residences (houses, mobile homes, and multi-family buildings)
- Commercial and industrial buildings
- Outbuildings and barns
- Cemeteries
- Places of worship
- Schools
- Hospitals
- Designated historic resources and landmarks
- Small National Wetlands Inventory (NWI) wetlands
- Specific recreational sites, facilities, and trails
- Radio and communications towers

Opportunities

The main opportunity feature is the existing Amherst – Reusens 69-kV Transmission Line ROW. By rebuilding on existing centerline impacts to areas not previously crossed by a transmission line ROW are minimized. The Siting Team defined additional siting opportunities for locations where rebuilding the transmission line in the existing ROW was not feasible due to constraints.

Other linear infrastructure and utility corridors may be considered opportunity features, but were not practicable. Most residential developments are concentrated along or near roadways and the railroad locations do not provide feasible paralleling opportunities. The Colonial Pipeline natural gas corridor crosses the Project in multiple locations and is winding in nature, and rebuilding the transmission line in or near the gas ROWs in a new location could require additional mitigation studies. Given these various constraints, the Siting Team considered paralleling parcel boundaries where rebuilding in the existing ROW was not feasible. Paralleling parcel boundaries minimize bisecting parcels such as forested or agricultural lands, and future developments or land uses.

3.3 Routing Concepts

The Siting Team began the route development process by identifying Routing Concepts in each of the three Focus Areas where the transmission line cannot feasibly be built in the existing ROW. The Siting Team considered the opportunities and constraints, the goal of the rebuild, and

general routing and technical guidelines when developing the Routing Concepts. The Routing Concepts developed for the Amherst Substation Focus Area and James River Focus Area were carried forward in order to minimize engineering constraints.

Routing Concepts in the Structures 429-47 to 76 Focus Area were developed given the dense residential areas and location of residences in the existing ROW. Two Routing Concepts avoid residences located in or adjacent to the existing ROW off Burks Road and Bobwhite Road (**Figure 6**). One Routing Concept is a minor northern shift from the existing centerline to remove a residence from the ROW on Burks Road. A larger southern diversion from Burks Road was considered but dismissed, as the existing centerline with a minor shift was determined feasible and less impactful to the surrounding community. Routing Concepts north of the existing ROW and between U.S. Route 29 and the Walton Park 69-kV Tap were not practicable as there is more development north of the existing transmission line.



Figure 6. Structures 429-47 to 76 Focus Area Routing Concepts, East of Walton Park 69-kV Tap

Additional Routing Concepts within the Structures 429-47 to 76 Structures Focus Area were developed west of the Walton Park 69-kV Tap, and where the transmission line crosses residential areas off Hico Drive and South Coolwell Road (**Figure 7**). Similar residential constraints exist on the north side of the existing transmission line and west of the Walton Park 69-kV Tap. Routing Concepts south of the existing line were developed to minimize residential impacts in this area, but unavoidably cross the local Izaak Walton Park and create a nearly 0.4-mile diversion from the existing ROW (**Figure 7**). Between Structures 429-47 and 51 the Siting Team developed a Routing Concept that considers a slight northern shift to avoid a mobile home community and other single-family residences located within or immediately adjacent to the ROW.

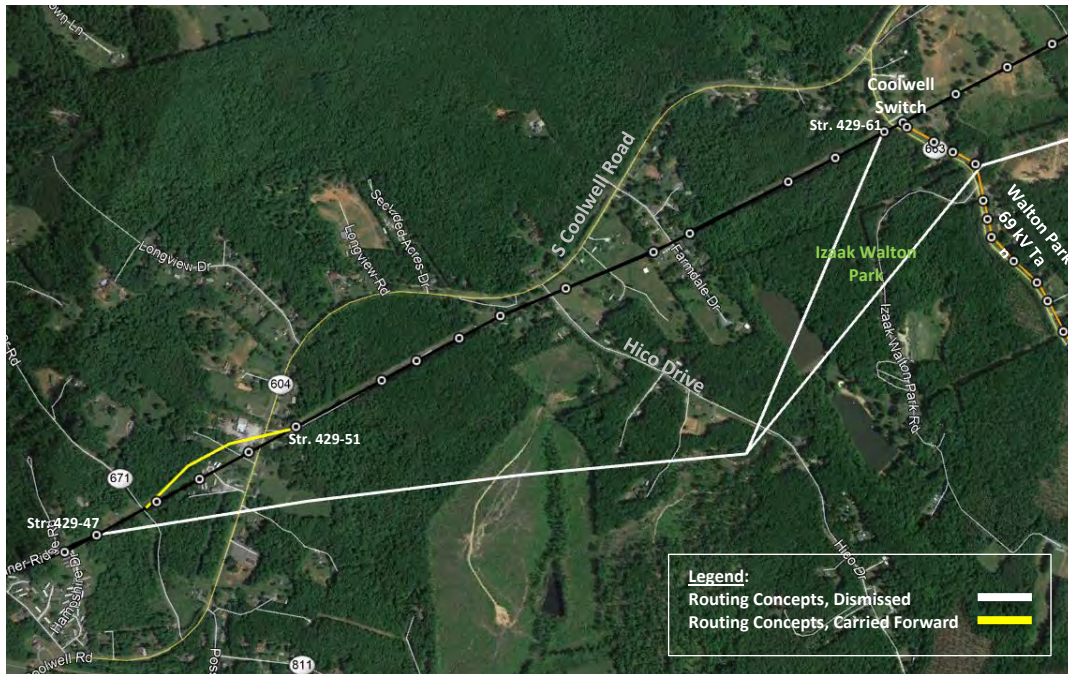


Figure 7. Structures 429-47 to 76 Focus Area Routing Concepts, West of Walton Park 69-kV Tap

3.4 Study Segment Development

The Siting Team developed Study Segments based on the siting process and criteria developed in Section 2.0. Study Segments are partial alignments developed based on the Routing Concepts. As the siting effort evolved, Study Segments were revised, removed, or added. These eliminations or adjustments were based on the likelihood of impacts on utility infrastructure, residential, commercial and industrial areas, agricultural areas, planned and future development and natural areas. The resulting Study Segment network evaluated by the Siting Team and presented during the virtual open house in August 2020 is shown on **Map 3, Attachment A**.

3.4.1 Amherst Substation Focus Area

The Amherst Substation will be expanded to the southwest to accommodate the future 138-kV improvements associated with the CVTRP. As a result, a Re-Route Study Segment was developed between the Amherst Substation and existing Structure 429-101. The Re-Route Study Segment exits the Amherst Substation slightly northeast of the existing ROW (about 150 feet) to avoid the western yard expansion (**Figure 8**). Additional Study Segments were created to connect the Company’s Boxwood – Riverville and Amherst – Riverville 138-kV transmission lines into the Amherst Substation, as they currently bypass the substation.



Figure 8. Amherst Substation Focus Area Study Segments

3.4.2 Structures 429-47 to 76 Focus Area

The Siting Team developed an off-centerline Study Segment that avoids a residence in the existing ROW between structures 429-66 and 68 at Burks Road. Other Routing Concepts that created large diversions from the existing ROW were not considered practicable compared to the minor shift shown in Figure 9. ROW team members gathered additional input from landowners whose property is crossed by the slight northern line shift who did not indicate concerns for the Re-Route Study Segment. The Siting Team carried forward the slight northern shift (about 50 feet within the existing ROW) as it avoids a residence (Figure 9).

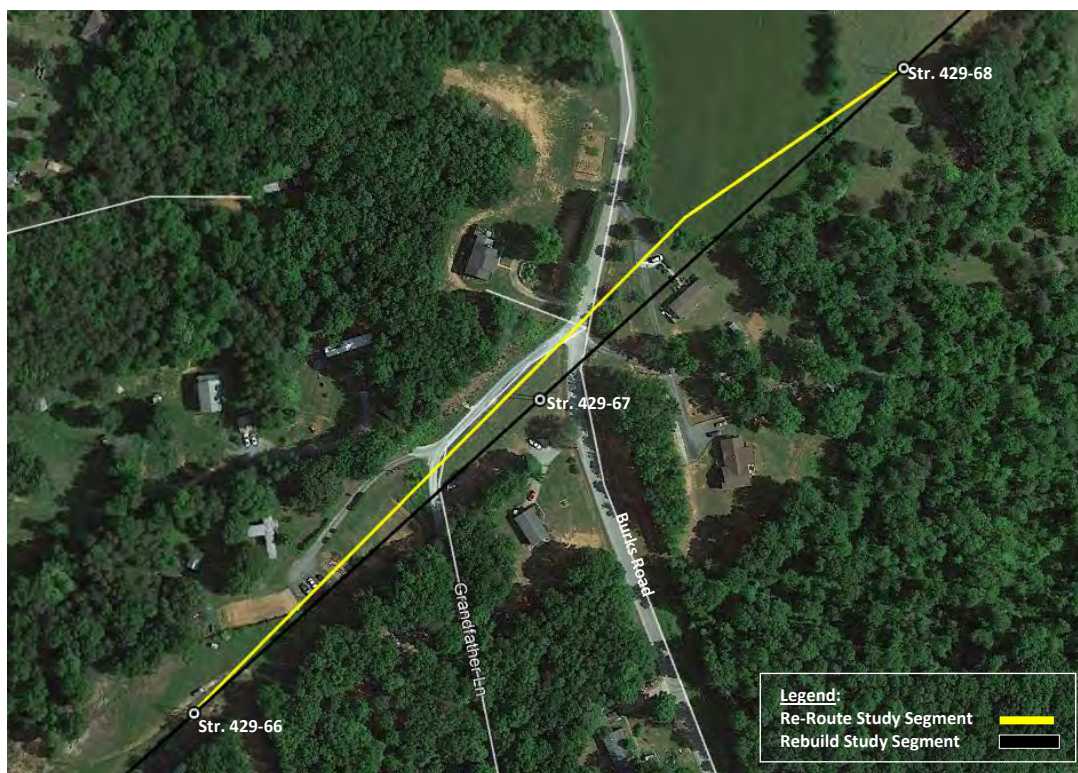


Figure 9. Structures 429-47 to 76 Focus Area Study Segments (Structures 429-66 to 68)

The Siting Team refined the off-centerline Routing Concept between Structures 429-47 and 51 and on either side of South Coolwell Road to minimize impacts to residences and a mobile home community. The Re-Route Study Segment is located less than 200 feet north of the existing centerline to avoid residences in the mobile home community on Coldwater Circle. During the virtual open house period, ROW team members reached out to landowners along South Coolwell Road to gather additional feedback on the Re-Route Study Segment. A commercial business is located west of South Coolwell Road and has permanently parked trucks in a parking lot that would be able to remain with the Re-Route Study Segment. The Re-Route Study Segment requires additional heavy angles to avoid homes, but was carried forward to minimize impacts to residential areas (**Figure 10**). Additionally, a Rebuild Study Segment (on-centerline option) was carried forward as part of the analysis and presented at the public open house.



Figure 10. Structures 429-47 to 76 Focus Area Study Segments (Structures 429-47 to 51)

3.4.3 James River Focus Area

The existing transmission line crossing of the James River is a double-circuit 138-kV span (the Amherst – Reusens 69-kV and Reusens – Scottsville – Bremo Bluff 138-kV transmission lines). The existing Amherst – Reusens 69-kV Transmission Line ROW crosses directly over a Reusens Dam hydroelectric facility building, which is also an NRHP-eligible architectural resource (VCRIS 118-0218). The Siting Team refined the northern and southern Routing Concepts at the James River crossing to avoid the hydroelectric facilities and Reusens Dam to the extent possible. The northern Re-Route Study Segment minimizes constructability concerns by avoiding all facilities from being located within the ROW, but would require a large angle structure immediately adjacent to a residence and in proximity to other homes. The southern Re-Route Study Segment avoids a new ROW in residential areas and the hydroelectric facility building; however, the substation associated with the dam is located within the ROW. Preliminary engineering review indicated the substation within the ROW was acceptable. The two Re-Route Study Segments in the James River Focus Area were carried forward and the existing centerline was not considered to rebuild the transmission line (**Figure 11**).

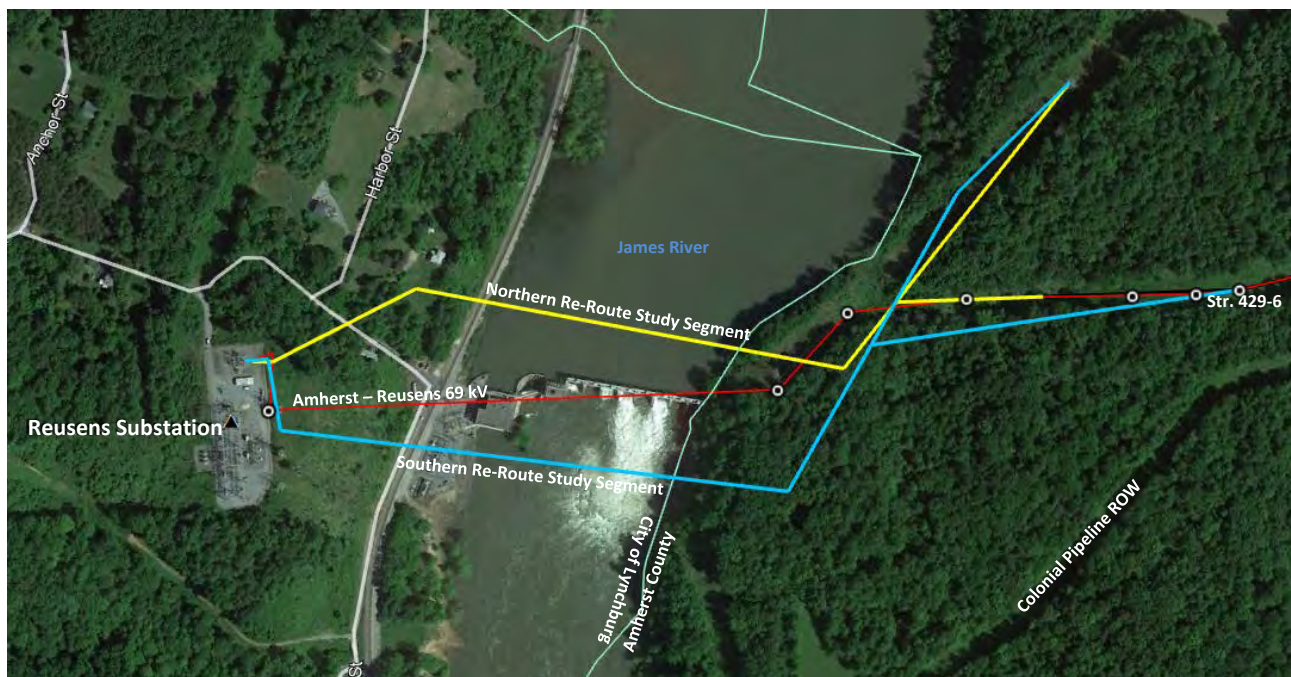


Figure 11. James River Focus Area Study Segments

3.5 Alternative Routes

The Siting Team met throughout the route development process, reviewing, modifying, and eliminating Study Segments based on available desktop data, a field inspection, engineering requirements, and landowner and stakeholder input. At the end of the process, the Siting Team compiled the Study Segments into a Rebuild Route (areas that use the existing centerline) and two Alternative Routes for analysis and comparison. The Rebuild Route and Alternative Routes are described in the following sections and shown in more detail on **Map 4, Attachment A**.

3.5.1 Rebuild Route

The Rebuild Route considers largely rebuilding the Amherst – Reusens 69-kV Transmission Line in or near the existing ROW from the Amherst Substation to a proposed double-circuit 138-kV structure east of the James River crossing. The Siting Team identified three off-centerline shifts for the Rebuild Route in order to maximize constructability and minimize residential constraints or to accommodate the Amherst Substation expansion. After the open house and receiving input from landowners, the Siting Team dismissed the on-centerline option between Structures 429-47 and 51 in lieu of the northern off-centerline Study Segment in order to minimize impacts to the residential area. The existing centerline between Structures 429-47 and 51 has six homes located within the existing 100-foot ROW versus one home on the northern off-centerline Study Segment ROW. Off-centerline shifts include: the first span outside the Amherst Substation, between Structures 429-66 and 68, and between Structures 429-47 and 51. The Rebuild Route is located entirely in Amherst County.

3.5.2 Alternative Routes A and B

Alternative Routes A and B consider the northern and southern off-centerline options to cross the James River and reach the Reusens Substation. Alternative Route A (0.7 mile) crosses the James River on the north side of the hydroelectric dam facility; Alternative Route B (0.8 mile) crosses on the south side. Both Alternative Routes A and B propose a new double circuit 138-kV structure location on the east side of the James River to span the river and connect the Company's Scottsville – Reusens – Bremo Bluff 138-kV Transmission Line from the north.

4.0 ROUTE COMPARISON

The Rebuild Route and Alternative Routes comparison provides a quantitative and qualitative analysis of potential impacts to local communities, the environment, and cultural resources as well as engineering and constructability concerns. The Rebuild Route and Alternative Routes were reviewed in detail and compared using a combination of information collected in the field, GIS data sources, public input, supporting documents, and the collective knowledge and experience of the Siting Team. For the purposes of the Rebuild Siting Study, Alternative Routes A and B will be compared against one another and the Rebuild Route will be presented as a standalone option to rebuild the transmission line. To assess potential impacts, a 100-foot-wide ROW was used as a conservative approach; final engineering will determine if the ROW may be reduced in constrained areas, if feasible. Responses received from local, state, and/or federal agencies that are specific to the Amherst – Reusens 69-kV Transmission Line Rebuild are included in **Attachment C**.

4.1 Natural Environment

The natural environment includes water, soil, sensitive species, and wildlife habitat. Potential impacts are based on publicly available maps and data as well as coordination with federal, state and local agencies. A comparison of the natural environment considerations for the Rebuild Route and Alternative Routes is presented at the end of this section in **Table 1**. Natural Resource constraints are depicted in the desktop wetland and stream delineation report included in Volume 3 of the CPCN Application.

The Rebuild Routes crosses a total of 16 National Hydrography Dataset (NHD) features and two acres of NWI wetland, but generally cross at or near existing crossings. The rebuild unavoidably crosses the James River, a Section 10 navigable waterway, to reach the Reusens Substation and requires a USACE permit (see **Photo 1**). Additionally, the VMRC regulates state waters and may require a permit if there are encroachments on or over natural rivers and streams with a drainage area greater than five square miles. A 100-foot-wide ROW for Alternative Route A crosses approximately 0.5 acre of NWI wetland on the western bank of the James River; Alternative Route B crosses approximately 0.1 acre of NWI wetland on the western bank of the James River. Due to terrain at the river crossing, it is not likely that trees would need to be cleared within the forested wetland crossed at the riverbank. Proper erosion and sediment controls will be used to control stormwater runoff and Alternative Routes A and B are comparable in regard to water resource impacts. No letter was received from the VDEQ Office of Wetland and Stream Protection’s Blue Ridge regional office for comment on the Project. Coordination and review with the VDEQ, USACE, and VMRC will be conducted during the Project’s environmental studies. Wetland resources crossed by a 100-foot-wide ROW for Alternative Routes A and B is shown in **Figure 12**, as determined in the desktop wetland and stream delineation report.



Photo 1. James River Crossing

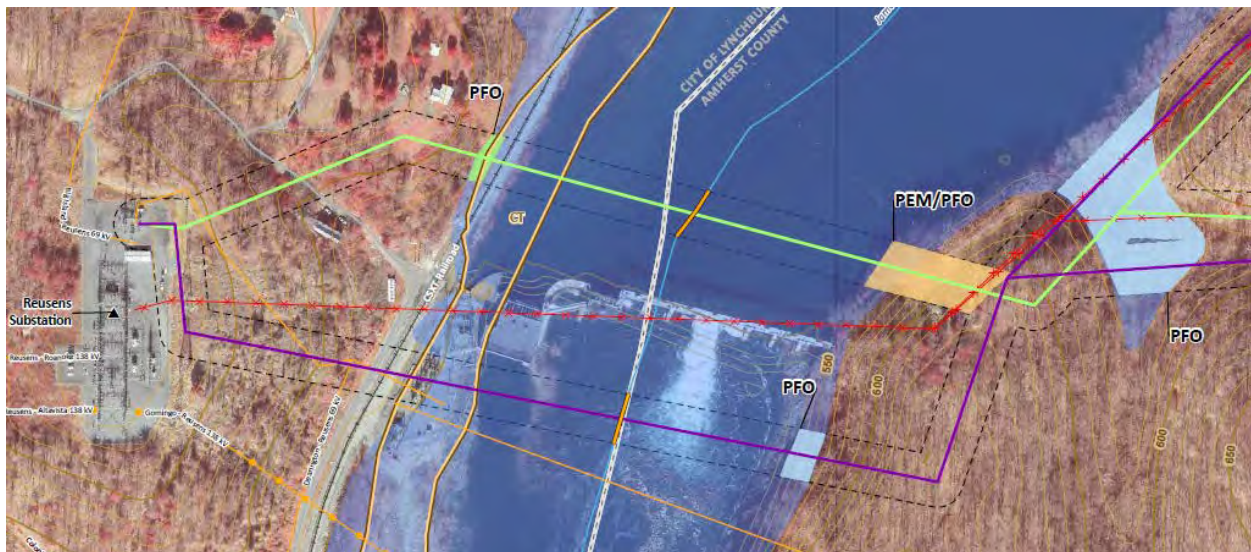


Figure 12. James River Focus Area Alternative Routes

The existing Amherst – Reusens 69-kV Transmission Line crosses rolling hill terrain with grasslands, forested areas, open fields that could be habitat for various species (see **Photos 2 and 3** for general landscape context). The USFWS Information for Planning and Consultation (IPaC) project planning tool was used to determine if any threatened and endangered wildlife or plant species that have the potential to occur in the Study Area (**Attachment D**). One threatened mammal species was identified, the northern long-eared bat (*Myotis septentrionalis*), which typically occupy caves and mines during winter hibernation and roost and forage in upland forests during the summer months. The VDWR northern long-eared bat Winter Habitat and Roost Tree database was referenced during the preparation of this study and the closest buffer is located more than 40 miles north of the Rebuild Route and Alternative Routes. No critical habitat areas were identified for the northern long-eared bat, but it is vulnerable to tree clearing and loss of roost tree habitat, if the species is present.



Photo 2. General Rolling Terrain Landscape



Photo 3. General Forested Landscape

The Rebuild Route is anticipated to have minimal impacts on the natural environment as it will be largely be rebuilt in or near the existing ROW and requires less than approximately 15 acres of tree clearing to account for minor shifts outside the existing ROW. Alternative Routes A and B are comparable in regard to tree clearing (less than five acres). A formal response letter was not received from the VDWR concerning impact to potentially occurring species for any component of the CVTRP. In a letter received from the VDCR on March 6, 2020, no natural heritage resources have been documented within the Study Area. In addition, the rebuild line does not intersect any of the VDCR's predictive models identifying potential habitat for natural heritage resources. Coordination with the VDWR and USFWS will be conducted to verify if any species-specific surveys are required.

Table 1. Natural Environment Evaluation Criteria

Criteria	Unit	Rebuild Route	Alternative Route A	Alternative Route B
General				
Length	miles	11.4	0.7	0.8
Water Resources				
Total streams crossed (NHD)	count	16	0	0
Total wetlands in ROW (NWI)	acres	2	0.5	0.1
Section 10 ¹ River crossings	count	0	1	1
100-year floodplain crossed by ROW	acres	3.2	2.6	2.6
Geological, Topographical, and Soil Resources				
Prime and unique farmland soil ² in the ROW	acres	30.7	0.2	1
Farmland of statewide importance ³ in the ROW	acres	83.2	1.7	2.2
<i>No known caves or mines are located in the ROW of any route.</i>				
Wildlife and Habitat				
Tree clearing required in the ROW (digitized based on aerial photography)	acres	14.8	3	3.7
<i>No special natural areas are crossed or within 250 feet of the ROW of any route.</i>				

¹ The James River is a designated USACE Section 10 navigable waterway.

² Prime farmland is land that has the best combination of physical and chemical characteristics for producing crops.

³ Soils that do not meet the prime farmland category but are still recognized for their productivity by states may qualify as soils of statewide importance.

4.2 Human Environment

The human use of the land and activities at a given location such as agricultural, forestry, residential, industrial, mining, commercial, institutional, scenic assets, and recreational uses. The opportunity to use existing ROW, when feasible, minimizes conflicts with existing and proposed land uses compared to a new transmission line. For the purposes of this analysis, a conservative ROW width of 100 feet was used to assess potential land use impacts, but the ROW may be reduced in areas of constraint, as reasonable. A comparison of the human environment considerations for the Alternative Routes and Rebuild Route is presented at the end of this section in **Table 2**.

4.2.1 Existing and Proposed Developed Land Use

The Amherst – Reusens 69-kV Transmission Line is located in the southern extents of Amherst County, which primarily consists of forested, agricultural, pasturelands, and low-intensity developed land uses (**Map 5, Attachment A**). The Siting Team considers future land use plans during the route development process to avoid or minimize potential impacts to proposed development areas. Most of the transmission line is in an Agricultural (A-1) zoning district. According to the 2017 Amherst County Comprehensive Plan, future land uses are anticipated to remain agricultural and low-density residential areas will be concentrated near U.S. Route 29. The future rural-designated land uses was confirmed during a second meeting (virtual) with Amherst County planning staff on April 2, 2020. Amherst County’s comprehensive plan and zoning requirements do not specify electric utility development and future land use compatibilities. Less than 0.5 mile of the proposed transmission line rebuild is located in the City of Lynchburg and limited to the span into the Reusens Substation. The area near the Reusens Substation is zoned as Low-Density Residential (R-1) and Medium-Density Residential (R-3). Based on the City of Lynchburg’s Comprehensive Plan, future land uses do not intend to change for this area. Alternative Route A is in closer proximity to existing residential development off Old Trents Ferry Road and north of the Reusens Substation. Alternative Route B crosses undeveloped parcels owned primarily by the Company. Discussions with the City of Lynchburg and Amherst County officials did not note any conflicts with future or planned land use in vicinity of the transmission line.

The Rebuild Route will primarily use the existing centerline and cross landowners with existing easements, except in areas where the ROW was shifted to avoid residential impacts between Structures 429-47 and 51 (see **Photo 4**) and Structures 429-66 and 68. The Rebuild Route crosses 172 parcels and 131 unique landowners; no new landowners are affected by the proposed

Rebuild Route ROW shifts. In total, there are six residences and 21 outbuildings located within an 80-foot-wide ROW of the Rebuild Route; however, and subject to completion of final engineering and ROW negotiations with affected landowners, the Company does not expect that any residences will need to be removed to accommodate the rebuilt line. The Amherst – Reusens 69 kV Transmission Line currently crosses a commercial truck parking lot at Structure 429-50 off South Coolwell Road (see **Photo 5**). Structure locations for the Rebuild Route can be designed to span the parking lot, minimizing impacts to parking spaces, as feasible. The Rebuild Route crosses a private driveway near the truck lot in a new location; however, vegetative cover along the private driveway and surrounding the commercial property may minimize viewshed impacts. No commercial business buildings or structures are crossed by the ROW of any route. Alternative Routes A and B both require new ROWs as the existing centerline could not be rebuilt over the existing hydroelectric facilities. One residence is located within an 100-foot-wide ROW of Alternative Route A, but is outside of an 80-foot-wide ROW; no residences or outbuildings are located within an 100-foot-wide ROW of Alternative Route B. Excluding Company-owned property, Alternative Route B crosses a total of two landowners and Alternative Route A crosses four landowners. The landowners crossed by Alternative Route A are residential parcels with homes on each property. A residence located near the Reusens Substation is within 250-feet of both Alternative Routes, but closer to Alternative Route A. Two residences are located within 100 feet of Alternative Route A. In general, Alternative Route A is likely to have more impacts to existing residential land uses compared to Alternative Route B.



Photo 4. Existing Structure 429-49, Residential Area



Photo 5. Commercial Trucking Lot off South Coolwell Road

4.2.2 Agricultural and Forestry Resources

Potential soil impacts to prime farmland from transmission line construction include soil erosion, damage to agricultural drainage and irrigation systems, mixing of topsoil and subsoil, potential loss of topsoil, and soil compaction. No response was received from the USDA’s NRCS for comment on agricultural lands related to the Project. Designated prime farmlands given their unique soil characteristics or high productivity were not noted by Amherst County or City of Lynchburg officials during the route development process; however, it is noted that agricultural lands in both jurisdictions are a predominant land use in the Study Area. Alternative Route B crosses more prime or unique soils and farmland of statewide importance than Alternative Route A, but neither Alternative Routes cross areas that are currently being used for farming or agricultural activities. Significant impacts to soils and farmlands are not expected from either Alternative Route or the Rebuild Route, as farming is generally a compatible use with a ROW and any loss of soils is limited to the structure foundations only. Further, the majority of the rebuild will be within an existing ROW and does not introduce new impacts to a currently unaffected agricultural area. There are no active timbering areas crossed by the ROW of the Rebuild Route or any Alternative Route and thus impacts to forestry resources are minimal.

4.2.3 Recreation and Conservation Lands

The Rebuild Route crosses in its current location north of the Izaak Walton Park, located west of U.S. Route 29. The recreational facility covers 325 acres and includes a campground, recreational lakes, and various sporting ranges. Impacts to the local park are anticipated to be minimal given the ROW crossing is unchanged. There are no other local or state conservation lands or easements, parks, designated wilderness areas, or game lands located in the Study Area or in proximity to any route. In a letter received from the VDCR on March 6, 2020, no State Natural Area Preserves were identified in the CVTRP area, including the rebuild. In a letter from the VOF dated February 26, 2020, no existing or proposed conservation easements are located within 1.5 miles of the transmission line rebuild. No existing or proposed DOF conservation easements were noted near the rebuild in a letter received on July 6, 2020 in response to the CVTRP. Impacts to recreational or conservation areas are not anticipated by either Alternative Route or the Rebuild Route.

4.2.4 Historic and Archaeological Resources

Background research was conducted for the Study Area to identify all previously recorded cultural resources and potential cultural resource locations through the review of historic documents, agency and public input, and various archives including the VHDR# database. There are five NRHP-listed architectural sites located within one mile and three NRHP-eligible sites

located within 0.5 mile of the Project. Three of the NRHP-listed sites, the Hanshill House (VHDR# 005-5329), Oak Lawn (VHDR# 005-5029), and the Bowling Eldridge House (VHDR# 009-5283) are the closest located resources to the Rebuild Route, near existing Structure 429-17 (**Map 4, Attachment A**). The Hanshill House is also listed in the Virginia Landmarks Register. Both the Oak Lawn and Hanshill properties are located in Amherst County and within 0.2 mile of the rebuild at its nearest point and the homes are located farther from the rebuild (about 0.3 mile). Surrounding the Hanshill property is forested areas and a residential development. Surrounding the Oak Lawn property is also forested areas, some scattered residential homes on rural lands, and the Norfolk Southern Railroad corridor. The existing line and structures in the vicinity of both resources are not visible given a vegetative screening; the proposed structure heights will slightly increase but will be built adjacent to the existing structure locations and thus impacts are anticipated to be minimal. Two additional properties consisting of NRHP-listed resources are located within one mile of the Alternative Routes and in the City of Lynchburg: the Virginia Episcopal School (VHDR# 118-0224), and the Presbyterian Orphans Home (VHDR# 118-5240). The three NRHP-listed resources are located farther than one mile from and anticipated to have no more than a minimal impact as the slightly taller structures will remain screened from view due to topography and vegetation. Three NRHP-eligible architectural resources are located within 0.5 mile of the rebuild: the Bibbie House (VHDR# 005-0223), the Lavino Furnace (VHDR# 118-0138), and the Reusens Dam (VDHR# 118-0218). The three NRHP-eligible resources are screened from vegetation or surrounded by other developed land uses. With regards to archaeology, there is one NRHP-potentially eligible site at the James River and crossed by the existing ROW. Alternative Routes A and B avoid the resource, but its existing conditions will need to be assessed during the Project's environmental surveys. Other VCRIS sites are located in the Study Area, but have not been evaluated for the NRHP or have been determined not eligible. No Alternative Route is located in proximity to known historical resources that may be recognized by the local community. No Virginia Century Farms designated by the Virginia Department of Agriculture and Consumer Services or other sites locally recognized for historical significance are known to exist in the Study Area. Impacts to historic resources are either not anticipated or minimal by any Alternative Route or the Rebuild Route given the rolling topographical landscape and thick wooded areas.

The Rebuild Route crosses Elon Road, a VDOT-designated Virginia Byway. Elon Road, or Route 130, connects Madison Heights in Amherst County with significant resources including the Natural Bridge in Rockbridge County and intersects with the Blue Ridge Parkway. The Rebuild Route will cross Elon Road in its current ROW location and the proposed structure locations will be near the existing structures and offset from the road.

Table 2. Human Environment Evaluation Criteria

Criteria	Unit	Rebuild Route	Alternative Route A	Alternative Route B
General				
Length	miles	11.4	0.7	0.8
Number of parcels ¹ crossed	count	172	7	6
Unique Landowners ² within ROW	count	131	5	3
Municipalities, Counties, and Townships Crossed				
Amherst County	miles	11.4	0.5	0.6
City of Lynchburg	miles	0	0.2	0.2
Residential³				
Outbuildings within 80-foot-wide ROW	count	21	0	0
Outbuildings within 100-foot-wide ROW	count	33	1	0
Residences/single-family dwellings within 80-foot-wide ROW ⁴	count	6	0	0
Residences/single-family dwellings within 100-foot-wide ROW	count	12	0	0
Residences/single-family dwellings within 100 feet of centerline	count	41	2	0
Residences/single-family dwellings within 250 feet of centerline	count	131	2	1
Residences/single-family dwellings within 500 feet of centerline	count	259	4	3
Commercial/Industrial				
Businesses/commercial buildings ⁵ within 100 feet of the centerline	count	1	0	0
Businesses/commercial buildings within 250 feet of the centerline	count	2	0	0
<i>No businesses or commercial buildings are located within the ROW of any route. No known quarries or mining areas are crossed by any route.</i>				
Agricultural				
Pasture/rangeland crossed in ROW (based on NLCD data)	acres	33	0	0

Table 2. Human Environment Evaluation Criteria

Criteria	Unit	Rebuild Route	Alternative Route A	Alternative Route B
<i>No NLCD-designated cropland, tree farms and orchards, or timbering areas are crossed by the ROW of any route.</i>				
Community/Recreational Facilities				
Designated places of worship within 1,000 feet of centerline	count	2	0	0
Parks and recreation areas crossed by the ROW	count	1	0	0
Virginia Byway crossed by the ROW	count	1	0	0
<i>No known cemeteries, hospitals, or assisted living facilities are located within 100 feet of any route. No schools are located within 1,000 feet of any route centerline.</i>				
Cultural Resources				
NRHP-listed sites within one mile of the centerline	count	2	3	3
NRHP-eligible sites within 0.5-mile of the centerline	count	1	2	2
Listed archaeological sites within 100 feet of centerline	count	1	0	0
<i>No National Landmarks or Historic Districts are located within one mile of any route centerline. No listed or eligible archaeological sites are located within the ROW of any route.</i>				

¹ The number of parcels crossed refers to the number of individual plots of owned land recorded by the City of Lynchburg or Amherst County.

² The number of landowners within the ROW represent the number of individual landowners, who each may own one or more parcels, including the Company.

³ Footprints for buildings were obtained from publicly available data sources and LiDAR imagery.

⁴ The existing ROW of the Amherst-Reusens 69 kV transmission line varies in width and is generally 60' to 100' wide. Based on preliminary engineering, the Company expects that the ROW of the rebuilt line will be 80' wide and will follow the centerline of the existing ROW for most of its length. However, several residences have encroached on the existing ROW in a few limited locations. Based on its engineering analysis to date, the Company has preliminarily determined that the ROW for the rebuilt line could be narrower than 80' in those locations in order to keep the affected residences out of the final ROW. Accordingly, and subject to completion of final engineering and ROW negotiations with affected landowners, the Company does not expect that any residences will need to be removed to accommodate the rebuilt line.

⁵ Commercial development includes retail, service, office, restaurants, and lodging establishments.

4.3 Constructability

Constructability is the ability to efficiently and cost effectively engineer, acquire new, or update existing ROW easements; and to construct, operate, and maintain the transmission line. Major factors include safety, steep topography, condensed ROWs, heavy angles, access, proximity to major highways, etc. A comparison of the constructability considerations for the Rebuild Route and Alternative Routes is presented at the end of this section in **Table 3**.

4.3.1 Engineering, Topographical, and Access Roads

Potential engineering and construction challenges are important to consider when siting a transmission line. Heavy angles, steep topography, nearby communication towers, antennas, and airfields along with narrow ROW alignments are all elements that could ultimately require extensive or non-standard engineering and lead to increases in impacts and overall cost.

The proximity to existing roadway, transmission, and gas pipeline infrastructure could also pose potential engineering and construction challenges. As with paralleling existing infrastructure, crossing over transmission lines, distribution lines, and pipelines may require specialized construction techniques and scheduled outages on the existing lines. The Siting Team attempted to minimize engineering challenges during route development.

The Rebuild Route is generally a straight and direct route that largely uses existing ROW and has one heavy angle. Alternative Routes A and B are located off-centerline. In order to avoid the hydroelectric dam facility, both Alternative Routes A and B require the use of heavy angles. Both Alternative Routes can feasibly span across the James River and avoid placing structures in the adjoining floodplain areas. Neither Alternative Route crosses slopes exceeding 20 percent and are comparable from an engineering and construction perspective, but Alternative Route B avoids new residential impacts by diverting farther south. No karst topography or caves are known to exist in the Study Area based on an email response received from the VDCR's Karst Protection Coordinator on May 27, 2020.

The Rebuild Route avoids new crossings of U.S. Route 60 and U.S. Route 29, which are unavoidable for the Project. The Rebuild Route crosses 24 local roads and streets primarily in existing locations. However, there are alignment shifts at South Coolwell Road and Burks Road where the crossing locations are new, but in proximity to the existing ROW. There are construction challenges when working in congested residential areas, particularly in areas where the ROW cannot be rebuilt in its current location. Routing a transmission line close to existing roads (such as county or secondary roads) allows for easier access to the transmission line ROW.

It also avoids the need to build long, costly access roads that disturb a greater number of landowners, impact viewsheds, and fragment habitat and forested areas. On May 4, 2020, the Siting Team received information on 19 road crossing locations and planning information from VDOT regarding the transmission line rebuild. No future widening or improvement projects were noted in the road crossing locations; however, VDOT noted in their May 4, 2020 letter that access on residential roadways such as Burks Road and Rothwood Road could be impacted by heavy equipment loads. The Company will work with VDOT and other necessary local, federal, and state agencies during permitting and construction phases. The Colonial Pipeline Company gas line crosses the Rebuild Route twice in existing locations and is paralleled within overlapping ROWs for about two miles. Interference studies and additional pipeline mitigation can be required when paralleling a transmission line and gas line. In this case the transmission line predates the gas line and any studies would likely be at the expense of the gas company. The Alternative Routes A and B unavoidably cross a CSX rail line at the James River and in a new location. The Rebuild Route crosses the Norfolk Southern Railroad at an existing and perpendicular crossing. Areas where the transmission line will be rebuilt across or parallel to the natural gas and railroad ROWs will require ongoing coordination throughout the Project, including the construction phases.

A letter received from the Virginia Department of Aviation on February 5, 2020 indicated that no portion of the overall Project, including the Amherst – Reusens 69-kV Transmission Line Rebuild component, is located within 20,000 linear feet of a public use airport (see **Attachment C**). The closest public airports (Lynchburg Regional Airport and Falwell Airport) are located in the City of Lynchburg, more than five miles from the Study Area. No structures will reach a height of 200 feet above ground level and therefore, an airspace study will not be required by the Federal Aviation Administration.

Table 3. Constructability Evaluation Criteria

Criteria	Unit	Rebuild Route	Alternative Route A	Alternative Route B
General				
Length	miles	11.4	0.7	0.8
Transportation Resources				
U.S. highways crossed	count	2	0	0
State highways crossed	count	0	0	0
Local roads and streets crossed	count	24	1	1
Railroads crossed	count	1	1	1
<i>No interstate highways are crossed by any route. No airports are located within one mile of any route.</i>				
Utility Resources				
Pipelines crossed	count	2	0	0
Existing 69-kV Transmission Lines Crossed	count	0	1	1
<i>No communication towers, AM or FM radio towers are located within 1,000 feet of any route centerline. No 138-kV or greater transmission lines are crossed by any route. No known oil and gas wells are located within 250 feet from the edge of any route ROW.</i>				
Engineering and Construction Considerations				
Steep slopes crossed by ROW (>20%)	miles	1	0	0
Heavy angles, greater than 30 degrees	count	1	4	5
ROWs Rebuild/Parallel				
Rebuild on existing centerline	miles	10.8	0	0
Rebuild off existing centerline	miles	0.7	0.7	0.8
Pipelines parallel	miles	2.2	0	0

5.0 IDENTIFICATION OF THE PROPOSED ROUTE

The goal in selecting a suitable rebuild line route is to minimize impacts on land use and natural and cultural resources while avoiding circuitous routes, extreme costs, and non-standard design requirements. However, in practice, it is not usually possible to optimally minimize all potential impacts at all times. There are often tradeoffs in potential impacts to every siting decision. For example, in heavily forested areas, the route that avoids the most developed areas will likely have the greatest amount of forest clearing, while the route that has the least impact on vegetation and wildlife habitats often impacts more residences or farm lands. Thus, an underlying goal of a Rebuild Siting Study is to reach a reasonable balance between minimizing potential impacts on one resource versus increasing the potential impacts on another.

The Proposed Route is a combination of the Rebuild Route and Alternative Route B (**Map 6**). The Proposed Route uses the existing ROW to the extent possible, which is consistent with the primary goal of the Project, public preferences, general siting guidelines, and minimizes new environmental impacts. The following section summarizes the rationale for selection of the Proposed Route. The rationale presented is derived from the accumulation of the siting decisions made throughout the process, the knowledge and experience of the Siting Team, comments from the public and regulatory agencies, and the comparative analysis of potential impacts presented in Section 4.0.

First, the Amherst – Reusens 69-kV Transmission Line Rebuild was identified as a component of the larger CVTRP (**Map 1**). Constraint data was collected for a Study Area, which encompasses the existing Amherst – Reusens 69-kV Transmission Line to be rebuilt and the substations in between (**Map 2**). The Siting Team developed Routing Concepts in areas near the existing ROW where constraints were identified in the Study Area. The Routing Concepts were modified after desktop and field analysis into a Study Segment Network, consisting of Rebuild Study Segments (on-centerline options) and Re-Route Study Segments (off-centerline options). The Study Segment Network was presented to the public during a virtual open house (**Map 3**). Using public and stakeholder input, additional desktop analysis, the Study Segment Network was refined into a Rebuild Route and two Alternative Routes, located at the James River crossing. The Siting Team reviewed and analyzed the Rebuild Route and Alternative Routes based on resource constraints in the Study Area (**Maps 4 and 5**). The Proposed Route is a combination of the Rebuild Route and Alternative Route B (**Map 6**).

The Proposed Route begins at the Amherst Substation, off U.S. Route 60, and is located about 50 feet north of the existing ROW to avoid the Amherst Substation expansion area. The Proposed Route continues on centerline for about 3.6 miles and crosses U.S. Route 29 in the existing location. Residences along Burks Road and between Structures 429-66 and 68 are avoided by a slight northern shift of the existing ROW. The Proposed Route continues generally southwest and remains in existing ROW for about 1.8 miles. Between Structures 429-47 and 51, the Proposed Route diverts north of the existing centerline (about 150 feet) to avoid a residential area and then continues in existing ROW to the Monroe Substation, located off U.S. Route 29. The Proposed Route continues in existing ROW to the James River crossing. At the James River crossing, Alternative Route B was selected to connect and rebuild the Company's Reusens – Scottsville – Bremono Bluff 138-kV Transmission Line and the Amherst – Reusens 69 kV Transmission Line. Alternative Route B continues as a double-circuit span across the James River and south of the hydroelectric dam facility to reach the Reusens Substation, off Old Trents Ferry Road in the City of Lynchburg.

The existing ROW of the Amherst – Reusens 69-kV Transmission Line varies in width and is generally 60 to 100 feet wide. Based on preliminary engineering, the Company expects that the ROW of the rebuilt line will be 80 feet wide and will follow the existing ROW for most of its length. However, six residences have encroached in an 80-foot-wide ROW in a few limited locations. Based on its engineering analysis to date, the Company has preliminarily determined that the ROW for the rebuilt line could be narrower than 80 feet in those locations in order to keep the affected residences located outside of the final ROW. Accordingly, and subject to completion of final engineering and ROW negotiations with affected landowners, the Company does not expect that any residences will need to be removed to accommodate the rebuilt line.

The Proposed Route (including Alternative Route B) is 12.2 miles and located in or near existing ROW to maximize the use of existing ROWs and also attempt to minimize impacts to congested residential areas and avoid hydroelectric dam facilities. An off-centerline option was required for the James River crossing due to the location of the hydroelectric dam facility directly under the existing transmission line. Alternative Route B avoids the hydroelectric dam facility to the south and has fewer impacts to residences located north of the dam.

Collectively, the Siting Team believes the Proposed Route is (1) most consistent with the siting guidelines; (2) reasonably minimizes adverse impacts on area land uses and the natural and cultural environment by using existing ROW; (3) minimizes special design requirements and unreasonable costs; and (4) can be constructed and operated in a safe, timely, and reliable manner.

6.0 REFERENCES

Amherst County. 2017. *The 2017 Amherst County Comprehensive Plan*. November 21, 2017. Available at <https://www.countyofamherst.com>. Accessed June 1, 2019.

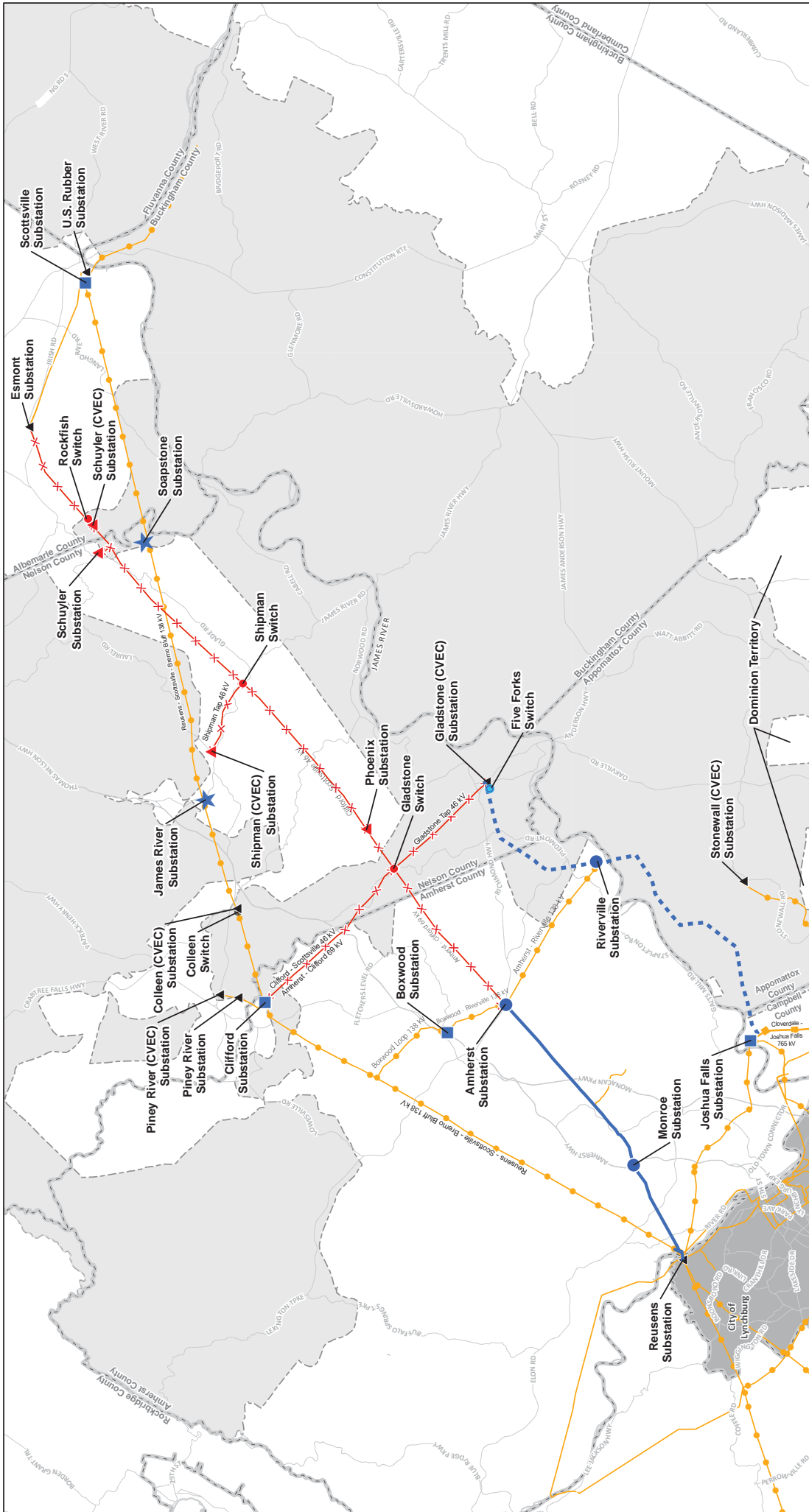
City of Lynchburg. 2017. *City of Lynchburg Comprehensive Plan: Planning for the Future 2013-2030*. November 21, 2017. Available at <https://www.lynchburgva.gov/comprehensive-plan>. Accessed June 1, 2019.

Cowardin, L.M., V. Carter, F.C. Golet, and E.T. Laroe. 1979. *Classification of Wetlands and Deepwater Habitats of the United States*. United States Department of Interior, Fish and Wildlife Service. FWS/OBS-79/31. p.103

Virginia Department of Wildlife Resources (VDWR). 2020. VDWR, formerly Virginia Department of Game and Inland Fisheries (VDGIF). Northern long-eared bat Winter Habitat and Roost Tree Application web mapper. <https://dgif-virginia.maps.arcgis.com/apps/webappviewer/index.html?id=32ea4ee4935942c092e41ddcd19e5ec5>. Accessed October 13, 2020.

United States Fish and Wildlife Service (USFWS). 2020. Information for Planning and Consultation (IPaC) project planning tool. Available at <https://ecos.fws.gov/ipac/>. Accessed October 13, 2020.

Attachment A: Maps



NAD 1983 StatePlane Virginia South FIPS 4502 Feet
Foot US
Lambert Conformal Conic
North American 1983

0 3.5 7
Miles

1" = 3.5 miles

Page 1 of 1

Project Components Subject to SCC Approval

- New 138 kV Substation
- New Switch
- Existing Substation to be Expanded
- Existing Substation to be Upgraded (Associated Substation Improvements - Inside the Fence)
- New 138 kV Transmission Lines
- Rebuild Existing 69 kV Line

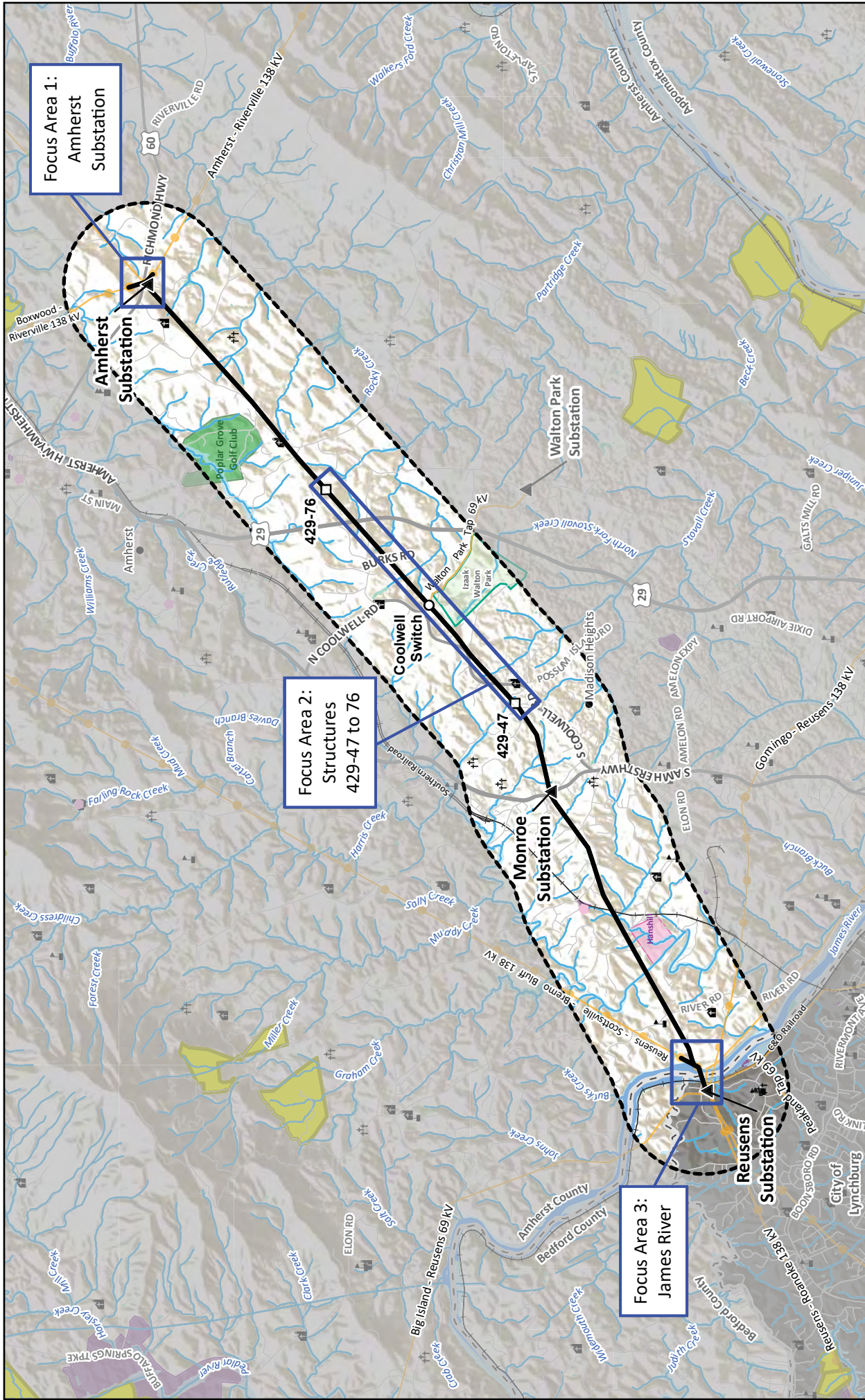
Existing 46kV System to be Retired:

- Existing Switch to be Retired
- Existing Substation to be Retired
- Existing Line to be Removed (Right-of-way will be retained)
- *Not seeking SCC Approval

Legend:

- Existing Substation
- Existing Switch
- Existing AEP Transmission Line (69 kV or lower)
- Existing AEP Transmission Line (115-230 kV)
- Existing AEP Transmission Line (345 kV +)
- Road/Highway
- County Boundary
- City of Lynchburg
- CVEC Territory
- AFCo Territory, unless otherwise noted





Focus Area 1:
Amherst
Substation

Focus Area 2:
Structures
429-47 to 76

Focus Area 3:
James River

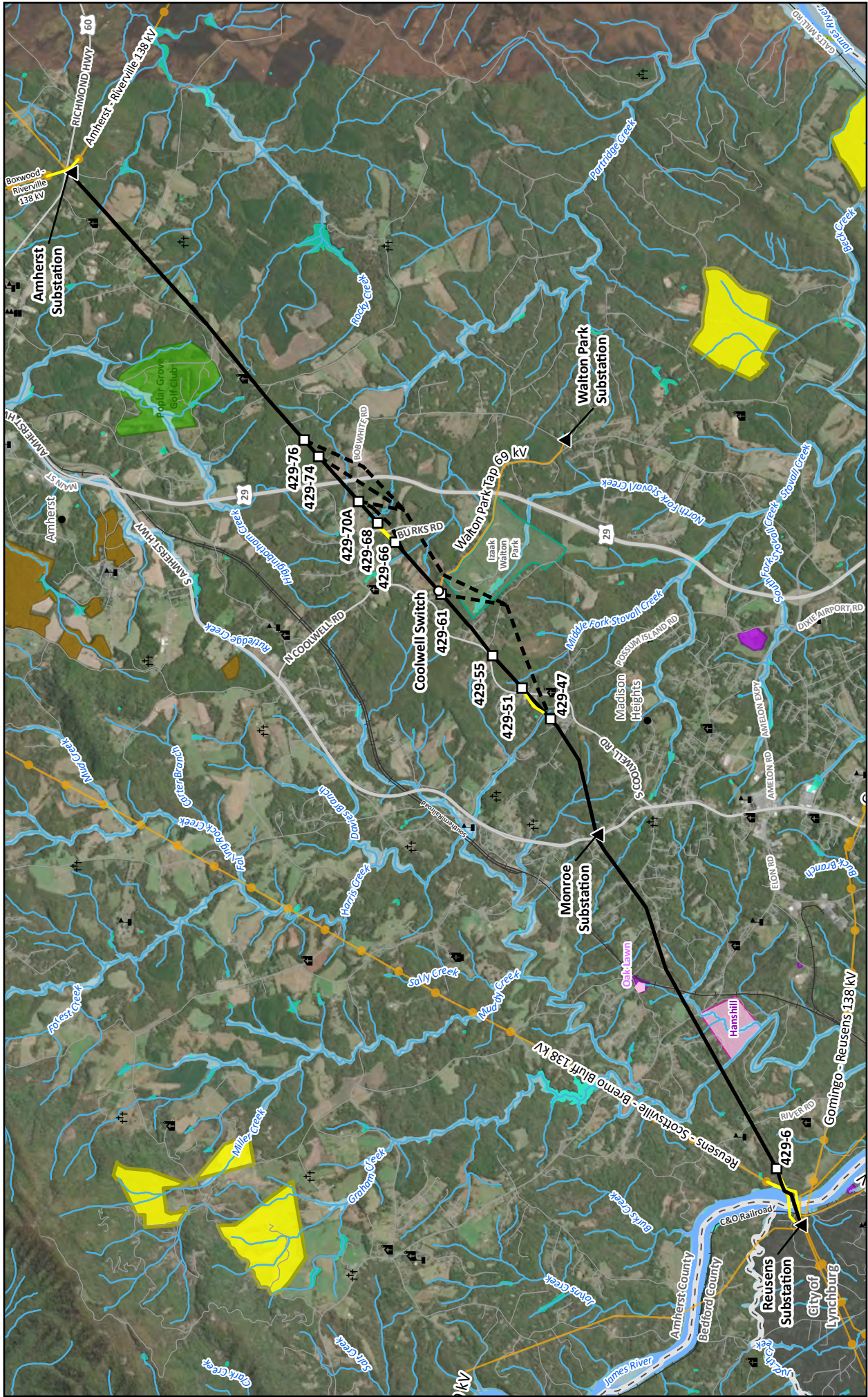
Map 2
Study Area and Focus Areas
Amherst - Reusens 69 KV
Transmission Line Rebuild Component

Central Virginia Transmission Reliability Project
Amherst County and City of Lynchburg
Virginia
MD 1981 HAN Statewide Virginia Sub FIPS 4502 feet
Amherst County GIS Data
Map Projection: UTM (NAD83)
Date: 12/31/2020
Author: CK
POWER: H9227

Component Location

0 0.5 1
Miles

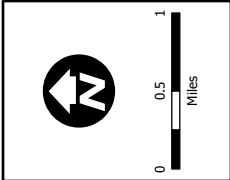
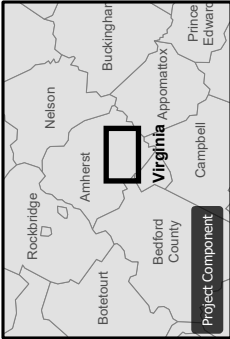
	Cemetery		100-year Floodplain
	School		City Limits
	Places of Worship		Evaluated Architecture Resources (MCRS)
	Historic Building (NRHP)		Poplar Grove Golf Club
	Road/Highway		Wetlands (NWI)
	Railroad		Historic Building (NRHP)
	Stream (NHD)		Izaak Walton Park
	City/County Boundary		NOT Conservation Easement
	Existing AEP Switch		Existing AEP Structure
	Existing AEP Substation		Existing Line to be Rebuilt
	Existing AEP Transmission Line (69 KV or lower)		Existing AEP Transmission Line (115-230 KV)
	Populated Place		



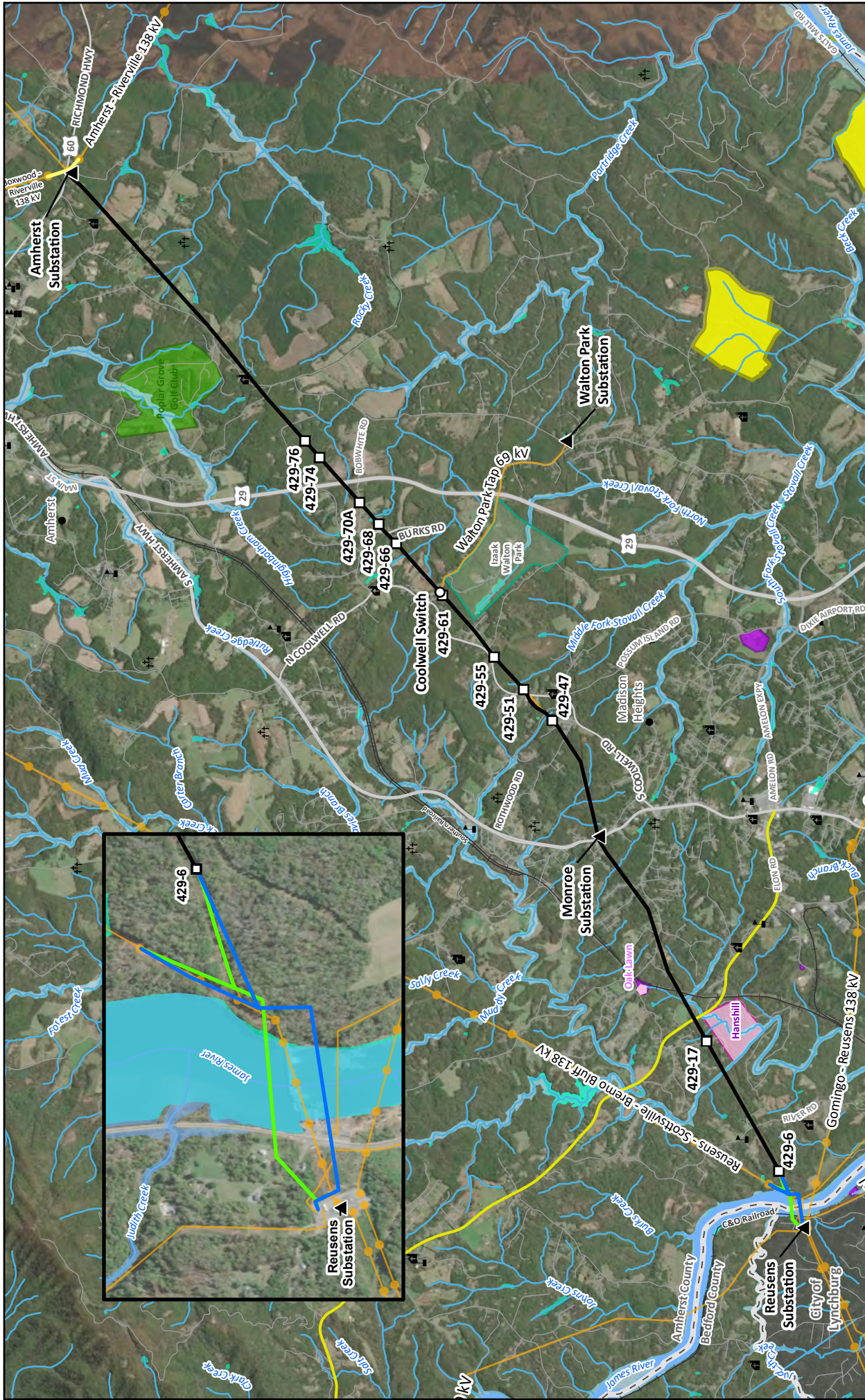
Map 3 Routing Concepts and Study Segments

Amherst - Reusens 69 kV
Transmission Line Rebuild Component

Central Virginia Transmission Reliability Project
Amherst County and City of Lynchburg
Virginia
MD 1983 HAN Statewide Virginia State FPS 4502 feet
Amherst County 108.00 Acres
Map Projection: UTM 18N
Date: 12/31/2020
Author: CK
POWER: 49227



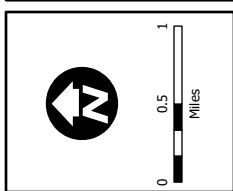
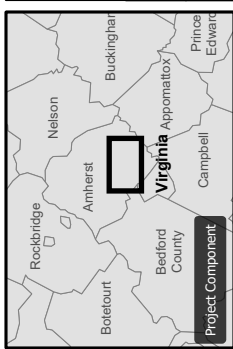
- Existing AEP Structure
 - Existing AEP Substation
 - Rebuild Study Segment (On-Centerline)
 - Re-Route Study Segment (Off Centerline)
 - Routing Concepts Dismissed
 - Existing AEP Transmission Line (69 kV or lower)
 - Existing AEP Transmission Line (115-230 kV)
 - Existing AEP Transmission Line (345 kV +)
- Stream (MHD)
 - VOF Conservation Easement
 - Private Conservation Land
 - Wetlands (NWI)
 - 100-year Floodplain
 - Historic Building (NRHP)
 - Evaluated Architecture Resources (VCRIS)
 - City Limits
 - Poplar Grove Golf Club
 - Izaak Walton Park
- Historic Building (NRHP)
 - Populated Place
 - Cemetery
 - School
 - Places of Worship
 - Road/Highway
 - Road/Highway
 - Railroad
 - City/County Boundary
 - NHD Area



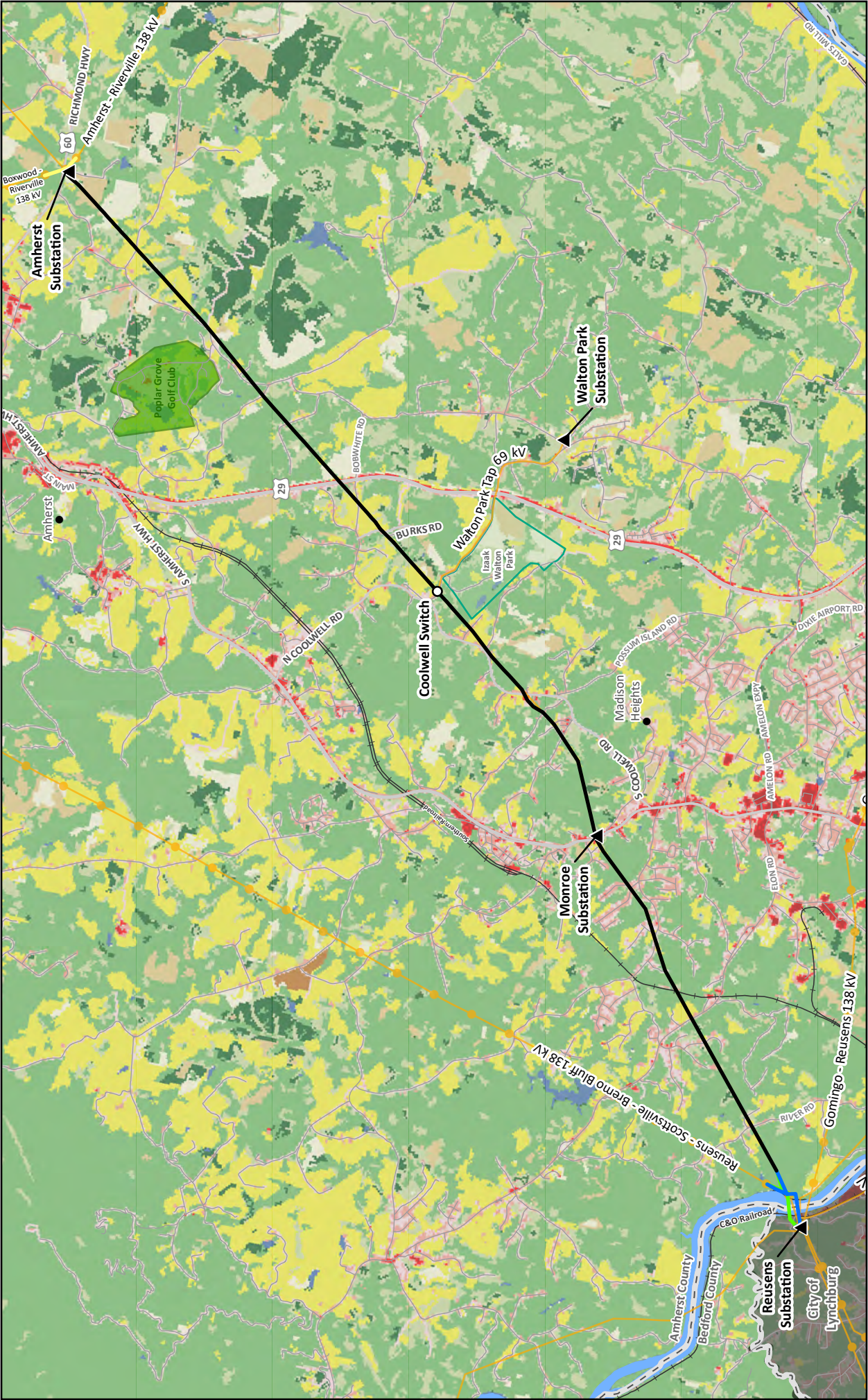
Map 4 Rebuild Route & Alternative Routes

Amherst - Reusens 69 kV
Transmission Line Rebuild Component

Central Virginia Transmission Reliability Project
Amherst County and City of Lynchburg
Virginia
Date: 12/31/2020
Author: CK
POWER: 49227



<ul style="list-style-type: none"> Existing AEP Substation Existing AEP Switch Existing AEP Structure Rebuild route Alternative Route A Alternative Route B 138 kV Transmission Line Relocation Existing AEP Transmission Line (69 kV or lower) Existing AEP Transmission Line (115-230 kV) 	<ul style="list-style-type: none"> Historic Building (NRHP) Populated Place Cemetery School Places of Worship Road/Highway Road/Highway (VDOT) Virginia Byway (VDOT) Railroad Stream (NHD) 	<ul style="list-style-type: none"> City/County Boundary VOF Conservation Easement Wetlands (NWI) 100-year Floodplain Historic Building (NRHP) City Limits Poplar Grove Golf Club Evaluated Architecture Resources (VCRS) Izaak Walton Park
--	--	---



Map 5 Land Use

Amherst - Reusens 69 kV
Transmission Line Rebuild Component

Central Virginia Transmission
Reliability Project

Amherst County and City of Lynchburg
Virginia

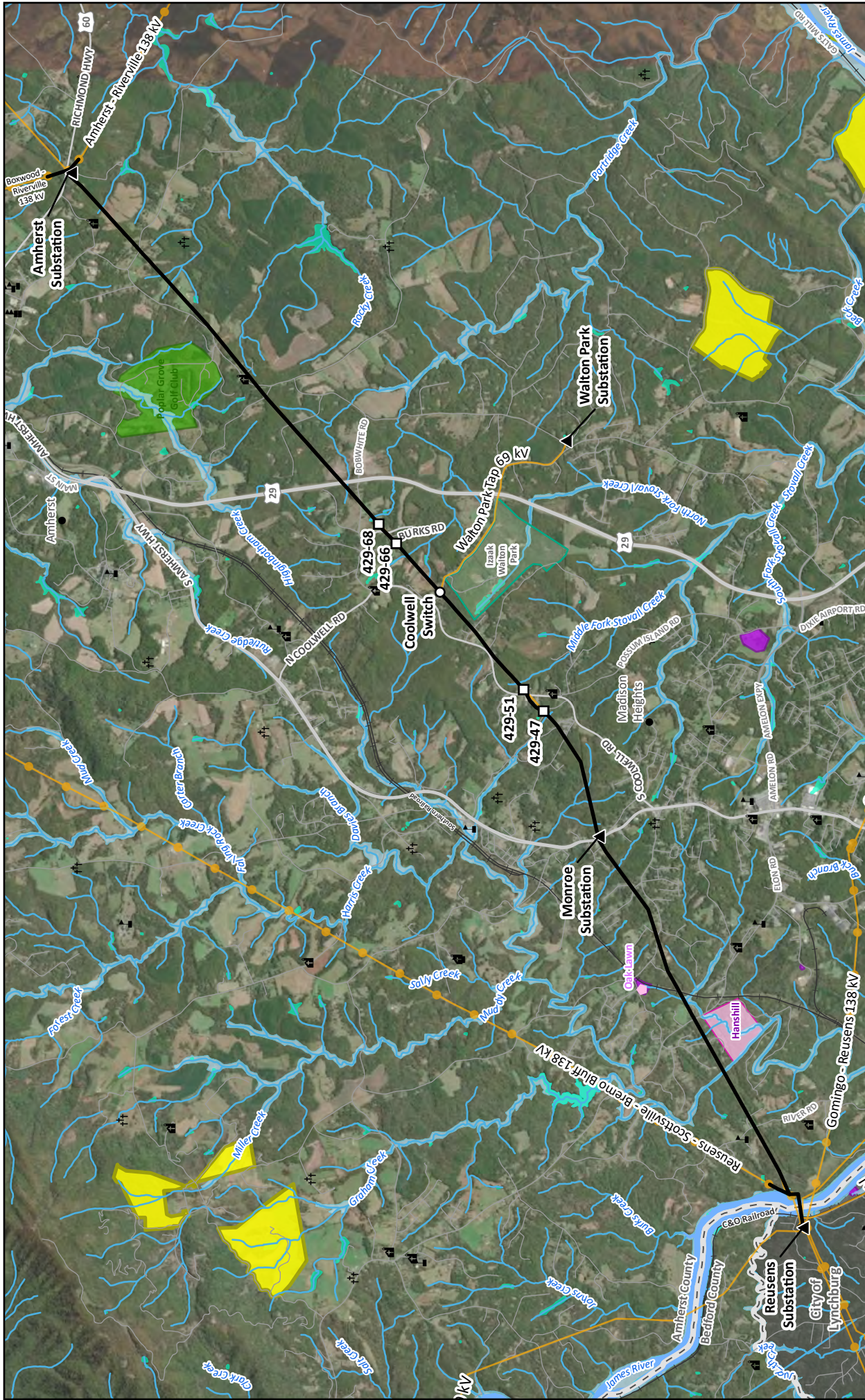
MD 1983 HAN Statewide Virginia State FPS 4502 feet
Amherst County 12810000
Map Projection: UTM (NAD83)

Date: 12/31/2020
Author: CK
POWER: 49227

Project Component

0 0.5 1
Miles

Legend	
	Existing AEP Substation
	Existing AEP Switch
	Populated Place
	Rebuild route
	Alternative Route A
	Alternative Route B
	138 kV Transmission Line Rebuild
	Existing AEP Transmission Line (69 kV or lower)
	Open Water
	Developed, Open Space
	Developed, Low Intensity
	Developed, Medium Intensity
	Developed, High Intensity
	Barren Land (Rock/Sand/Clay)
	Deciduous Forest
	Evergreen Forest
	Mixed Forest
	Shrub/Scrub
	Grassland/Herbaceous
	Pasture/Hay
	Cultivated Crops
	Woody Wetlands
	Emergent Herbaceous Wetlands
	Existing AEP Transmission Line (115-230 kV)
	Road/Highway
	Road/Highway
	Road
	City/County Boundary
	NI/DACA
	City Limits
	Poplar Grove Golf Club
	Isaak Walton Park



Map 6

Proposed Route

Amherst - Reusens 69 kV
Transmission Line Rebuild Component

Central Virginia Transmission Reliability Project

Amherst County and City of Lynchburg
Virginia

MD 1983 HAN Statewide Virginia South FIPS 4502 feet
Amherst County GIS Data
Map Projection: UTM 18N

Date: 1/6/2021
Author: CK
POWER: 49227

Project Component

<ul style="list-style-type: none"> Existing AEP Substation Existing AEP Switch Existing AEP Structure Populated Place Proposed Route Existing AEP Transmission Line (69 kV or lower) Existing AEP Transmission Line (115-230 kV) Existing AEP Transmission Line (345 kV +) Historic Building (NRHP) 	<ul style="list-style-type: none"> Cemetery School Places of Worship Stream (NHD) Road/Highway Road/Highway Railroad City/County Boundary VOE Conservation Easement 	<ul style="list-style-type: none"> Wetlands (NWI) 100-year Floodplain Historic Building (NRHP) City Limits Poplar Grove Golf Club NHD Area Evaluated Architecture Resources (VCR15) Isak Walton Park
--	--	--

Attachment B: GIS Data Sources

Attachment B. GIS Data Sources		
Siting Criteria	Source	Description
Natural Environment		
Number of NHD stream and waterbody crossings within the ROW	USGS NHD (2020)	The NHD is a comprehensive set of digital spatial data prepared by the USGS that contains information about surface water features such as lakes, ponds, streams, rivers, springs and wells
Acres of NWI wetland crossings within the ROW	USFWS NWI (2020)	The NWI produces information on the characteristics, extent, and status of the Nation’s wetlands and deepwater habitats
Acres of 100-year floodplain crossing within the ROW	U.S. Federal Emergency and Management Agency (FEMA) (2017)	Acres of 100-year floodplain within the ROW
Miles of public lands crossed by the route	The Protected Areas Database of the United States (PAD-US) (2018)	Miles of federal, state and local lands crossed by the ROW
Percent of hydric soils within the ROW	United States Department of Agriculture (USDA-NRCS), Natural Resources Conservation Service Soil Survey Geographic (SSURGO), State Soil Geographic (STATSGO) Database (Amherst County data 2009; downloaded 2020), (City of Lynchburg data 1977; downloaded 2020)	Percent of soil associations crossed by the ROW characterized as hydric, predominantly hydric, partially hydric and non-hydric
Acres of prime farmland soils and soils of statewide importance within the ROW	USDA-NRCS SSURGO Database (Amherst County data 2009; downloaded 2020), (City of	Acres of soil associations crossed by the ROW characterized as prime farmland or farmland of statewide importance

	Lynchburg data 1977; downloaded 2020)	
Number of known caves or mines within the ROW	Virginia Department of Mines, Minerals and Energy (DMME) (2020)	Count of known mines or caves
Tree clearing within the ROW	Digitized based on ortho imagery sources VBMP (2019) and Esri (2018); NLCD Tree Canopy Cover (2019)	Acres of forest within the ROW
Threatened, endangered, rare or sensitive species occurrence within the Project vicinity	USFWS (2020)	Known occurrences; locations of potential habitat based on land use
Special natural areas crossed by the ROW and within 250 feet	USFWS (2020)	Location of special natural areas in proximity to ROWs
Human Environment		
Number of parcels and unique landowners crossed by the ROW	Virginia Geographic Information Network (2020), City of Lynchburg (downloaded 2020), and Amherst County (2020)	Count of the number of parcels and landowners crossed by the ROW
Number of residences within ROW	Digitized from Virginia Information Technologies Agency [VITA] (2019) and digitized from LiDAR survey results (November 2019)	Count of the number of residences within a 100-foot and 80-foot ROW
Number of residences within 250 feet of the route centerline	Digitized from Virginia Information Technologies Agency [VITA] (2019)	Count of the number of residences within the ROW and within 250 feet of potential routes

	and digitized from LiDAR survey results (November 2019)	
Number of commercial buildings within 250 feet of the route centerline	Digitized from VITA (2019) and digitized from LiDAR survey results (November 2019)	Count of the number of commercial buildings within the ROW and within 250 feet of potential routes
Land use acreage and distance crossed by the ROW	National Land Cover Database [NLCD] (2019)	The NLCD (NLCD 2019) compiled by the Multi-Resolution Land Characteristics (MRLC) Consortium includes 15 classes of land cover from Landsat satellite imagery
Acres of agricultural district land crossed	National Land Cover Database [NLCD] (2019)	Protected land that is devoted exclusively to agricultural production or devoted to and qualified for compensation under a federal land retirement or conservation program that is at least 10 acres in size, or produces an average yearly gross income of at least \$2,500 during a 3-year period
Acres of conservation easements crossed by the ROW and within 250 feet of route centerline	National Conservation Easement Database [NCED] (2020), VOF (2020), DOF (2020)	Private conservation easements crossed by or in proximity to the routes from the NCED which is comprised of voluntarily reported conservation easement information from land trusts and public agencies. Conservation lands and easements including VOF and DOF easements were referenced.
Institutional uses (schools, places of worship, parks, and cemeteries) within 1,000 feet of the route centerline	USGS's Geographic Names Information System (GNIS) (2020)	This dataset includes the locations of cemeteries, churches, hospitals, parks, and schools. Features within 1,000 feet of potential routes were field verified.
Number of historic architectural resources within the ROW, within one mile	VHDR#'s VCRIS (2020)	Previously identified historic architectural resource sites and districts listed or eligible on the NRHP acquired through VHDR#'s VCRIS

Number of archeological resources within the ROW and within 100 feet of route centerline	VHDR#’s Virginia Cultural Information System (VCRIS) (2020)	Previously identified archeological resources listed or eligible on the National Register of Historic Places (NRHP) acquired through VHDR#’s VCRIS (2020)
Constructability		
Route length	Measured in GIS	Length of route in miles
Number of road crossings	VBMP RCL (2019)	Count of federal, state and local roadway crossings
Airfield and heliports within one mile of the route centerline	USGS’s GNIS (2020) and the Federal Aviation Administration (FAA) database (2020)	Distance from airfields and heliports
Communication towers within 1,000 feet of the route centerline	Federal Communications Commission [FCC] (2020)	Count of communication towers, including AM and FM radio towers, within 1,000 feet of the route centerline
Number of pipeline crossings	S&P Global Platts NGL Refined Product Pipelines (2019) Platts GIS Data (2020)	Number of known pipelines crossed by the transmission ROW
Number of transmission line crossings	AEP TGIS	Number of high voltage (69 kV or greater) transmission lines crossed by the ROW
Distance of steep slopes crossed	Derived from seamless Digital Elevation Models (DEMs) obtained from the USGS (2020)	Miles of slope greater than 20% for angle structures and more than 30% for tangent structures crossed by the routes
Number of heavy angle structures	Developed in GIS	Anticipated number of angled structures greater than 30 degrees based on preliminary design
Length of transmission line parallel	AEP TGIS and measured in GIS	Miles of the route parallel to existing high voltage transmission lines
Length of road parallel	VBMP RCL (2019) and measured in GIS	Miles of the route parallel to existing roadways

Length of pipeline parallel	S&P Global Platts NGL Refined Product Pipelines (2019) and measured in GIS	Miles of the route parallel to existing pipelines
-----------------------------	--	---

Attachment C: Agency Correspondence

Jurisdiction	Response Received	First Name	Last Name	Title	Organization	Email Address
Stakeholder	3/6/2020 (Chuck Ward - Manager Engineering Services)	Bruce	Maurhoff	Senior VP and COO	CVEC	bmaurhoff@mycvec.com
	3/6/2020	Chuck	Ward, Jr.	Engineering Services Manager	CVEC	cward@mycvec.com
	N	Alex	Kessinger	Maintenance and Engineering Manager	Greif Corporation	alex.kessinger@greif.com
	N	Ricky	Jones	Land Use Forester	Weyerhaeuser Company	ricky.jones@weyerhaeuser.com
Local	N	Dean	Rodgers	County Administrator	Amherst County	dcredgers@countyofamherst.com
	N	Jeremy	Bryant	Director of Planning and Zoning	Amherst County	jsbryant@countyofamherst.com
	N	Michael	Martineau	Planning Commissioner - District 1	Amherst County	mkmartineau@countyofamherst.com
	N	Susan	Adams	County Administrator	Appomattox County	susan.adams@appomattoxcountyva.gov
	N	Johnnie	Roark	Director of Community Development	Appomattox County	johnnie.roark@appomattoxcountyva.gov
	N	Josh	Mills	Planning Commission - Wreck Island District	Appomattox County	PlanningCommission@appomattoxcountyva.gov
	N	Annie	Trent	Planning Commission - Piney Mountain District	Appomattox County	PlanningCommission@appomattoxcountyva.gov
	N	Frank	Rogers	County Administrator	Campbell County	administration@campbellcountyva.gov
	N	Paul	Harvey	Director of Community Development	Campbell County	paul.harvey@campbellcountyva.gov
	N	Richard	Metz	Planning Commission - Concord District	Campbell County	GCM3441@aol.com
	2/21/2020 (Email via Steve Carter)	Steve	Carter	County Administrator	Nelson County	scarter@nelsoncounty.org
	2/21/2020 (Email via Steve Carter)	Dylan	Bishop	Zoning Director	Nelson County	dbishop@nelsoncounty.org
	2/21/2020 (Email via Steve Carter)	Chuck	Miller	Building Official	Nelson County	cmiller@nelsoncounty.org
	2/21/2020 (Email via Steve Carter)	Mary Kathryn	Allen	Planning Commission - South District	Nelson County	mkallen@nelsoncounty.org
	2/21/2020 (Email via Steve Carter)	Charles	Amante	Planning Commission - East District	Nelson County	camante@nelsoncounty.org
	N	Kent	White	Community Development Director	City of Lynchburg	kent.white@lynchburgva.gov
	N	Bonnie	Svrcek	City Manager	City of Lynchburg	bonnie.svrcek@lynchburgva.gov
N	Robert	Bowden III	Planning Commission - Ward 1	City of Lynchburg	NA	
State	N	Amy	Ewing	Biologist	VDGIF Environmental Services Section	Amy.Ewing@dgif.virginia.gov
	5/27/2020 via email	Wil	Orndorff	Karst Protection Coordinator	VDCR Natural Heritage Program	wil.orndorff@dcr.virginia.gov
	3/6/2020	René	Hypes	Environmental Review Coordinator	VDCR Natural Heritage Program	Rene.Hypes@dcr.virginia.gov
	N	Irvine	Wilson	Natural Area Protection Specialist	VDCR Planning and Recreation	irvine.wilson@dcr.virginia.gov
	N	Amy	Thatcher Owens	Regional Director	VDEQ Valley Regional Office	amy.owens@deq.virginia.gov
	3/4/2020 (Kevin Harlow, EIR Coordinator)	Robert	Weld	Regional Director	VDEQ Blue Ridge Regional Office	Robert.Weld@deq.virginia.gov
	N	Michelle	Henichack	Senior Wetland Ecologist	VDEQ Central Office	michelle.henichack@deq.virginia.gov
	2/11/2020	Bettina	Rayfield	Manager, Environmental Impact review	VDEQ Office of Environmental Impact Review	Bettina.Rayfield@deq.virginia.gov
	N	Jay	Roberts	VWP Permit Manager	VDEQ Office of Wetland and Stream Protection - Blue Ridge Regional Office	Jesse.Roberts@deq.virginia.gov
	N	Keith	Roberts	VWP Permit Manager	VDEQ Office of Wetland and Stream Protection - Valley Regional Office	Keith.Fowler@deq.virginia.gov
	2/24/2020 (Mike Johnson - Env Engineer)	Tony	Watkinson	Chief of Habitat Management	VMRC Habitat Management	Tony.Watkinson@mr.virginia.gov
	3/6/2020 (Renee Hypes, VDCR)	Jules	Umberger		VDACS-Southwest Region Office	jules.umberger@vdacs.virginia.gov
	N	Roger	Kirchen	Director, Review & Compliance Division	VDHR Division of Review and Compliance	roger.kirchen@dhr.virginia.gov
	2/26/2020	Martha	Little	Deputy Director of Stewardship	VOF	mlittle@vofonline.org
	N	Mike	Santucci	Forestland Conservation Program Manager	VDOF	mike.santucci@dof.virginia.gov
	N	Patrick	Murphy	Senior Area Forester	VDOF Heartland Work Area	patrick.murphy@dof.virginia.gov
	N	Martha	Warring	Senior Area Forester	VDOF James River Work Area	martha.warring@dof.virginia.gov
2/5/2020	Scott	Denny	Senior Aviation Planner	Virginia Department of Aviation	Scott.Denny@doav.virginia.gov	
2/24/2020 (Thomas Bibb, Engineering Manager)	Phil	Skorupa	Director, Division of Geology and Mineral Resources	Virginia Department of Mines, Minerals, and Energy	dgmrfinfo@dmme.virginia.gov	
N	Jeffrey	Wells	Office of Drinking Water	Virginia Department of Health, Danville Field Office	Jeff.Wells@vdh.virginia.gov	
N	Chris	Winstead	District Engineer	VDOT Lynchburg District	chris.winstead@VDOT.virginia.gov	
N	Kevin	Bradley	District Environmental Manager, Lynchburg	VDOT	Kevin.Bradley@VDOT.virginia.gov	
Federal	2/14/2020 (Dana Heston - Env Scientist)	Jennifer	Frye	Chief, Western Virginia Regulatory Section	USACE Norfolk District, Western Section	jennifer.s.frye@usace.army.mil
	N	Servidio	Cosmo	Regional Administrator	U.S. Environmental Protection Agency Region 3	R3_RA@epa.gov
	N	Bridgett	Costanzo	State Coordinator	USFWS Virginia Ecological Services	bridgett_costanzo@fws.gov
	N	John	Bricker	State Conservationist	U.S. Department of Agriculture Natural Resources Conservation Service Virginia	jack.bricker@va.usda.gov
	N	John	Simpkins	Planning and Environment team Lead	USDOT Federal Highway Administration Virginia Division	john.simpkins@dot.gov
	N	Jeff	Slaughter	Manager	USDOT-FAA Flight Standards District Office	N/A
N	Arnold	Fouch	Manager	FAA Eastern Region Planning and Programming Branch -Roanoke	arnold.fouch@faa.gov	



POWER ENGINEERS, INC.
11 S. 12TH STREET
SUITE 315
RICHMOND, VA 23219 USA

January 30, 2020

[NAME]
[ADDRESS]
[CITY], [STATE]
[ZIP]

RE: Appalachian Power Company – Central Virginia Transmission Reliability Project: Albemarle, Amherst, Appomattox, Campbell and Nelson Counties and the City of Lynchburg, Virginia

[NAME],

Appalachian Power Company is proposing the Central Virginia Transmission Reliability Project (the Project), which is comprised of several components. Appalachian Power Company contracted POWER Engineers, Inc. (POWER) to conduct siting studies for the Project's components and prepare the Certificate of Public Convenience and Necessity application for filing with the Virginia State Corporation Commission (SCC). On behalf of Appalachian Power Company, POWER is requesting your input on three phases: Joshua Falls – Gladstone, Shipman – Schuyler and Amherst – Reusens. The Project provides a new electrical source to the region, increases reliability to customers and supports the retirement of aging infrastructure in Albemarle, Amherst, Appomattox, Campbell and Nelson counties.

Joshua Falls – Gladstone consists of the following:

- Construct approximately 15 miles of new single-circuit 138 kilovolt (kV) transmission line between the Joshua Falls, Riverville and Gladstone substations (Amherst, Appomattox, Campbell and Nelson counties).
- Expand the Amherst and Riverville substations (Amherst and Nelson counties).
- Upgrade the Boxwood Substation (Amherst County).

Shipman – Schuyler consists of the following:

- Build the new James River 138 kV Substation and short new double-circuit 138 kV transmission line tap in Nelson County. The James River Substation will replace the existing Shipman 46 kV Substation, which will be retired.
- Build the new Soapstone 138 kV Substation and short new double-circuit 138 kV transmission line tap in Nelson County. The Soapstone Substation will replace the existing Schuyler 46 kV Substation.

Amherst – Reusens consists of the following:

- Rebuild approximately 12 miles of existing single-circuit 69 kV transmission line between the Amherst and Reusens substations (Amherst County and the City of Lynchburg).

The Joshua Falls – Gladstone and Shipman – Schuyler components support the future retirement of Appalachian Power's aging 46 and 69 kV transmission system (approximately 30 miles) upon completion of the Project. The Amherst – Reusens component is needed as a direct result of the

Project resulting in thermal violations. The Project will provide a new robust 138 kV source in the region and thus strengthen the local grid while reducing the likelihood of extended outages to customers.

Appalachian Power Company and POWER have identified preliminary study segments for the proposed Joshua Falls – Gladstone 138 kV transmission line and a study area for the proposed 138 kV substations and Amherst – Reusens rebuild. **Attachment 1** shows the preliminary study segments for the new 138 kV transmission line. **Attachment 2** shows the proposed 138 kV substations vicinities. **Attachment 3** shows the existing 69 kV transmission line to be rebuilt.

Appalachian Power Company is interested to know if your agency has any specific concerns about the above mentioned Project phases. We appreciate your input and your comments will be incorporated into the filing with the SCC. Please distribute this notification to staff members who may be involved with the phases for review and comment.

Should you have questions, please contact me via email at emily.larson@powereng.com or by phone at 609-570-2772. If you wish to speak with an Appalachian Power Company representative, please contact Scott Kennedy via email at skennedy@aep.com or by phone at 540-759-5608.

Sincerely,

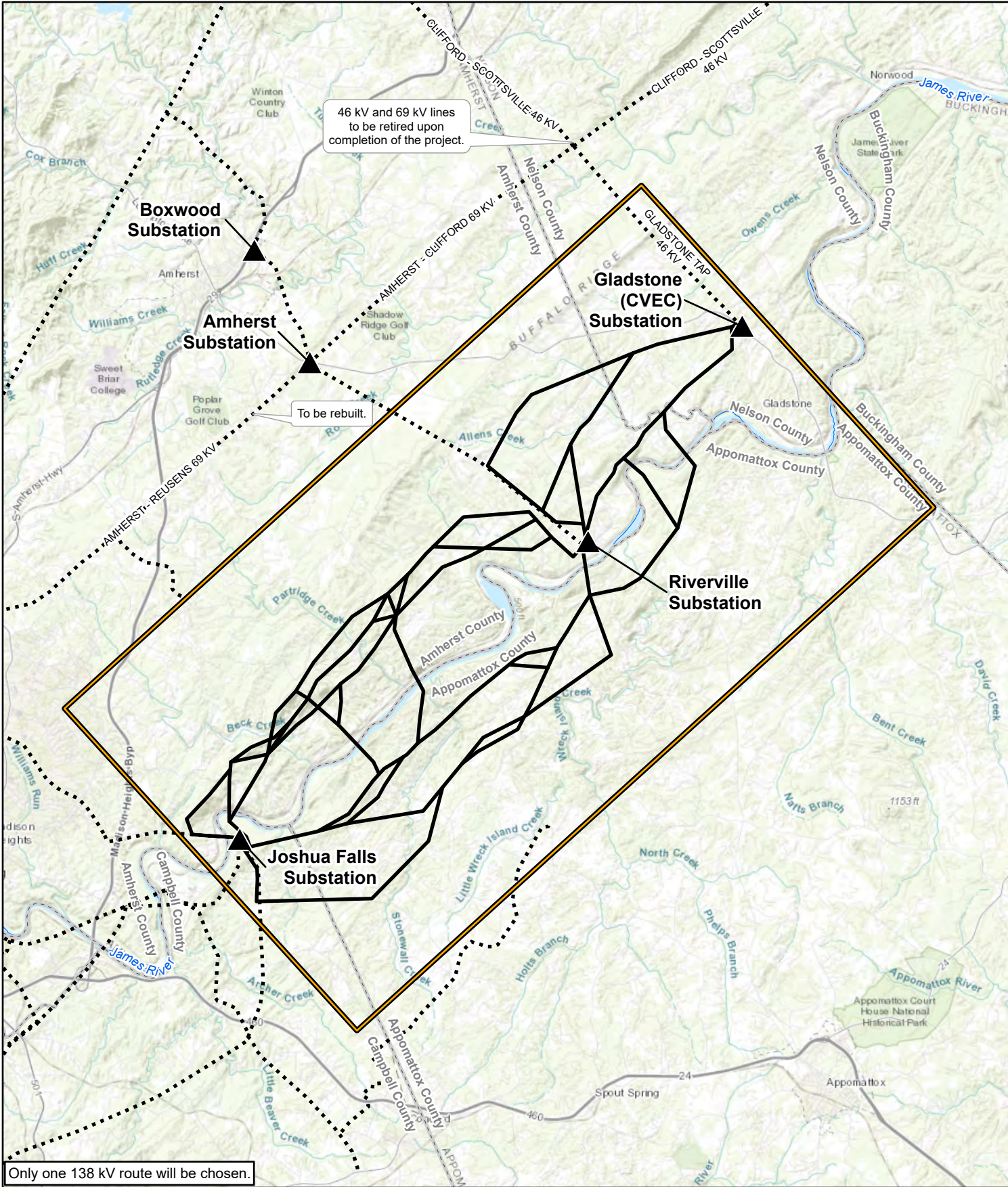


Emily Larson
POWER Engineers, Inc.

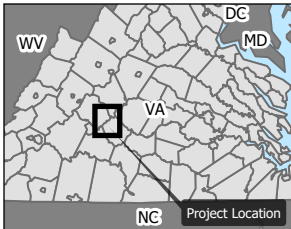
Enclosure(s): Attachment 1: Joshua Falls – Gladstone 138 kV Preliminary Study Segments Map
Attachment 2: Shipman – Schuyler 138 kV Substations Vicinities Map
Attachment 3: Amherst – Reusens 69 kV Transmission Line to be Rebuilt Map

ATTACHMENT 1

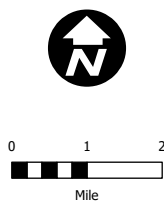
JOSHUA FALLS – GLADSTONE 138 KV PRELIMINARY STUDY SEGMENTS MAP



Only one 138 kV route will be chosen.



- ▲ Existing Substation
- 138 kV Preliminary Study Segments
- ⋯ Existing Transmission Line
- - - County Boundary
- ▭ Project Study Area



Amherst, Appomattox,
Campbell, and Nelson Counties
Virginia

NAD 1983 HARN StatePlane Virginia South FIPS 4502 Feet
Foot US
Lambert Conformal Conic
North American 1983 HARN

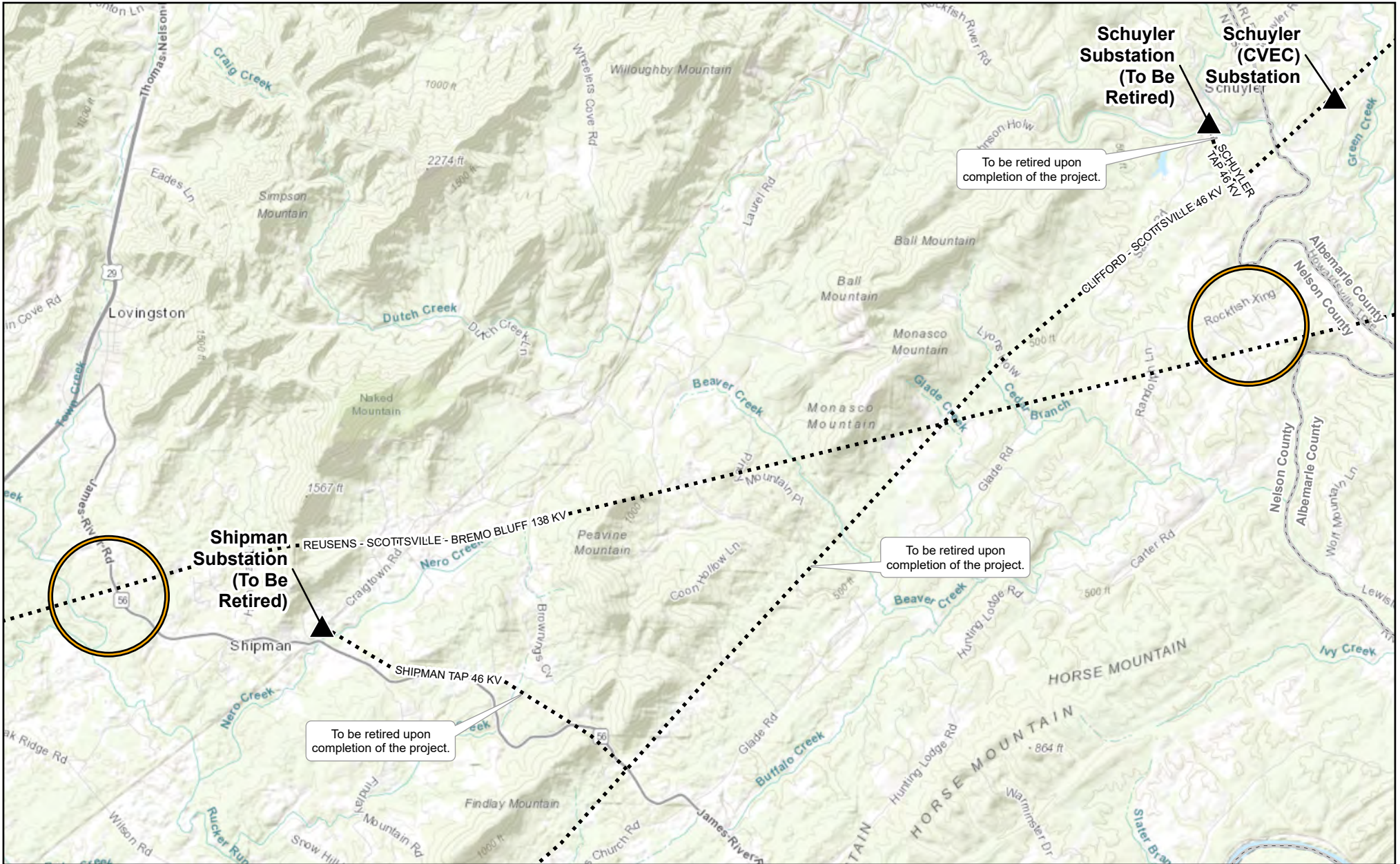
Date: 1/8/2020
Author: KK
Project: 153520, 153521





Central Virginia Transmission Reliability Project


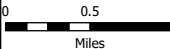
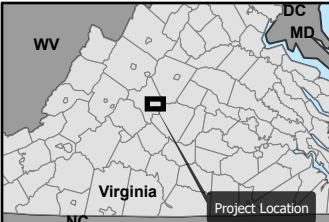
Joshua Falls - Gladstone

ATTACHMENT 2

SHIPMAN – SCHUYLER 138 KV SUBSTATIONS VICINITIES MAP



-  Existing Substation
-  Existing Transmission Line
-  Proposed 138 kV Substation Vicinity
-  County Boundary







Nelson County
Virginia

NAD 1983 HARN StatePlane Virginia South FIPS 4502 Feet
Lambert Conformal Conic
North American 1983 HARN

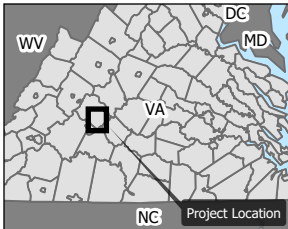
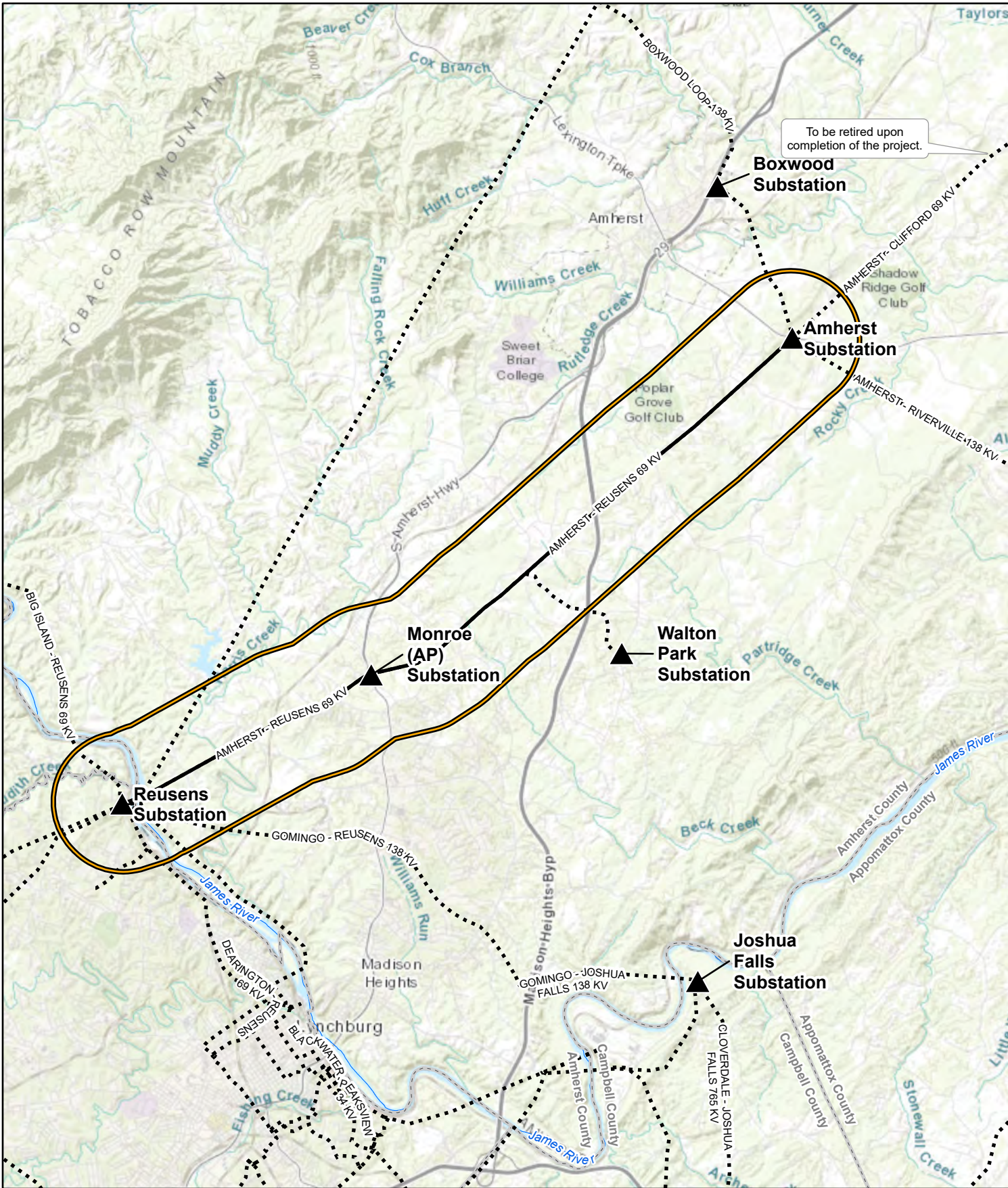
Date: 1/8/2020
Author: KK
Project: 149231, 149232

Central Virginia Transmission Reliability Project
Shipman - Schuyler

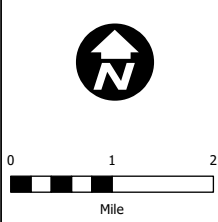



ATTACHMENT 3

AMHERST – REUSENS 69 KV TRANSMISSION LINE TO BE REBUILT MAP



- ▲ Existing Substation
- 69 kV Transmission Line to be Rebuilt
- ⋯ Existing Transmission Line
- - - City/County Boundary
- ▭ Project Study Area



Amherst County & Lynchburg City
Virginia

NAD 1983 HARN StatePlane Virginia South FIPS 4502 Feet
Foot US
Lambert Conformal Conic
North American 1983 HARN

Date: 1/8/2020
Author: KK
Project: 153520, 153521

Central Virginia Transmission Reliability Project

Amherst - Reusens



COMMONWEALTH of VIRGINIA

Mark K. Flynn
Director

Department of Aviation
5702 Gulfstream Road
Richmond, Virginia 23250-2422

V/TDD • (804) 236-3624
FAX • (804) 236-3635

February 5, 2020

Ms. Emily Larson
Power Engineers, Inc.
11 South 12th Street, Suite 315
Richmond, Virginia 23219

RE: Appalachian Power Company Projects

Dear Ms. Larson:

The Virginia Department of Aviation has reviewed the information package you provided dated January 30, 2020. Based on the information within the package, it does not appear as though any portion of any of the projects identified will be located within 20,000 linear feet of a public use airport. Therefore, unless any of the structures (including temporary construction crane) will reach an overall height of 200' above ground level, an airspace study will not be required by the Federal Aviation Administration.

Please note that this comment letter is in reference to the following projects:

- Joshua Fall-Gladstone 138kV transmission line and substation construction
- Amherst-Rusens rebuild of substations and 68kV transmission line construction
- Shipman-Schuyler James River Substation and 138kV transmission line construction

If you have any additional questions regarding this matter, please contact me at (804) 236-3638.

Sincerely,

A handwritten signature in black ink, appearing to read "S. Scott Denny".

S. Scott Denny
Senior Aviation Planner
Virginia Department of Aviation



COMMONWEALTH of VIRGINIA

DEPARTMENT OF ENVIRONMENTAL QUALITY
Street address: 629 East Main Street, Richmond, Virginia 23219
Mailing address: P.O. Box 1105, Richmond, Virginia 23218
www.deq.virginia.gov

Matthew J. Strickler
Secretary of Natural Resources

David K. Paylor
Director

(804) 698-4000
1-800-592-5482

February 11, 2020

Emily Larson
POWER Engineers, Inc
11S. 12th Street, Suite 315
Richmond, Virginia 23219
Emily.larson@powereng.com

RE: Central Virginia Transmission Reliability Project; Albermarle, Amherst, Appomattox, Cambell and Nelson Counties and the City of Lynchburg, Virginia

Dear Ms. Larson:

This letter is in response to the scoping request for the above-referenced project.

As you may know, the Department of Environmental Quality, through its Office of Environmental Impact Review (DEQ-OEIR), is responsible for coordinating Virginia's review of environmental impacts for electric power generating projects and power line projects in conjunction with the licensing process of the State Corporation Commission.

DOCUMENT SUBMISSIONS

In order to ensure an effective coordinated review of the environmental impact analysis may be sent directly to OEIR. We request that you submit one electronic to eir@deq.virginia.gov (25 MB maximum) or make the documents available for download at a website, file transfer protocol (ftp) site or the VITA LFT file share system (Requires an "invitation" for access. An invitation request should be sent to eir@deq.virginia.gov). The required "Wetlands Impact Consultation" can be sent directly to Michelle Henicheck at michelle.henicheck@deq.virginia.gov or at the address above.

ENVIRONMENTAL REVIEW UNDER VIRGINIA CODE 56-46.1

While this Office does not participate in scoping efforts beyond the advice given herein, other agencies are free to provide scoping comments concerning the preparation of the environmental impact analysis document. Accordingly, Dominion should coordinate with the following state agencies and those localities and Planning District Commissions, including but not limited to:

- Department of Environmental Quality:
- DEQ Regional Office
 - Air Division
 - Office of Wetlands and Stream Protection

- Office of Local Government Programs
 - Division of Land Protection and Revitalization
 - Office of Stormwater Management
- Department of Conservation and Recreation
 Department of Health
 Department of Agriculture and Consumer Services
 Department of Game and Inland Fisheries
 Virginia Marine Resources Commission
 Department of Historic Resources
 Department of Mines, Minerals, and Energy
 Department of Forestry
 Department of Transportation

DATA BASE ASSISTANCE

Below is a list of databases that may assist you in the preparation of a NEPA document:

- DEQ Online Database: Virginia Environmental Geographic Information Systems

Information on Permitted Solid Waste Management Facilities, Impaired Waters, Petroleum Releases, Registered Petroleum Facilities, Permitted Discharge (Virginia Pollution Discharge Elimination System Permits) Facilities, Resource Conservation and Recovery Act (RCRA) Sites, Water Monitoring Stations, National Wetlands Inventory:

- www.deq.virginia.gov/ConnectWithDEQ/VEGIS.aspx

- DEQ Virginia Coastal Geospatial and Educational Mapping System (GEMS)

Virginia's coastal resource data and maps; coastal laws and policies; facts on coastal resource values; and direct links to collaborating agencies responsible for current data:

- <http://128.172.160.131/gems2/>

- MARCO Mid-Atlantic Ocean Data Portal

The Mid-Atlantic Ocean Data Portal is a publicly available online toolkit and resource center that consolidates available data and enables users to visualize and analyze ocean resources and human use information such as fishing grounds, recreational areas, shipping lanes, habitat areas, and energy sites, among others.

<http://portal.midatlanticocean.org/visualize/#x=-73.24&y=38.93&z=7&logo=true&controls=true&basemap=Ocean&tab=data&legends=false&layers=true>

- DHR Data Sharing System.

Survey records in the DHR inventory:

- www.dhr.virginia.gov/archives/data_sharing_sys.htm

- DCR Natural Heritage Search

Produces lists of resources that occur in specific counties, watersheds or physiographic regions:

- www.dcr.virginia.gov/natural_heritage/dbsearchtool.shtml

- DGIF Fish and Wildlife Information Service

Information about Virginia's Wildlife resources:

- <http://vafwis.org/fwis/>

- Total Maximum Daily Loads Approved Reports

- <https://www.deq.virginia.gov/programs/water/waterqualityinformationtmdls/tmdl/tmdldevelopment/approvedtmdlreports.aspx>

- Virginia Outdoors Foundation: Identify VOF-protected land

- <http://vof.maps.arcgis.com/home/index.html>

- Environmental Protection Agency (EPA) Comprehensive Environmental Response, Compensation, and Liability Information System (CERCLIS) Database: Superfund Information Systems

Information on hazardous waste sites, potentially hazardous waste sites and remedial activities across the nation, including sites that are on the National Priorities List (NPL) or being considered for the NPL:

- www.epa.gov/superfund/sites/cursites/index.htm

- EPA RCRAInfo Search

Information on hazardous waste facilities:

- www.epa.gov/enviro/facts/rcrainfo/search.html

- Total Maximum Daily Loads Approved Reports

- <https://www.deq.virginia.gov/programs/water/waterqualityinformationtmdls/tmdl/tmdldevelopment/approvedtmdlreports.aspx>

- EPA Envirofacts Database

EPA Environmental Information, including EPA-Regulated Facilities and Toxics Release Inventory Reports:

- www.epa.gov/enviro/index.html

- EPA NEPAassist Database

Facilitates the environmental review process and project planning:

- <http://nepaassisttool.epa.gov/nepaassist/entry.aspx>

If you have questions about the environmental review process, please feel free to contact me (telephone (804) 698-4204 or e-mail bettina.rayfield@deq.virginia.gov).

I hope this information is helpful to you.

Sincerely,

A handwritten signature in black ink that reads "Bettina Rayfield". The signature is written in a cursive, flowing style.

Bettina Rayfield, Program Manager
Environmental Impact Review and
Long-Range Priorities



**DEPARTMENT OF THE ARMY
US ARMY CORPS OF ENGINEERS
NORFOLK DISTRICT
FORT NORFOLK
803 FRONT STREET
NORFOLK VA 23510-1011**

February 14, 2020

Western Virginia Regulatory Section
Action ID Number: NAO-2020-00284

Ms. Emily Larson
POWER Engineers, Inc.
11 S. 12th Street, Suite 315
Richmond, Virginia 23219

Dear Ms. Larson:

This letter is in response to your request for an environmental review of the Central Virginia Transmission Reliability Project. The proposed project is located in the Counties of Albemarle, Amherst, Appomattox, Campbell and Nelson, Virginia. The project involves constructing new transmission line, substations, and upgrading existing infrastructure to strengthen the local grid, reducing extended outages. The project has been assigned Action ID Number: NAO-2020-00284; please reference this number on any future correspondence.

Upon review of the maps you provided with your January 30, 2020 letter, along with available electronic and online resources, it appears that portions of this project may result in discharges of dredged and/or fill material into waters of the United States. As you are probably aware, both temporary and permanent discharges of dredged and/or fill material into waters of the United States are subject to the permitting requirements of Section 404 of the Clean Water Act (33 CFR 323). The proposed project may also impact navigable waters, subject to the permitting requirements of Section 10 of the Rivers and Harbors Act of 1899.

We strongly recommend that the proponent of this project submit a request to the U.S. Army Corps of Engineers, Norfolk District for an approved jurisdictional determination for the proposed project area prior to any construction activities.

Please be aware that through the Corps permitting processes, we must ensure that your project complies with other Federal Laws, such as the Endangered Species Act, the National Environmental Policy Act, and the National Historic Preservation Act. Based on our cursory review of the project area and a potential for the presence of Federally-listed Threatened and/or Endangered Species and cultural resources within our scope of analysis, the Corps would most likely initiate consultation with both the U.S. Fish and Wildlife Service (USFWS) and the Virginia Department of Historic Resources (VDHR). We strongly recommend that you coordinate this proposal with not only the USFWS and VDHR, but also the Virginia Department of Environmental Quality

CENAO-WRR-W
NAO-2020-00284

(VDEQ), the Virginia Marine Resources Commission (VMRC) and the Virginia Department of Game and Inland Fisheries (VGDIF).

We appreciate the opportunity to provide comments on your proposed project. Should you have any questions or concerns, please do not hesitate in contacting me at (540) 344-1409 or via email at dana.m.heston@usace.army.mil.

Sincerely,

A handwritten signature in cursive script that reads "Dana Heston".

Dana Heston
Environmental Scientist
Western Virginia Regulatory Section

From: [Larson, Emily](#)
To: [Pardis, Roya](#)
Subject: Fwd: Nelson County Re: Appalachian Power - Central VA Transmission Reliability Project
Date: Friday, February 21, 2020 2:25:52 PM

Emily Larson
301-848-8404

Begin forwarded message:

From: Steve Carter <SCarter@nelsoncounty.org>
Date: February 21, 2020 at 2:19:55 PM EST
To: "Larson, Emily" <emily.larson@powereng.com>, "skennedy@aep.com" <skennedy@aep.com>
Cc: Grace Mawyer <gmawyer@nelsoncounty.org>, Amanda Spivey <aspivey@nelsoncounty.org>
Subject: Nelson County Re: Appalachian Power - Central VA Transmission Reliability Project

Good afternoon Ms. Larson and Mr. Kennedy,

Thank you for the letter dated January 30, 2020 pertinent to the referenced subject. The communication on AP's transmission project has been forwarded to the members of Nelson County's Board of Supervisors, who have not submitted any questions, concerns or requests for additional information. County staff also have no comments to provide on the project other than to encourage Appalachian Power to complete the project as expeditiously as possible.

Please do not hesitate to contact this office if County staff can be of assistance to you as AP moves forward with implementing and completing this important project.

Respectfully,

Steve Carter



COMMONWEALTH of VIRGINIA

*Marine Resources Commission
380 Fenwick Road
Bldg 96
Fort Monroe, VA 23651-1064*

Matthew J. Strickler
Secretary of Natural Resources

Steven G. Bowman
Commissioner

February 24, 2020

POWER Engineers, Inc.
Attn: Emily Larson
11 S. 12th Street, Suite 315
Richmond VA 23219

Re: Comment Request
Appalachian Power Company: Central Virginia
Transmission Reliability Project

Dear Ms. Larson:

This will respond to the request for comments regarding the Appalachian Power Company Central Virginia Transmission Reliability Project, prepared by POWER Engineers, Inc, on behalf of Appalachian Power Company. Specifically, Appalachian Power Company has proposed to construct new transmission lines and substations to improve reliability in Albemarle, Amherst, Appomattox, Campbell, and Nelson Counties and the City of Lynchburg, Virginia. We reviewed the provided project documents and found the proposed project WILL require one or more permits from the Virginia Marine Resources Commission (VMRC) for jurisdictional river and stream crossings.

Please be advised that the VMRC, pursuant to §28.2-1200 et seq of the Code of Virginia, has jurisdiction over any encroachments in, on, or over the beds of the bays, ocean, rivers, streams, or creeks which are the property of the Commonwealth. Accordingly, if any portion of the subject project involves any encroachments channelward of ordinary high water along non-tidal, natural rivers and streams with a drainage area greater than 5-square miles, a permit may be required from our agency. Any jurisdictional impacts will be reviewed by the VMRC during the JPA process.

If you have any questions please contact me at (757) 247-2255 or by email at mike.johnson@mrc.virginia.gov. Thank you for the opportunity to comment.

Sincerely,


Mike Johnson
Environmental Engineer, Habitat Management

JMJ/keb
HM

An Agency of the Natural Resources Secretariat
www.mrc.virginia.gov

Telephone (757) 247-2200 (757) 247-2292 V/TDD Information and Emergency Hotline 1-800-541-4646 V/TDD



DIVISIONS
ENERGY
GAS AND OIL
GEOLOGY AND
MINERAL RESOURCES
MINED LAND RECLAMATION
MINERAL MINING
MINES
ADMINISTRATION

COMMONWEALTH OF VIRGINIA

Department of Mines, Minerals and Energy

Division of Mineral Mining
900 Natural Resources Drive, Ste. 400
Charlottesville, Virginia 22903
(434) 951-6310 FAX (434) 951-6325
www.dmme.virginia.gov

February 24, 2020

Ms. Emily Larson
Power Engineers, Inc.
11 South 12th Street, Suite 315
Richmond VA 23219

Re: Central Virginia Transmission Reliability Project

Dear Ms. Larson:

Thank you for your letter of January 30, 2020, and our recent telephone conversation.

Based on the data you provided, the VA Division of Mineral Mining does not have any concerns about the proposed locations shown in your letter.

If we can be of any further service, please let me know.

Very truly yours,

A handwritten signature in blue ink that reads "TC Bibb".

Thomas C. Bibb, P.E.
Engineering Manager

Xc: file



COMMONWEALTH of VIRGINIA

Matthew J. Strickler
Secretary of Natural Resources

DEPARTMENT OF ENVIRONMENTAL QUALITY

Blue Ridge Regional Office

901 Russell Drive, Salem, Virginia 24153
(540) 562-6700; Fax (540) 562-6725
www.deq.virginia.gov

David K. Paylor
Director

Robert J. Weld
Regional Director

March 4, 2020

Emily Larson
Power Engineers, Inc.
11 S. 12th Street
Suite 315
Richmond, VA 23219

<via email only>

Re: APC - Central Virginia Transmission Reliability Project: Albemarle, Amherst, Appomattox, Campbell, and Nelson Counties and the City of Lynchburg, VA;
Request for Comments

Dear Ms. Larson:

DEQ received your above submittal dated January 30, 2020 on February 6, 2020. The proposed Central Virginia Transmission Reliability Project in the Counties of Albemarle, Amherst, Appomattox, Campbell, and Nelson and the City of Lynchburg, Virginia is comprised of three phases: Joshua Falls – Gladstone, Shipman – Schuyler, and Amherst – Reusens. The project includes expanded, and upgraded substations and new 138 kV substations, retirement of 46 kV substations, construction of 138 kV transmission line, and rebuild of 69 kV transmission line.

Based upon the information submitted, no specific concerns regarding the above-mentioned project phases have been identified at this time provided the project is carried out in strict accordance with all applicable state, federal, and local laws and regulations.

Additional comments may be provided in a subsequent review phase. If you have any questions, please feel free to contact me by phone at (540) 562-6788 or by email at Kevin.Harlow@deq.virginia.gov.

Sincerely,

A handwritten signature in blue ink, appearing to read 'Kevin A. Harlow'.

Kevin A. Harlow
Regional EIR Coordinator

cc: Ellie L. Irons, DEQ-OEIR w/ copy of request

From: [Larson, Emily](#)
To: [Pardis, Roya](#)
Subject: FW: AEP - Central Virginia Transmission Reliability Project: Albemarle, Amherst, Appomattox, Campbell, and Nelson Counties and the City of Lynchburg, Virginia
Date: Monday, March 09, 2020 3:48:36 PM

EMILY LARSON
609-570-2772 (office)
301-848-8404 (cell)

From: Chuck Ward <cward@MyCVEC.com>
Sent: Friday, March 06, 2020 11:35 AM
To: Larson, Emily <emily.larson@powereng.com>
Cc: Bruce Maurhoff <bmaurhoff@MyCVEC.com>
Subject: AEP - Central Virginia Transmission Reliability Project: Albemarle, Amherst, Appomattox, Campbell, and Nelson Counties and the City of Lynchburg, Virginia

Hi Emily. Central Virginia Electric Cooperative (CVEC) does not have any specific concerns about the subject project and supports these projects. CVEC looks forward to the increased reliability provided by the projects as they relate specifically to the CVEC Gladstone and Schuyler substations and transmission feeds.

Please let me know if I can be of further assistance. Thank you.

Charles (Chuck) E. Ward, Jr., P.E.
Manager of Engineering Services
Central Virginia Electric Cooperative
P.O. Box 247
Lovingston, VA 22949
434-263-8336 Ext. 1401 Office
800-367-2832 Ext. 1401 Office
434-263-7630 Direct
434-484-0364 Cell
cward@mycvec.com

Matthew J. Strickler
Secretary of Natural Resources

Clyde E. Cristman
Director



COMMONWEALTH of VIRGINIA
DEPARTMENT OF CONSERVATION AND RECREATION

Rochelle Altholz
Deputy Director of
Administration and Finance

Russell W. Baxter
Deputy Director of
Dam Safety & Floodplain
Management and Soil & Water
Conservation

Thomas L. Smith
Deputy Director of Operations

March 6, 2020

Emily Larson
Power Engineers, Inc.
11 S. 12th Street, Suite 315
Richmond, VA 23219

Re: Central Virginia Transmission Reliability Project

Dear Ms. Larson:

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

Amherst-Reusens 69kV and James River Substation

According to the information currently in Biotics, natural heritage resources have not been documented within the submitted project boundary including a 100-foot buffer. The absence of data may indicate that the project area has not been surveyed, rather than confirm that the area lacks natural heritage resources. In addition, the project boundary does not intersect any of the predictive models identifying potential habitat for natural heritage resources.

Joshua Falls-Gladstone 138kV

According to the information currently in our files, Allens Creek Stream Conservation Unit (SCU) is located within the project area. SCUs identify stream reaches that contain aquatic natural heritage resources, including 2 miles upstream and 1 mile downstream of documented occurrences, and all tributaries within this reach. SCUs are also given a biodiversity significance ranking based on the rarity, quality, and number of element occurrences they contain. The Allens Creek SCU has been given a biodiversity ranking of B4, which represents a site of moderate significance. The natural heritage resource associated with this site is:

Aquatic Natural Community (NP-Middle James-Buffalo Third Order Stream) G2?/S2?/NL/NL

The documented Aquatic Natural Community is based on Virginia Commonwealth University's **INSTAR** (*Interactive Stream Assessment Resource*) database, which includes over 2,000 aquatic (stream and river) collections statewide for fish and macroinvertebrate. These data represent fish and macroinvertebrate assemblages, instream habitat, and stream health assessments. The associated Aquatic Natural Community is significant on multiple levels. First, this stream is a grade A, as per the VCU-Center for Environmental Sciences (CES), indicating its relative regional significance, considering its aquatic community composition and the present-day conditions of other streams in the region. This stream reach also holds as a "Outstanding" stream designation as per the INSTAR Virtual Stream Assessment (VSS) score. This score assesses the similarity of this

600 East Main Street, 24th Floor | Richmond, Virginia 23219 | 804-786-6124

*State Parks • Soil and Water Conservation • Outdoor Recreation Planning
Natural Heritage • Dam Safety and Floodplain Management • Land Conservation*

stream to ideal stream conditions of biology and habitat for this region. Lastly, this stream contributes to high Biological Integrity at the watershed level (6th order) based on number of native/non-native, pollution-tolerant/intolerant and rare, threatened or endangered fish and macroinvertebrate species present.

Threats to the significant Aquatic Natural Community and the surrounding watershed include water quality degradation related to point and non-point pollution, water withdrawal and introduction of non-native species. To minimize adverse impacts to the aquatic ecosystem as a result of the proposed activities, DCR recommends the implementation of and strict adherence to applicable state and local erosion and sediment control/storm water management laws and regulations, establishment/enhancement of riparian buffers with native plant species and maintaining natural stream flow.

In addition, the James River has been designated as a “Threatened and Endangered Species” Water by VDGIF for the Green floater (*Lasmigona subviridis*).

Due to the legal status of the Green floater, DCR recommends coordination with Virginia's regulatory authority for the management and protection of this species, the VDGIF, to ensure compliance with the Virginia Endangered Species Act (VA ST §§ 29.1-563 – 570).

Soapstone Substation

According to the information currently in our files, the Rockfish River Stream Conservation Unit (SCU) is located within the project area. The Rockfish River SCU has been given a biodiversity ranking of B3, which represents a site of high significance. The natural heritage resource associated with this site is:

Aquatic Natural Community (NP-Middle James-Buffalo Fifth Order Stream) G2?/S2?/NL/NL

The documented Aquatic Natural Community is based on Virginia Commonwealth University's **INSTAR** (*Interactive Stream Assessment Resource*) database which includes over 2,000 aquatic (stream and river) collections statewide for fish and macroinvertebrate. These data represent fish and macroinvertebrate assemblages, instream habitat, and stream health assessments. The associated Aquatic Natural Community is significant on multiple levels. First, this stream is a grade A, as per the VCU-Center for Environmental Sciences (CES), indicating its relative regional significance, considering its aquatic community composition and the present-day conditions of other streams in the region. This stream reach also holds as a “Healthy” stream designation as per the INSTAR Virtual Stream Assessment (VSS) score. This score assesses the similarity of this stream to ideal stream conditions of biology and habitat for this region. Lastly, this stream contributes to high Biological Integrity at the watershed level (6th order) based on number of native/non-native, pollution-tolerant/intolerant and rare, threatened or endangered fish and macroinvertebrate species present.

Threats to the significant Aquatic Natural Community and the surrounding watershed include water quality degradation related to point and non-point pollution, water withdrawal and introduction of non-native species. To minimize adverse impacts to the aquatic ecosystem as a result of the proposed activities, DCR recommends the implementation of and strict adherence to applicable state and local erosion and sediment control/storm water management laws and regulations, establishment/enhancement of riparian buffers with native plant species and maintaining natural stream flow.

DCR recommends the development and implementation of an invasive species plan to be included as part of the maintenance practices for the right-of-way (ROW). The invasive species plan should include an invasive species inventory for the project area based on the current DCR Invasive Species List (<http://www.dcr.virginia.gov/natural-heritage/document/nh-invasive-plant-list-2014.pdf>) and methods for treating the invasives. DCR also recommends the ROW restoration and maintenance practices planned include appropriate revegetation using native species in a mix of grasses and forbs, robust monitoring and adaptive management plan to provide guidance if initial revegetation efforts are unsuccessful or if invasive species outbreaks occur.

If permanent tree removal is proposed, the project will fragment Ecological Core(s) (C2, C3, C4 C5) as identified in the Virginia Natural Landscape Assessment (<https://www.dcr.virginia.gov/natural-heritage/vaconvisvnl>), one of a suite of tools in Virginia ConservationVision that identify and prioritize lands for conservation and protection.

Ecological Cores are areas of unfragmented natural cover with at least 100 acres of interior that provide habitat for a wide range of species, from interior-dependent forest species to habitat generalists, as well as species that utilize marsh, dune, and beach habitats. Cores also provide benefits in terms of open space, recreation, water quality (including drinking water protection and erosion prevention), and air quality (including carbon sequestration and oxygen production), along with the many associated economic benefits of these functions. The cores are ranked from C1 to C5 (C5 being the least ecologically relevant) using many prioritization criteria, such as the proportions of sensitive habitats of natural heritage resources they contain.

Fragmentation occurs when a large, contiguous block of natural cover is dissected by development, and other forms of permanent conversion, into one or more smaller patches.. Habitat fragmentation results in biogeographic changes that disrupt species interactions and ecosystem processes, reducing biodiversity and habitat quality due to limited recolonization, increased predation and egg parasitism, and increased invasion by weedy species.

Therefore minimizing fragmentation is a key mitigation measure that will preserve the natural patterns and connectivity of habitats that are key components of biodiversity. The deleterious effects of fragmentation can be reduced by minimizing edge in remaining fragments; by retaining natural corridors that allow movement between fragments; and by designing the intervening landscape to minimize its hostility to native wildlife (natural cover versus lawns).

Under a Memorandum of Agreement established between the Virginia Department of Agriculture and Consumer Services (VDACS) and the DCR, DCR represents VDACS in comments regarding potential impacts on state-listed threatened and endangered plant and insect species. The current activity will not affect any documented state-listed plants or insects.

There are no State Natural Area Preserves under DCR's jurisdiction in the project vicinity. Please note, the Rockfish River has been designated as a scenic river in the state of Virginia and DCR recommends coordination with Lynn Crump of the DCR-Division of Planning and Recreational Resources at 804-786-5054 or Lynn.Crump@dcr.virginia.gov.

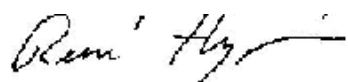
New and updated information is continually added to Biotics. Please re-submit a completed order form and project map for an update on this natural heritage information if the scope of the project changes and/or six months has passed before it is utilized.

A fee of \$395.00 has been assessed for the service of providing this information. Please find attached an invoice for that amount. Please return one copy of the invoice along with your remittance made payable to the Treasurer of Virginia, DCR Finance, 600 East Main Street, 24th Floor, Richmond, VA 23219. Payment is due within thirty days of the invoice date. Please note late payment may result in the suspension of project review service for future projects.

The Virginia Department of Game and Inland Fisheries (VDGIF) maintains a database of wildlife locations, including threatened and endangered species, trout streams, and anadromous fish waters that may contain information not documented in this letter. Their database may be accessed from <http://vafwis.org/fwis/> or contact Ernie Aschenbach at 804-367-2733 or Ernie.Aschenbach@dgif.virginia.gov.

Should you have any questions or concerns, feel free to contact me at 804-371-2708. Thank you for the opportunity to comment on this project.

Sincerely,

A handwritten signature in black ink, appearing to read "S. René Hypes". The signature is fluid and cursive, with a long horizontal stroke extending to the right.

S. René Hypes
Natural Heritage Project Review Coordinator

Cc: Ernie Aschenbach, VDGIF
Lynn Crump, DCR-PRR

VDOT REVIEW OF PROPOSED AEP ROUTES

< Filter

Note: map links must be opened in internet explorer. Consider using this sheet in internet explorer.
 Note: maps updated as of 02/28/2020, number of routes reduced

Nelson Route 60		Programming Section Comments	Planning Section Comments	L&D Section Comments	Traffic Engineering Comments	Residency Comments	Office of Land Use Comments	
From: Rte. 626	Support	No projects.	Support	No current or planned smart scale projects.	Support	This section is good shape and not currently on a resurfacing plan	Support	Good alignment plant mix primary road. CE has potential sight distance issues for WB traffic.
To: Rte. 622	<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		<input checked="" type="checkbox"/>	
1 Crossing	Oppose		Oppose		Oppose		Oppose	
Map Link	<input type="checkbox"/>		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		<input type="checkbox"/>	
Amherst Route 600		Programming Section Comments	Planning Section Comments	L&D Section Comments	Traffic Engineering Comments	Residency Comments	Office of Land Use Comments	
From: Rte. 622	Support	No projects.	Support	No current or planned smart scale projects.	Support	Route 600 is scheduled to be resurface treated in Fiscal Year 2021.	Support	Posted No Thru Trucks at Rte. 600 & 823. Damage is expected from heavy loads. Recommend that CE (s) be placed at locations meeting minimum sight distance. Rte. 823 west is 18 ft. plant mix roadway.
To: Rte. 601	<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		<input checked="" type="checkbox"/>	
1 Crossing	Oppose		Oppose		Oppose		Oppose	
Map Link	<input type="checkbox"/>		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		<input type="checkbox"/>	
Amherst Route 601		Programming Section Comments	Planning Section Comments	L&D Section Comments	Traffic Engineering Comments	Residency Comments	Office of Land Use Comments	
From: Rte. 600	Support	No projects.	Support	No current or planned smart scale projects.	Support	no planned work.	Support	Winding 16 ft. surface treated roadway way. Damage is expected from heavy loads. Recommend that CE (s) be placed at locations meeting minimum sight distance.
To: Rte. 601	<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		<input checked="" type="checkbox"/>	
1 Crossing	Oppose		Oppose		Oppose		Oppose	
Map Link	<input type="checkbox"/>		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		<input type="checkbox"/>	
Appomattox Rte. 605		Programming Section Comments	Planning Section Comments	L&D Section Comments	Traffic Engineering Comments	Residency Comments	Office of Land Use Comments	
From: Rte. 721	Support		Support	No current or planned smart scale projects.	Support	Route 605 is scheduled in 2022 to be surface treated as a maintenance project. If this route is chosen, then coordination with the paving project will need to be done.	Support	From Route 721 to Route 624, the road is 12 feet wide and gravel surfaced. The remainder of the road varies from 16 feet wide to 18 feet wide and this section is surface treated. There is a bridge on Dreaming Creek that will not support large trucks. Access to this project can be obtained from the Rte 26 side or the 460 side depending on where you need to be. Recommend that CE (s) be placed at locations meeting minimum sight distance.
To: Rte. 667	<input type="checkbox"/>		<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		<input checked="" type="checkbox"/>	
3 Crossings	Oppose		Oppose		Oppose		Oppose	
Map Link	<input type="checkbox"/>		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		<input type="checkbox"/>	
Amherst Route 622		Programming Section Comments	Planning Section Comments	L&D Section Comments	Traffic Engineering Comments	Residency Comments	Office of Land Use Comments	
From: Rte. 663	Support	No projects.	Support	No current or planned smart scale projects.	Support	Route 622 is scheduled to be resurface treated in Fiscal Year 2021.	Support	7 potential crossings. Winding 14 -16 ft surface treated roadway. Damage is expected from heavy loads. Recommend that CE (s) be placed at locations meeting minimum sight distance.
To: Nelson CL	<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		<input checked="" type="checkbox"/>	
7 Crossings	Oppose		Oppose		Oppose		Oppose	
Map Link	<input type="checkbox"/>		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		<input type="checkbox"/>	
Apomattox Route. 623		Programming Section Comments	Planning Section Comments	L&D Section Comments	Traffic Engineering Comments	Residency Comments	Office of Land Use Comments	
From: Dead End	Support	No projects.	Support	No current or planned smart scale projects.	Support	No Maintenance Projects planned	Support	The roadway is 18 feet wide with surface treatment. Recommend that CE (s) be placed at locations meeting minimum sight distance.
To: Rte. 605	<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		<input checked="" type="checkbox"/>	
1 Crossing	Oppose		Oppose		Oppose		Oppose	
Map Link	<input type="checkbox"/>		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		<input type="checkbox"/>	
Amherst Route 624		Programming Section Comments	Planning Section Comments	L&D Section Comments	Traffic Engineering Comments	Residency Comments	Office of Land Use Comments	
From: Rte. 604	Support	No projects.	Support	No current or planned smart scale projects.	Support	no planned work.	Support	Winding 12 ft surface treated roadway between Rte. 655 and Rte. 814. Winding 14 ft. gravel road NW of Rte. 814 with two 18 Ton Posted single lane bridges. Damage is expected from heavy loads. Recommend that CE (s) be placed at locations meeting minimum sight distance.
To: Rte. 624	<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		<input checked="" type="checkbox"/>	

VDOT REVIEW OF PROPOSED AEP ROUTES

Amherst County

	Programming Section		Planning Section		L&D Section		Traffic Engineering		Residency		Office of Land Use	
	Support	Comments	Support	Comments	Support	Comments	Support	Comments	Support	Comments	Support	Comments
Route 685	<input checked="" type="checkbox"/>	No conflicts.	<input type="checkbox"/>		<input type="checkbox"/>		<input checked="" type="checkbox"/>	No conflicts.	<input type="checkbox"/>		<input checked="" type="checkbox"/>	Winding 16 ft. surface treated roadway way with 35 MPH speed limit. Damage is expected from heavy loads. Limited SSD for SB travel, may require flagging operation at CE.
	<input type="checkbox"/>		<input type="checkbox"/>		<input type="checkbox"/>		<input type="checkbox"/>		<input type="checkbox"/>		<input type="checkbox"/>	
Route 1242	<input checked="" type="checkbox"/>	No conflicts.	<input type="checkbox"/>		<input type="checkbox"/>		<input checked="" type="checkbox"/>	No conflicts.	<input type="checkbox"/>		<input checked="" type="checkbox"/>	20 ft. surface treated roadway within residential subdivision with 25 MPH speed limit. Damage is expected from heavy loads. Limited SSD at crossing, may require flagging operation at CE.
	<input type="checkbox"/>		<input type="checkbox"/>		<input type="checkbox"/>		<input type="checkbox"/>		<input type="checkbox"/>		<input type="checkbox"/>	
Route 130	<input checked="" type="checkbox"/>	No conflicts.	<input type="checkbox"/>		<input type="checkbox"/>		<input checked="" type="checkbox"/>	No conflicts.	<input type="checkbox"/>		<input checked="" type="checkbox"/>	Good alignment plant mix primary road. Steep cut embankments at crossing. Question CE access.
	<input type="checkbox"/>		<input type="checkbox"/>		<input type="checkbox"/>		<input type="checkbox"/>		<input type="checkbox"/>		<input type="checkbox"/>	
Route 675	<input checked="" type="checkbox"/>	No conflicts.	<input type="checkbox"/>		<input type="checkbox"/>		<input checked="" type="checkbox"/>	No conflicts.	<input type="checkbox"/>		<input checked="" type="checkbox"/>	20 ft. plant mix roadway on good alignment. Relocate new tower poles outside of VDOT ROW and beyond clear zone and remove existing.
	<input type="checkbox"/>		<input type="checkbox"/>		<input type="checkbox"/>		<input type="checkbox"/>		<input type="checkbox"/>		<input type="checkbox"/>	
Route 1332	<input checked="" type="checkbox"/>	No conflicts.	<input type="checkbox"/>		<input type="checkbox"/>		<input checked="" type="checkbox"/>	No conflicts.	<input type="checkbox"/>		<input checked="" type="checkbox"/>	20 ft. surface treated roadway within residential subdivision with 25 MPH speed limit. Damage is expected from heavy loads. Relocate new tower poles outside of VDOT ROW and beyond clear zone and remove existing at Int. Rte. 796, 1322 & 1327.
	<input type="checkbox"/>		<input type="checkbox"/>		<input type="checkbox"/>		<input type="checkbox"/>		<input type="checkbox"/>		<input type="checkbox"/>	
Route 1327	<input checked="" type="checkbox"/>	No conflicts.	<input type="checkbox"/>		<input type="checkbox"/>		<input checked="" type="checkbox"/>	No conflicts.	<input type="checkbox"/>		<input checked="" type="checkbox"/>	20 ft. surface treated roadway within residential subdivision with 25 MPH speed limit. Damage is expected from heavy loads. Relocate new tower poles outside of VDOT ROW and beyond clear zone and remove existing at Int. Rte. 796, 1322 & 1327.
	<input type="checkbox"/>		<input type="checkbox"/>		<input type="checkbox"/>		<input type="checkbox"/>		<input type="checkbox"/>		<input type="checkbox"/>	
Route 29 Bus.	<input checked="" type="checkbox"/>	No conflicts.	<input type="checkbox"/>		<input type="checkbox"/>		<input checked="" type="checkbox"/>	TE / Operations to install a controller actuated beacon along the SBL of 29B approximately 1/2-mile south of the existing crossing. The project concept is not currently funded, nor does it have a planned schedule, but is being considered for funding by CO. The potential conflict may be with the work	<input type="checkbox"/>		<input checked="" type="checkbox"/>	Good alignment plant mix primary road. West side has guardrail and question point of access from SB Travel Lane.
	<input type="checkbox"/>		<input type="checkbox"/>		<input type="checkbox"/>	Route 29B sidewalk contrac	<input type="checkbox"/>		<input type="checkbox"/>		<input type="checkbox"/>	

	<input type="checkbox"/>		<input type="checkbox"/>		<input type="checkbox"/>		<input type="checkbox"/>		<input type="checkbox"/>		<input type="checkbox"/>	
Route 657	Programming Section Comments		Planning Section Comments		L&D Section Comments		Traffic Engineering Comments		Residency Comments		Office of Land Use Comments	
	Support <input checked="" type="checkbox"/>	No conflicts.	Support <input type="checkbox"/>		Support <input type="checkbox"/>		Support <input checked="" type="checkbox"/>	No conflicts.	Support <input type="checkbox"/>		Support <input checked="" type="checkbox"/>	16 ft. surface treated roadway. Damage is expected from heavy loads. Relocate new tower poles outside of VDOT ROW and beyond clear zone. Remove existing tower poles on west side of roadway.
	Oppose <input type="checkbox"/>		Oppose <input type="checkbox"/>		Oppose <input type="checkbox"/>		Oppose <input type="checkbox"/>		Oppose <input type="checkbox"/>		Oppose <input type="checkbox"/>	
Route 671	Programming Section Comments		Planning Section Comments		L&D Section Comments		Traffic Engineering Comments		Residency Comments		Office of Land Use Comments	
	Support <input checked="" type="checkbox"/>	No conflicts.	Support <input type="checkbox"/>		Support <input type="checkbox"/>		Support <input checked="" type="checkbox"/>	No conflicts.	Support <input type="checkbox"/>		Support <input checked="" type="checkbox"/>	16 ft. surface treated roadway. Damage is expected from heavy loads.
	Oppose <input type="checkbox"/>		Oppose <input type="checkbox"/>		Oppose <input type="checkbox"/>		Oppose <input type="checkbox"/>		Oppose <input type="checkbox"/>		Oppose <input type="checkbox"/>	
Route 604	Programming Section Comments		Planning Section Comments		L&D Section Comments		Traffic Engineering Comments		Residency Comments		Office of Land Use Comments	
	Support <input checked="" type="checkbox"/>	No conflicts.	Support <input type="checkbox"/>		Support <input type="checkbox"/>		Support <input checked="" type="checkbox"/>	No conflicts.	Support <input type="checkbox"/>		Support <input checked="" type="checkbox"/>	Good alignment plant mix road.
	Oppose <input type="checkbox"/>		Oppose <input type="checkbox"/>		Oppose <input type="checkbox"/>		Oppose <input type="checkbox"/>		Oppose <input type="checkbox"/>		Oppose <input type="checkbox"/>	
Route 750	Programming Section Comments		Planning Section Comments		L&D Section Comments		Traffic Engineering Comments		Residency Comments		Office of Land Use Comments	
	Support <input checked="" type="checkbox"/>	No conflicts.	Support <input type="checkbox"/>		Support <input type="checkbox"/>		Support <input checked="" type="checkbox"/>	No conflicts.	Support <input type="checkbox"/>		Support <input checked="" type="checkbox"/>	16 Ft. surface treated roadway. No issues.
	Oppose <input type="checkbox"/>		Oppose <input type="checkbox"/>		Oppose <input type="checkbox"/>		Oppose <input type="checkbox"/>		Oppose <input type="checkbox"/>		Oppose <input type="checkbox"/>	
Route 663	Programming Section Comments		Planning Section Comments		L&D Section Comments		Traffic Engineering Comments		Residency Comments		Office of Land Use Comments	
	Support <input checked="" type="checkbox"/>	No conflicts.	Support <input type="checkbox"/>		Support <input type="checkbox"/>		Support <input checked="" type="checkbox"/>	No conflicts.	Support <input type="checkbox"/>		Support <input checked="" type="checkbox"/>	Good alignment plant mix road.
	Oppose <input type="checkbox"/>		Oppose <input type="checkbox"/>		Oppose <input type="checkbox"/>		Oppose <input type="checkbox"/>		Oppose <input type="checkbox"/>		Oppose <input type="checkbox"/>	
Route 840	Programming Section Comments		Planning Section Comments		L&D Section Comments		Traffic Engineering Comments		Residency Comments		Office of Land Use Comments	
	Support <input checked="" type="checkbox"/>	No conflicts.	Support <input type="checkbox"/>		Support <input type="checkbox"/>		Support <input checked="" type="checkbox"/>	No conflicts.	Support <input type="checkbox"/>		Support <input checked="" type="checkbox"/>	20 ft. surface treated roadway within residential subdivision with 25 MPH speed limit. Damage is expected from heavy loads. Limited SSD at crossing, may require flagging operation at CE.
	Oppose <input type="checkbox"/>		Oppose <input type="checkbox"/>		Oppose <input type="checkbox"/>		Oppose <input type="checkbox"/>		Oppose <input type="checkbox"/>		Oppose <input type="checkbox"/>	
Route 604	Programming Section Comments		Planning Section Comments		L&D Section Comments		Traffic Engineering Comments		Residency Comments		Office of Land Use Comments	
	Support <input checked="" type="checkbox"/>	No conflicts.	Support <input type="checkbox"/>		Support <input type="checkbox"/>		Support <input checked="" type="checkbox"/>	No conflicts.	Support <input type="checkbox"/>		Support <input checked="" type="checkbox"/>	Good alignment plant mix road.
	Oppose <input type="checkbox"/>		Oppose <input type="checkbox"/>		Oppose <input type="checkbox"/>		Oppose <input type="checkbox"/>		Oppose <input type="checkbox"/>		Oppose <input type="checkbox"/>	
	Programming Section Comments		Planning Section Comments		L&D Section Comments		Traffic Engineering Comments		Residency Comments		Office of Land Use Comments	

From: Larson, Emily
Sent: Wednesday, May 27, 2020 10:44 AM
To: Pardis, Roya
Subject: Fwd: [EXTERNAL] Central VA Transmission Reliability Project

Emily Larson
301-848-8404

Begin forwarded message:

From: "Orndorff, William" <wil.orndorff@dcr.virginia.gov>
Date: May 27, 2020 at 10:43:04 AM EDT
To: "Larson, Emily" <emily.larson@powereng.com>
Cc: "skennedy@aep.com" <skennedy@aep.com>
Subject: [EXTERNAL] Central VA Transmission Reliability Project

CAUTION: This Email is from an **EXTERNAL** source. **STOP. THINK** before you CLICK links or OPEN attachments.

Hi Emily and Scott,

I realize I never replied to your letter of 30 January, 2020.

There are no karst concerns associated with this project.

If you haven't already, please coordinate with the DCR office of project review for potential impacts to other Natural Heritage Resources. The contact person is Rene Hypes - Rene.Hypes@dcr.virginia.gov.

Thanks,

wil

Attachment D: IPaC Report

IPaC resource list

This report is an automatically generated list of species and other resources such as critical habitat (collectively referred to as *trust resources*) under the U.S. Fish and Wildlife Service's (USFWS) jurisdiction that are known or expected to be on or near the project area referenced below. The list may also include trust resources that occur outside of the project area, but that could potentially be directly or indirectly affected by activities in the project area. However, determining the likelihood and extent of effects a project may have on trust resources typically requires gathering additional site-specific (e.g., vegetation/species surveys) and project-specific (e.g., magnitude and timing of proposed activities) information.

Below is a summary of the project information you provided and contact information for the USFWS office(s) with jurisdiction in the defined project area. Please read the introduction to each section that follows (Endangered Species, Migratory Birds, USFWS Facilities, and NWI Wetlands) for additional information applicable to the trust resources addressed in that section.

Location

Amherst, Bedford and Lynchburg counties, Virginia



Local office

Virginia Ecological Services Field Office

☎ (804) 693-6694

📠 (804) 693-9032

6669 Short Lane

Gloucester, VA 23061-4410

<http://www.fws.gov/northeast/virginiafield/>

Endangered species

This resource list is for informational purposes only and does not constitute an analysis of project level impacts.

The primary information used to generate this list is the known or expected range of each species. Additional areas of influence (AOI) for species are also considered. An AOI includes areas outside of the species range if the species could be indirectly affected by activities in that area (e.g., placing a dam upstream of a fish population, even if that fish does not occur at the dam site, may indirectly impact the species by reducing or eliminating water flow downstream). Because species can move, and site conditions can change, the species on this list are not guaranteed to be found on or near the project area. To fully determine any potential effects to species, additional site-specific and project-specific information is often required.

Section 7 of the Endangered Species Act **requires** Federal agencies to "request of the Secretary information whether any species which is listed or proposed to be listed may be present in the area of such proposed action" for any project that is conducted, permitted, funded, or licensed by any Federal agency. A letter from the local office and a species list which fulfills this requirement can **only** be obtained by requesting an official species list from either the Regulatory Review section in IPaC (see directions below) or from the local field office directly.

For project evaluations that require USFWS concurrence/review, please return to the IPaC website and request an official species list by doing the following:

1. Draw the project location and click CONTINUE.
2. Click DEFINE PROJECT.
3. Log in (if directed to do so).
4. Provide a name and description for your project.
5. Click REQUEST SPECIES LIST.

Listed species¹ and their critical habitats are managed by the [Ecological Services Program](#) of the U.S. Fish and Wildlife Service (USFWS) and the fisheries division of the National Oceanic and Atmospheric Administration (NOAA Fisheries²).

Species and critical habitats under the sole responsibility of NOAA Fisheries are **not** shown on this list. Please contact [NOAA Fisheries](#) for [species under their jurisdiction](#).

1. Species listed under the [Endangered Species Act](#) are threatened or endangered; IPaC also shows species that are candidates, or proposed, for listing. See the [listing status page](#) for more information.
2. [NOAA Fisheries](#), also known as the National Marine Fisheries Service (NMFS), is an office of the National Oceanic and Atmospheric Administration within the Department of Commerce.

The following species are potentially affected by activities in this location:

Mammals

NAME

STATUS

Northern Long-eared Bat *Myotis septentrionalis*
No critical habitat has been designated for this species.
<https://ecos.fws.gov/ecp/species/9045>

Threatened

Critical habitats

Potential effects to critical habitat(s) in this location must be analyzed along with the endangered species themselves.

THERE ARE NO CRITICAL HABITATS AT THIS LOCATION.

Migratory birds

Certain birds are protected under the Migratory Bird Treaty Act¹ and the Bald and Golden Eagle Protection Act².

Any person or organization who plans or conducts activities that may result in impacts to migratory birds, eagles, and their habitats should follow appropriate regulations and consider implementing appropriate conservation measures, as described [below](#).

1. The [Migratory Birds Treaty Act](#) of 1918.
2. The [Bald and Golden Eagle Protection Act](#) of 1940.

Additional information can be found using the following links:

- Birds of Conservation Concern <http://www.fws.gov/birds/management/managed-species/birds-of-conservation-concern.php>
- Measures for avoiding and minimizing impacts to birds <http://www.fws.gov/birds/management/project-assessment-tools-and-guidance/conservation-measures.php>
- Nationwide conservation measures for birds <http://www.fws.gov/migratorybirds/pdf/management/nationwidestandardconservationmeasures.pdf>

The birds listed below are birds of particular concern either because they occur on the [USFWS Birds of Conservation Concern](#) (BCC) list or warrant special attention in your project location. To learn more about the levels of concern for birds on your list and how this list is generated, see the FAQ [below](#). This is not a list of every bird you may find in this location, nor a guarantee that every bird on this list will be found in your project area. To see exact locations of where birders and the general public have sighted birds in and around your project area, visit the [E-bird data mapping tool](#) (Tip: enter your location, desired date range and a species on your list). For projects that occur off the Atlantic Coast, additional maps and models detailing the relative occurrence and abundance of bird species on your list are available. Links to additional information about Atlantic Coast birds, and other important information about your migratory bird list, including how to properly interpret and use your migratory bird report, can be found [below](#).

For guidance on when to schedule activities or implement avoidance and minimization measures to reduce impacts to migratory birds on your list, click on the PROBABILITY OF PRESENCE SUMMARY at the top of your list to see when these birds are most likely to be present and breeding in your project area.

NAME

BREEDING SEASON (IF A BREEDING SEASON IS INDICATED FOR A BIRD ON YOUR LIST, THE BIRD MAY BREED IN YOUR PROJECT AREA SOMETIME WITHIN THE TIMEFRAME SPECIFIED, WHICH IS A VERY LIBERAL ESTIMATE OF THE DATES INSIDE WHICH THE BIRD BREEDS ACROSS ITS ENTIRE RANGE. "BREEDS ELSEWHERE" INDICATES THAT THE BIRD DOES NOT LIKELY BREED IN YOUR PROJECT AREA.)

Bald Eagle *Haliaeetus leucocephalus*

This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities.

<https://ecos.fws.gov/ecp/species/1626>

Breeds Sep 1 to Jul 31

Eastern Whip-poor-will *Antrostomus vociferus*

This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.

Breeds May 1 to Aug 20

Prothonotary Warbler *Protonotaria citrea*

This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.

Breeds Apr 1 to Jul 31

Red-headed Woodpecker *Melanerpes erythrocephalus*

This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.

Breeds May 10 to Sep 10

Rusty Blackbird *Euphagus carolinus*

This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.

Breeds elsewhere

Wood Thrush *Hylocichla mustelina*

This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.

Breeds May 10 to Aug 31

Probability of Presence Summary

The graphs below provide our best understanding of when birds of concern are most likely to be present in your project area. This information can be used to tailor and schedule your project activities to avoid or minimize impacts to birds. Please make sure you read and understand the FAQ "Proper Interpretation and Use of Your Migratory Bird Report" before using or attempting to interpret this report.

Probability of Presence (■)

Each green bar represents the bird's relative probability of presence in the 10km grid cell(s) your project overlaps during a particular week of the year. (A year is represented as 12 4-week months.) A taller bar indicates a higher probability of species presence. The survey effort (see below) can be used to establish a level of confidence in the presence score. One can have higher confidence in the presence score if the corresponding survey effort is also high.

How is the probability of presence score calculated? The calculation is done in three steps:

1. The probability of presence for each week is calculated as the number of survey events in the week where the species was detected divided by the total number of survey events for that week. For example, if in week 12 there were 20 survey events and the Spotted Towhee was found in 5 of them, the probability of presence of the Spotted Towhee in week 12 is 0.25.
2. To properly present the pattern of presence across the year, the relative probability of presence is calculated. This is the probability of presence divided by the maximum probability of presence across all weeks. For example, imagine the probability of presence in week 20 for the Spotted Towhee is 0.05, and that the probability of presence at week 12 (0.25) is the maximum of any week of the year. The relative probability of presence on week 12 is $0.25/0.25 = 1$; at week 20 it is $0.05/0.25 = 0.2$.
3. The relative probability of presence calculated in the previous step undergoes a statistical conversion so that all possible values fall between 0 and 10, inclusive. This is the probability of presence score.

To see a bar's probability of presence score, simply hover your mouse cursor over the bar.

Breeding Season (■)

Yellow bars denote a very liberal estimate of the time-frame inside which the bird breeds across its entire range. If there are no yellow bars shown for a bird, it does not breed in your project area.

Survey Effort (|)

Vertical black lines superimposed on probability of presence bars indicate the number of surveys performed for that species in the 10km grid cell(s) your project area overlaps. The number of surveys is expressed as a range, for example, 33 to 64 surveys.

To see a bar's survey effort range, simply hover your mouse cursor over the bar.

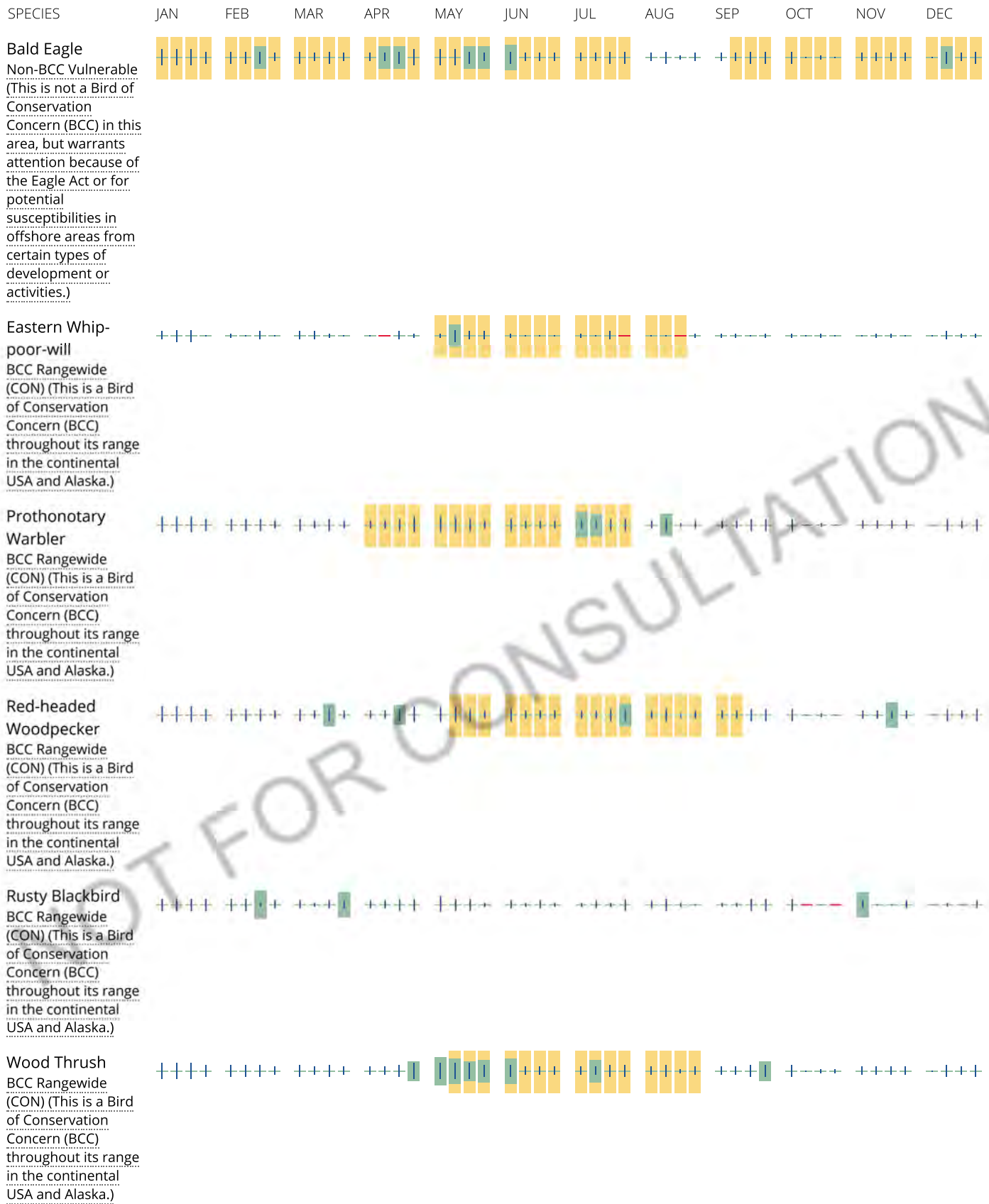
No Data (—)

A week is marked as having no data if there were no survey events for that week.

Survey Timeframe

Surveys from only the last 10 years are used in order to ensure delivery of currently relevant information. The exception to this is areas off the Atlantic coast, where bird returns are based on all years of available data, since data in these areas is currently much more sparse.

■ probability of presence ■ breeding season | survey effort — no data



Tell me more about conservation measures I can implement to avoid or minimize impacts to migratory birds.

[Nationwide Conservation Measures](#) describes measures that can help avoid and minimize impacts to all birds at any location year round. Implementation of these measures is particularly important when birds are most likely to occur in the project area. When birds may be breeding in the area, identifying the locations of any active nests and avoiding their destruction is a very helpful impact minimization measure. To see when birds are most likely to

occur and be breeding in your project area, view the Probability of Presence Summary. [Additional measures](#) and/or [permits](#) may be advisable depending on the type of activity you are conducting and the type of infrastructure or bird species present on your project site.

What does IPaC use to generate the migratory birds potentially occurring in my specified location?

The Migratory Bird Resource List is comprised of USFWS [Birds of Conservation Concern \(BCC\)](#) and other species that may warrant special attention in your project location.

The migratory bird list generated for your project is derived from data provided by the [Avian Knowledge Network \(AKN\)](#). The AKN data is based on a growing collection of [survey, banding, and citizen science datasets](#) and is queried and filtered to return a list of those birds reported as occurring in the 10km grid cell(s) which your project intersects, and that have been identified as warranting special attention because they are a BCC species in that area, an eagle ([Eagle Act](#) requirements may apply), or a species that has a particular vulnerability to offshore activities or development.

Again, the Migratory Bird Resource list includes only a subset of birds that may occur in your project area. It is not representative of all birds that may occur in your project area. To get a list of all birds potentially present in your project area, please visit the [AKN Phenology Tool](#).

What does IPaC use to generate the probability of presence graphs for the migratory birds potentially occurring in my specified location?

The probability of presence graphs associated with your migratory bird list are based on data provided by the [Avian Knowledge Network \(AKN\)](#). This data is derived from a growing collection of [survey, banding, and citizen science datasets](#).

Probability of presence data is continuously being updated as new and better information becomes available. To learn more about how the probability of presence graphs are produced and how to interpret them, go the Probability of Presence Summary and then click on the "Tell me about these graphs" link.

How do I know if a bird is breeding, wintering, migrating or present year-round in my project area?

To see what part of a particular bird's range your project area falls within (i.e. breeding, wintering, migrating or year-round), you may refer to the following resources: [The Cornell Lab of Ornithology All About Birds Bird Guide](#), or (if you are unsuccessful in locating the bird of interest there), the [Cornell Lab of Ornithology Neotropical Birds guide](#). If a bird on your migratory bird species list has a breeding season associated with it, if that bird does occur in your project area, there may be nests present at some point within the timeframe specified. If "Breeds elsewhere" is indicated, then the bird likely does not breed in your project area.

What are the levels of concern for migratory birds?

Migratory birds delivered through IPaC fall into the following distinct categories of concern:

1. "BCC Rangewide" birds are [Birds of Conservation Concern](#) (BCC) that are of concern throughout their range anywhere within the USA (including Hawaii, the Pacific Islands, Puerto Rico, and the Virgin Islands);
2. "BCC - BCR" birds are BCCs that are of concern only in particular Bird Conservation Regions (BCRs) in the continental USA; and
3. "Non-BCC - Vulnerable" birds are not BCC species in your project area, but appear on your list either because of the [Eagle Act](#) requirements (for eagles) or (for non-eagles) potential susceptibilities in offshore areas from certain types of development or activities (e.g. offshore energy development or longline fishing).

Although it is important to try to avoid and minimize impacts to all birds, efforts should be made, in particular, to avoid and minimize impacts to the birds on this list, especially eagles and BCC species of rangewide concern. For more information on conservation measures you can implement to help avoid and minimize migratory bird impacts and requirements for eagles, please see the FAQs for these topics.

Details about birds that are potentially affected by offshore projects

For additional details about the relative occurrence and abundance of both individual bird species and groups of bird species within your project area off the Atlantic Coast, please visit the [Northeast Ocean Data Portal](#). The Portal also offers data and information about other taxa besides birds that may be helpful to you in your project review. Alternately, you may download the bird model results files underlying the portal maps through the [NOAA NCCOS Integrative Statistical Modeling and Predictive Mapping of Marine Bird Distributions and Abundance on the Atlantic Outer Continental Shelf](#) project webpage.

Bird tracking data can also provide additional details about occurrence and habitat use throughout the year, including migration. Models relying on survey data may not include this information. For additional information on marine bird tracking data, see the [Diving Bird Study](#) and the [nanotag studies](#) or contact [Caleb Spiegel](#) or [Pam Loring](#).

What if I have eagles on my list?

If your project has the potential to disturb or kill eagles, you may need to [obtain a permit](#) to avoid violating the Eagle Act should such impacts occur.

Proper Interpretation and Use of Your Migratory Bird Report

The migratory bird list generated is not a list of all birds in your project area, only a subset of birds of priority concern. To learn more about how your list is generated, and see options for identifying what other birds may be in your project area, please see the FAQ "What does IPaC use to generate the migratory birds potentially occurring in my specified location". Please be aware this report provides the "probability of presence" of birds within the 10 km grid cell(s) that overlap your project; not your exact project footprint. On the graphs provided, please also look carefully at the survey effort (indicated by the black vertical bar) and for the existence of the "no data" indicator (a red horizontal bar). A high survey effort is the key component. If the survey effort is high, then the probability of presence score can be viewed as more dependable. In contrast, a low survey effort bar or no data bar means a lack of data and, therefore, a lack of certainty about presence of the species. This list is not perfect; it is simply a starting point for identifying what birds of concern have the potential to be in your project area, when they might be there, and if they might be breeding (which means nests might be present). The list helps you know what to look for to confirm presence, and helps guide you in knowing when to implement conservation measures to avoid or minimize potential impacts from your project activities, should presence be confirmed. To learn more about conservation measures, visit the FAQ "Tell me about conservation measures I can implement to avoid or minimize impacts to migratory birds" at the bottom of your migratory bird trust resources page.

Facilities

National Wildlife Refuge lands

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

THERE ARE NO REFUGE LANDS AT THIS LOCATION.

Fish hatcheries

THERE ARE NO FISH HATCHERIES AT THIS LOCATION.

Wetlands in the National Wetlands Inventory

Impacts to [NWI wetlands](#) and other aquatic habitats may be subject to regulation under Section 404 of the Clean Water Act, or other State/Federal statutes.

For more information please contact the Regulatory Program of the local [U.S. Army Corps of Engineers District](#).

WETLAND INFORMATION IS NOT AVAILABLE AT THIS TIME

This can happen when the National Wetlands Inventory (NWI) map service is unavailable, or for very large projects that intersect many wetland areas. Try again, or visit the [NWI map](#) to view wetlands at this location.

Data limitations

The Service's objective of mapping wetlands and deepwater habitats is to produce reconnaissance level information on the location, type and size of these resources. The maps are prepared from the analysis of high altitude imagery. Wetlands are identified based on vegetation, visible hydrology and geography. A margin of error is inherent in the use of imagery; thus, detailed on-the-ground inspection of any particular site may result in revision of the wetland boundaries or classification established through image analysis.

The accuracy of image interpretation depends on the quality of the imagery, the experience of the image analysts, the amount and quality of the collateral data and the amount of ground truth verification work conducted. Metadata should be consulted to determine the date of the source imagery used and any mapping problems.

Wetlands or other mapped features may have changed since the date of the imagery or field work. There may be occasional differences in polygon boundaries or classifications between the information depicted on the map and the actual conditions on site.

Data exclusions

Certain wetland habitats are excluded from the National mapping program because of the limitations of aerial imagery as the primary data source used to detect wetlands. These habitats include seagrasses or submerged aquatic vegetation that are found in the intertidal and subtidal zones of estuaries and nearshore coastal waters. Some deepwater reef communities (coral or tubercid worm reefs) have also been excluded from the inventory. These habitats, because of their depth, go undetected by aerial imagery.

Data precautions

Federal, state, and local regulatory agencies with jurisdiction over wetlands may define and describe wetlands in a different manner than that used in this inventory. There is no attempt, in either the design or products of this inventory, to define the limits of proprietary jurisdiction of any Federal, state, or local government or to establish the geographical scope of the regulatory programs of government agencies. Persons intending to engage in activities involving modifications within or adjacent to wetland areas should seek the advice of appropriate federal,

state, or local agencies concerning specified agency regulatory programs and proprietary jurisdictions that may affect such activities.

NOT FOR CONSULTATION