Attachment B: Stakeholder Meeting Notes

DATE: December 11, 2018

TO: Charity Kreher and Scott Kennedy

FROM: Emily Larson, Ryan Weyant, and Roya Pardis

SUBJECT: Glendale Area Improvements 138 kV Transmission Project Stakeholder Meetings Summary

MESSAGE

SITING TEAM STAKEHOLDER MEETING ATTENDEES

Scott Kennedy: AEP, Siting
Craig Pritt: AEP, Siting
Charity Kreher: AEP, Project Manager
Kenneth Belton: AEP, Distribution
Jared Webb: AEP, Environmental
Ken Norman: AEP, Transmission
Scott Woody: AEP, Transmission Line Engineering
Justin Amos: AEP, ROW
Mark Draper: Emerald Energy, ROW
Cortney Mustard: EASi, Public Outreach
Emily Larson: POWER, Siting
Roya Pardis: POWER, Siting
Ryan Weyant: POWER, Siting

STAKEHOLDER MEETING AND FIELD REVIEW GOAL

Key stakeholders were identified early in the siting process. Members of the Siting Team contacted and met with key stakeholders at various times throughout the siting process and on June 19, July 26, and August 27, 2018. These stakeholders included Carroll County and the City of Galax officials, for which the Project is located, the United States Forest Service (USFS), for which a portion of the Bluefield-Wythe-Ivanhoe 88 kV transmission line retirement will take place and large property owners in the Study Area. Not all of the Siting Team Members listed above attended all meetings listed below, but key representatives were present at all meetings.

Members of the Siting Team also contacted various federal, state, and local agencies and/or officials to request information throughout the siting and data collection process. Responses from the letters and maps regarding the Project sent to representatives on August 8, 2018 are included in **Attachment D** to the Glendale Area Improvements 138 kV Transmission Project Siting Study. However, several responses were phone discussions and have been included below. These agencies include the Virginia Department of Game and Inland Fisheries (VDGIF), the Virginia Outdoors Foundation (VOF), and the New River Trail State Park.

The goal of the stakeholder meetings and correspondence is to solicit information and gain feedback on the Project.

STAKEHOLDER MEETINGS

Carroll County and the City of Galax
June 19, 2018 at 11:00 am

Contacts
Keith Barker: City of Galax, kbarker@GalaxVa.com
Steve Truitt: Carroll County, steve.truitt@carrollcountyva.gov
Jessica Montgomery: Carroll County, jessica.montgomery@carrollcountyva.gov

Discussion
The proposed Wolf Glade 138 kV Substation and Wolf Glade 138 kV Extension are located in Carroll County and the City of Galax. Members of the Siting Team met with several officials to introduce the Project and receive feedback on the routing concepts and the proposed Wolf Glade 138 kV Substation site. No concerns were brought up by the local officials when discussing the Project. Siting Team members present were made aware of a former landfill, likely from the 1940's, located east of the proposed Wolf Glade 138 kV Substation site and is not located on the substation site proposed. The Siting Team will coordinate core borings, an EDR report, and soil testing, as needed. It was also noted that the City would likely ask that trees be replaced under the distribution line along Jack Guynn Drive.

United States Forest Service (USFS)
July 26, 2018 at 10:00 am

Contacts
Alex Faught: USFS, afaught@fs.fed.us
Jessie Howard: USFS, jchoward@fs.fed.us
Alysa Hansen: USFS, amhansenoz@fs.fed.us
Troy Morris: USFS, troymorris@fs.fed.us
Sheryl Mills: USFS, sherylmills@fs.fed.us
Tom Blevins: USFS, tblevins@fs.fed.us

Discussion
Appalachian Power Company (Appalachian) representatives met with the USFS staff to introduce the Project and discuss the rebuild or retirement of the 88 and 69 kV transmission line between the Wythe and Byllesby substations in Carroll and Wythe counties. Approximately 2.5 miles of the Bluefield – Wythe –Ivanhoe 88 kV transmission line currently traverses through the Jefferson National Forest, Mount Rogers National Recreation Area. Additionally, there are 15 structures located in the protected area and the existing right-of-way (ROW) is approximately 70 – 80 feet wide. The purpose of the meeting was to elicit feedback on whether a rebuild or retirement of the existing transmission line would be preferred. Appalachian also informed the USFS staff of the public open house and that they were invited to attend for additional comment or to talk with members of the public. If a retirement of the existing line were to be chosen, a mechanism for compensatory mitigation would be investigated further for Appalachian to utilize on future projects. Appalachian Power expressed their preference in keeping the ROW through a Memorandum of Understanding (MOU) and retiring the structures; however, a reversion clause in the existing easement will need to be verified whether that can be made applicable. Additionally, a construction removal plan to include roads, methods of removal, and land disturbance will be created and reviewed by the appropriate USFS staff to verify the required approvals and environmental studies. The portion of the Project that involves the Jefferson National Forest is likely to being at the end of 2020 or early 2021.

Galax First Assembly of God
August 27, 2018 at 1:15 pm

Contacts
Pastor Michael Hoeback
Frank Harless
Dennis Adams
Gary Anders
Johnny Burris
Bobby Williams

Discussion
Early in the siting process, the parcel for which the Galax First Assembly of God (the Church) is located had been vetted as a potential substation location; ultimately, the site was eliminated due to significant grading and tree clearing required and proximity to residences. As a result, the Siting Team had been in previous discussions with several members of the Church in introducing the Project. A study segment for the Wolf Glade 138 kV Extension and the Relocated Cliffview 69 kV Tap cross the 17.4 acre parcel; therefore, members of the Siting Team met with representatives of the Church to discuss the locations of these possible study segments and review the Project background. The existing Cliffview 69 kV Tap is located west of the parcel, and the proposed Wolf Glade 138 kV Substation is located east. The most feasible and constructible option for the Relocated 69 kV Tap is to enter the proposed Wolf Glade 138 kV Substation from the west in order to avoid circuitous routes and minimize impacts to residences and a Virginia Outdoors Foundation (VOF) easement to the east. The team members explained the removal of the distribution lines, a portion of the existing Cliffview 69 kV Tap transmission line, and the Cliffview 69 kV Substation and as a result, would alleviate visual impacts in front of the property along Deer Haven Drive.

The Church discussed future plans for the northwest, wooded side of their property where the 138 kV and 69 kV study segments cross; however, no definitive expansion plans have been made or provided to date. The Church prefers an alignment farther north and closer to the parcel boundary, while also maintaining a vegetative buffer from the residences. This will be further evaluated for feasibility and should accommodate potential expansion plans for the Church. No member from the Church was present at the August 2, 2018 open house. AEP will continue to keep the Church involved in the siting process moving forward.

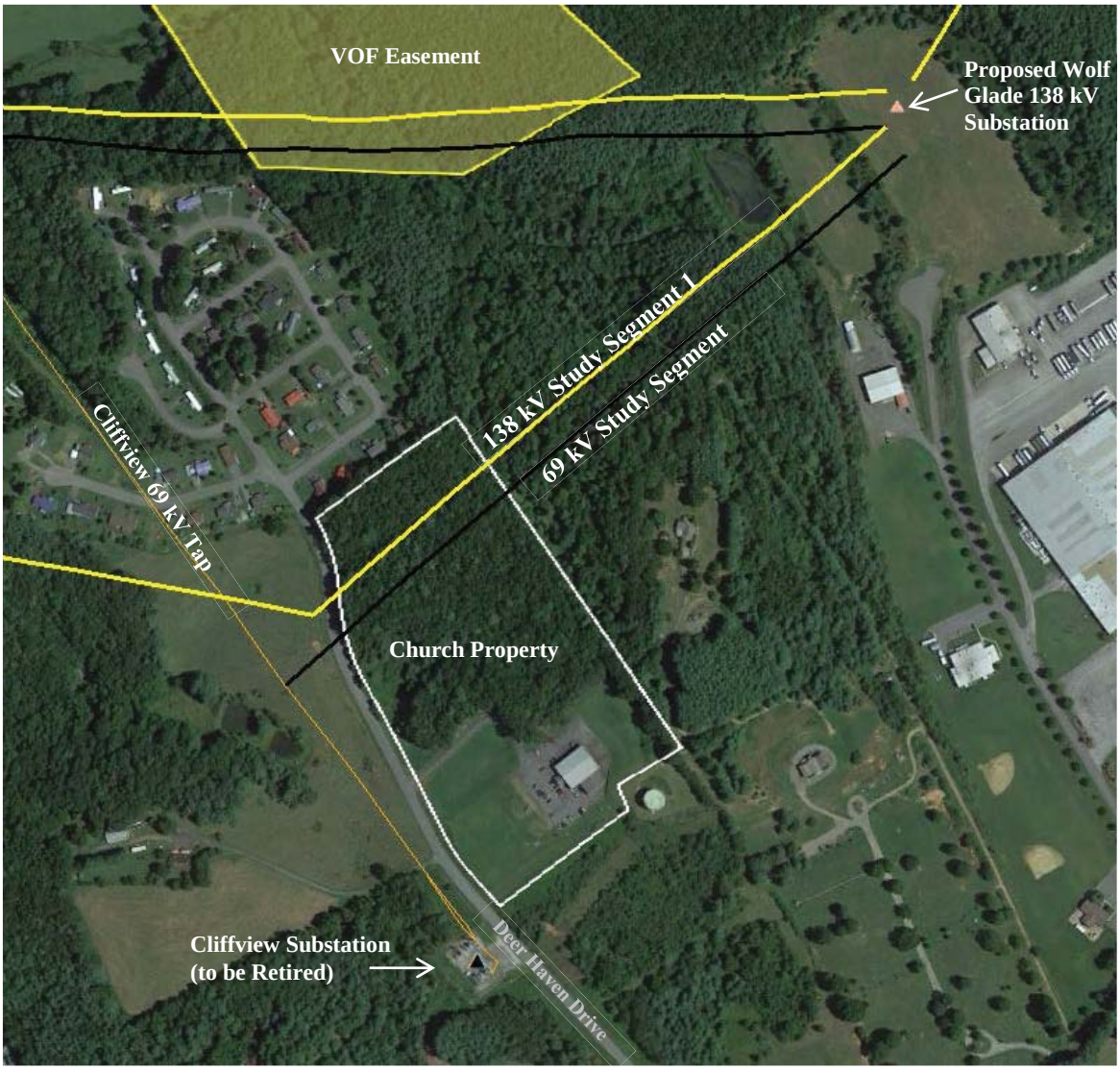


FIGURE 1 CHURCH PARCEL AND OPEN HOUSE STUDY SEGMENTS

Vannoy Family Farms, LLC
August 27, 2018 at 2:00 pm

Contacts
J. Mark Vannoy
Rocky Vannoy
Jim Joines

Discussion
Rocky Vannoy attended the open house on August 2, 2018 and indicated concern with two study segments (Study Segments 2 and 3) located between the New River Trail and Hebron Road and across their approximately 372 acre parcel. The parcel is owned by Vannoy Family Farms, LLC and as indicated on the comment card from the open house, the family requested a site visit on their property to discuss routes moving forward. At the site visit, the Siting Team presented a routing concept that crosses diagonally on the western portion of their property, based on comments received at the open house.

Two 138 kV study segments presented at the open house cross the Vannoy property and a third diagonal 138 kV study segment was added based on feedback. At the in-person field meeting, the family discussed future residential development plans on the western side of their parcel along the

New River and expressed aversion with the added diagonal study segment and preferred a more eastern option to cross their property. The Siting Team reviewed a family cemetery located on the edge of the parcel just north of Ponder Drive and near Study Segment 3. Members of the Siting Team discussed a potential option to modify Study Segment 3 to be aligned closer to the parcel boundary, while also avoiding the cemetery. The Vannoy's also preferred a tap location one structure east and indicated that clearing of trees along the parcel boundary would be acceptable. From a high level review in the field, the preferred tap location on the Jubal Early – Piper's Gap 138 kV Transmission Line looked to be feasible as it was at a higher elevation. The Siting Team was also able to eliminate the diagonal study segment (shown in red below) as Study Segment 3 seemed to be a more feasible option.

The Vannoy Family seemed willing to work with AEP on the Project if the above conditions could be met to avoid their future development plans. The family recently purchased two parcels (approximately 19 acres) off of Hebron Road for access to their larger parcel. The Siting Team will continue to keep the family informed as the Project moves forward and will further evaluate a potential route modification.

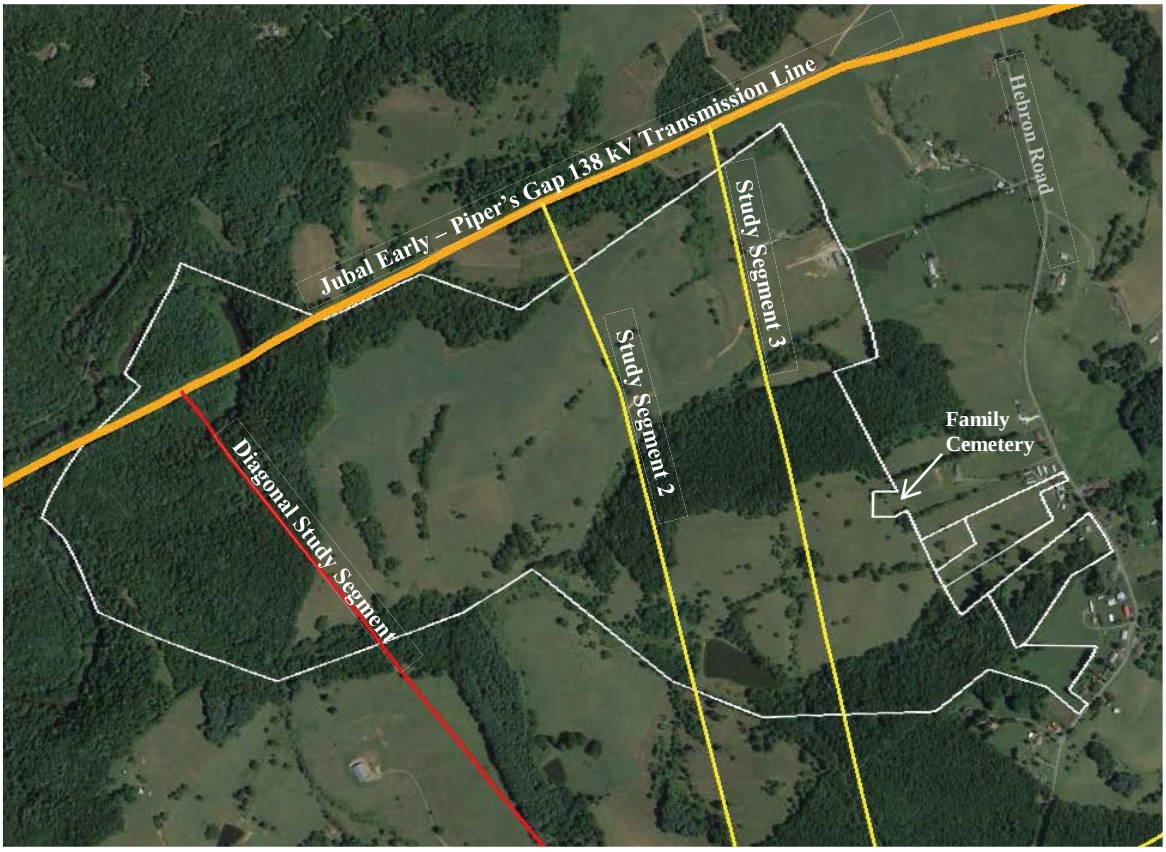


FIGURE 2 VANNOY PARCEL

Chappell Family
August 27, 2018 at 4:00 pm
October 4, 2018 at 2:00 pm

Contacts
James Chappell

Discussion
South of the Vannoy parcel, the Chappell family own approximately 127 acres in the central portion of the Project. The Chappell family attended the open house and did not express concerns about the Project. The added diagonal 138 kV study segment, as a result of public comments, now crosses the central portion of the Chappell parcel. The first meeting with the Chappell family occurred on August 27, 2018 at their property to gain feedback on the new routing option. Mr. Chappell informed the Siting Team that the area on his parcel is prone to frequent lightning strikes possibly due to certain types of mineral and metal deposits in the ground. He did not have any opposition to the diagonal study segment or Study Segment 2 crossing his property; however, he cautioned that structures will need to have special design to avoid damage to structures. Mr. Chappell recommended Study Segment 3 as there are fewer lightning strikes that occur east and north of his property. Mr. and Mrs. Chappell seemed willing to work with AEP on the Project if their property were to be crossed. AEP will continue to keep the family informed of the Project moving forward

A second meeting was held with Mr. Chappell on October 4, 2018 at his property to observe the potential springs and karst topography on the parcel. Members of the Siting Team did not discover any karst topography or spring areas that would pose a constructability issue. Additionally after this meeting, the Siting Team moved forward with an alternative route that no longer crossed the Chappell property.

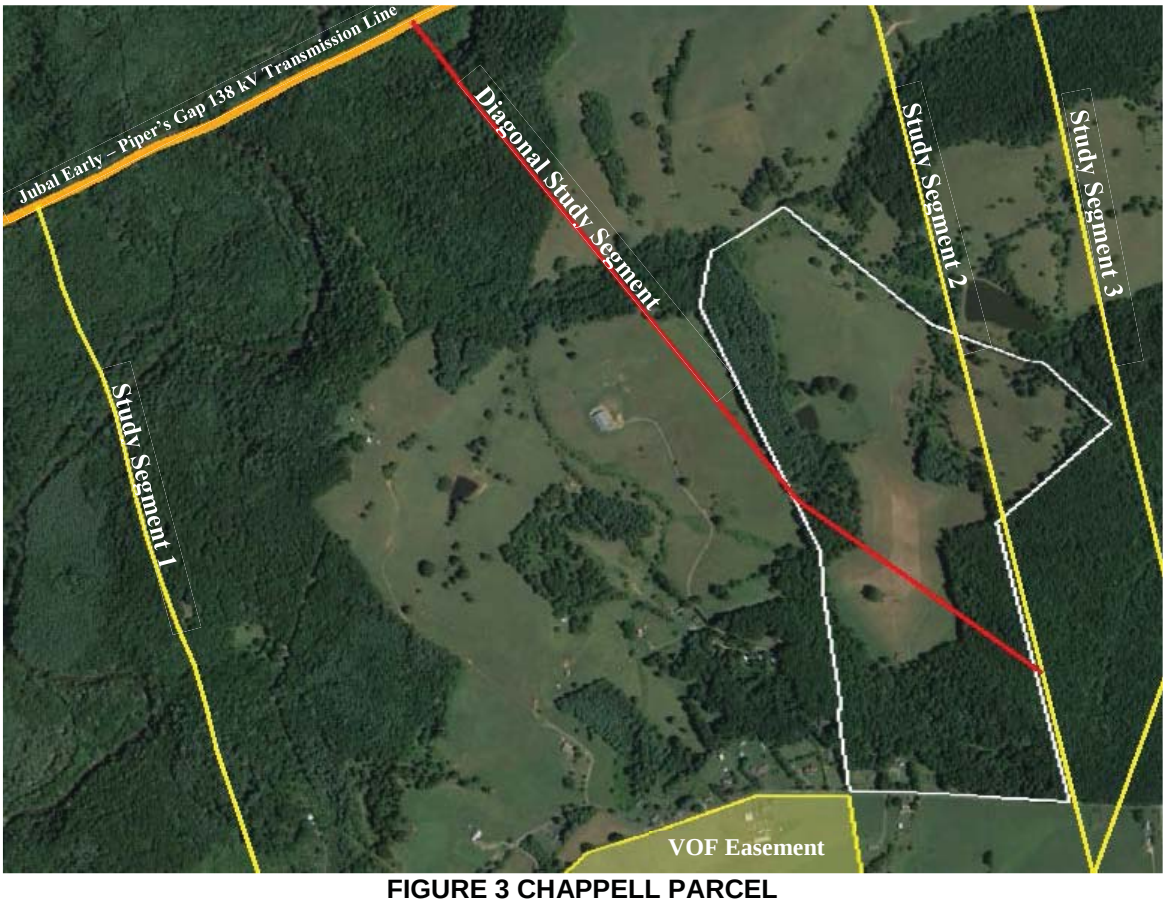


FIGURE 3 CHAPPELL PARCEL

Bishop Family
October 4, 2018 at 11:00 am

Contacts
James Bishop

Discussion
Members of the Siting Team met with Mr. Bishop to discuss three routing options across his parcel. One option follows along the northwest parcel boundary, one crosses through the southeastern portion of the parcel and a third is located diagonally across his parcel. The three options were presented to Mr. Bishop at an onsite meeting. Members of the Siting Team and Mr. Bishop walked the wooded portion of the parcel to observe topography and review the options across the parcel. During the field review, an existing roadbed through the parcel was observed on the western extents that could be used for access during construction. Mr. Bishop expressed preference to the routing option that follows the western parcel boundary. From a construction and environmental perspective, the topography is more favorable on the west side of the parcel and some wetland areas would be impacted by the added study segment. The western option was carried forward in Alternative Route B, the diagonal option was dismissed, and the eastern option was carried forward in Alternative Route C. Mr. Bishop had no major objections to the Project and expressed that the access road would be beneficial to him in entering the property.

FIGURE 4 BISHOP PARCEL

AGENCY CORRESPONDENCE

Virginia Department of Game and Inland Fisheries
September 5, 2018 via E-mail

Contacts
Amy Ewing, Environmental Services Biologist

Discussion
A letter was sent to the VDGIF on August 8, 2018 to inform them of the Project and request data that would be used in the route planning process. Members of the Siting Team met with a landowner who indicated on-going water monitoring and testing on their property, which could prohibit feasible structure placement or routing of a transmission line. Therefore, a follow-up email was sent to a representative at the VDGIF to inquire about the potential water monitoring and determine the sensitivity of the area. An email response was received on September 5, 2018 indicated that no known VDGIF water monitoring tests were identified in the area where the landowner had indicated. The VDGIF indicated that the Crooked Creek tributaries and Little Cranberry Creek are designated as wild trout waters and if any in-stream work is required, a permit application will be required. The VDGIF also indicated in-stream work restrictions during October 1 to March 31 in waters known to support brook trout or upstream of those known to support brook trout. Any VDGIF projects that are later found to be within the Project Study Area will be communicated to the Siting Team. A formal response letter was not received from the VDGIF.

New River Trail State Park
September 24, 2018 via Phone Conversation

Contacts
Jimmy Elliott, Assistant Manager (Byllesby Area)

Discussion
A member of the Siting Team spoke with Mr. Elliott regarding the Project and the possibility of crossing the New River Trail and Park. Mr. Elliott spoke with a park ranger, Mr. Sam Sweeney, who indicated that the Park understood that the Project is necessary for AEP to maintain the existing electrical system and that both Park representatives would be willing to work with AEP. There are no known sensitive resources at or near the trail crossing that could be a concern; however, if a transmission line crossing were to be proposed, coordination with other representatives of the New River Trail State Park system would be required.

Attachment C: GIS Data Sources

Attachment B. GIS Data Sources		
Siting Criteria	**Source**	**Description**
Land Use		
Number of parcels crossed by the ROW	Virginia Geographic Information Network (2017)	Count of the number of parcels crossed by the ROW.
Number of barns, outbuildings, sheds, garages and silos within 250 feet of the route centerline (excludes abandoned structures)	Virginia Base Mapping Program [VBMP] (2015) Data also field verified from points of public access (2018).	Count of the number of secondary structures, excluding abandoned structures, within the ROW and within 250 feet of potential routes.
Number of residences within 500 feet of the route centerline	VBMP (2015) Data also field verified from points of public access (2018).	Count of the number of residences within the ROW and within 500 feet of potential routes.
Number of multi-family dwellings within 500 feet of the route centerline	VBMP (2015) Data also field verified from points of public access (2018).	Count of the number of multi-family dwellings (including apartment buildings, duplexes, townhomes, etc.) within 500 feet of potential routes.
Number of commercial buildings within 500 feet of the route centerline	VBMP (2015) Data also field verified from points of public access (2018).	Count of the number of commercial buildings within the ROW and within 500 feet of potential routes.
Land use within the Study Area	NLCD (2011)	The NLCD data compiled by the Multi-Resolution Land Characteristics Consortium includes 16 classes of land cover from Landsat satellite imagery.
Number of conservation easements within 500 feet of the route centerline	National Conservation Easement Database (NCED) (2017)	Private conservation easements within 500 feet of potential routes from the NCED which is comprised of voluntarily reported conservation easement information from land trusts and public agencies.
Number of Historic Districts within one mile of the route centerline	Virginia Department of Historic Resources (VDHR) (2018)	Previously identified districts listed or eligible on the National Register of Historic Places (NRHP) acquired through VDHR (2018).
Number of archeological resources within 250 feet of	VDHR's Virginia Cultural Information System (V-CRIS) (2018	Previously identified archeological resources listed or eligible on the NRHP acquired through VDHR's V-CRIS (2018).

Attachment B. GIS Data Sources		
Siting Criteria	**Source**	**Description**
the route centerline		
Number of historic architectural resources within one mile of the route centerline	VDHR's Virginia Cultural Information System (V-CRIS) (2018	Previously identified historic architectural resource sites and districts listed or eligible on the NRHP acquired through VDHR's V-CRIS (2018).
Institutional uses (schools, places of worship and cemeteries) within 1,000 feet of the route centerline	U.S. Geological Survey, U.S. Geographic Names Information System (GNIS) (2018). Data was also field verified from points of public access (2018).	This dataset includes the locations of cemeteries, churches, hospitals, parks, and schools. Features within 1,000 feet of potential routes were field verified.
Airfield and heliports within one mile of the route centerline	GNIS (2018) and the Federal Aviation Administration (FAA) database (2018)	Distance from airfields and heliports.
Natural Environment		
Forest clearing within the ROW	Digitized based on ortho imagery sources VBMP (2015)	Acres of forest within the ROW.
Number of National hydrography dataset (NHD) stream and waterbody crossings within the ROW	USGS (NHD) (2018)	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 National Wetland Inventory (NWI) wetland crossings within the ROW	U.S. Fish and Wildlife Service (USFWS) National Wetland Inventory (NWI) (2018)	The NWI produces information on the status, characteristics, extent, and status of the Nation's wetlands, riparian, and deepwater habitats.
Acres of 100-year floodplain crossing within the ROW	U.S. Federal Emergency and Management Agency (FEMA) (2018)	Acres of 100-year floodplain within the ROW.
Miles of public lands crossed by the route	The Protected Areas Database of the United States (2018)	Miles of federal, state and local lands crossed by the ROW.

Attachment B. GIS Data Sources		
Siting Criteria	**Source**	**Description**
Threatened, endangered, rare or sensitive species occurrence within the Project vicinity	USFWS (2018)	Known occurrences; locations of potential habitat based on land use.
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 (data 2013; downloaded 2018)	Percent of soil associations crossed by the ROW characterized as hydric, predominantly hydric, partially hydric and non-hydric.
Percent of prime farmland soils and soils of statewide importance within the ROW	USDA-NRCS SSURGO STATSGO Database (2018)	Percent of soil associations crossed by the ROW characterized as prime farmland or farmland of statewide importance.
Technical		
Route length	Calculated in GIS	Length of route in miles.
Number and severity of angled structures	Developed in PLS CAD	Anticipated number of angled structures < 3 degrees, 3 to 45 degrees and over 45 degrees based on preliminary design.
Number of road crossings	Virginia Department of Transportation [VDOT] (2018)	Count of federal, state and local roadway crossings.
Number of railroad crossings	VBMP (2018)	Count of railroad crossings.
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 Digital Elevation Models (DEMs) obtained from the USGS (2018)	Miles of slope greater than 20 percent crossed by the routes.
Length of transmission line parallel	AEP TGIS	Miles of the route parallel to existing transmission lines.
Length of road parallel	VBMP (2018)	Miles of the route parallel to existing roadways.

Attachment B. GIS Data Sources		
Siting Criteria	**Source**	**Description**
Length of railroad parallel	VBMP (2018)	Miles of the route parallel to existing railroads.

Attachment D: Agency Correspondence

Jurisdiction	Prefix	Last Name	First Name	Title	Organization	Telephone Number	Email Address	Street Address	Address 2	City	State	Zipcode
Local	Mr.	Truitt	Steve	County Administrator	Carroll County	276-730-3001	steve.truitt@carrollcountyva.gov	605-1 Pine Street		Hillsville	Virginia	24343
	Mr.	Mitchell	C.M.	Mayor	City of Galax			111 East Grayson Street		Galax	Virginia	24333
	Mr.	Riegel	Daniel	Zoning Administrator	City of Galax	276-601-3600	driegel@galaxva.gov	111 East Grayson Street		Galax	Virginia	24333
	Mr.	Atwell	Terry	Building Official	City of Galax	276-236-7297	tatwell@galaxva.gov	111 East Grayson Street		Galax	Virginia	24333
	Mr.	Barker	Keith	City Manager	City of Galax	276-236-5773	kbarker@galaxva.com	111 East Grayson Street		Galax	Virginia	24333
	Mr.	McCraw	Robbie	Board Chairman	Caroll County		robbie.mccraw@carrollcountyva.gov	111 East Grayson Street		Galax	Virginia	24333
	Mr.	Hill	Rex	Vice Chairman	Caroll County		rex.hill@carrollcountyva.gov	111 East Grayson Street		Galax	Virginia	24333
	Mr.	Durbin	Steve	County Attorney	Caroll County	540-260-9011	sdurbin@sandsanderson.com	150 Peppers Ferry Road NE		Christiansburg	Virginia	24073-6548
	Ms.	Sikes	Adrienne	Environmental Program Manager	City of Galax	276-236-7380	asikes@galaxva.gov	111 East Grayson Street		Galax	Virginia	24333
State	Ms.	Ewing	Amy	Biologist	Virginia Department of Game and Inland Fisheries Environmental Services Section	(804) 367-2211	Amy.Ewing@dgif.virginia.gov	P. O. Box 90778		Henrico	Virginia	23228
	Ms.	Rhur	Robbie	Environmental Impact Review Coordinator	Virginia Department of Conservation and Recreation Planning and Recreation	804.371.2594	Robbie.Rhur@dcr.virginia.gov	600 East Main Street	24th Floor	Richmond	Virginia	23219
	Mr.	Orndorff	Wil	Karst Protection Coordinator	Virginia Department of Conservation and Recreation Natural Heritage Program	540.230.5960	Wil.Orndorff@dcr.virginia.gov	8 Radford Street	Suite 102	Christiansburg	Virginia	24073
	Ms.	Hypes	René	Environmental Review Coodinator	Virginia Department of Conservation and Recreation Natural Heritage Program	804.371.2708	Rene.Hypes@dcr.virginia.gov	600 East Main Street	24th Floor	Richmond	Virginia	23219
	Mr.	Wilson	Irvine	Natural Area Protection Specialist	Virginia Department of Conservation and Recreation Planning and Recreation	804.786.6745	irvine.wilson@dcr.virginia.gov	600 East Main Street	24th Floor	Richmond	Virginia	23219
	Mr.	Hurst	Jeffrey	Regional Director	Virginia Department of Environmental Quality Southwest Regional Office	276.676.4800	Jeffrey.hurst@deq.virginia.gov	355-A Deadmore Street		Abingdon	Virginia	24210
	Ms.	Henicheck	Michelle	Senior Wetland Ecologist	Department of Environmental Quality Central Office	804-698-4007	michelle.henicheck@deq.virginia.gov	1111 East Main Street	Suite 1400	Richmond	Virginia	23219
	Ms.	Rayfield	Bettina	Manager, Environmental Impact review	Department of Environmental Quality Office of Environmental Impact Review	804-698-4204	Bettina.Rayfield@deq.virginia.gov	1111 East Main Street	Suite 1400	Richmond	Virginia	23219
	Mr.	Watkinson	Tony	Chief of Habitat Management	Virginia Marine Resources Commission Habitat Management	757.247.8062	Tony.Watkinson@mrc.virginia.gov	2600 Washington Avenue	Third Floor	Newport News	Virginia	23607
	Ms.	Umberger	Jules		Virginia Department of Agriculture and Consumer Services Southwest Region Office	276-228-5501	jules.umberger@vdacs.virginia.gov	250 Cassell Road		Wytheville	Virginia	24382
	Mr.	Kirchen	Roger	Director, Review & Compliance Division	Virginia Department of Historic Resources Division of Review and Compliance	804.482.6091	roger.kirchen@dhr.virginia.gov	2801 Kensington Avenue		Richmond	Virginia	23221
	Ms.	Little	Martha	Deputy Director of Stewardship	Virginia Outdoors Foundation	804.577.3337	mlittle@vofonline.org	600 East Main Street	Suite 402	Richmond	Virginia	23219
	Mr.	Kilgore	Neal	Easement Project Manager, Abingdon	Virginia Outdoors Foundation	276.623.8256	nkilgore@vofonline.org	468 East Main Street	Suite 400-B	Abingdon	Virginia	24210
	Mr.	Sullivan	Chris	Senior Area Forester	Virginia Department of Forestry Mount Rogers Work Area	276.676.5488 (office) 276.692.7621 (cell)	chris.sullivan@dof.virginia.gov	P. O. Box 978		Abingdon	Virginia	24212
	Mr.	Denny	S. Scott	Senior Aviation Planner	Virginia Department of Aviation	804-236-3638 ext. 110	Scott.Denny@doav.virginia.gov	5702 Gulfstream Road		Richmond	Virginia	23250
	Mr.	Skorupa	Phil	Director, Division of Geology and Mineral Resources	Virginia Deparrtment of Mines, Minerals, and Energy	434-951-6310	dgmrinfo@dmme.virginia.gov	900 Natural Resources Drive	Suite 400	Charlottesville	Virginia	22903
	Mr.	Whitner	Raymond	Office of Drinking Water	Virginia Department of Health, Abingdon Field Office	276-676-5650	ray.whitner@vdh.virginia.gov	407 East Main Street	Suite 2	Abingdon	Virginia	24210
	Mr.	King	Ken	District Engineer	Virginia Department of Transportation Salem District	540-387-5320	Ken.King@VDOT.Virginia.gov	731 Harrison Avenue		Salem	Virginia	24153
	Mr.	Johnson	Paul	District Environmental Manager, Salem	Virginia Department of Transportation	540-387-5432	Paul.Johnson@VDOT.Virginia.gov	731 Harrison Avenue		Salem	Virginia	24153
	Mr.	Sweeney	Sam	Ranger	New River Trail State Park	276-699-6778	newrivertrail@dcr.virginia.gov	116 Orphanage Drive		Max Meadows	Virginia	24360
	Mr.	Elliott	Jimmy	Assistant Manager, Byllesby Area	New River Trail State Park	276-699-6778	newrivertrail@dcr.virginia.gov	116 Orphanage Drive		Max Meadows	Virginia	24360
Federal Government	Mr.	Walker	Tom	Chief, Regulatory Branch	U.S. Army Corps of Engineers Norfolk District	757-201-7657	William.T.Walker@usace.army.mil	803 Front Street		Norfolk	Virginia	23510
	Ms.	Frye	Jennifer	Chief, Western Virginia Regulatory Section	U.S. Army Corps of Engineers Norfolk Distric, Western Section	540-344-1498	jennifer.s.frye@usace.army.mil	210 Franklin Road SW		Roanoke	Virginia	24011
	Mr.	Cosmo	Servidio	Regional Administrator	U.S. Environmental Protection Agency Region 3	215.814.2900	servidio.cosmo@epa.gov	1650 Arch Street		Philadelphia	Pennsylvania	19103-2029
	Mr.	Andersen	Troy	Supervisory Fish and Wildlife Biologist	U.S. Fish and Wildlife Service Virginia Ecological Services	804.824.2428 (office) 804.654.9235 (cell)	troy_andersen@fws.gov	6669 Short Lane		Gloucester	Virginia	23061
	Mr.	Bricker	John	State Conservationist	U.S. Department of Agriculture Natural Resources Conservation Service Virginia	804-287-1691	jack.bricker@va.usda.gov	1606 Santa Rosa Road	Suite 209	Richmond	Virginia	23229
	Mr.	Simpkins	John	Planning and Environment team Lead	U.S. Department of Transportation Federal Highway Administration Virginia Division	804.775.3347	john.simkins@dot.gov	400 North 8th Street	Suite 750	Richmond	Virginia	23219-4825
	Mr.	Garten	Barry	Ranger	US Forest Service George Washington and Jefferson National Forest Mt. Rogers District	276-783-5196		3714 Highway 16		Marion	Virginia	24354
	Mr.	Riggs	John	Manager	U.S. Department of Transportation Federal Aviation Administration Flight Standards District Office	304-347-5199 ext. 1200	Unlisted on website.	301 Eagle Moutain Road	Room 114	Charleston	West Virginia	25311
	Mr.	DiGiulian	Matthew	Manager	Beckley AFO	304-252-6216	matthew.digiulian@faa.gov	176 Airport Circle	Room 101	Beaver	West Virginia	25813-9350

POWER ENGINEERS, INC.
2920 WEST BROAD ST.
SUITE 206
RICHMOND, VA 23230 USA

October 22, 2018

[Name]
[Title, company]
[Address 1]
[Address 2]

RE: Appalachian Power Company: Glendale Area Improvements Project (Wolf Glade 138 kilovolt Extension), City of Galax, Carroll and Wythe Counties, Virginia

[Insert Greeting Line],

On behalf of Appalachian Power Company (Appalachian Power), POWER Engineers, Inc. (POWER) is requesting your input on the proposed Glendale Area Improvements Project (Project). Appalachian Power contracted POWER to conduct a siting study and prepare the Certificate of Public Convenience and Necessity application for filing with the Virginia State Corporation Commission (SCC) for the Project. Appalachian Power plans to increase electric reliability by making upgrades to the transmission system in southwest Virginia. The Project consists of several components:

- Replace the existing Cliffview 69 kilovolt (kV) Substation with the new Wolf Glade 138 kV Substation.
- Construct approximately two-miles of new double circuit 138 kV transmission line between the Pipers Gap – Jubal Early 138 kV Transmission Line and the proposed new Wolf Glade Substation (Wolf Glade 138 kV Extension).
- Construct approximately one mile of double circuit 69 kV transmission line between the Cliffview 69 kV Tap and the proposed new Wolf Glade Substation.
- Retire the Lee Highway Substation.
- Retire approximately 14 miles of the Bluefield-Wythe-Ivanhoe 88 kV Transmission Line.
- Complete upgrades to the existing Byllesby, Wythe, Galax, and Jubal Early substations.

The Project will address thermal overloads on the Wythe – Cliffview 69 kV and Wythe – Byllesby 69 kV transmission lines by constructing the new Wolf Glade Substation. The new 138 kV substation will alleviate the thermal overload and provide an opportunity to retire the aging Bluefield-Wythe-Ivanhoe 88 kV Transmission Line, which is over 90 years old.

Appalachian Power and POWER have identified preliminary study segments for the 138 kV and the 69 kV transmission lines and within the Study Area. **Attachment 1** shows the Project Study Area and preliminary study segments. **Attachment 2** shows the extent of the transmission line and substation retirement areas.

Appalachian Power is interested to know if your agency has any specific concerns about the Project. 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 this Project 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 representative, please contact Scott Kennedy via email at skennedy@aep.com or by phone at 540-562-7295.

Sincerely,

Emily Larson

Emily Larson
POWER Engineers, Inc.

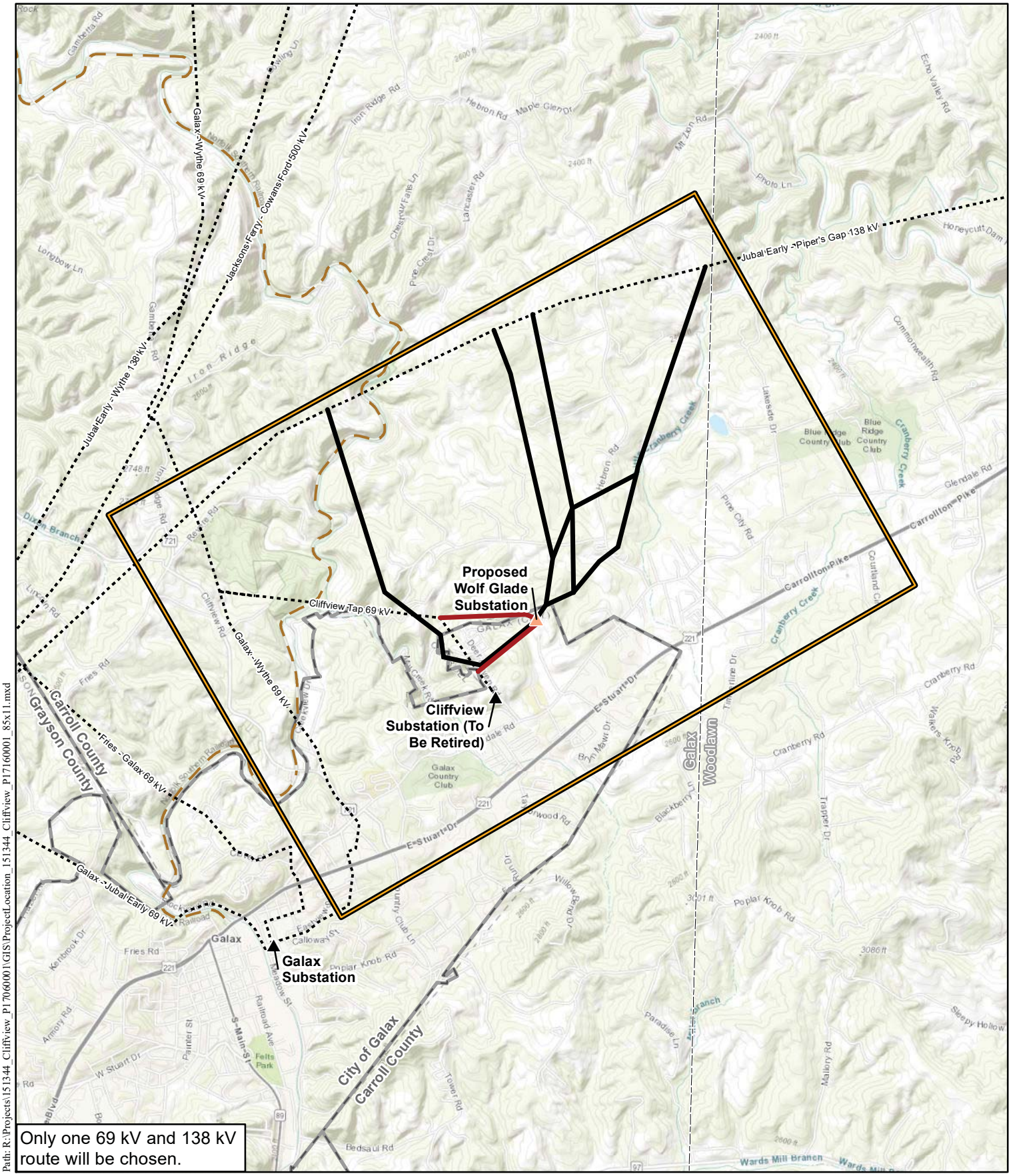
Enclosure(s): Attachment 1: Preliminary Study Segments and Substation within Project Study Area
Attachment 2: Infrastructure to be Retired

c: DMS/151344/WSBC-02

ATTACHMENT 1

PRELIMINARY STUDY SEGMENTS AND SUBSTATION WITHIN PROJECT STUDY AREA

ATTACHMENT 1



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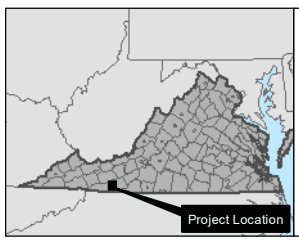


- Existing AEP Substation
- Proposed Wolf Glade Substation
- Study Segment (138 kV)
- Study Segment (69 kV)
- Existing AEP Transmission Line
- New River Trail
- USGS Topo Quad
- Project Study Area
- City/County Boundary

N W E S

SCALE: 1 " = 4,000 '

0 2,000 4,000
Feet

City of Galax and Carroll County Virginia

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

Date:8/2/2018
Author: KK
Project: 151344

Glendale Area Improvements

Proposed 138 kV Transmission Line and Substation Study Area

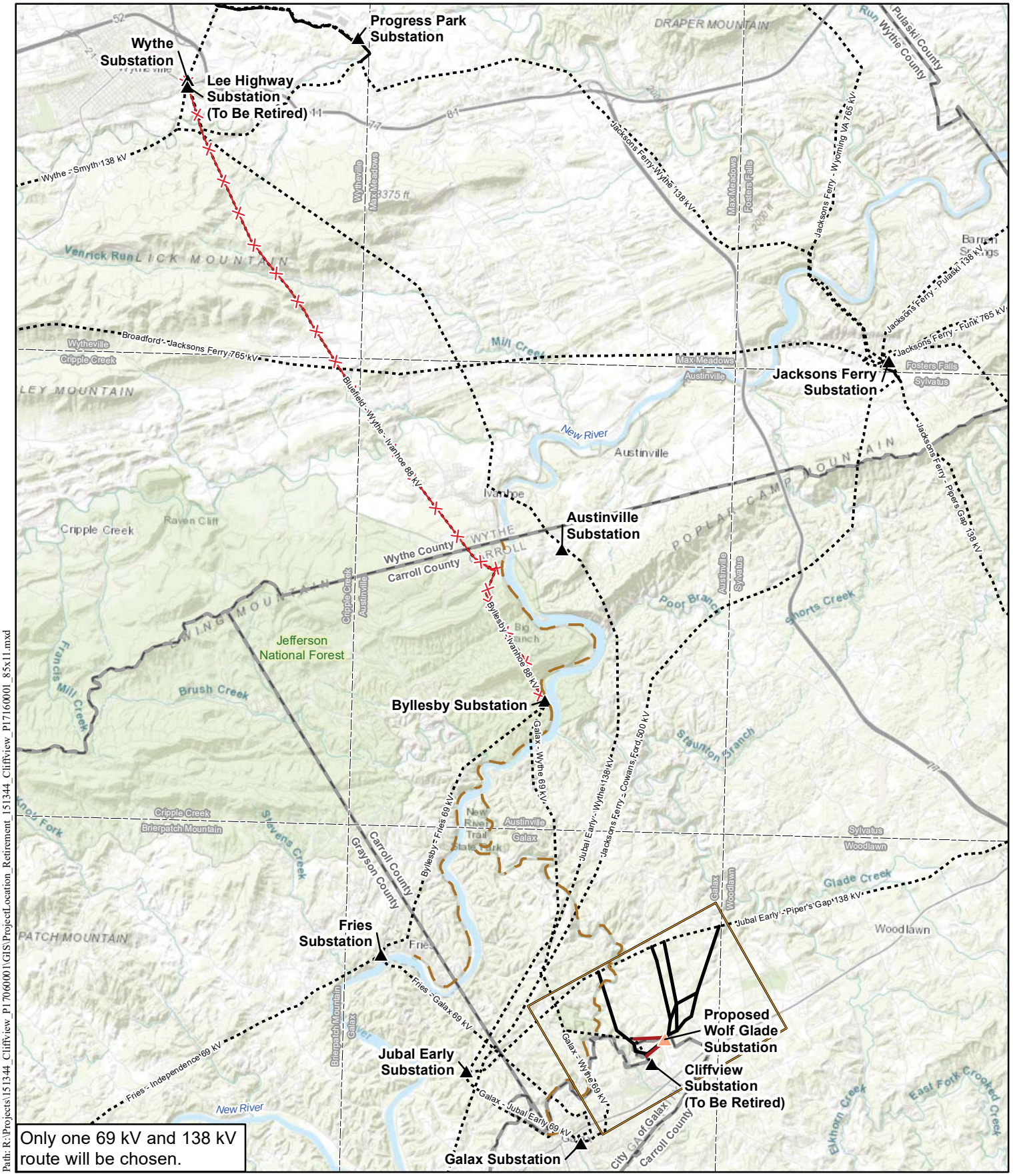
APPALACHIAN POWER
BOUNDLESS ENERGY

POWER ENGINEERS

ATTACHMENT 2

INFRASTRUCTURE TO BE RETIRED

ATTACHMENT 2



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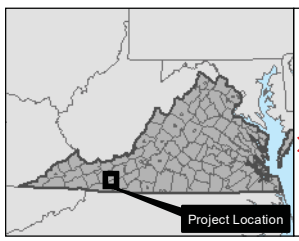


- Existing AEP Substation
- Proposed Wolf Glade Substation
- Study Segment (138 kV)
- Study Segment (69 kV)
- Existing AEP Transmission Line
- Existing Transmission Line to be Retired (ROW easement rights to be retained)
- New River Trail
- USGS Topo Quad
- Project Study Area
- City/County Boundary

N W E S

SCALE: 1 " = 12,500 '

0 6,250 12,500

Feet

City of Galax
Carroll and Wythe Counties
Virginia

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

Date:8/2/2018
Author: KK
Project: 151344

Glendale Area Improvements

Infrastructure to be Retired

APPALACHIAN POWER
BOUNDLESS ENERGY

POWER ENGINEERS

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

August 13, 2018

Ms. Emily Larson
Power Engineers, Inc.
2920 West Broad Street, Suite 206
Richmond, Virginia 23230

RE: Appalachian Power Company: Glendale Area Improvement project (Wolf Glade 138 kV Extension) in the City of Galax, and Carroll and Wythe Counties, Virginia

Dear Ms. Larson:

The Virginia Department of Aviation received your August 8, 2018 letter requesting staff provide any comments we may have regarding the above referenced project(s). Following our review, staff has determined that a portion of one of the alternative 138kV transmission lines would be located within 20,000 linear feet of the Twin County Airport. This mandates a 7460 form be completed by the project sponsor and submitted to the Federal Aviation Administration (FAA) for evaluation on potential hazards to air navigation.

The information package you provided for our review did not include a schematic on the tower structures used in this project. Therefore, the project sponsor should note that an additional 7460 form should be submitted to the FAA for any structure (temporary or permanent) that reaches 200 feet above ground level or higher.

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

Sincerely,

S. Scott Denny
Senior Aviation Planner
Virginia Department of Aviation

Larson, Emily

From: Orndorff, William <wil.orndorff@dcr.virginia.gov>
Sent: Tuesday, August 14, 2018 10:13 AM
To: Larson, Emily
Cc: Scott Kennedy; Pardis, Roya
Subject: Re: Appalachian Power Company: Glendale Area Improvements Project

Hi Emily et al,

There are no karst concerns with this project. The bedrock in the area is dominantly metamorphosed silicate rocks, which do not support karst topography.

No other natural heritage resources are documented in the area.

Thanks for coordinating with us!

Wil Orndorff

On Tue, Aug 14, 2018 at 8:56 AM, emily.larson@powereng.com <emily.larson@powereng.com> wrote:

Good morning Will,

We recently mailed you a copy of the attached letter for your review and comment regarding a new Appalachian Power project, the Glendale Area Improvements Project. Based on the publically available data and information received at the public open house, we are aware that this area is particularly prone to karst. We know that you typically request a GIS shapefile of the routes, so I have attached it here for your convenience. We are also vetting another possible route based on information received at the open house that was not included in the agency letter – see red dashed line in the screen shot below.

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

August 15, 2018

Western Virginia Regulatory Section
Action ID Number: NAO-2018-01445

Ms. Emily Larson
POWER Engineers, Inc.
2920 West Broad Street, Suite 206
Richmond, Virginia 23230

Dear Ms. Larson:

This letter is in response to your request for an environmental review of the Glendale Area Improvements Project. The proposed project is located in the City of Galax and Carroll County, Virginia. The project involves replacing the existing Cliffview Substation with the new Wolf Glade Substation, construction of new transmission line, retiring the Lee Highway Substation and fourteen miles of transmission line, along with upgrades to the other four existing substations. The project has been assigned Action ID Number: NAO-2018-01445; please reference this number on any future correspondence.

Upon review of the maps you provided with your August 8, 2018 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

(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,

Dana Heston
Environmental Scientist
Western Virginia Regulatory Section

cc: Scott Kennedy, Appalachian Power Company
Jay Roberts, Virginia Department of Environmental Quality
Mike Johnson, Virginia Marine Resources Commission

United States Department of the Interior

FISH AND WILDLIFE SERVICE

Virginia Field Office
6669 Short Lane
Gloucester, VA 23061

October 30, 2015

Greetings:

Due to increased workload and refinement of our priorities in Virginia, this office will no longer provide individual responses to requests for environmental reviews. However, we want to ensure that U.S. Fish and Wildlife Service trust resources continue to be conserved. When that is not possible, we want to ensure that impacts to these important natural resources are minimized and appropriate permits are applied for and received. We have developed a website that provides the steps and information necessary to allow any individual or entity requiring review/approval of their project to complete a review and come to the appropriate conclusion. This site can be accessed at: *http://www.fws.gov/northeast/virginiafield/endangered/projectreviews.html*.

The website is frequently updated to provide new species/trust resource information and methods to review projects. Refer to the website for each project review to ensure that current information and methods are utilized.

If you have any questions about project reviews or need assistance, please contact Troy Andersen of this office at (804) 824-2428 or troy_andersen@fws.gov.

Sincerely,

Cindy Schulz
Field Supervisor
Virginia Ecological Services

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

August 15, 2018

Emily Larson
POWER Engineers, Inc.
2920 West Broad Street
Richmond, Virginia 23230

RE: Glendale Area Improvements Project (Wolf Glade 138 kV Extension), City of Galax and Carroll and Wythe Counties, 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, you 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/

- 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

- EPA Envirofacts Database

  EPA Environmental Information, including EPA-Regulated Facilities and Toxics Release Inventory Reports:
  - www.epa.gov/enviro/index.html

- EPA NEPAssist 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,

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

COMMONWEALTH of VIRGINIA

DEPARTMENT OF ENVIRONMENTAL QUALITY
SOUTHWEST REGIONAL OFFICE
355-A Deadmore Street, Abingdon, Virginia 24210
Phone (276) 676-4800 Fax (276) 676-4899
www.deq.virginia.gov

Matt Strickler
Secretary of Natural Resources

David K. Paylor
Director

Jeffrey L. Hurst
Regional Director

August 15, 2018

Emily Lawson
POWER Engineers, Inc.
2920 West Broad St.
Suite 206
Richmond, VA 23230

Re: Appalachian Power Company: Glendale Area Improvements Project

Dear Ms. Lawson:

The Department of Environmental Quality – Southwest Regional supports improved electric service in Southwest Virginia. The completed project will have a positive impact on the quality of life of Virginia's citizens by providing increased power distribution capacity and reliable power service. This project includes two miles of new 138 kV transmission line, one mile of new 69 kV transmission line, retiring 14 miles of 88 kV transmission line, constructing one new substation, retiring two substations, and upgrading four substations.

Replacing the Cliffview Substation with the new Wolf Glade Substation would occur in the Mill Creek drainage, which is currently unassessed; no current water quality information is available.

Constructing new 138 kV transmission line between the Pipers Gap – Jubal Early Transmission Line and the proposed Wolf Glade Substation, and constructing new 69kV transmission line between the Cliffview 69kV Tap and the Proposed Wolf Glade Substation would occur in either the Chestnut Creek or Little Cranberry Creek drainages, depending on the routes chosen. The Wythe substation that is proposed to be upgraded is also in the Chestnut Creek watershed. Chestnut Creek is not supporting of recreation and aquatic life uses, due to E. coli bacteria and sedimentation. More information can be found

here: https://www.deq.virginia.gov/Portals/0/DEQ/Water/TMDL/ImplementationPlans/ChestnutCrk_technical_document_30SEP2015.pdf . Little Cranberry Creek is currently unassessed; no current water quality information is available.

The Lee Highway Substation that is proposed to be retired, and the Wythe Substation that is proposed to be upgraded are in the Reed Creek watershed. Reed Creek is not supporting of recreation use due to E. coli bacteria. More information can be found here: https://www.deq.virginia.gov/portals/0/DEQ/Water/TMDL/apptmdls/newrvr/reedec.pdf .

The Bluefield-Wythe-Ivanhoe 88kV Transmission line that is proposed to be retired crosses Dean Branch, which is not supporting of recreation and aquatic life uses, due to E. coli bacteria and a poor benthic community. The transmission line also crosses Reed Creek, which is not supporting of recreation use due to E. coli bacteria, as well as numerous unimpaired or unassessed streams.

The Jubal Early Substation that is proposed to be upgraded is in the New River drainage. The New River upstream of Fries Dam is not supporting of recreation use due to E. coli bacteria. The Byllesby Substation is also along the New River, but in a segment that is fully supporting for all assessed uses.

All of the components of this proposed project are in the New River watershed. The New River downstream of the Rt. 77 bridge, as well as Reed Creek downstream from the Rt. 221 bridge, are impaired for polychlorinated biphenyls (PCBs). More information on the New River drainage PCB TMDL can be found here: https://www.deq.virginia.gov/Portals/0/DEQ/Water/TMDL/drftmdls/DRAFT_Final_NewRiver_PCB_TMDLReport_v7.0_04Dec2017_DEQ.pdf

The Project area is in the New River Basin, Section 2 waters. Most of the streams are mountainous zone waters, with some stockable trout waters and public water supply areas.

The following discussion is provided as a guideline of programs administered by the Department of Environmental Quality (DEQ) and other agencies of the Commonwealth, which could be applicable to the proposed action. Final determination concerning potential impacts on these programs rests with DEQ's Southwest Regional Office and the appropriate agency administering each program. It is the responsibility of the applicant to coordinate development with these agencies.

The Department of Environmental Quality has no objections to the project provided that the applicant abides by all applicable state, Federal, and local laws and regulations. Prior to construction, all permits and approvals must be obtained. In general,

development must incorporate features which prevent significant adverse impacts on ambient air quality, water quality, wetlands, historic structures, fish wildlife, and species of plants, animals, or insects listed by state agencies as rare, threatened, or endangered.

1. Water Quality and Wetlands. Although no long-term adverse impacts to water quality are anticipated from this project, potential short-term adverse impacts resulting from surface runoff due to construction must be minimized. This can be achieved by using Best Management Practices (BMPs).

Federal and state governments regulate impacts to streams and wetlands. The Virginia Marine Resources Commission serves as the clearinghouse for the Joint Permit Application (JPA) used by: (1) U.S. Army Corps of Engineers for issuing permits pursuant to *§ 404 of the Clean Water Act* and *§ 10 of the Rivers and Harbors Act*; (2) Department of Environmental Quality for issuance of Virginia Water Protection Permit pursuant to *§ 401 of the Clean Water Act*, Virginia Code *§ 62.1-44.2 et seq.*, Virginia Code *§ 62.1-44.15:5*, and Virginia Administrative Code *9 VAC 25-210-10 et seq*.; and (3) Virginia Marine Resources Commission regulates encroachments on or over state-owned subaqueous beds as well as tidal wetlands pursuant to Virginia Code *§ 28.2-1200* through *1400.* Contact VMRC at (757) 247-2200 to determine the need for a JPA for this project. VMRC will distribute the application to the appropriate agencies. Each agency will conduct its review and respond.

In general, DEQ recommends that the amount of stream and wetland impacts be avoided to the maximum extent practicable. For unavoidable impacts, DEQ encourages the following practices to minimize the impacts to wetlands and waterways: use of directional drilling from upland locations; operation of machinery and construction vehicles outside of stream-beds and wetlands; use of synthetic mats when in-stream work is unavoidable; stockpiling of material excavated from the trench for replacement if directional drilling is not feasible; and preservation of the top 12 inches of trench material removed from wetlands for use as wetland seed and root stock in the excavated area. The Southwest Regional contact is Clairise Shaheen at (276) 676-4809 or email Clairise.Shaheen@deq.virginia.gov if a permit is necessary to go forward with the project.

2. Erosion and Sediment Control and Stormwater Management. Erosion and sediment control measures must be implemented in accordance with the current edition of the Virginia Erosion and Sediment Control Handbook and the Virginia Erosion and Sediment Control Regulations, which are available online: http://www.deq.virginia.gov/Programs/Water/LawsRegulationsGuidance.aspx. If the total land disturbance exceeds 10,000 square feet, an erosion and sediment control plan will be required. Erosion and sediment control requirements are regulated by the local government where your land disturbing activity is occurring. Please contact the appropriate county, city or town for information and compliance requirements.

Stormwater management planning and permitting is required through our Department should your land disturbance be greater than one (1) acre or lie within the boundaries of a common plan of development. Information, permit application, and regulations on our stormwater management program are available online at: http://www.deq.virginia.gov/Programs/Water/StormwaterManagement.aspx.

Please contact Kelly Miller at our Southwest Regional Office at (276) 676-4879 or email Kelly.Miller@deq.virginia.gov for more information.

3. Air Quality. This project is not likely to adversely affect air quality. However, during construction fugitive dust must be kept at a minimum. This requires, but is not limited to, measures such as application of water to suppress dust and washing down construction vehicles and paved roadways immediately adjacent to the construction site. Please note any process equipment that prepares coal via breaking, crushing, screening, wet or dry cleaning, thermal drying, etc. should be evaluated for permit applicability. The following sections of Virginia Administrative Code (VAC) may be applicable: *9 VAC 5-50-60 et. seq.*, governs abatement of visible emissions and fugitive dust emissions, and *9 VAC 5-40-5600 et. seq.* addresses open burning. The Southwest Regional contact is Crystal Bazyk at (276) 676-4829 or email Crystal.Bazyk@deq.virginia.gov.

4. Solid and Hazardous Wastes, and Hazardous Substances. DEQ administers the Virginia Solid Waste Management Regulations and the Virginia Hazardous Waste Management Regulations. We recommend that all solid wastes generated at the site be reduced at the source, reused, or recycled. All hazardous wastes should be minimized. Otherwise, all solid waste and hazardous waste must be managed in accordance with all applicable federal, state, and local environmental regulations. The Southwest Regional Office contact is Daniel Manweiler at (276) 676-4837 or email Daniel.Manweiler@deq.virginia.gov concerning location and availability of waste management facilities in the project area.

5. Pesticides and Herbicides. DEQ recommends that the use of herbicides or pesticides for construction or landscape maintenance should be in accordance with the principles of integrated pest management. The least toxic pesticides that are effective in controlling the target species should be used. Please contact the Virginia Department of Agriculture and Consumer Services at (804) 786-3501 for more information.

6. Pollution Prevention. DEQ recommends that construction projects incorporate the principles of pollution prevention including the following recommendations:

- Consider environmental attributes when purchasing materials. For example, the extent of recycled material content and toxicity level should be considered.
- Consider contractors' commitments to the environment when choosing contractors. Also, specifications regarding raw material selection (alternative

fuels and energy sources) and construction practices can be included in contract documents and requests for proposals.
- Choose sustainable practices and materials in infrastructure and construction and design. These could include asphalt and concrete containing recycled materials and integrated pest management in landscaping.
- Integrate pollution prevention techniques into maintenance and operation activities to include source reduction (fixing leaks, energy efficient products).

Pollution prevention measures are likely to reduce potential environmental impacts and reduce costs for material purchasing and waste disposal. For more information, contact Sharon Baxter at DEQ's Office of Pollution Prevention at (804) 698-4344 Sharon.Baxter@deq.virginia.gov.

7. Energy Conservation. Structures should be planned and designed to comply with state and federal guidelines and industry standards for energy conservation and efficiency. For example, energy efficiency of any structures can be enhanced by maximizing the use of the following
- thermally-efficient building shell components (roof, wall, floor, and insulation);
- high efficiency heating, ventilation, air conditioning systems; and
- high efficiency lighting systems.

Gerald Wilkes, Department of Mines, Minerals and Energy, at (434) 951-6364 should be contacted for assistance in meeting this challenge.

8. Natural Heritage Resources. The Department of Conservation and Recreation's Division of Natural Heritage (DNH) can search its Biotics Data System (BDS) 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 animal and plant species, unique or exemplary natural communities, and significant geologic communities.

Under a Memorandum of Agreement established between the Virginia Department of Agriculture and Consumer Services (VDACS) and the Department of Conservation and Recreation (DCR), DCR has the authority to report for VDACS on state-listed plant and insect species. We recommend that the DNH be contacted at (804) 786-7951, to secure updated information on natural heritage resources before the project is implemented.

9. Wildlife Resources. The Department of Game and Inland Fisheries (DGIF), as the Commonwealth's wildlife and freshwater fish management agency, exercises enforcement and regulatory jurisdiction over wildlife and freshwater fish, including state or federally listed endangered or threatened species, but excluding listed insects (*Virginia Code* Title 29.1). DGIF is a consulting agency under the U.S. Fish and Wildlife Coordination Act (16 U.S.C. sections 661 *et seq*.), and provides environmental analysis of projects or permit applications coordinated through DEQ and several other state and

federal agencies. DGIF determines likely impacts upon fish and wildlife resources and habitat, and recommends appropriate measures to avoid, reduce, or compensate for those impacts. For more information, see the DGIF website at www.dgif.state.va.us or contact Ray Fernald at (804) 367-6913.

10. Historic and Archaeological Resources. *Section 106 of the National Historic and Preservation Act of 1966*, as amended, requires that activities that receive federal funding must consider effects to properties that are listed or eligible for listing on the National Register of Historic Places. The Department of Historic Resources (DHR) conducts reviews of projects to determine their effect on historic structures or cultural resources. If applicable, contact DHR. In the event that archaeological resources are encountered during construction, immediately contact Ms. Ethel Eaton at (804) 367-2323.

Thank you for your inquiry. We appreciate your interest in complying with Virginia's environmental legislation. If you have any further questions please do not hesitate to call Michael Hutchison at (276) 676-4865.

Sincerely,

Jeffrey L. Hurst
Regional Director

cc. file

Pardis, Roya

From: John.Riggs@faa.gov
Sent: Wednesday, August 22, 2018 7:44 AM
To: Larson, Emily
Cc: skennedy@aep.com
Subject: Appalachian Power Company: Glendale Area Improvements Project

Miss Larson,

This is in response to your letter, dated August 8, 2018. I have reviewed your letter and the FAA's Charleston, WV Flight Standards District Office does not have any specific concerns with the subject project at this time. Our typical involvement with a project like this would be to approve a congested area plan (CAP) for helicopters participating in the power line construction and while operating over populated areas, roads, etc. The helicopter operator is responsible to submit a suitable plan to the FAA for review and approval, if applicable. At this time, we do not have any plans for review for your project.

Aside from the above, our responsibilities include inspection of aircraft operations associated with the project and investigations of mishaps or noncompliance with Title 14 CFR.

Also, if the project has potential to impact aircraft operations at Twin County Airport (HLX) in Hillsville, you may want to contact the FAA Airport Field Office in Beckley, WV to determine if they have any input on your project (See below). I am not sure if they provide oversight for HLX, but they will be able to redirect you to the FAA office that does if HLX is not in their district.

DiGiulian, Matthew
ARP
AEA-BEK-ADO
Manager, Beckley AFO
+13042526216;ext=123 **(office)**
+13042538028 **(fax)**
matthew.digiulian@faa.gov

I trust this email appropriately responds to your letter. Please let me know if it does not and what additional information you need or questions you may have.

Best Regards,

John M. Riggs
Aviation Safety
Manager, AFG-200-EA-09
301 Eagle Mountain Road, Charleston, WV 25311
(O) 304-347-5199, Ext. 1200

Larson, Emily

From: Warren, Arlene <arlene.warren@vdh.virginia.gov>
Sent: Monday, August 27, 2018 12:28 PM
To: Larson, Emily
Cc: Brian Blankenship
Subject: Appalachian Power Glendale Area Improvement Project Request for comments

Project Name: Appalachian Power Glendale Area Improvement Project Request for Agency Comment
Project #: N/A
UPC #: N/A
Location: City of Galax, Carroll & Wythe Cos.

VDH – Office of Drinking Water has reviewed the above project. Below are our comments as they relate to proximity to **public drinking water sources** (groundwater wells, springs and surface water intakes). Potential impacts to public water distribution systems or sanitary sewage collection systems **must be verified by the local utility.**

The following public groundwater wells are located within a 1-mile radius of the project site.

PWS ID Number	City/County	System Name	Facility Name
1035088	CARROLL	CARROLL REGIONAL WATER SYSTEM	WILSON WELL #1
1035088	CARROLL	CARROLL REGIONAL WATER SYSTEM	WILSON WELL #2
1035088	CARROLL	CARROLL REGIONAL WATER SYSTEM	SUMMERS WELL #1

The following surface water intakes are located within a 5-mile radius of the project site:

PWS ID Number	System Name	Facility Name
1640243	GALAX, CITY OF	CHESTNUT CREEK
1077240	FRIES, TOWN OF	EAGLE BOTTOM CREEK

The project is not within the watershed of any public surface water intakes.

- ***No other comments were received.***

Best Management Practices should be employed, including Erosion & Sedimentation Controls and Spill Prevention Controls & Countermeasures on the project site.

Materials should be managed while on site and during transport to prevent impacts to nearby surface water.

The Virginia Department of Health – Office of Drinking Water appreciates the opportunity to provide comments. If you have any questions, please let me know.

Best Regards,

Arlene Fields Warren

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

August 28, 2018

Emily Larson
Power Engineers, Inc.
2920 West Broad Street, Suite 206
Richmond, VA 23230

Re: 153273, Glendale Area Improvements 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.

According to the information currently in our files, the Kanawha minnow (*Phenacobius teretulus*, G3G4/S2S3/NL/NL) has been historically documented in Chestnut Creek. The Kanawha minnow is endemic to the New River drainage occurring in North Carolina, West Virginia, and Virginia (Jenkins and Burkhead, 1993). It typically occurs in the runs and riffles of clear, moderate-gradient streams primarily over clean gravel and rubble substrates (Jenkins and Burkhead, 1993).

Threats to the Kanawha minnow include pollution, habitat alteration, and agricultural runoff (NatureServe, 2009). 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.

DCR also 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.

In addition, the proposed project will fragment a C5 core as identified in the Virginia ConservationVision. The Virginia ConservationVision is a GIS analysis for identifying and prioritizing conservation lands in Virginia.(http://www.dcr.virginia.gov/natural_heritage/vaconvision.shtml)

Cores are areas of unfragmented natural cover with at least 100 acres of interior condition and 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 carbon sequestration, along with the associated economic benefits of these functions. The cores are ranked form 1 to 5 (5 being the least ecological relevant) using many prioritization criteria, such as the number of natural heritage resources (i.e. rare species) occurring in a core.

Fragmentation occurs when a large, contiguous ecosystem is transformed into one or more smaller patches surrounded by disturbed areas resulting from the conversion and development. 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 (leaving round versus long, skinny fragments); by retaining connective corridors that allow significant migration between fragments; and by designing the intervening landscape to minimize its hostility to native wildlife (natural cover versus lawns).

There are no State Natural Area Preserves under DCR's jurisdiction in the project vicinity.

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.

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 $125.00 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. 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,

S. René Hypes
Project Review Coordinator

Literature Cited

Jenkins, R.E. and N.M. Burkhead. 1993. Freshwater fishes of Virginia. American Fisheries Society, Bethesda, Maryland. Pp. 340-341.

NatureServe. 2009. NatureServe Explorer: An online encyclopedia of life [web application]. Version 7.1. NatureServe, Arlington, Virginia. Available http://www.natureserve.org/explorer. (Accessed: June 22, 2010).

VIRGINIA OUTDOORS FOUNDATION

August 28, 2018

VIA EMAIL

Ms. Emily Larson
POWER Engineers, Inc.
2920 West Broad Street
Suite 206
Richmond, VA 23230
emily.larson@powereng.com

RE: Glendale Area Improvements Project (Wolf Glade 138 kilovolt Extension)

Dear Ms. Larson:

The Virginia Outdoors Foundation (VOF) thanks you for the advance notice of the above referenced project and the opportunity to provide direct comments regarding upgrades to this electric transmission system in southwest Virginia within the City of Galax and Carroll and Wythe Counties.

Based on the correspondence received on August 15, 2018, the project will address thermal overloads on the Wythe - Cliffview 69 kV and Wythe - Byllesby 69 kV transmission lines by constructing the new Wolf Glade Substation. Appalachian Power Company is proposing to construct the new 138 kV substation to alleviate the thermal overload and provide an opportunity to retire the aging Bluefield – Wythe – Ivanhoe 88 kV Transmission Line, which is over 90 years old. On behalf of Appalachian Power Company, POWER Engineers, Inc. has asked VOF to submit comments or additional information which may have bearing on the proposed project. Please accept these comments in response to your inquiry.

> VOF, an agency of the Commonwealth, was established by the General Assembly in 1966 to promote the preservation of Virginia's natural and cultural resources by encouraging private philanthropy in fulfillment of state policy. As a result of Virginia's commitment to ensure a vibrant natural environment for today and future generations, VOF owns thousands of acres managed for public access and holds more than 4,000 open-space easements across the Commonwealth, which protect over 820,000 acres.
>
> An open-space easement is a legal interest in real property that creates a relationship between the holders of the easement and the property owner. By means of the easement, VOF has an interest in specific conservation values of the property and a legal obligation to protect these values. VOF easements provide important public benefits by protecting in perpetuity significant tracts of mostly undeveloped land which may contribute to the protection of water quality, productive soils, natural heritage resources, historic resources,

and scenic viewsheds. VOF easements represent over $1 billion of public investment and fulfillment of Title XI of the Virginia Constitution and other public policies to ensure conservation of natural and cultural resources.

VOF holds open-space easements on two properties within 1.5 miles of the proposed new transmission lines and one property within 1.5 miles of the proposed new Wolf Glade 138kV Substation. VOF also holds open-space easements on three properties, and is proposing an open-space easement on one additional property, within 1.5 miles of the existing Byllesby, Wythe, Galax, and Jubal Early substations that are planned to be upgraded.

Of those properties, a new transmission line is proposed to physically cross one VOF open-space easement property (CRL-02604) located near the new Wolf Glade 138kV Substation where it terminates at that substation. The planned transmission line route crosses this property's southern region through an area of important Farmland Soil of Statewide Importance as designated by the United States Department of Agriculture, Natural Resources Conservation Service, and also crosses through a forested riparian buffer that protects water quality along a segment of an unnamed tributary to Chestnut Creek. Within this forested riparian buffer, earth-disturbing activity is prohibited except for limited circumstances, and only minimal removal of trees is permitted to address invasive species, dead, diseased, or dying trees, or trees which pose an imminent human health or safety hazard.

This easement both directly and indirectly protects numerous conservation values for the benefit of the public and contributes to the overall high quality of life in the Commonwealth. As such, VOF is greatly concerned about the new transmission line that is proposed to physically cross property CRL-02604, as well as other potential characteristics of the proposed replacement structures and associated project components.

The impact of the proposed new transmission line through VOF open-space easement property CRL-02604 is highly significant, as the VOF easement is intended to be perpetual and no part of the property should be converted or diverted from its open-space use except in compliance with the provisions of Section 10.1-1704 of the Open-Space Land Act, which does not permit the extinguishment of open-space easements or loss of open space. A project of this scale would require review for a proposed "1704", and in order to request for conversion or diversion of this open-space land VOF staff and its Board of Trustees must review the proposed new transmission line with an application and fee to determine the essentiality of the project and the necessity of its proposed route to the Commonwealth.

VOF **strongly advocates** that the planned new transmission line be routed to avoid VOF open-space easement CRL-02604 and all other VOF open-space easements, and that replacement structures and the associated project components involved with this project have less of a presence on the landscape, or at the least, mimic the characteristics of the existing towers in height, size and color, specifically regarding reflectivity.

Thank you for the notice and we look forward to working with yourself and Appalachian Power Company in the continued planning and evolution of this project. If you have any further questions or comments, please feel free to contact me at (804) 577-3337 or mlittle@vofonline.org.

Sincerely,

Martha Little
Deputy Director of Stewardship

CC: Brett Glymph, VOF Executive Director
Scott Kennedy, American Electric Power

COMMONWEALTH of VIRGINIA

Marine Resources Commission
2600 Washington Avenue
Third Floor
Newport News, Virginia 23607

Matthew J. Strickler
Secretary of Natural Resources

Steven G. Bowman
Commissioner

August 31, 2018

POWER Engineers, Inc.
Attn: Emily Larson
2920 West Broad St, Suite 206
Richmond, VA 23230

Re: Pre-SCC Application Comment Request
Appalachian Power Company
Glendale Area Improvements Project

Dear Ms. Larson:

This will respond to the request for comments regarding the Glendale Area Improvements Project (Wolf Glade 138 kilovolt Extension), prepared by POWER Engineers, Inc., on behalf of Appalachian Power Company. Specifically, Appalachian Power Company has proposed to increase electric reliability by making upgrades to the transmission system in the City of Galax, Carroll and Wythe Counties, Virginia.

Please be advised that the Commission, 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 natural rivers and streams above the fall line. We reviewed your provided information, and found the proposed project will encroach on natural stream beds and is within the Commission's purview. Any jurisdictional impacts will be reviewed by VMRC during the Joint Permit Application (JPA) process. As such, these comments should only be viewed as preliminary.

At this time, the Commission cannot provide extensive comments as details of the impacts to streams are not provided. Please be aware the proposed project area may impact threatened and endangered fish and mussel species. Time-of-year restrictions may be required and should be coordinated with the Department of Game and Inland Fisheries (DGIF).

Should 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/lrp
HM

Larson, Emily

From: Amy Ewing <amy.ewing@dgif.virginia.gov>
Sent: Wednesday, September 05, 2018 12:35 PM
To: Larson, Emily
Cc: William Kittrell
Subject: RE: Appalachian Power Company's Glendale Area Improvements Project

Emily,
We have not yet been able to identify what DGIF monitoring project this landowner refers to, but will keep looking and will update you if we find anything. We wonder if the landowner has mistakenly identified our agency as the project proponent. The only resources of interest I have identified from the project area are Crooked Creek tribs and Little Cranberry Creek, designated wild trout waters. If any instream work is necessary, I will see the permit application and will comment at that time. We likely will recommend adherence to an instream work time of year restriction from October 1 through March 31 in waters known to support brook trout or upstream of those known to support brook trout, in addition to other standard BMPs. We also note that this area of the state is known to support state endangered bog turtles. Although I do not have any documentations from the project area, any relatively slow moving streams and/or wetland systems should be considered for habitat suitability and possible species presence.

Thanks, and like I said, we'll update you if we find any projects of ours from your project area that need to be further considered during project implementation.

Amy

Amy Ewing
Environmental Services Biologist
Manager, Fish and Wildlife Information Services
P 804.367.2211
A 7870 Villa Park Drive, P.O. Box 90778, Henrico, VA 23228-0778
www.dgif.virginia.gov
CONSERVE. CONNECT. PROTECT.

From: emily.larson@powereng.com <emily.larson@powereng.com>
Sent: Friday, August 31, 2018 9:24 AM
To: Amy.Ewing@dgif.virginia.gov
Cc: 'Scott Kennedy' <skennedy@aep.com>
Subject: Appalachian Power Company's Glendale Area Improvements Project

Good Morning Ms. Ewing,

We recently sent you a letter (attached) regarding the Appalachian Power Company's Glendale Area Improvements Project in the City of Galax, Carroll and Wythe Counties, Virginia. We have been speaking with landowners over the past several weeks and one landowner mentioned that the Virginia DGIF has on-going water monitoring near one of our study segments. We wanted to reach out to you to specifically ask about this and to determine the sensitivity of the area to DGIF. Below is a screen shot, with a red circle showing the area that a landowner mentioned the DGIF monitoring taking place. If you have any information you can provide regarding DGIF's on-going work in this area it would be greatly appreciated. More information on the project can also be found on the company website:
https://aeptransmission.com/virginia/Glendale/

Attachment E: USFWS IPaC Report

IPaC **U.S. Fish & Wildlife Service**

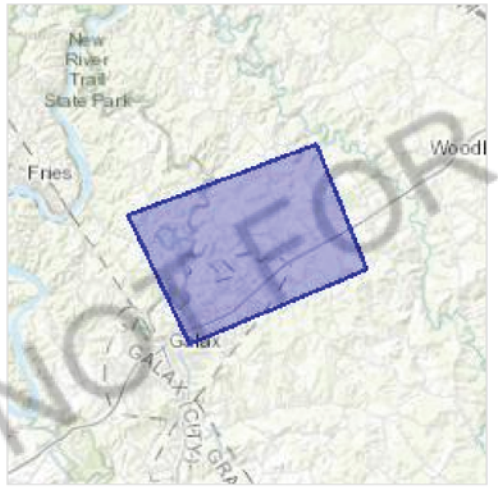
IPaC resource list

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

Carroll and Galax 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 species[1] 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 Fisheries[2]).

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

Indiana Bat Myotis sodalis — Endangered
There is **final** critical habitat for this species. Your location is outside the critical habitat.
https://ecos.fws.gov/ecp/species/5949

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

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 Act[1] and the Bald and Golden Eagle Protection Act[2].

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 Aug 31
Black-billed Cuckoo *Coccyzus erythropthalmus* This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/9399	Breeds May 15 to Oct 10
Black-capped Chickadee *Poecile atricapillus practicus* This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA	Breeds Apr 10 to Jul 31
Bobolink *Dolichonyx oryzivorus* This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.	Breeds May 20 to Jul 31
Canada Warbler *Cardellina canadensis* This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.	Breeds May 20 to Aug 10

Eastern Whip-poor-will Antrostomus vociferus — Breeds May 1 to Aug 20
This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.

Red-headed Woodpecker Melanerpes erythrocephalus — Breeds May 10 to Sep 10
This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.

Wood Thrush Hylocichla mustelina — Breeds May 10 to Aug 31
This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.

Yellow-bellied Sapsucker sphyrapicus varius — Breeds May 10 to Jul 15
This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA
https://ecos.fws.gov/ecp/species/8792

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.

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 E-bird Explore Data 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.

Please note that the NWI data being shown may be out of date. We are currently working to update our NWI data set. We recommend you verify these results with a site visit to determine the actual extent of wetlands on site.

This location overlaps the following wetlands:

FRESHWATER EMERGENT WETLAND

- PEM1Fh
- PEM1C
- PEM1B

FRESHWATER FORESTED/SHRUB WETLAND

- PSS1C
- PSS1A

FRESHWATER POND

- PUBHh
- PUBF

RIVERINE

- R5UBH
- R4SBC

A full description for each wetland code can be found at the National Wetlands Inventory website

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 tuberficid 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.

VDEQ SUPPLEMENT

Glendale Area Improvements 138 kV Transmission Project

City Of Galax and Carroll County, Virginia

Prepared For:
Appalachian Power Company

Prepared by:
POWER Engineers, Inc.

December 2018

Based on consultations with the Virginia Department of Environmental Quality (VDEQ), POWER Engineers, Inc. (POWER) on behalf of Appalachian Power Company (Appalachian) has developed this VDEQ Supplement to facilitate review and analysis of the proposed project by the VDEQ and other relevant agencies.

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ATTACHMENTS

1. PROJECT DESCRIPTION

Appalachian Power Company (Appalachian), a unit of American Electric Power (AEP), is proposing to construct the Glendale Area Improvements 138 kV Transmission Project (the "Project"), comprising of a new overhead 138 kilovolt (kV) electric transmission line, a new substation and related improvements to reinforce the electric reliability for customers in the City of Galax and parts of Carroll and Grayson Counties. The Project consists of a new two mile double circuit 138 kV transmission line (the "Wolf Glade 138 kV Extension"), a new 0.5 mile double circuit 69 kV transmission line (the "Relocated Cliffview 69 kV Tap"), and a new 138 kV substation (the "Wolf Glade 138 kV Substation"). The existing Cliffview 69 kV Tap currently terminates at the Cliffview Substation and must be extended and relocated (by means of the proposed Relocated Cliffview 69 kV Tap) to terminate at the proposed Wolf Glade Substation. The Wolf Glade 138 kV Extension commences at the existing Jubal Early – Piper's Gap 138 kV Transmission Line and will terminate at the proposed Wolf Glade 138 kV Substation. The proposed Wolf Glade 138 kV Substation will be constructed on a 16.7-acre parcel owned by Appalachian and located at 130 Jack Guynn Drive in Galax Virginia and northwest of the existing Cliffview 69 kV Substation. Related transmission improvements at Appalachian's existing Jubal Early and Huffman Substations will be included as part of the Project. For the purpose of this Virginia Department of Environmental Quality (VDEQ) Supplement, the three project components mentioned above will be discussed. Overall, the system upgrades will reduce the likelihood of customer outages.

Structure type may vary along the line route depending on the needs of the Project; however, the typical structure type used for the Project will be double-circuit monopoles. The transmission structures for the relocated 69 kV portion of the Project will be approximately 85 feet tall and the transmission structures for the new 138 kV portion will be approximately 110 feet tall. All transmission line Project components will be built within a new 100-foot right-of-way. Tree clearing and pre-construction activities for the Wolf Glade 138 kV Substation, the Wolf Glade 138 kV Extension and the Relocated Cliffview 69 kV Tap are expected to commence in late 2019, with the goal of placing the Project in service by December 2021.

Appalachian selected a Proposed Route for the Relocated Cliffview 69 kV Tap that extends west-northeast for approximately 0.5 mile through forested land and commercial parcels to the proposed Wolf Glade 138 kV Substation site, all within the City of Galax. A Proposed Route for the Wolf Glade 138 kV Extension was chosen and extends generally north-south for approximately two miles through primarily pasture and agricultural land. The Project area consists of rolling terrain with generally rural and pastoral landscapes and residential and commercial development along major arterial roads such as Glendale Road and Hebron Road.

2. ENVIRONMENTAL ANALYSIS

On Appalachian's behalf, POWER Engineers, Inc. (POWER) provided Project information to and solicited input from a number of state and federal environmental agencies. Responses were received from 12 representatives of various federal, state, and local agencies, and are included as attachments to the Siting Study, located in Volume 2 of this application. POWER also obtained relevant environmental data from on-line databases and other publicly available sources.

A. Air Quality

The Project does not involve the construction or expansion of any thermal emission generating sources and therefore no direct operational emissions from the Project are anticipated. During construction, emissions from heavy equipment and dust would occur, but kept at a minimum. No permanent impacts on air quality are anticipated, and temporary impacts will only last the duration of the construction phase. Appalachian does not expect to burn cleared material but, if burning becomes

necessary, Appalachian will coordinate with the responsible locality to obtain permits and will comply with conditions imposed by the locality. Appalachian's tree-clearing methods are described in Section II.A.7 of Volume 1 of the Application. The VDEQ indicated in a letter dated August 15, 2018, that the Project is not likely to adversely affect air quality and suggested measures to keep dust at a minimum during construction (Attachment 2.A.1).

B. Water Source

No water source is required for the transmission line. Accordingly, the following discussion will focus on water bodies that will be crossed by the Project's Proposed Route for the Relocated Cliffview 69 kV Tap and the Proposed Route for the Wolf Glade 138 kV Extension.

The Project Study Area is located in the Chestnut Creek sub-watershed (Hydrologic Unit Code [HUC] 050500010603) and Crooked Creek-Cranberry Creek sub-watershed (HUC 050500010703) of the Upper New River sub-basin (HUC 05050001). According to the United States Geological Survey (USGS) topographic maps and National Hydrography Dataset (NHD), one unnamed tributary is crossed by the Proposed Route for the Relocated Cliffview 69 kV Tap and three unnamed tributaries are crossed by the Proposed Route for the Wolf Glade 138 kV Extension.

The Virginia Marine Resources Commission (VMRC) noted in a letter dated August 31, 2018, that pursuant to Section 28.2-1200 et seq. of the Code of Virginia, they have 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 channel-ward of ordinary high water along natural rivers and streams above the fall line or mean low water below the fall line, a permit may be required from the VMRC (Attachment 2.B.1). Any jurisdictional impacts will be reviewed by VMRC during the Joint Permit Application process, as required. The Virginia Department of Health noted in an email correspondence dated August 27, 2018, that three public groundwater wells are located within a one-mile radius of the Project and two surface water intakes are located within a five-mile radius of the Project. However, the Virginia Department of Health indicated that the Project is not located within a watershed of any public surface water intakes (Attachment 2.B.2**)**.

The VDEQ noted in a letter dated August 15, 2018, that no long-term adverse impacts to water quality are anticipated from the Project and that potential short-term adverse impacts resulting from surface runoff due to construction must be minimized (Attachment 2.A.1**)**. As a result, Appalachian will minimize impacts to water bodies by use of Best Management Practices (BMPs) including, but not limited to:

- Any temporary impacts to surface waters associated with the Project will be restored to pre-existing conditions.
- Erosion and sedimentation controls will be designed in accordance with the Virginia Erosion and Sediment Control Handbook, Third Edition, 1992. These controls will be installed prior to clearing and grading and maintained in good working order to minimize impacts to state waters. These controls will remain in place until the area is stabilized and will then be removed. Any exposed slopes and stream banks shall be stabilized immediately upon completion of work in each permitted area. All denuded areas shall be properly stabilized in accordance with the Virginia Erosion and Sediment Control Handbook, Third Edition, 1992.
- No machinery may enter surface waters, unless authorized by a Virginia Water Protection permit.

- Heavy equipment in temporarily impacted surface waters will be placed on mats, geotextile fabric, or other suitable material to minimize soil disturbance to the maximum extent practicable. Equipment and materials will be removed immediately upon completion of work.
- All construction, construction access, and demolition activities associated with the Project will be accomplished in a manner that minimizes construction materials or waste materials from entering surface waters, unless authorized by a permit.
- Herbicides used in or around any surface water will be those approved for aquatic use by the United States Environmental Protection Agency (USEPA) or the United States Fish and Wildlife Service (USFWS). These herbicides would be applied according to the label directions by a licensed herbicide applicator.

C. Discharge of Cooling Waters

No discharge of cooling waters is associated with the Project.

D. Tidal Wetlands

No tidal wetlands are associated with the Project.

E. Non-tidal Wetlands Impact Consultation

A desktop wetland and stream delineation report was prepared in October of 2018 and identified potential wetlands and streams within the proposed 100-foot-wide rights-of-way for the three Wolf Glade 138 kV Extension alternative routes: Alternative Route A, Alternative Route B (the Proposed Route) and Alternative Route C. In addition, the report considers potential wetlands and streams within the proposed 100-foot-wide right-of-way of the Relocated Cliffview 69 kV Tap Proposed Route. The desktop wetland and stream delineation report is included as Attachment 2.E.1 of this supplement. The data below were used in the identification of potential wetlands and streams in the desktop delineation

- USGS topographic mapping (USGS 2018a)
- Color Infrared (CIR) aerial imagery and orthophotography (Virginia Base Mapping Program 2015)
- Google Earth color aerial photography, including historical aerial data (Google Earth, Imagery dates vary by location)
- NHD stream and river data (USGS 2018b)
- USFWS National Wetland Inventory (NWI) mapping (USFWS 2018a)
- Natural Resources Conservation Service (NRCS) Gridded Soil Survey Geographic (gSSURGO) for Carroll County, Virginia (NRCS 2018)
- NRCS Soil Survey of Carroll County, Virginia (NRCS 1967)

The CIR aerial imagery, color aerial imagery (both current and historical), and USGS topographic data were used to develop areas of interpreted wetlands and streams. The USGS topographic contour lines are useful in helping to identify potential drainage areas from small headwater streams to larger river valleys. The contour lines are also useful in determining areas of flat or depressed terrain where water is more likely to pool for sufficient duration that allows development of the three required wetland parameters. Therefore, as a general guideline, wetlands are more commonly found in flatter areas versus steeper terrain and ridgelines. The CIR aerial imagery was used to identify areas of potential wetlands and streams within the rights-of-way. Actively photosynthesizing vegetation has a high reflectance and results in actively growing vegetation to appear bright red in CIR imagery. Non-

photosynthesizing plants appear a lighter pink to magenta. The color differentiation allows for the identification of potential wetlands as plants being located in a wetter hydrologic regime, relative to their upland counterparts, would provide a deeper red signature on the imagery due to a more active level of photosynthesis.

As part of this analysis, POWER reviewed NWI mapping to identify areas previously mapped as potential wetlands. The NWI is an index of locations identified by the USFWS as areas that exhibit wetland characteristics on aerial photography. The wetland areas have not been field verified; however, they can be useful for indicating areas where wetlands could occur, especially when used in conjunction with soil mapping and analysis of USGS topographic mapping. NWI wetlands are classified according to the Cowardin classification system. The USGS NHD shows the locations of streams, rivers, and open waters. The USGS NHD provides insight into the general location of waters that the right-of-way crosses.

The NRCS digital soil survey data for Carroll County were used to locate areas of hydric soils, which are typically found in wetlands. The NRCS soil survey grouped soil map units into three categories; non-hydric soil units, soil units with hydric soil inclusions, and units that contained all hydric soils. Within the Project rights-of-way, there are no mapped hydric soil units; only soils units with hydric inclusions were identified. These were found primarily adjacent to streams and low-lying, flat areas. Hydric inclusion soils are identified on the map sheets included in Attachment 2.E.1.

The tables below show the criteria used to determine the wetland and stream probability within the Project area, respectively. Potential streams and wetlands were assigned a wetland probability of low, moderate, or high potential of being a regulated source.

WETLAND PROBABILITY	ASSESSMENT CRITERIA
High	• Aerial imagery (color and CIR) and/or topography combined with two other indicators such as NWI wetlands, NHD streams, or hydric soils.
Moderate	• Aerial imagery (color and CIR) and/or topography combined with one other indicator such as NWI wetlands, NHD streams, or hydric soils.
Low	• Presence of only hydric soils with no topographic or aerial imagery indicator. • Areas identified as wetland with topography and/or aerial photography only.

STREAM PROBABILITY	ASSESSMENT CRITERIA
High	• Streams identified with NHD and aerial imagery (color and CIR).
Moderate	• Streams identified with aerial imagery (color and CIR) and/or topography combined with one other indicator such as NWI wetlands or hydric soils.
Low	• Areas identified as streams with topography or aerial photography only.

The Proposed Route for the Relocated Cliffview 69 kV Tap extends approximately 0.5 mile. Within the proposed right-of-way, the desktop wetland and stream delineation identified five potential wetlands (0.87 acre total) and one potential stream (122 linear feet). The results of the desktop delineation for the Proposed Route for the Relocated Cliffview 69 kV Tap are shown in the table below.

RELOCATED CLIFFVIEW 69 KV TAP PROPOSED ROUTE: DESKTOP WETLAND AND STREAM DELINEATION RESULTS			
Probability Level	Water of the United States Type	Number of Occurrences	Acreage or feet in Right-of-Way
High			
	PEM	1	0.02 ac.
	PFO	0	0.00 ac.
	PUB	0	0.00 ac.
	PEM/PSS	0	0.00 ac.
	PEM/PFO	0	0.00 ac.
	PEM/PFO/PUB	0	0.00 ac.
	Streams	1	122 feet
Moderate			
	PEM	0	0.00 ac.
	PFO	0	0.00 ac.
	PUB	0	0.00 ac.
	PEM/PSS	0	0.00 ac.
	PEM/PFO	0	0.00 ac.
	PEM/PFO/PUB	1	0.34 ac.
	Streams	0	0 feet
Low			
	PEM	0	0.00 ac.
	PFO	1	0.20 ac.
	PUB	0	0.00 ac.
	PEM/PSS	2	0.31 ac.
	PEM/PFO	0	0.00 ac.
	PEM/PFO/PUB	0	0.00 ac.
	Streams	0	0 feet
	Wetland Total	5	0.87 ac.
	Stream Total	1	122 feet

The Proposed Route for the Wolf Glade 138 kV Extension extends approximately two miles. Within the proposed right-of-way, the desktop wetland and stream delineation identified six potential wetlands (two acres total) and six potential streams (738 linear feet).

WOLF GLADE 138 KV EXTENSION PROPOSED ROUTE: DESKTOP WETLAND AND STREAM DELINEATION RESULTS			
Probability Level	Water of the United States Type	Number of Occurrences	Acreage or feet in Right-of-Way
High			
	PEM	0	0.00 ac.
	PFO	2	0.39 ac.
	PUB	0	0.00 ac.
	PEM/PSS	0	0.00 ac.
	PEM/PFO	1	0.64 ac.
	PEM/PFO/PUB	0	0.00 ac.
	Streams	3	320 feet
Moderate			
	PEM	0	0.00 ac.
	PFO	1	0.34 ac.
	PUB	0	0.00 ac.
	PEM/PSS	0	0.00 ac.
	PEM/PFO	0	0.00 ac.
	PEM/PFO/PUB	0	0.00 ac.
	Streams	1	114 feet
Low			
	PEM	1	0.43 ac.
	PFO	0	0.00 ac.
	PUB	0	0.00 ac.
	PEM/PSS	1	0.20 ac.
	PEM/PFO	0	0.00 ac.
	PEM/PFO/PUB	0	0.00 ac.
	Streams	2	304 feet
	Wetland Total	6	2.00 ac.
	Stream Total	6	738 feet

A copy of the desktop delineation report (Attachment 2.E.1) was provided to the VDEQ, Office of Wetlands and Stream Protection for review and comment on November 15, 2018. Comments were received from the VDEQ on December 11, 2018. After review of the desktop delineation report, the VDEQ recommends Alternative Route C because it has the lowest number of probable wetlands and streams within the ROW. The VDEQ also recommends that all wetlands and streams be field delineated and verified by the U.S Army Corps of Engineers prior to clearing activities and construction. Attachment 2.E.2 is a copy of the response letter received from the VDEQ Office of Wetlands and Stream Protection and its full list of recommendations on the Project. Appalachian will continue to work the VDEQ to minimize impacts to wetlands and streams on the Project.

F. Solid and Hazardous Waste

A database search was conducted to identify solid and hazardous waste sites in the Project Study Area and the vicinity of the Proposed Route for the Wolf Glade 138 kV Extension in addition to the Proposed Route for the Relocated Cliffview 69 kV Tap. The database search included the USEPA's National Priority List (NPL); the USEPA's Superfund Enterprise Management System; the USEPA's

Resource Conservation and Recovery Act Information System (RCRA); the USEPA's Toxics Release Inventory (TRI); the VDEQ's Solid Waste Management Facilities; and the VDEQ's Voluntary Remediation Program (VRP**)**.

The USEPA's NPL database identified no NPL sites in the Project Study Area.

The USEPA's Superfund Enterprise Management System database identified no Superfund sites in the Project Study Area (see Attachment 2.F.1).

The USEPA's RCRA database identified 20 RCRA facilities in the vicinity of the Project Study Area (See Attachment 2.F.1). The RCRA database includes information on facilities that generate, transport, store, treat, and/or dispose of hazardous waste as defined by RCRA. Facilities are classified as large quantity generators, small quantity generators, or conditionally exempt small quantity generators depending on the amount of waste they handle. Of the 20 facilities, the Consolidated Glass and Mirror, LLC. facility (or Guardian Glass) at 110 Jack Guynn Drive lies within 1,000 feet of the proposed routes and is adjacent to the proposed Wolf Glade 138 kV Substation site. The glass facility is classified as a small quantity generator. No facilities within the Project Study Area that were identified through the USEPA database search were subject to RCRA violations or corrective actions.

The USEPA's TRI database identified three TRI sites in the Project Study Area (see Attachment 2.F.1). The TRI database includes information about toxic chemical releases and pollution prevention activities reported by industrial and federal facilities. Of the three facilities, the Guardian Glass facility at 110 Jack Guynn Drive lies within 1,000 feet of the proposed routes and is located just south of the proposed Wolf Glade 138 kV Substation site. Two reported chemical releases for Lead and N-Butyl Alcohol are assigned to the Guardian Glass facility.

The Carroll-Grayson-Galax Solid Waste Authority maintains and operates a sanitary landfill in Hillsville, Virginia, which is located outside of the Project Study Area. The Solid Waste Authority serves residents in Carroll and Grayson Counties and the City of Galax.

A VDEQ database search identified no facilities registered in the VDEQ's VRP immediately in and around Carroll County and the City of Galax. The VRP encourages owners of contaminated properties to voluntarily address contamination with VDEQ concurrence. A facility, the American Annuity Group, Inc., completed the VRP process in 2002 and is located approximately 9.5 miles northeast from the Proposed Route for the Wolf Glade 138 kV Extension. Given the distance between the Project Study Area and the facility, the Project is not expected to impact the facility.

Attachment 2.F.1 includes references for the solid and hazardous waste databases mentioned above.

Care will be taken to operate and maintain construction equipment to prevent any fuel or oil spills. Any waste created by the construction crews will be disposed of in a proper manner and recycled where appropriate and will be further detailed in Appalachian's stormwater pollution prevention plan, a component of the Virginia Stormwater Management Program, which will be submitted to the VDEQ. The Proposed Route for the Relocated Cliffview 69 kV Tap traverses through forested land and commercial parcels whereas the Proposed Route for the Wolf Glade 138 kV Extension is a mix of forested areas, pasture land, agricultural and residential land uses. Based on the review of the USEPA and the VDEQ files, there will be a very low probability of encountering any contaminated soils or groundwater during construction. For locations where soil disturbance will occur, Appalachian will monitor soil and groundwater quality as outlined in the stormwater pollution prevention plan.

G. Natural Heritage, Threatened and Endangered Species

POWER initiated discussions with the USFWS in a letter dated August 8, 2018. In a response from the USFWS, dated October 30, 2018, the USFWS's Virginia Field Office stated that an online search should be undertaken to identify species and trust resources of concern. No separate response was received from the USFWS Virginia Ecological Services Field Office. A search of the USFWS Information for Planning and Conservation system resulted in two federally-listed species that might occur within one mile of the Proposed Route for the Wolf Glade 138 kV Extension and the Relocated Cliffview 69 kV Tap (see Attachment 2.G.1).

FEDERALLY-LISTED SPECIES WITHIN 1.0 MILE OF THE PROPOSED ROUTES		
SPECIES NAME	STATUS	HABITAT TYPE
Indiana bat	Endangered	Final designated
Northern long-eared bat	Threatened	N/A

The Project Team submitted a project review request to the Virginia Department of Conservation (VDCR), Virginia Natural Heritage Program on August 13, 2018 and a response was received on August 28, 2018 (Attachment 2.G.2). The VDCR noted the potential occurrence of the Kanawha minnow (*Phenacobius teretulus*), a natural heritage species, within the Project Study Area as it has been historically documented in Chestnut Creek, which is not crossed by the Proposed Route for the Wolf Glade 138 kV Extension or the Relocated Cliffview 69 kV Tap. The VDCR recommends the development and implementation of an invasive species plan to be included as part of right-of-way maintenance activities. Additionally, the VDCR noted impact of an ecological "core area" as identified in the Virginia Conservation Vision. Core areas as defined by the VDCR's DNH as a network of large patches of natural land with at least 100 acres of interior cover and are numerically categorized based on their ecological integrity and relative contribution to the ecosystem and natural heritage systems in the area. No highly categorized cores with significant ecological integrity were identified within the Project Study Area; however, there are C5 core areas, but none is crossed by the Proposed Route for the Wolf Glade 138 kV Extension or the Relocated Cliffview 69 kV Tap, and these areas are limited to the vicinity of the New River Trail on the western edge of the Study Area. Lastly, the VDCR noted that no State Natural Area Preserves under their jurisdiction are located in the Project vicinity.

In an email received from the VDCR's Virginia Natural Heritage Program on August 14, 2018, no karst concerns were noted in the Project Study Area as the bedrock is primarily metamorphosed silicate rocks, which does not support karst topography. However, if karst topography is encountered during Project activities, the VDCR will be contacted so that these resources can be documented and potential adverse impacts can be minimized or avoided.

Appalachian requested comments on the Project from the Virginia Department of Game and Inland Fisheries (VDGIF) in a letter dated August 8, 2018. The VDGIF did not respond to this request for potential impacts to species. A review of the VDGIF's online mapper was used to view sensitive species within three miles of the Project Study Area. The report resulted in 488 species within three miles surrounding Carroll and Grayson Counties and the City of Galax. The list can be found in Attachment 2.G.3.

Appalachian will coordinate with the VDGIF, the USFWS, and the VDCR as appropriate to minimize impacts on these resources through the environmental permitting of the Project.

H. Erosion and Sediment Control

Appalachian's General Erosion and Sediment Control Specifications for the Construction and Maintenance of Electric Utility Lines are submitted annually to the VDEQ for all upcoming projects. The approved General Erosion and Sediment Control Specifications will be implemented for all transmission facility construction related to the proposed Project, including right-of-way clearing, structure erection, and access road construction and use. In addition, a site-specific erosion and sediment control plan will be prepared as required by the VDEQ.

I. Archaeological, Historic, Scenic, Cultural or Architectural Resources

Per the *Guidelines for Assessing Impacts of Proposed Electric Transmission Lines and Associated Facilities on Historic Resources in the Commonwealth of Virginia* (2008) or simply *Guidelines*, issued by the Virginia Department of Historic Resources (VDHR), POWER completed a Pre-Application Analysis (see Attachment 2.I.1). The Pre-Application Analysis was conducted for the Relocated Cliffview 69 kV Tap Proposed Route, the Wolf Glade 138 kV Extension Proposed Route (Alternative Route B), and the two alternative routes (Alternative Route A and Alternative Route C).

As per the Guidelines, the Area of Potential Effect is a tiered radial buffer framework, as defined by the VDHR. The buffer extends 1.5 miles for National Historic Landmarks; 1.0 mile for resources listed on the National Register of Historic Places (NRHP) and Virginia Landmarks Register maintained by the Virginia Board of Historic Resources and historic districts/battlefields that have been determined eligible for the NRHP/ Virginia Landmarks Register; and 0.5 mile used for NRHP-eligible historic properties. The Pre-Application Analysis also includes a review of known or previously surveyed archaeological sites within the proposed rights-of-way.

Background archival research was conducted regarding surveyed properties within the buffers established by *Guidelines* for the Project. In accordance with the VDHR's Guidelines, each of the previously recorded historic properties either listed or determined eligible for listing in the NRHP located within 1.0 mile or 0.5 mile of the centerline were field verified, and photo documented. There are two resources within the tiered study areas upon which a field reconnaissance was conducted. These include the NRHP-listed A.G. Pless Jr. House (NRHP # 02000526), located within 0.0 to 1.0 miles of all routes, and the NRHP-eligible New River Trail State Park (VDHR # 077-5068) located within 0.0 to 0.5 mile of and crossed by Alternative Route A only. There are no National Historic Landmark's located within 0.0 to 1.5 miles of the routes. There are also no NRHP-eligible properties within the 0.0 to 0.5 mile of any routes. No previously surveyed or recorded archaeological sites are located within the proposed rights-of-way.

The NRHP-listed A.G. Pless Jr. House is not visible from the Wolf Glade 138 kV Extension Proposed Route (Alternative Route B), the two 138 kV alternative routes (Alternative Route A and Alternative Route C), nor the Relocated Cliffview 69 kV Tap Proposed Route. Based on field reconnaissance and available elevation data, there is a large hill located within the line of sight from the property to the Project that would block a view of the Project. The NRHP-eligible New River Trail State Park is only crossed by Alternative Route A and is located over 0.5 mile from the Wolf Glade 138 kV Extension Proposed Route and the Relocated Cliffview 69 kV Tap Proposed Route; therefore, no direct impacts are anticipated due to the distance from the resource and topography.

The below table summarizes these results for the proposed routes. A copy of the Pre-Application (Attachment 2.I.1) was provided to the VDHR for review and comment on November 15, 2018.

Comments were not received from the VDHR. Appalachian will continue to work with the VDHR to minimize impacts to cultural resources as the Project progresses.

CONSIDERED RESOURCES WITHIN TIERED STUDY AREAS			
Radial Buffer From The Proposed Centerline (Miles)	Considered Resources	Wolf Glade 138 kV Extension Alternative Route B – Proposed Route	Relocated Cliffview 69 kV Tap Proposed Route
0.0 to 1.5	National Historic Landmarks	None	None
0.0 to 1.0	NRHP (listed) Historic landscapes (e.g., Rural Historic District)	NRHP # 02000526	NRHP # 02000526
0.0 to 0.5	NRHP-eligible (determined by VDHR)	None	None
0.00 (within ROW)	Archaeological sites	None	None

J. Chesapeake Bay Preservation Areas

Construction, installation, operation, and maintenance of electric transmission lines are conditionally exempt from the Chesapeake Bay Act as stated in the exemption for public utilities, railroads, public roads, and facilities in 9 VAC 10-20-150. Appalachian will meet applicable conditions.

K. Wildlife Resources

As noted in Section 2.G, two federally-listed species may be found within one mile of the proposed routes. Consultation with the USFWS, the VDGIF and the VDCR will be on-going as the Project progresses. As required, Appalachian will perform the appropriate surveys to determine if protected species are present and to coordinate with the USFWS and the VDGIF as appropriate to minimize impacts on these species and their habitat.

L. Recreation, Agricultural, and Forest Resources

The Project is expected to have minimal impact on recreation, agricultural, and forest resources. The Wolf Glade 138 kV Extension Proposed Route and the Relocated Cliffview 69 kV Tap Proposed Route avoid the New River Trail State Park and therefore, avoid impacts to the recreational use that these resources serve.

Approximately 15 acres of farmland of statewide importance[1] would be in the Wolf Glade 138 kV Extension Proposed Route's right-of-way and approximately four acres of farmland of statewide importance would be in the Relocated Cliffview 69 kV Tap Proposed Route's right-of-way. No prime and unique farmland soil is crossed by either of the Proposed Routes' rights-of-way. These designations are established by the United States Department of Agriculture's Natural Resources Conservation Service based on soil characteristics. Nevertheless, impacts on agricultural land from the Project are expected to be minimal. The permanent loss of soils or farmable land would be generally limited to the structure foundation locations. Further, the minimum ground-to-conductor clearance is sufficient to accommodate typical farming equipment, so agricultural activities can continue within the ROW and are not anticipated to be impacted.

[1] 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

As part of the routing evaluations, the Siting Team considered the extent to which the Project would have impacts on forest resources in the Commonwealth of Virginia. Appalachian requested comments on the Project from the Virginia Department of Forestry in a letter dated August 8, 2018. The Virginia Department of Forestry did not respond to this request. The Project Study Area has been altered for agricultural and pastoral land uses and residential land uses primarily in the central and northeastern portions. There is dense forested cover primarily in the western portions of the Project Study Area and surrounding the New River Trail State Park. Bands of trees are found along many property lines, roadways and with patches of dense forested cover throughout. The Relocated Cliffview 69 kV Tap Proposed Route will require approximately 3.4 acres of tree clearing and the Wolf Glade 138 kV Extension Proposed Route will require approximately 16 acres of tree clearing.

Appalachian's tree clearing methods utilize the Virginia Department of Forestry's BMPs for water quality. Specific sections of the BMPs that are pertinent to transmission line clearing operations include:

- Stream Crossing Design and Construction (culvert installation and removal)
- Equipment Maintenance and Litter
- Harvest Closure (rehabilitation of the right-of-way after construction)
- Revegetation of Disturbed Areas

Appalachian will utilize the above BMPs for the Project. Further discussion of right-of-way clearing, rehabilitation and maintenance can be found in Section II.A.7 of the SCC Response to Guidelines in Volume 1 of the Application.

M. Use of Pesticides and Herbicides

When herbicides are used to maintain Appalachian's transmission rights-of-way, they are registered with the USEPA and with the Virginia Department of Agriculture and Consumer Services. All herbicides will be used in accordance with label and manufacturer directions. Regarding herbicide applications (additionally, see Section II.A.7 of the SCC Response to Guidelines in Volume 1 of the Application):

- Herbicides will not be applied when rainfall is imminent, during rainfall, or within one day of large rain events (usually greater than one centimeter) that result in soil moisture capacity occurring above field capacity.
- Buffer zones will be maintained around streams, ponds, karst features, springs, wetlands, and water supply wells in accordance and compliance with herbicide label and manufacturer directions.
- In karst features and channelized drainage ways (perennial or intermittent) draining to a karst feature, wetland-approved herbicides shall be used in accordance with label and manufacturer directions.

ATTACHMENTS

ATTACHMENT 2.A.1:
VDEQ SOUTHWEST REGIONAL OFFICE RESPONSE

COMMONWEALTH of VIRGINIA

DEPARTMENT OF ENVIRONMENTAL QUALITY
SOUTHWEST REGIONAL OFFICE
355-A Deadmore Street, Abingdon, Virginia 24210
Phone (276) 676-4800 Fax (276) 676-4899
www.deq.virginia.gov

Matt Strickler
Secretary of Natural Resources

David K. Paylor
Director

Jeffrey L. Hurst
Regional Director

August 15, 2018

Emily Lawson
POWER Engineers, Inc.
2920 West Broad St.
Suite 206
Richmond, VA 23230

Re: Appalachian Power Company: Glendale Area Improvements Project

Dear Ms. Lawson:

The Department of Environmental Quality – Southwest Regional supports improved electric service in Southwest Virginia. The completed project will have a positive impact on the quality of life of Virginia's citizens by providing increased power distribution capacity and reliable power service. This project includes two miles of new 138 kV transmission line, one mile of new 69 kV transmission line, retiring 14 miles of 88 kV transmission line, constructing one new substation, retiring two substations, and upgrading four substations.

Replacing the Cliffview Substation with the new Wolf Glade Substation would occur in the Mill Creek drainage, which is currently unassessed; no current water quality information is available.

Constructing new 138 kV transmission line between the Pipers Gap – Jubal Early Transmission Line and the proposed Wolf Glade Substation, and constructing new 69kV transmission line between the Cliffview 69kV Tap and the Proposed Wolf Glade Substation would occur in either the Chestnut Creek or Little Cranberry Creek drainages, depending on the routes chosen. The Wythe substation that is proposed to be upgraded is also in the Chestnut Creek watershed. Chestnut Creek is not supporting of recreation and aquatic life uses, due to E. coli bacteria and sedimentation. More information can be found

here: https://www.deq.virginia.gov/Portals/0/DEQ/Water/TMDL/ImplementationPlans/ChestnutCrk_technical_document_30SEP2015.pdf . Little Cranberry Creek is currently unassessed; no current water quality information is available.

The Lee Highway Substation that is proposed to be retired, and the Wythe Substation that is proposed to be upgraded are in the Reed Creek watershed. Reed Creek is not supporting of recreation use due to E. coli bacteria. More information can be found here: https://www.deq.virginia.gov/portals/0/DEQ/Water/TMDL/apptmdls/newrvr/reedec.pdf .

The Bluefield-Wythe-Ivanhoe 88kV Transmission line that is proposed to be retired crosses Dean Branch, which is not supporting of recreation and aquatic life uses, due to E. coli bacteria and a poor benthic community. The transmission line also crosses Reed Creek, which is not supporting of recreation use due to E. coli bacteria, as well as numerous unimpaired or unassessed streams.

The Jubal Early Substation that is proposed to be upgraded is in the New River drainage. The New River upstream of Fries Dam is not supporting of recreation use due to E. coli bacteria. The Byllesby Substation is also along the New River, but in a segment that is fully supporting for all assessed uses.

All of the components of this proposed project are in the New River watershed. The New River downstream of the Rt. 77 bridge, as well as Reed Creek downstream from the Rt. 221 bridge, are impaired for polychlorinated biphenyls (PCBs). More information on the New River drainage PCB TMDL can be found here: https://www.deq.virginia.gov/Portals/0/DEQ/Water/TMDL/drftmdls/DRAFT_Final_NewRiver_PCB_TMDLReport_v7.0_04Dec2017_DEQ.pdf

The Project area is in the New River Basin, Section 2 waters. Most of the streams are mountainous zone waters, with some stockable trout waters and public water supply areas.

The following discussion is provided as a guideline of programs administered by the Department of Environmental Quality (DEQ) and other agencies of the Commonwealth, which could be applicable to the proposed action. Final determination concerning potential impacts on these programs rests with DEQ's Southwest Regional Office and the appropriate agency administering each program. It is the responsibility of the applicant to coordinate development with these agencies.

The Department of Environmental Quality has no objections to the project provided that the applicant abides by all applicable state, Federal, and local laws and regulations. Prior to construction, all permits and approvals must be obtained. In general,

development must incorporate features which prevent significant adverse impacts on ambient air quality, water quality, wetlands, historic structures, fish wildlife, and species of plants, animals, or insects listed by state agencies as rare, threatened, or endangered.

1. Water Quality and Wetlands. Although no long-term adverse impacts to water quality are anticipated from this project, potential short-term adverse impacts resulting from surface runoff due to construction must be minimized. This can be achieved by using Best Management Practices (BMPs).

Federal and state governments regulate impacts to streams and wetlands. The Virginia Marine Resources Commission serves as the clearinghouse for the Joint Permit Application (JPA) used by: (1) U.S. Army Corps of Engineers for issuing permits pursuant to *§ 404 of the Clean Water Act* and *§ 10 of the Rivers and Harbors Act*; (2) Department of Environmental Quality for issuance of Virginia Water Protection Permit pursuant to *§ 401 of the Clean Water Act*, Virginia Code *§ 62.1-44.2 et seq.*, Virginia Code *§ 62.1-44.15:5*, and Virginia Administrative Code *9 VAC 25-210-10 et seq*.; and (3) Virginia Marine Resources Commission regulates encroachments on or over state-owned subaqueous beds as well as tidal wetlands pursuant to Virginia Code *§ 28.2-1200* through *1400.* Contact VMRC at (757) 247-2200 to determine the need for a JPA for this project. VMRC will distribute the application to the appropriate agencies. Each agency will conduct its review and respond.

In general, DEQ recommends that the amount of stream and wetland impacts be avoided to the maximum extent practicable. For unavoidable impacts, DEQ encourages the following practices to minimize the impacts to wetlands and waterways: use of directional drilling from upland locations; operation of machinery and construction vehicles outside of stream-beds and wetlands; use of synthetic mats when in-stream work is unavoidable; stockpiling of material excavated from the trench for replacement if directional drilling is not feasible; and preservation of the top 12 inches of trench material removed from wetlands for use as wetland seed and root stock in the excavated area. The Southwest Regional contact is Clairise Shaheen at (276) 676-4809 or email Clairise.Shaheen@deq.virginia.gov if a permit is necessary to go forward with the project.

2. Erosion and Sediment Control and Stormwater Management. Erosion and sediment control measures must be implemented in accordance with the current edition of the Virginia Erosion and Sediment Control Handbook and the Virginia Erosion and Sediment Control Regulations, which are available online: http://www.deq.virginia.gov/Programs/Water/LawsRegulationsGuidance.aspx. If the total land disturbance exceeds 10,000 square feet, an erosion and sediment control plan will be required. Erosion and sediment control requirements are regulated by the local government where your land disturbing activity is occurring. Please contact the appropriate county, city or town for information and compliance requirements.

Stormwater management planning and permitting is required through our Department should your land disturbance be greater than one (1) acre or lie within the boundaries of a common plan of development. Information, permit application, and regulations on our stormwater management program are available online at: http://www.deq.virginia.gov/Programs/Water/StormwaterManagement.aspx.

Please contact Kelly Miller at our Southwest Regional Office at (276) 676-4879 or email Kelly.Miller@deq.virginia.gov for more information.

3. Air Quality. This project is not likely to adversely affect air quality. However, during construction fugitive dust must be kept at a minimum. This requires, but is not limited to, measures such as application of water to suppress dust and washing down construction vehicles and paved roadways immediately adjacent to the construction site. Please note any process equipment that prepares coal via breaking, crushing, screening, wet or dry cleaning, thermal drying, etc. should be evaluated for permit applicability. The following sections of Virginia Administrative Code (VAC) may be applicable: *9 VAC 5-50-60 et. seq.*, governs abatement of visible emissions and fugitive dust emissions, and *9 VAC 5-40-5600 et. seq.* addresses open burning. The Southwest Regional contact is Crystal Bazyk at (276) 676-4829 or email Crystal.Bazyk@deq.virginia.gov.

4. Solid and Hazardous Wastes, and Hazardous Substances. DEQ administers the Virginia Solid Waste Management Regulations and the Virginia Hazardous Waste Management Regulations. We recommend that all solid wastes generated at the site be reduced at the source, reused, or recycled. All hazardous wastes should be minimized. Otherwise, all solid waste and hazardous waste must be managed in accordance with all applicable federal, state, and local environmental regulations. The Southwest Regional Office contact is Daniel Manweiler at (276) 676-4837 or email Daniel.Manweiler@deq.virginia.gov concerning location and availability of waste management facilities in the project area.

5. Pesticides and Herbicides. DEQ recommends that the use of herbicides or pesticides for construction or landscape maintenance should be in accordance with the principles of integrated pest management. The least toxic pesticides that are effective in controlling the target species should be used. Please contact the Virginia Department of Agriculture and Consumer Services at (804) 786-3501 for more information.

6. Pollution Prevention. DEQ recommends that construction projects incorporate the principles of pollution prevention including the following recommendations:

- Consider environmental attributes when purchasing materials. For example, the extent of recycled material content and toxicity level should be considered.
- Consider contractors' commitments to the environment when choosing contractors. Also, specifications regarding raw material selection (alternative

fuels and energy sources) and construction practices can be included in contract documents and requests for proposals.
- Choose sustainable practices and materials in infrastructure and construction and design. These could include asphalt and concrete containing recycled materials and integrated pest management in landscaping.
- Integrate pollution prevention techniques into maintenance and operation activities to include source reduction (fixing leaks, energy efficient products).

Pollution prevention measures are likely to reduce potential environmental impacts and reduce costs for material purchasing and waste disposal. For more information, contact Sharon Baxter at DEQ's Office of Pollution Prevention at (804) 698-4344 Sharon.Baxter@deq.virginia.gov.

7. Energy Conservation. Structures should be planned and designed to comply with state and federal guidelines and industry standards for energy conservation and efficiency. For example, energy efficiency of any structures can be enhanced by maximizing the use of the following
- thermally-efficient building shell components (roof, wall, floor, and insulation);
- high efficiency heating, ventilation, air conditioning systems; and
- high efficiency lighting systems.

Gerald Wilkes, Department of Mines, Minerals and Energy, at (434) 951-6364 should be contacted for assistance in meeting this challenge.

8. Natural Heritage Resources. The Department of Conservation and Recreation's Division of Natural Heritage (DNH) can search its Biotics Data System (BDS) 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 animal and plant species, unique or exemplary natural communities, and significant geologic communities.

Under a Memorandum of Agreement established between the Virginia Department of Agriculture and Consumer Services (VDACS) and the Department of Conservation and Recreation (DCR), DCR has the authority to report for VDACS on state-listed plant and insect species. We recommend that the DNH be contacted at (804) 786-7951, to secure updated information on natural heritage resources before the project is implemented.

9. Wildlife Resources. The Department of Game and Inland Fisheries (DGIF), as the Commonwealth's wildlife and freshwater fish management agency, exercises enforcement and regulatory jurisdiction over wildlife and freshwater fish, including state or federally listed endangered or threatened species, but excluding listed insects (*Virginia Code* Title 29.1). DGIF is a consulting agency under the U.S. Fish and Wildlife Coordination Act (16 U.S.C. sections 661 *et seq*.), and provides environmental analysis of projects or permit applications coordinated through DEQ and several other state and

federal agencies. DGIF determines likely impacts upon fish and wildlife resources and habitat, and recommends appropriate measures to avoid, reduce, or compensate for those impacts. For more information, see the DGIF website at www.dgif.state.va.us or contact Ray Fernald at (804) 367-6913.

10. Historic and Archaeological Resources. *Section 106 of the National Historic and Preservation Act of 1966*, as amended, requires that activities that receive federal funding must consider effects to properties that are listed or eligible for listing on the National Register of Historic Places. The Department of Historic Resources (DHR) conducts reviews of projects to determine their effect on historic structures or cultural resources. If applicable, contact DHR. In the event that archaeological resources are encountered during construction, immediately contact Ms. Ethel Eaton at (804) 367-2323.

Thank you for your inquiry. We appreciate your interest in complying with Virginia's environmental legislation. If you have any further questions please do not hesitate to call Michael Hutchison at (276) 676-4865.

Sincerely,

Jeffrey L. Hurst
Regional Director

cc. file

ATTACHMENT 2.B.1:
VMRC RESPONSE

COMMONWEALTH of VIRGINIA

Marine Resources Commission
2600 Washington Avenue
Third Floor
Newport News, Virginia 23607

Matthew J. Strickler
Secretary of Natural Resources

Steven G. Bowman
Commissioner

August 31, 2018

POWER Engineers, Inc.
Attn: Emily Larson
2920 West Broad St, Suite 206
Richmond, VA 23230

Re: Pre-SCC Application Comment Request
Appalachian Power Company
Glendale Area Improvements Project

Dear Ms. Larson:

This will respond to the request for comments regarding the Glendale Area Improvements Project (Wolf Glade 138 kilovolt Extension), prepared by POWER Engineers, Inc., on behalf of Appalachian Power Company. Specifically, Appalachian Power Company has proposed to increase electric reliability by making upgrades to the transmission system in the City of Galax, Carroll and Wythe Counties, Virginia.

Please be advised that the Commission, 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 natural rivers and streams above the fall line. We reviewed your provided information, and found the proposed project will encroach on natural stream beds and is within the Commission's purview. Any jurisdictional impacts will be reviewed by VMRC during the Joint Permit Application (JPA) process. As such, these comments should only be viewed as preliminary.

At this time, the Commission cannot provide extensive comments as details of the impacts to streams are not provided. Please be aware the proposed project area may impact threatened and endangered fish and mussel species. Time-of-year restrictions may be required and should be coordinated with the Department of Game and Inland Fisheries (DGIF).

Should 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/lrp
HM

ATTACHMENT 2.B.2:
VIRGINIA DEPARTMENT OF HEALTH RESPONSE

Larson, Emily

From: Warren, Arlene <arlene.warren@vdh.virginia.gov>
Sent: Monday, August 27, 2018 12:28 PM
To: Larson, Emily
Cc: Brian Blankenship
Subject: Appalachian Power Glendale Area Improvement Project Request for comments

Project Name: Appalachian Power Glendale Area Improvement Project Request for Agency Comment
Project #: N/A
UPC #: N/A
Location: City of Galax, Carroll & Wythe Cos.

VDH – Office of Drinking Water has reviewed the above project. Below are our comments as they relate to proximity to **public drinking water sources** (groundwater wells, springs and surface water intakes). Potential impacts to public water distribution systems or sanitary sewage collection systems **must be verified by the local utility.**

The following public groundwater wells are located within a 1-mile radius of the project site.

PWS ID Number	City/County	System Name	Facility Name
1035088	CARROLL	CARROLL REGIONAL WATER SYSTEM	WILSON WELL #1
1035088	CARROLL	CARROLL REGIONAL WATER SYSTEM	WILSON WELL #2
1035088	CARROLL	CARROLL REGIONAL WATER SYSTEM	SUMMERS WELL #1

The following surface water intakes are located within a 5-mile radius of the project site:

PWS ID Number	System Name	Facility Name
1640243	GALAX, CITY OF	CHESTNUT CREEK
1077240	FRIES, TOWN OF	EAGLE BOTTOM CREEK

The project is not within the watershed of any public surface water intakes.

- ***No other comments were received.***

Best Management Practices should be employed, including Erosion & Sedimentation Controls and Spill Prevention Controls & Countermeasures on the project site.

Materials should be managed while on site and during transport to prevent impacts to nearby surface water.

The Virginia Department of Health – Office of Drinking Water appreciates the opportunity to provide comments. If you have any questions, please let me know.

Best Regards,

Arlene Fields Warren

GIS Program Support Technician

Office of Drinking Water

Virginia Department of Health

109 Governor Street

Richmond, VA 23219

(804) 864-7781

ATTACHMENT 2.E.1:
DESKTOP WETLAND AND STREAM DELINEATION REPORT

POWER ENGINEERS, INC.

303 U.S. Route One
Freeport, ME 04032 USA

PHONE 207-869-1200
FAX 207-869-1299

ENERGY
FACILITIES
COMMUNICATIONS
ENVIRONMENTAL

November 13, 2018
Michelle Henicheck
Wetlands/Monitoring & Assessment, Department of Environmental Quality
Central Office
1111 East Main Street
Suite 1400
Richmond, Virginia 23219

Dear Ms. Henicheck,

POWER Engineers, Inc. (POWER), on behalf of the Appalachian Power Company (Appalachian Power), a unit of American Electric Power Company, Inc. (AEP), is submitting for your review a Desktop Wetland and Stream Delineation Report for the proposed Glendale Area Improvements Project in the City of Galax and Carroll County, Virginia. The analysis was conducted in support of a Virginia State Corporation Commission (SCC) application to be filed in December of 2018.

The analysis was conducted for the Relocated Cliffview 69 kV Tap Proposed Route, the Wolf Glade 138 kV Extension Proposed Route, and two Wolf Glade 138 kV Extension Alternative Routes. The Relocated Cliffview 69 kV Tap Proposed Route right-of-way includes five wetlands with a total combined area of approximately 0.87 acre and crosses one stream. The Wolf Glade 138 kV Extension Proposed Route (Alternative Route B) right-of-way includes six wetlands with a total combined area of approximately 2.00 acres and crosses six streams. Alternative Route A includes 11 wetlands with a total combined area of 3.10 acres and crosses seven streams. Alternative Route C includes four wetlands with a total combined area of 1.62 acres and crosses six streams. Please see the attached report named *Glendale Area Improvements Project VDEQ Desktop Wetland and Stream Delineation Report* for more information regarding this analysis.

AEP and POWER appreciate your timely review of the enclosed analysis. 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 representative, please contact Scott Kennedy via email at skennedy@aep.com or by phone at 540-562-7295.

Sincerely,

Emily Larson

Emily Larson
POWER Engineers, Inc.

Enclosure:
Glendale Area Improvements Project DEQ Desktop Wetland and Stream Delineation Report

cc: Scott Kennedy, AEP
Jared Webb, AEP

November 13, 2018

APPALACHIAN POWER COMPANY

Glendale Area Improvements Project
City of Galax and Carroll County, Virginia

VDEQ Desktop Wetland and Stream Delineation Report

PROJECT NUMBER:
153273.00.04

PROJECT CONTACT:
Emily Larson

EMAIL:
Emily.Larson@powereng.com

PHONE:
609-570-2772

POWER ENGINEERS

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ACRONYMS AND ABBREVIATIONS

AEP	American Electric Power, Inc.
Appalachian Power	Appalachian Power Company
CIR	Color Infrared
GIS	Geographic Information System
kV	kilovolt
NHD	National Hydrography Dataset
NRCS	Natural Resources Conservation Service
NWI	National Wetland Inventory
PEM	Palustrine emergent
PFO	Palustrine forested
POWER	POWER Engineers, Inc.
Project	Glendale Area Improvements Project
PSS	Palustrine scrub-shrub
PUB	Palustrine unconsolidated bottom
USACE	United States Army Corps of Engineers
USFWS	United States Fish and Wildlife Service
USGS	United States Geological Survey
VDEQ	Virginia Department of Environmental Quality
VOF	Virginia Outdoors Foundation

1.0 INTRODUCTION

Appalachian Power Company (Appalachian Power), a unit of American Electric Power (AEP), is proposing to construct a new overhead electric transmission line and a new substation to increase the electric reliability for customers in the Galax area, Virginia. The Glendale Area Improvements Project (the Project) consists of a new two mile double circuit 138 kilovolt (kV) transmission line (the "Wolf Glade 138 kV Extension"), a new 0.5 mile double circuit 69 kV transmission line (the "Relocated Cliffview 69 kV Tap"), and a new 138 kV substation (the "Wolf Glade 138 kV Substation"). The existing Cliffview 69 kV Substation will be retired and replaced with the new Wolf Glade 138 kV Substation in the City of Galax. The relocated 69 kV and new 138 kV transmission lines will extend from the existing Cliffview 69 kV Tap and the existing Jubal Early – Piper's Gap 138 kV Transmission Line, respectively, to the proposed Wolf Glade 138 kV Substation. Other related transmission improvements and the retirement of associated transmission facilities will be included as part of the Project. Overall, the system upgrades and retirements will reduce the likelihood of customer outages.

The Proposed Route for the Wolf Glade 138 kV Extension will extend from a tap point west of Hebron Road on the existing Jubal Early – Piper's Gap 138 kV Transmission Line to the proposed Wolf Glade 138 kV Substation (approximately two miles). The Relocated Cliffview 69 kV Tap will extend from a point on the existing Cliffview 69 kV Tap to the proposed Wolf Glade 138 kV Substation (approximately 0.5 mile). A portion of the existing Cliffview 69 kV Tap and the Cliffview 69 kV Substation will be retired. The proposed Wolf Glade 138 kV Substation will be constructed on a 16.7 acre parcel located off of Jack Guynn Drive and northwest of the existing Cliffview 69 kV Substation.

Structure types may vary along the line route depending on the needs of the Project; however, the typical structure type used for the Project will be double-circuit monopoles with davit arms for the shield wires. The transmission structures for the relocated 69 kV portion of the Project will be approximately 85 feet tall and the transmission structures for the new 138 kV portion will be approximately 110 feet tall. All transmission line components will be built within new 100-foot rights-of-way. Tree clearing and pre-construction activities are expected to commence in February 2020 with the Project in service by June 2021.

Appalachian Power contracted POWER to prepare this desktop delineation report that will support Appalachian Power's VDEQ Supplement and is part of the overall application for a Certificate of Public Convenience and Necessity for which an application will be filed with the Virginia State Corporation Commission, which approves or denies such applications.

The purpose of the desktop delineation report is to identify and compare potential for regulated waters (Waters of the United States and Waters of the State) within the proposed 100-foot rights-of-way for the three Wolf Glade 138 kV Extension Alternatives: Alternative Route A, Alternative Route B (the Proposed Route) and Alternative Route C (see Figure 1). In addition, this report considers potential regulated waters within the proposed 100-foot right-of-way for the Relocated Cliffview 69 kV Tap route. The report includes a description of the methodologies used in the determination of regulated waters probability and location, as well as a summary of results by waters type and acres located within the proposed right-of-way.

2.0 METHODS

2.1 Data Sources and Background Information

POWER reviewed various mapping sources and Geographic Information System (GIS) data in order to identify areas where wetlands or streams could potentially be located within each of the Project rights-of-way. GIS data and mapping sources included the following:

- United States Geological Survey (USGS) topographic mapping (USGS 2018a).
- Color Infrared (CIR) aerial imagery and orthophotography (Virginia Base Mapping Program 2015).
- Google Earth color aerial photography, including historical aerial data (Google Earth 2018).
- National Hydrography Dataset (NHD) stream and river data (USGS 2018b).
- United States Fish and Wildlife Service (USFWS) National Wetland Inventory (NWI) mapping (USFWS 2018a).
- Natural Resources Conservation Service (NRCS) Gridded Soil Survey Geographic for Carroll County, Virginia (NRCS 2018).
- NRCS Soil Survey of Carroll County, Virginia (NRCS 1967).

2.2 Wetland Definitions

Federal regulations define wetlands as "those areas that are inundated or saturated by surface or groundwater at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation, typically adapted for life in saturated soil conditions" (United States Environmental Protection Agency 2018).

Under normal circumstances, three parameters must be present for an area to be considered a wetland: hydrophytic vegetation, wetland hydrology, and hydric soils. Applicable technical guidance that defines these parameters and provides criteria for the evaluation of associated data and field indicators is provided in the *1987 Wetland Delineation Manual* (Environmental Laboratory 1987) and the *Regional Supplement to the United States Army Corps of Engineers (USACE) Wetland Delineation Manual, Eastern Mountains and Piedmont Region* (USACE 2012).

Using the data sources outlined above, POWER identified areas that could potentially meet the three parameters required to meet the definition of a wetland provided by the USACE. Following identification, aerial imagery was utilized to determine potential cover type and all wetlands were classified according to the naming convention found in Classification of Wetlands and Deepwater Habitats of the United States (Cowardin et al. 1979). The Cowardin classification is a taxonomic system that divides wetlands and deepwater habitats into five systems based on hydrologic factors. Those systems are further broken down into additional taxonomic groups based on vegetation and substrate. Cowardin wetland types encountered along the Project rights-of-way fall into the following four classifications:

Palustrine Emergent (PEM) Wetlands

Emergent wetlands are typically characterized by erect, rooted, herbaceous hydrophytes, excluding mosses and lichens. This vegetation is usually present for most of the growing season in most years.

Palustrine Scrub-Shrub (PSS) Wetlands

Scrub-shrub wetlands are typically characterized by woody vegetation less than 20 feet tall. The species include true shrubs, young trees, and trees or shrubs that are small or stunted because of environmental conditions.

Palustrine Forested (PFO) Wetlands

Forested wetlands are usually characterized by woody vegetation that is 20 feet tall or taller. These wetlands typically possess an overstory of trees, an understory of young trees or shrubs, and an herbaceous layer.

Palustrine Unconsolidated Bottom (PUB) Wetlands

Unconsolidated bottom wetlands include all wetland and deepwater habitats with at least 25 percent cover of particles smaller than stones and a vegetative cover less than 30 percent.

2.3 Wetland and Stream Data Interpretation

2.3.1 Aerial Imagery and Topographic Mapping

The CIR aerial imagery (Virginia Base Mapping Program 2015), color aerial imagery (both current and historical) (Virginia Base Mapping Program 2015; Google Earth 2018), and USGS topographic data (USGS 2018a) were used to help determine the location, size, and cover type of potential wetland and stream resources within the rights-of-way. The USGS topographic contour lines are useful in helping to identify potential drainage areas from small headwater streams to larger river valleys. The contour lines are also useful in determining areas of flat or depressed terrain where water is more likely to pool for sufficient duration that allows development of the three required wetland parameters. Therefore, as a general guideline, wetlands are more commonly found in flatter areas versus steeper terrain and ridgelines. The CIR aerial imagery can be helpful in identifying areas of open water and saturated areas, because areas of land without vegetative cover will register as black or dark blue on the CIR imagery as these areas do not reflect much light in the infrared spectrum (Minnesota IT Services 2018). CIR aerial imagery can be used to identify areas of potential wetlands and streams within the rights-of-way. Additionally, actively photosynthesizing vegetation has a high reflectance and results in actively growing vegetation to appear bright red in CIR imagery. Non-photosynthesizing plants appear a lighter pink to magenta. The color differentiation allows for the identification of potential wetlands as plants being located in a wetter hydrologic regime would provide a deeper red signature on the imagery due to a more active level of photosynthesis.

2.3.2 National Wetland Inventory Dataset

As part of this analysis, POWER reviewed NWI mapping to identify areas previously mapped as potential wetlands. The NWI is an index of locations identified by the USFWS as areas that exhibit potential wetland characteristics on aerial photography. The NWI data is prepared from the analysis of high altitude imagery and therefore, it reflects conditions during the specific year and season the data was acquired. As a result, wetlands present in an area may not be readily identified (USFWS 2018b). The wetland areas have not been field verified; however, they can be useful for indicating areas where wetlands could occur, especially when used in conjunction with soil mapping and analysis of USGS topographic mapping. NWI wetlands are classified according to the Cowardin classification system (Cowardin et al. 1979).

2.3.3 National Hydrography Dataset

The USGS NHD (USGS 2018b) was consulted to identify known streams on site. The USGS NHD is a comprehensive set of digital spatial data representing surface waters., including common features such as lakes, ponds, streams, rivers, canals, and oceans (Simley and Carswell 2009). Although not field verified, the USGS NHD shows the locations of streams, rivers, and open waters, and provides insight into the general location of waters (USGS 2018b).

2.3.4 Soil Survey Mapping

NRCS digital soil survey data for Carroll County, Virginia (NRCS 2018) were used to locate areas of hydric soils, which are typically found in wetlands (NRCS 1967). The NRCS soil survey groups soil map units into three categories; non-hydric soil units, soil units with hydric soil inclusions, and units that contained all hydric soils. Areas that contain hydric or hydric inclusion map units have a greater probability of supporting wetlands relative to those mapped as non-hydric soil units. Within the Project rights-of-way, there are no mapped hydric soil units; only soils units with hydric inclusions were identified. These were found primarily adjacent to streams and low-lying, flat areas. Hydric inclusion soils are identified on the map sheets included in Attachment A. For the purposes of the analysis contained within this report, soil map units with hydric soil inclusions were considered hydric soils.

2.4 Wetland and Stream Data Evaluation

Tables 1 and 2 show the criteria used to determine the wetland and stream probability within the Project area, respectively. Potential streams and wetlands were assigned a probability of low potential, moderate potential, or high potential of being a regulated resource.

TABLE 1 WETLAND EVALUATION CRITERIA

WETLAND PROBABILITY	ASSESSMENT CRITERIA
High	• Aerial imagery (color and CIR) and/or topography combined with two other indicators such as NWI wetlands, NHD streams, or hydric soils.
Moderate	• Aerial imagery (color and CIR) and/or topography combined with one other indicator such as NWI wetlands, NHD streams, or hydric soils.
Low	• Presence of only hydric soils with no topographic or aerial imagery indicator. • Areas identified as wetland with topography and/or aerial photography only.

TABLE 2 STREAM EVALUATION CRITERIA

STREAM PROBABILITY	ASSESSMENT CRITERIA
High	• Streams identified with NHD and aerial imagery (color and CIR).
Moderate	• Streams identified with aerial imagery (color and CIR) and/or topography combined with one other indicator such as NWI wetlands or hydric soils.
Low	• Areas identified as streams with topography or aerial photography only.

3.0 RESULTS AND DISCUSSION

The results of the desktop wetland and stream delineations Project rights-of-way are presented in Tables 3 and 4. Figures showing the location of desktop delineated wetlands and streams can be found in **Attachment A**.

TABLE 3 DESKTOP WETLAND DELINEATION RESULTS WITHIN THE RIGHTS-OF-WAY

	WOLF GLADE 138 KV EXTENSION ALTERNATIVE ROUTE A		WOLF GLADE 138 KV EXTENSION ALTERNATIVE ROUTE B (PROPOSED ROUTE)		WOLF GLADE 138 KV EXTENSION ALTERNATIVE ROUTE C		RELOCATED CLIFFVIEW 69 KV TAP PROPOSED ROUTE	
WETLAND TYPE	NUMBER OF WETLAND OCCURRENCES	ACREAGE WITHIN RIGHT-OF-WAY	NUMBER OF WETLAND OCCURRENCES	ACREAGE WITHIN RIGHT-OF-WAY	NUMBER OF WETLAND OCCURRENCES	ACREAGE WITHIN RIGHT-OF-WAY	NUMBER OF WETLAND OCCURRENCES	ACREAGE WITHIN RIGHT-OF-WAY
High								
PEM	1	0.25	0	0.00	2	0.58	1	0.02
PFO	2	0.71	2	0.39	0	0.00	0	0.00
PUB	0	0.00	0	0.00	0	0.00	0	0.00
PEM/PSS	0	0.00	0	0.00	0	0.00	0	0.00
PEM/PFO	1	0.44	1	0.64	1	0.84	0	0.00
PEM/PFO/ PUB	0	0.00	0	0.00	0	0.00	0	0.00
High Wetlands Total	4	1.40	3	1.03	3	1.42	1	0.02
Moderate								
PEM	0	0.00	0	0.00	0	0.00	0	0.00
PFO	1	0.33	1	0.34	0	0.00	0	0.00
PUB	1	0.19	0	0.00	0	0.00	0	0.00
PEM/PSS	0	0.00	0	0.00	0	0.00	0	0.00
PEM/PFO	3	0.79	0	0.00	0	0.00	0	0.00
PEM/PFO/ PUB	0	0.00	0	0.00	0	0.00	1	0.34
Moderate Wetlands Total	5	1.31	1	0.34	0	0.00	1	0.34
Low								
PEM	0	0.00	1	0.43	0	0.00	0	0.00
PFO	1	0.20	0	0.00	0	0.00	1	0.20
PUB	0	0.00	0	0.00	0	0.00	0	0.00
PEM/PSS	1	0.19	1	0.20	1	0.20	2	0.31
PEM/PFO	0	0.00	0	0.00	0	0.00	0	0.00
PEM/PFO/ PUB	0	0.00	0	0.00	0	0.00	0	0.00
Low Wetlands Total	2	0.39	2	0.63	1	0.20	3	0.51

TABLE 4 DESKTOP STREAM DELINEATION RESULTS WITHIN THE RIGHTS-OF-WAY

	WOLF GLADE 138 KV EXTENSION ALTERNATIVE ROUTE A		WOLF GLADE 138 KV EXTENSION ALTERNATIVE ROUTE B (PROPOSED ROUTE)		WOLF GLADE 138 KV EXTENSION ALTERNATIVE ROUTE C		RELOCATED CLIFFVIEW 69 KV TAP PROPOSED ROUTE	
STREAM TYPE	NUMBER OF STREAM OCCURRENCES	LINEAR FOOTAGE WITHIN RIGHT-OF-WAY	NUMBER OF STREAM OCCURRENCES	LINEAR FOOTAGE WITHIN RIGHT-OF-WAY	NUMBER OF STREAM OCCURRENCES	LINEAR FOOTAGE WITHIN RIGHT-OF-WAY	NUMBER OF STREAM OCCURRENCES	LINEAR FOOTAGE WITHIN RIGHT-OF-WAY
High Streams Total	6	841	3	320	4	412	1	122
Moderate Streams Total	1	159	1	114	1	142	0	0
Low Streams Total	0	0	2	304	1	104	0	0

3.1 Wolf Glade 138 kV Extension Alternative Route A

Alternative Route A begins at a far western tap location on the existing Jubal Early – Piper's Gap 138 kV Transmission Line and travels generally south/southeast in a straight trajectory to the proposed Wolf Glade 138 kV Substation and remains south of a Virginia Outdoors Foundation (VOF) easement (**Attachment A**). The length of Alternative Route A is approximately 2.1 miles.

High Probability

Within the Alternative Route A right-of-way, approximately 1.40 acres of high probability wetlands were identified within four areas. Of the 1.40 acres of wetlands identified, 50 percent of the high probability wetlands were classified as PFO wetlands; 25 percent were classified as PEM wetlands; and 25 percent were classified as PEM/PFO wetlands. No high probability PUB, PEM/PSS, or PEM/PFO/PUB wetlands were identified within the Alternative Route A right-of-way. In addition to the wetlands, six high probability stream crossings were identified with a total combined length of approximately 841 feet within the Alternative Route A right-of-way.

Moderate Probability

Within the Alternative Route A right-of-way, approximately 1.31 acres of moderate probability wetlands were identified within five areas. Of the 1.31 acres of wetlands identified, 60 percent of the moderate probability wetlands were classified as PEM/PFO wetlands; 20 percent were classified as PFO wetlands; and 20 percent were classified as PUB wetlands. No moderate probability PEM, PEM/PSS, or PEM/PFO/PUB wetlands were identified within the Alternative Route A right-of-way. In addition to the wetlands, one moderate probability stream crossing was identified with a length of approximately 159 feet within the Alternative Route A right-of-way.

Low Probability

Within the Alternative Route A right-of-way approximately 0.39 acre of low probability wetlands were identified within two areas. Of the 0.39 acre of wetlands identified, 50 percent of the low probability wetlands were classified as PFO wetlands and 50 percent were classified as PEM/PSS wetlands. No other low probability wetland type was identified within the Alternative Route A right-of-way. No low probability streams were identified within the Alternative Route A right-of-way.

3.2 Wolf Glade 138 kV Extension Proposed Route (Alternative Route B)

The Wolf Glade 138 kV Extension Proposed Route (Alternative Route B) begins at a central tap location on the existing Jubal Early – Piper's Gap 138 kV Transmission Line and travels generally south over large agricultural tracts to the proposed Wolf Glade 138 kV Substation (**Attachment A**). The length of the Wolf Glade 138 kV Extension Proposed Route is approximately two miles.

High Probability

Within the Wolf Glade 138 kV Extension Proposed Route right-of-way, approximately 1.03 acres of high probability wetlands were identified within three areas. Of the 1.03 acres of wetlands identified, approximately 67 percent of the high probability wetlands were classified as PFO wetlands and approximately 33 percent were classified as PEM/PFO wetlands. No high probability PEM, PUB, PEM/PSS, or PEM/PFO/PUB wetlands were identified within the Wolf Glade 138 kV Proposed Route right-of-way. In addition to the wetlands, a total of three high probability stream crossings were identified with an overall combined length of 320 feet within the Wolf Glade 138 kV Extension Proposed Route right-of-way.

Moderate Probability

Within the Wolf Glade 138 kV Extension Proposed Route right-of-way, approximately 0.34 acre of moderate probability wetlands were identified within one area. All 0.34 acre of wetlands identified were classified as PFO wetlands; no other moderate probability wetland type was identified within the Wolf Glade 138 kV Extension Proposed Route right-of-way. In addition to the wetlands, one moderate probability stream crossing was identified with a length of 114 feet within the Wolf Glade 138 kV Extension Proposed Route right-of-way.

Low Probability

Within the Wolf Glade 138 kV Extension Proposed Route right-of-way, approximately 0.63 acre of low probability wetlands were identified within two areas. Of the 0.63 acre of wetlands identified, 50 percent of the low probability wetlands were classified as PEM wetlands and 50 percent were classified as PEM/PSS wetland; no other low probability wetland type was identified within the Wolf Glade 138 kV Extension Proposed Route right-of-way In addition to the wetlands, two low probability streams were identified with a total combined length of 304 feet within the Wolf Glade 138 kV Extension Proposed Route right-of-way.

3.3 Wolf Glade 138 kV Extension Alternative Route C

Alternative Route C begins at a far eastern tap location on the existing Jubal Early – Piper's Gap 138 kV Transmission Line and travels generally southwest over large areas of agricultural land east of Hebron Road to the proposed Wolf Glade 138 kV Substation (**Attachment A**). The length of Alternative Route C is approximately 2.4 miles.

High Probability

Within the Alternative Route C right-of-way, approximately 1.42 acres of high probability wetlands were identified within three areas. Of the 1.42 acres of wetlands identified, approximately 67 percent of the high probability wetlands were classified as PEM wetlands, and approximately 33 percent were classified as PEM/PFO wetlands. No high probability PFO, PUB, PEM/PSS, and PEM/PFO/PUB wetlands were identified within the Alternative Route C right-of-way. In addition to the wetlands, a total of four high probability stream crossings were identified with an overall combined length of 412 feet within the Alternative Route C right-of-way.

Moderate Probability

Within the Alternative Route C right-of-way, no moderate probability wetlands were identified. One moderate probability stream crossing was identified with a length of 142 feet within the Alternative Route C right-of-way.

Low Probability

Within the Alternative Route C right-of-way, approximately 0.20 acre of low probability wetlands were identified within one area. All 0.20 acre of wetlands identified were classified as PEM/PSS wetlands; no other low probability wetland type was identified within the Alternative Route C right-of-way. In addition to the wetlands, one low probability stream crossing was identified with a length of 104 feet within the Alternative Route C right-of-way.

3.4 Relocated Cliffview 69 kV Tap Proposed Route

The Relocated Cliffview 69 kV Tap Proposed Route is a straight route through wooded areas between the existing Cliffview 69 kV Tap and the proposed Wolf Glade 138 kV Substation (**Attachment A**). The length of the Relocated Cliffview 69 kV Tap Proposed Route is approximately 0.5 mile.

High Probability

Within the Relocated Cliffview 69 kV Tap Proposed Route right-of-way, approximately 0.02 acre of high probability wetlands were identified. All 0.02 acre of wetlands identified were classified as PEM wetlands; no other wetland high probability type was identified within the Relocated Cliffview 69 kV Tap Proposed Route right-of-way. In addition to the wetlands, one high probability stream crossing was identified with a length of 122 feet within the Relocated Cliffview 69 kV Tap Proposed Route right-of-way.

Moderate Probability

Within the Relocated Cliffview 69 kV Tap Proposed Route right-of-way, approximately 0.34 acres of moderate probability wetlands were identified within one area. All 0.34 acre of wetlands identified were classified as PEM/PFO/PUB wetland; no other moderate probability wetland type was identified within the Relocated Cliffview 69 kV Tap Proposed Route right-of-way. No moderate probability streams were identified within the Relocated Cliffview 69 kV Tap Proposed Route right-of-way.

Low Probability

Within the Relocated Cliffview 69 kV Tap Proposed Route right-of-way, approximately 0.51 acre of low probability wetlands were identified within three areas. Of the 0.51 acre of wetlands identified, approximately 67 percent of the low probability wetlands were classified as PEM/PSS wetlands, and approximately 33 percent were classified as PFO wetlands. No low probability PEM, PUB, PEM/PFO, or PEM/PFO/PUB wetlands were identified within the Relocated Cliffview 69 kV Tap

Proposed Route right-of-way. No low probability streams were identified within the Relocated Cliffview 69 kV Tap Proposed Route right-of-way.

4.0 CONCLUSION

Table 5 provides a summary of the desktop wetland and stream resources identified in this report. The Wolf Glade 138 kV Extension Proposed Route right-of-way (Alternative Route B) includes six wetlands with a total combined area of approximately two acres and crosses six streams with a total combined linear footage of 738 feet. Alternative Route A includes 11 wetlands with a total combined area of approximately 3.10 acres and crosses seven streams with a total combined linear footage of approximately 1,000 feet. Alternative Route C includes four wetlands with a total combined area of 1.62 acres and crosses six streams with a total combined linear footage of approximately 658 feet. The Relocated Cliffview 69 kV Tap Proposed Route includes five wetlands with a total combined area of 0.87 acres and crosses one stream with a linear footage of approximately 122 feet.

TABLE 5 SUMMARY OF DESKTOP WETLAND AND STREAM DELINEATIONS

	WOLF GLADE 138 KV EXTENSION ALTERNATIVE ROUTE A		WOLF GLADE 138 KV EXTENSION ALTERNATIVE ROUTE B (PROPOSED ROUTE)		WOLF GLADE 138 KV EXTENSION ALTERNATIVE ROUTE C		RELOCATED CLIFFVIEW 69 KV TAP PROPOSED ROUTE	
STREAM TYPE	NUMBER OF WETLAND OR STREAM OCCURRENCES	ACREAGE/LINEAR FOOTAGE WITHIN RIGHT-OF-WAY	NUMBER OF WETLAND OR STREAM OCCURRENCES	ACREAGE/LINEAR FOOTAGE WITHIN RIGHT-OF-WAY	NUMBER OF WETLAND OR STREAM OCCURRENCES	ACREAGE/LINEAR FOOTAGE WITHIN RIGHT-OF-WAY	NUMBER OF WETLAND OR STREAM OCCURRENCES	ACREAGE/LINEAR FOOTAGE WITHIN RIGHT-OF-WAY
Wetland Total	11	3.10 acres	6	2.00 acres	4	1.62 acres	5	0.87 acre
Stream Total	7	1,000 feet	6	738 feet	6	658 feet	1	122 feet

Based on a review of the information generated by the desktop delineation, the Wolf Glade 138 kV Extension Proposed Route would generally have a reduced impact on wetlands relative to Alternative Route A in terms of both quantity and type of wetlands. Wetland impacts between the Proposed Route and Alternative Route C are comparable. The Proposed Route generally crosses fewer acres of high probability wetlands but has a higher potential for moderate and low probability wetlands. Alternative Route A has the potential to impact more wetland areas compared with the Proposed Route and Alternative Route C. The same conclusion can be reached with regard to the quantity and overall length of streams identified in the desktop analysis; the Wolf Glade 138 kV Extension Proposed Route would generally have a reduced impact on streams relative to Alternative Route A, while the stream impacts between the Wolf Glade 138 kV Extension Proposed Route and Alternative Route C are generally comparable. Alternative Route C crosses more high probability streams with a longer length within the right-of-way. Additionally, Alternative Route A is the only route to cross Chestnut Creek, a Virginia Department Game and Inland Fisheries-designated impaired waterway.

In general, temporary and permanent impacts to wetlands and streams during construction of transmission lines can be avoided through strategic placement of transmission structures/foundations to minimize impacts to regulated resources. In most cases, wetlands and streams can be spanned entirely by a transmission line. Where avoidance is not possible, impacts to wetlands and streams are generally minimal due to the relatively small footprint of transmission line structure foundations.

Typically impacts to wetlands from access roads, which are required to construct the transmission lines, can be minimized through the use of timber mats to reduce disturbance of the ground surface within wetland areas. In some cases, timber mat bridges can also be used to span stream channels. Impacts from access roads are often temporary in nature, as access roads are often restored to pre-construction conditions at the end of construction.

The results of this desktop wetland and stream delineation are intended solely for use as an indication of probable wetlands and streams within the rights-of-way of the Wolf Glade 138 kV Extension Alternative Routes A, B (Proposed Route), and C, and the Relocated Cliffview 69 kV Tap Proposed Route. This analysis is designed for Project planning purposes only and does not represent the results of an on-the-ground, wetland and stream field delineation. Accurate determination of regulated resource boundaries is only possible through field delineations of wetlands and streams utilizing the USACE wetland delineation manual (Environmental Laboratory 1987), the applicable regional supplement (USACE 2012), and other appropriate regulatory guidance.

5.0 REFERENCES

Cowardin, L.M., F.C. Golet, and E.T. LaRoe. 1979. Classification of Wetlands and Deepwater Habitats of the United States. Office of Biological Services, Fish and Wildlife Service, U.S. Department of the Interior, Washington, DC. 103 pp.

Environmental Laboratory. 1987. U.S. Army Corps of Engineers Wetlands Delineation Manual, Technical Report Y-87-1. U.S. Army Engineer Waterways Experiment Station, Vicksburg, Mississippi. 100 pp, plus appendices.

Google Earth. 2018. Google Earth Pro, Version 7.3.2.5491. Available at: https://www.google.com/earth/.

Minnesota IT Services. 2018. Geospatial Information Office: Color Infrared (CIR) Imagery. Available at: http://www.mngeo.state.mn.us/chouse/airphoto/cir.html.

Natural Resource Conservation Service (NRCS). 1967. Soil Survey of Carroll County, Virginia. Available at: https://www.nrcs.usda.gov/Internet/FSE_MANUSCRIPTS/virginia/carrollVA1967/carrollVA1967.pdf.

_____. 2018. Gridded Soil Survey Geographic for Carroll County, Virginia. U.S. Department of Agriculture. Available at: https://datagateway.nrcs.usda.gov/GDGOrder.aspx.

Simley, J.D. and W.J. Carswell, Jr. 2009. The National Map - Hydrography: US Geological Survey Fact Sheet 2009-3054, 4 pp.

United States Army Corps of Engineers (USACE). 2012. Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Eastern Mountains and Piedmont Region, Version 2.0. Eds: J.F. Berkowitz, J.S. Wakeley, R.W. Lichvar, and C.V. Noble. ERDC/EL TR-12-9. Vicksburg, MS: U.S. Army Engineer Research and Development Center. 147 pp, plus appendices.

United States Environmental Protection Agency. 2018. Section 404 of the Clean Water Act: How Wetlands are Defined and Identified. Available at: https://www.epa.gov/cwa-404/section-404-clean-water-act-how-wetlands-are-defined-and-identified.

United States Fish and Wildlife Service (USFWS). 2018a. National Wetlands Inventory (NWI) by state. Available at: http://www.fws.gov/wetlands/data/State-Downloads.html.

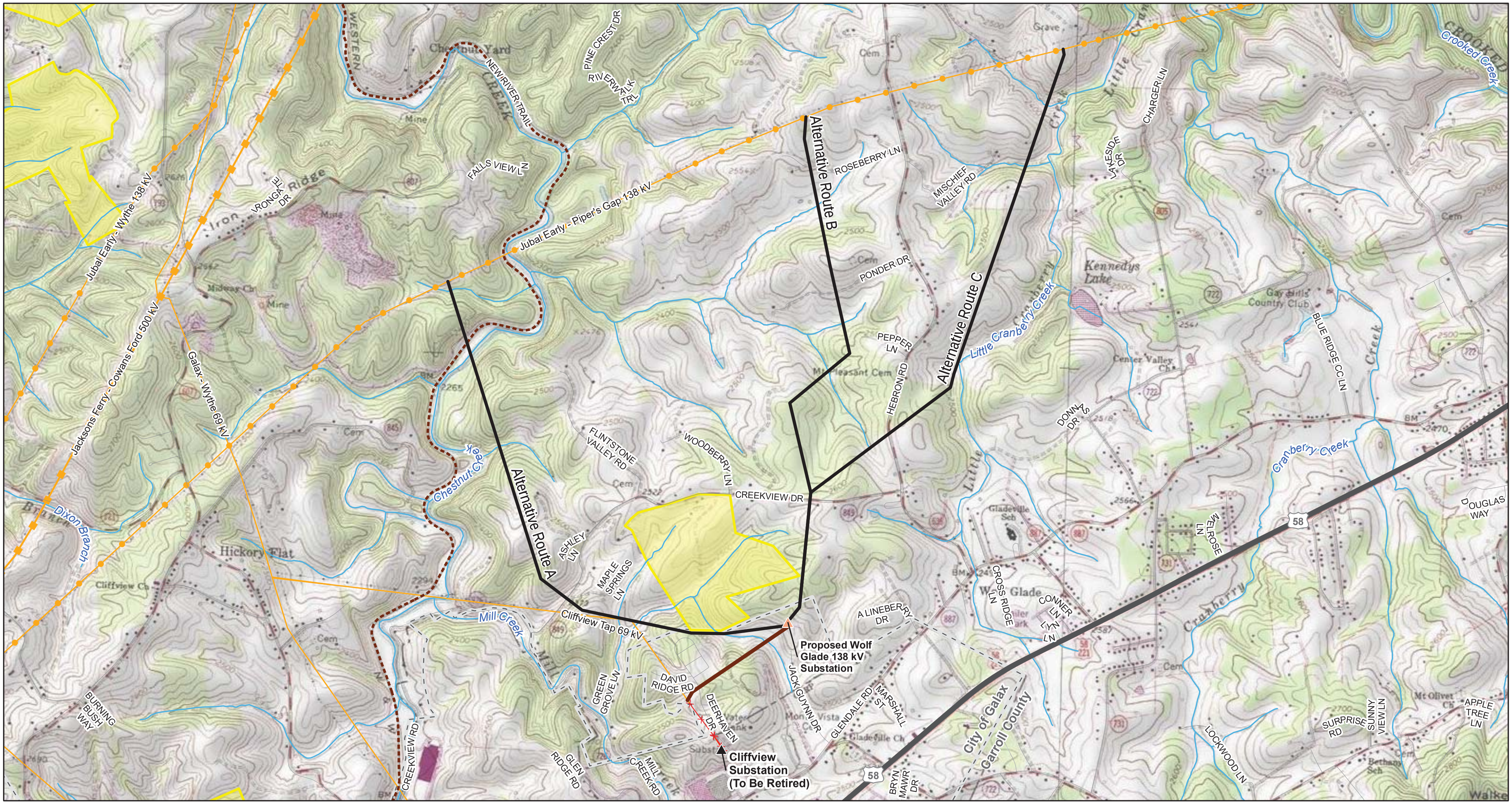
_____. 2018b. National Wetlands Inventory: Overview. Available at: https://www.fws.gov/wetlands/nwi/Overview.html.

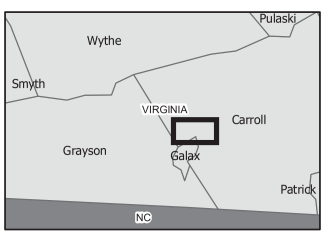
United States Geological Survey (USGS). 2018a. USGS Geological Survey 10m DEM. Available at: https://viewer.nationalmap.gov.

_____. 2018b. National Hydrography Dataset (NHD). Available at: https://www.usgs.gov/core-science-systems/ngp/national-hydrography/national-hydrography-dataset?qt-science_support_page_related_con=0#qt-science_support_page_related_con.

Virginia Base Mapping Program. 2015. Color Infrared Imagery and Orthophotography. Available at: http://gismaps.vita.virginia.gov/arcgis/rest/services.

FIGURE 1 PROJECT OVERVIEW





▲ (orange)	Proposed Wolf Glade Substation
▲	Existing AEP Substation
(black line)	Alternative Route (138 kV)
(brown line)	Proposed Cliffview 69 kV Tap
(dashed brown)	New River Trail
(grey line)	U.S. Route
(thin line)	Road
(orange line)	Existing AEP Transmission Line (69 kV or lower)
(orange line, dots)	Existing AEP Transmission Line (115-230 kV)
(orange line, squares)	Existing AEP Transmission Line (345 kV +)
(blue line)	Stream (NHD)
(yellow box)	VOF Easement
(red x line)	Existing 69 kV Transmission Line to be Removed

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

City of Galax and Carroll County, Virginia

0 875 1,750 3,500
Feet

1"= 1,750'

Overview

Desktop Wetland and Stream Delineation

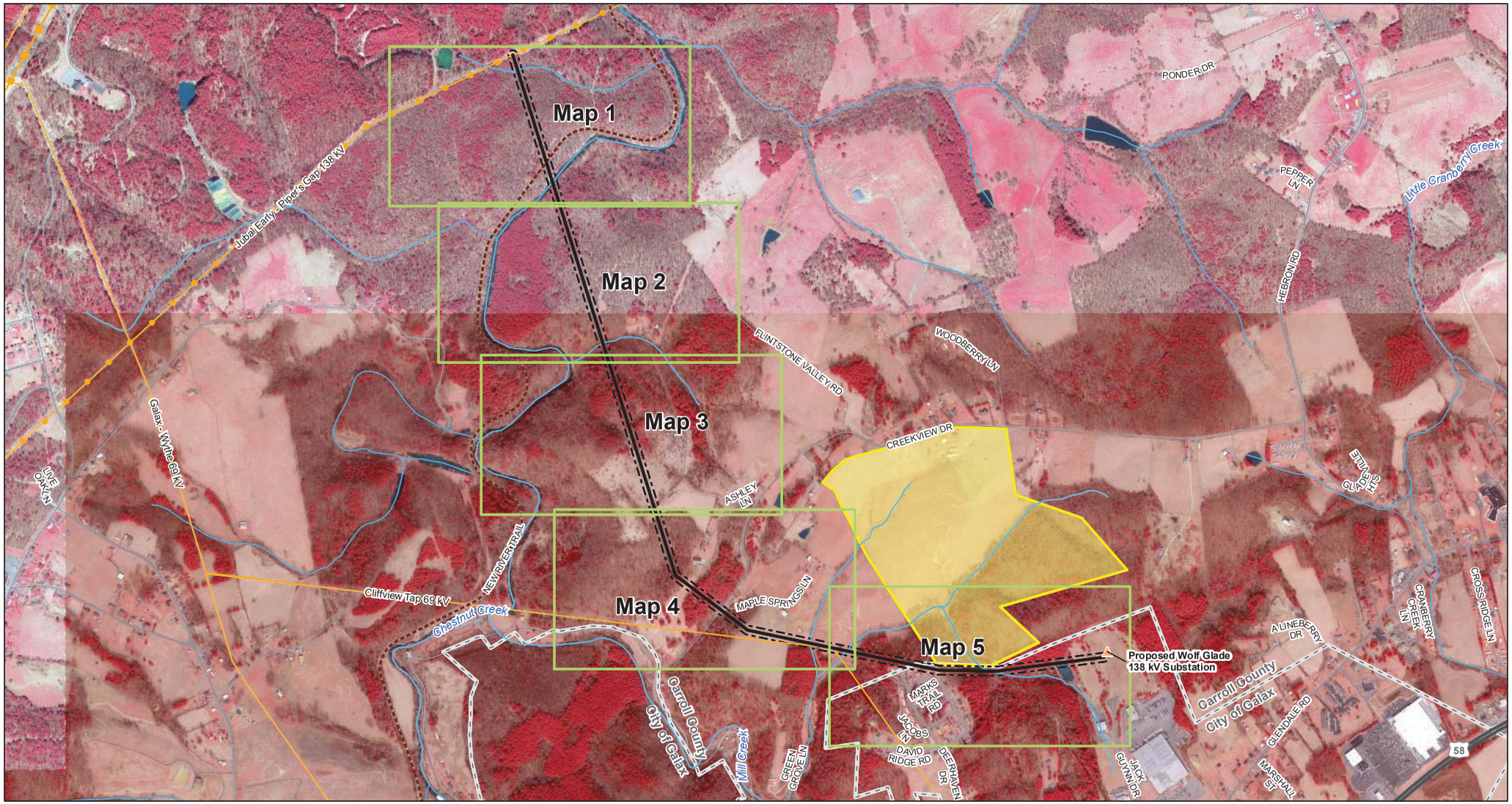
Glendale Area Improvements Project

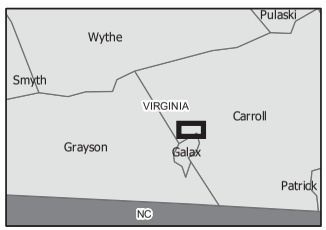
APPALACHIAN POWER
An AEP Company
BOUNDLESS ENERGY

Date: 10/30/2018;
Author: KK;
Project: 153273; P17160001

Path: R:\Projects\151344_Cliffview_P17060001\GIS\DesktopDelineationOverview_153273_GlendaleAreaImprovements_P17160001.aprx

ATTACHMENT A: DESKTOP DELINEATED FEATURES, RIGHT-OF-WAY ROUTE MAPPING





- Proposed Wolf Glade Substation
- Alternative Route A (138 kV)
- New River Trail
- Map Tile
- Alternative Route A ROW Corridor (100')
- U.S. Route
- Road
- Existing AEP Transmission Line (69 kV or lower)
- Existing AEP Transmission Line (115-230 kV)
- Existing AEP Transmission Line (345 kV +)
- Stream (NHD)
- VOF Easement

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

City of Galax and Carroll County, Virginia

0 500 1,000 2,000
Feet

1"= 1,000' Index

Desktop Wetland and Stream Delineation Alternative Route A

Glendale Area Improvements Project

APPALACHIAN POWER
An AEP Company
BOUNDLESS ENERGY

Date: 10/30/2018;
Author: KK;
Project: 153273; P17160001

Imagery Layer Credit:
VBMP 2015 Infrared

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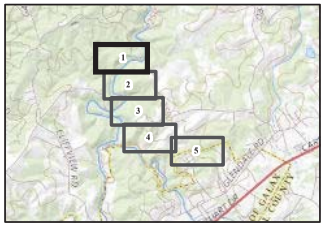

Alternative Route A (138 kV)

High Stream Probability

New River Trail

Moderate Wetland Probabilty

Map Tile

Alternative Route A ROW Corridor (100')

Road

Existing AEP Transmission Line (115-230 kV)

Stream (NHD)

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

City of Galax and Carroll County, Virginia

0 50 100 200 300 400
Feet

1"= 200'

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Desktop Wetland and Stream Delineation Alternative Route A

Glendale Area Improvements Project

APPALACHIAN POWER
An AEP Company
BOUNDLESS ENERGY

Date: 10/30/2018;
Author: KK;
Project: 153273; P17160001

Imagery Layer Credit:
VBMP 2015 Infrared

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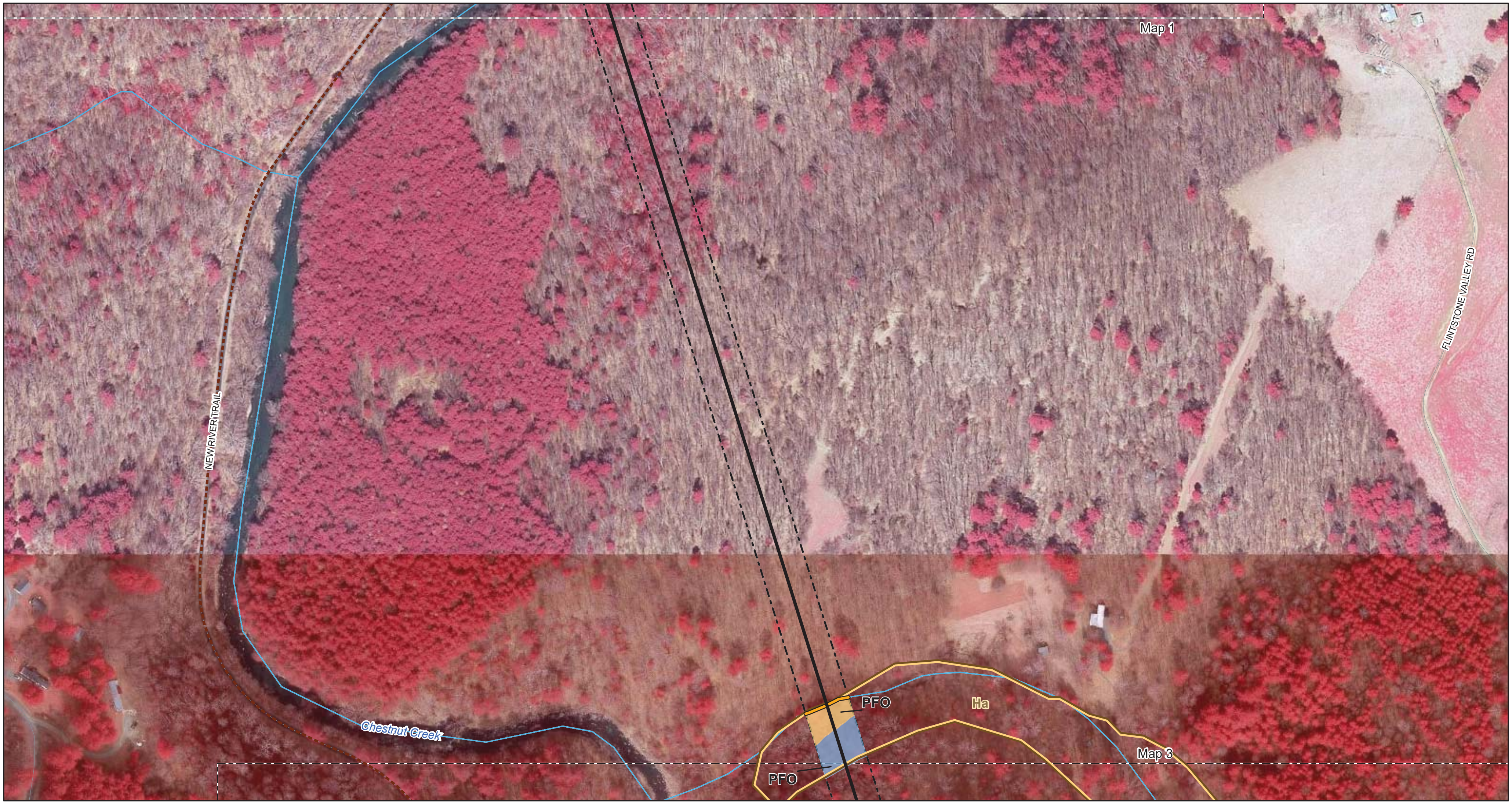

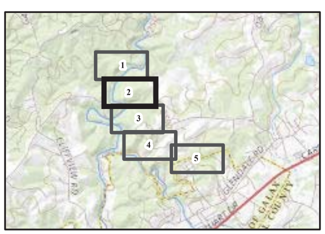

Alternative Route A (138 kV)	Low Wetland Probability
High Stream Probability	Map Tile
New River Trail	Alternative Route A ROW Corridor (100')
Hydric Inclusion Soils	Road
High Wetland Probability	Stream (NHD)

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

City of Galax and Carroll County, Virginia

0 50 100 200 300 400
Feet

1"= 200'

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Desktop Wetland and Stream Delineation Alternative Route A

Glendale Area Improvements Project

APPALACHIAN POWER
An AEP Company
BOUNDLESS ENERGY

Date: 10/30/2018;
Author: KK;
Project: 153273; P17160001

Imagery Layer Credit:
VBMP 2015 Infrared

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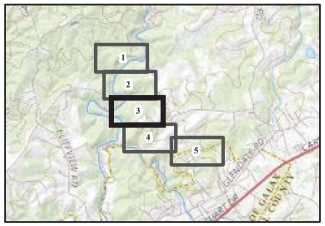

Alternative Route A (138 kV)

New River Trail

Hydric Inclusion Soils

Low Wetland Probability

Map Tile

Alternative Route A ROW Corridor (100')

Road

Stream (NHD)

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

City of Galax and Carroll County, Virginia

0 50 100 200 300 400
Feet

1"= 200'

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Desktop Wetland and Stream Delineation Alternative Route A

Glendale Area Improvements Project

APPALACHIAN POWER
An AEP Company
BOUNDLESS ENERGY

Date: 10/30/2018;
Author: KK;
Project: 153273; P17160001

Imagery Layer Credit:
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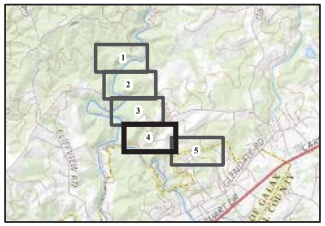

Alternative Route A (138 kV)
High Stream Probability
Moderate Stream Probability
Hydric Inclusion Soils
High Wetland Probability
Moderate Wetland Probabilty
Map Tile

Alternative Route A ROW Corridor (100')
Road
Existing AEP Transmission Line (69 kV or lower)
Stream (NHD)
VOF Easement
City/County Boundary

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

City of Galax and Carroll County, Virginia

0 50 100 200 300 400
Feet

1"= 200'

Desktop Wetland and Stream Delineation Alternative Route A

Glendale Area Improvements Project

APPALACHIAN POWER
An AEP Company
BOUNDLESS ENERGY

Date: 10/30/2018;
Author: KK;
Project: 153273; P17160001

Imagery Layer Credit:
VBMP 2015 Infrared

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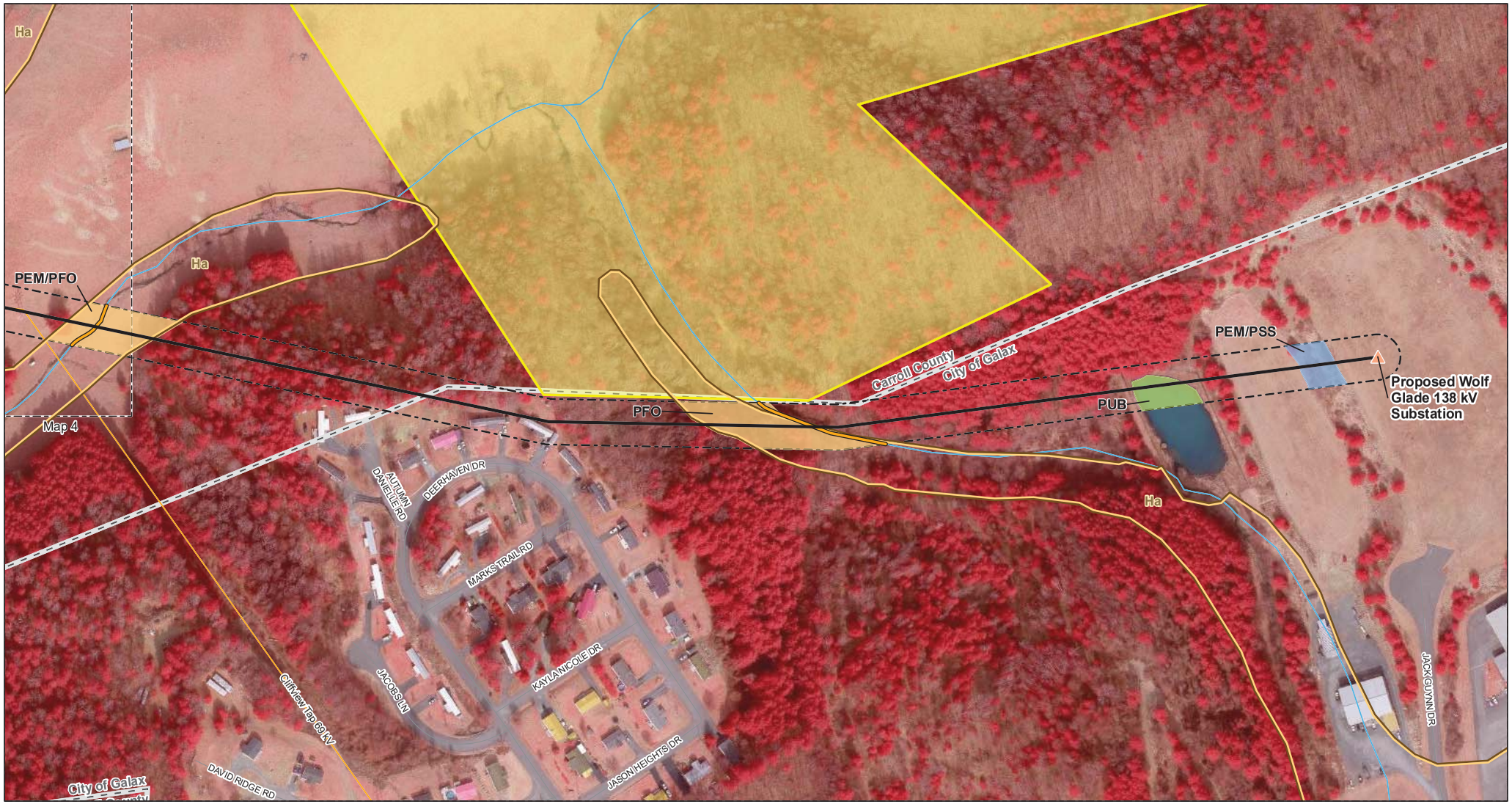

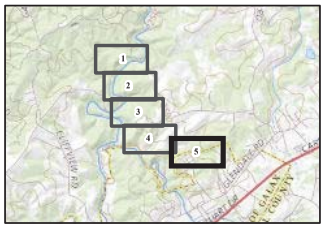

- Proposed Wolf Glade Substation
- Alternative Route A (138 kV)
- High Stream Probability
- Hydric Inclusion Soils
- High Wetland Probability
- Low Wetland Probability
- Moderate Wetland Probabilty
- Map Tile
- Alternative Route A ROW Corridor (100')
- Road
- Existing AEP Transmission Line (69 kV or lower)
- Stream (NHD)
- VOF Easement
- City/County Boundary

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

City of Galax and Carroll County, Virginia

0 50 100 200 300 400
Feet

1"= 200'

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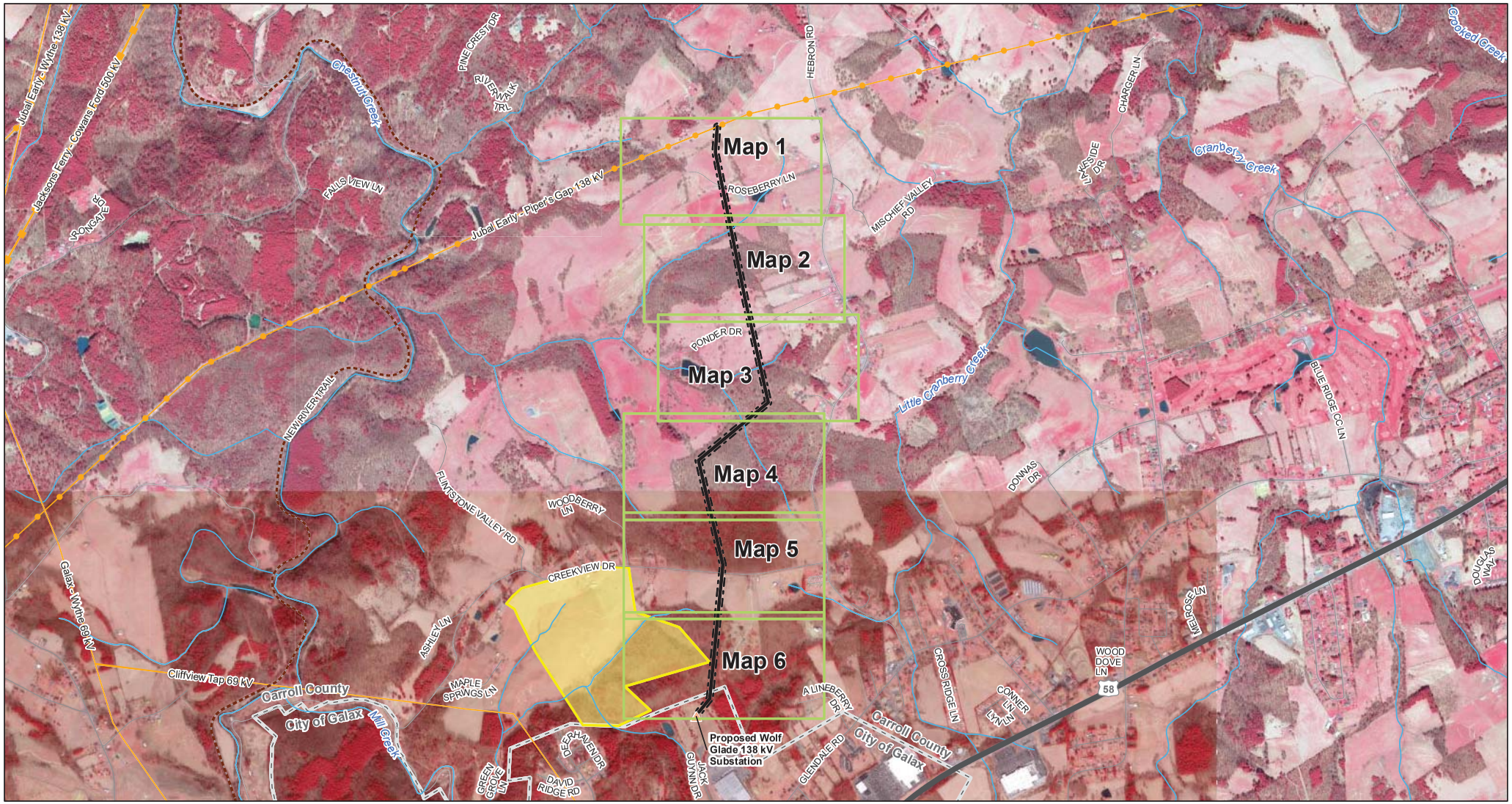
Desktop Wetland and Stream Delineation Alternative Route A

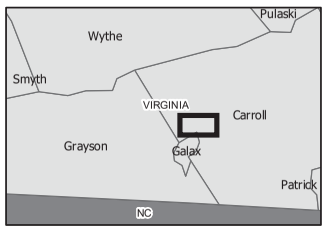
Glendale Area Improvements Project

APPALACHIAN POWER
An AEP Company
BOUNDLESS ENERGY

Date: 10/30/2018;
Author: KK;
Project: 153273; P17160001

Imagery Layer Credit:
VBMP 2015 Infrared





- Proposed Wolf Glade Substation
- Alternative Route B (138 kV)
- New River Trail
- Map Tile
- Alternative Route B ROW Corridor (100')
- U.S. Route
- Road
- Existing AEP Transmission Line (69 kV or lower)
- Existing AEP Transmission Line (115-230 kV)
- Existing AEP Transmission Line (345 kV +)
- Stream (NHD)
- VOF Easement

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

City of Galax and Carroll County, Virginia

0 750 1,500 3,000
Feet

1"= 1,500'

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Desktop Wetland and Stream Delineation Alternative Route B

Glendale Area Improvements Project

APPALACHIAN POWER
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Date: 10/30/2018;
Author: KK;
Project: 153273; P17160001

Imagery Layer Credit:
VBMP 2015 Infrared

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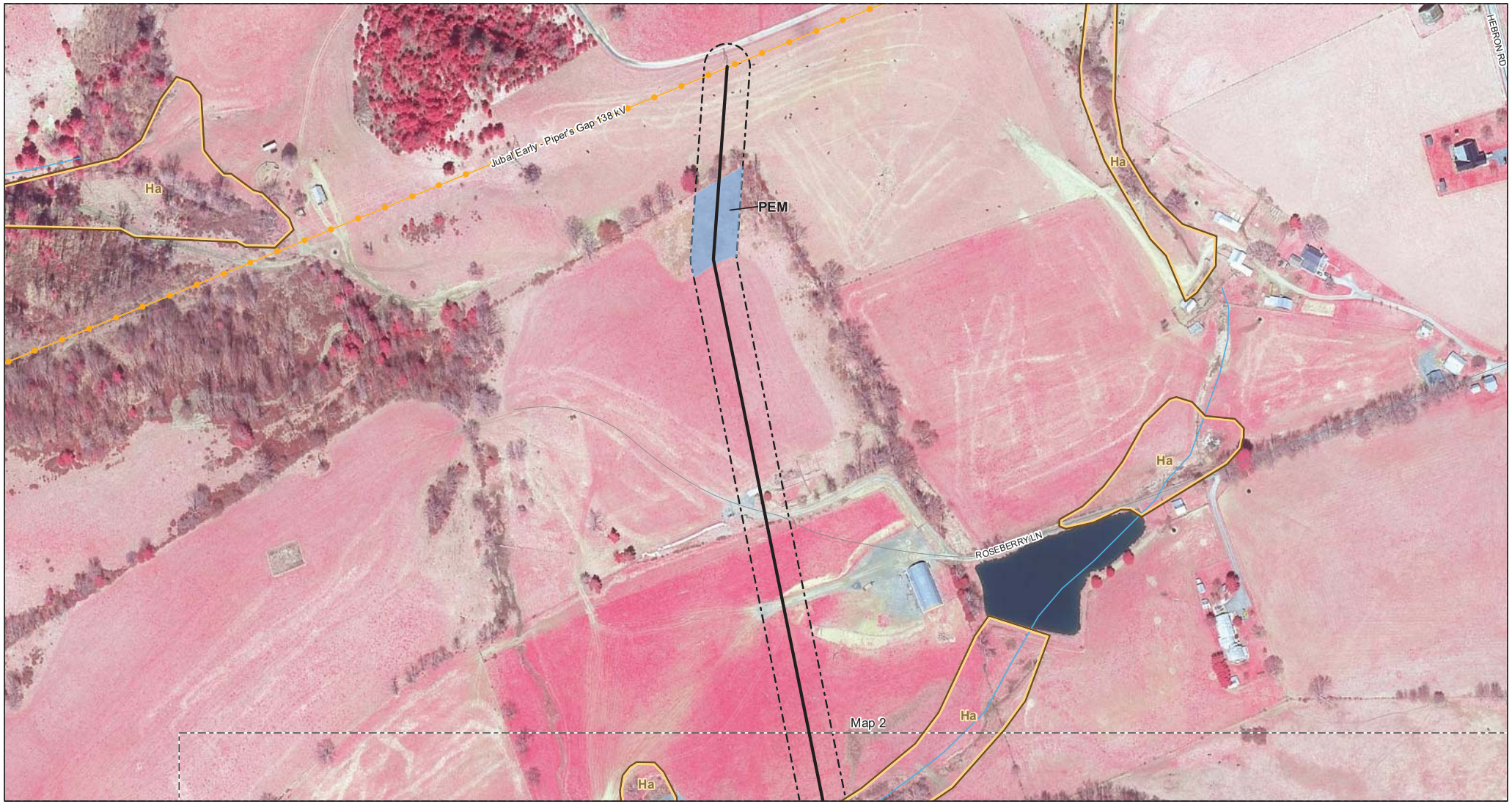

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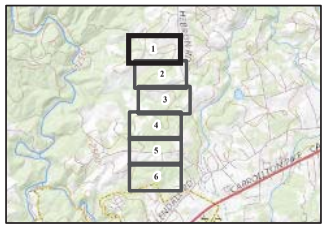

- Alternative Route B (138 kV)
- Hydric Inclusion Soils
- High Wetland Probability
- Low Wetland Probability
- Map Tile
- Alternative Route B ROW Corridor (100')
- Road
- Existing AEP Transmission Line (115-230 kV)
- Stream (NHD)
- Lake/Pond (NHD)

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

City of Galax and Carroll County, Virginia

0 50 100 200 300 400
Feet

1"= 200'

Desktop Wetland and Stream Delineation Alternative Route B

Glendale Area Improvements Project

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BOUNDLESS ENERGY™

Date: 10/30/2018;
Author: KK;
Project: 153273; P17160001

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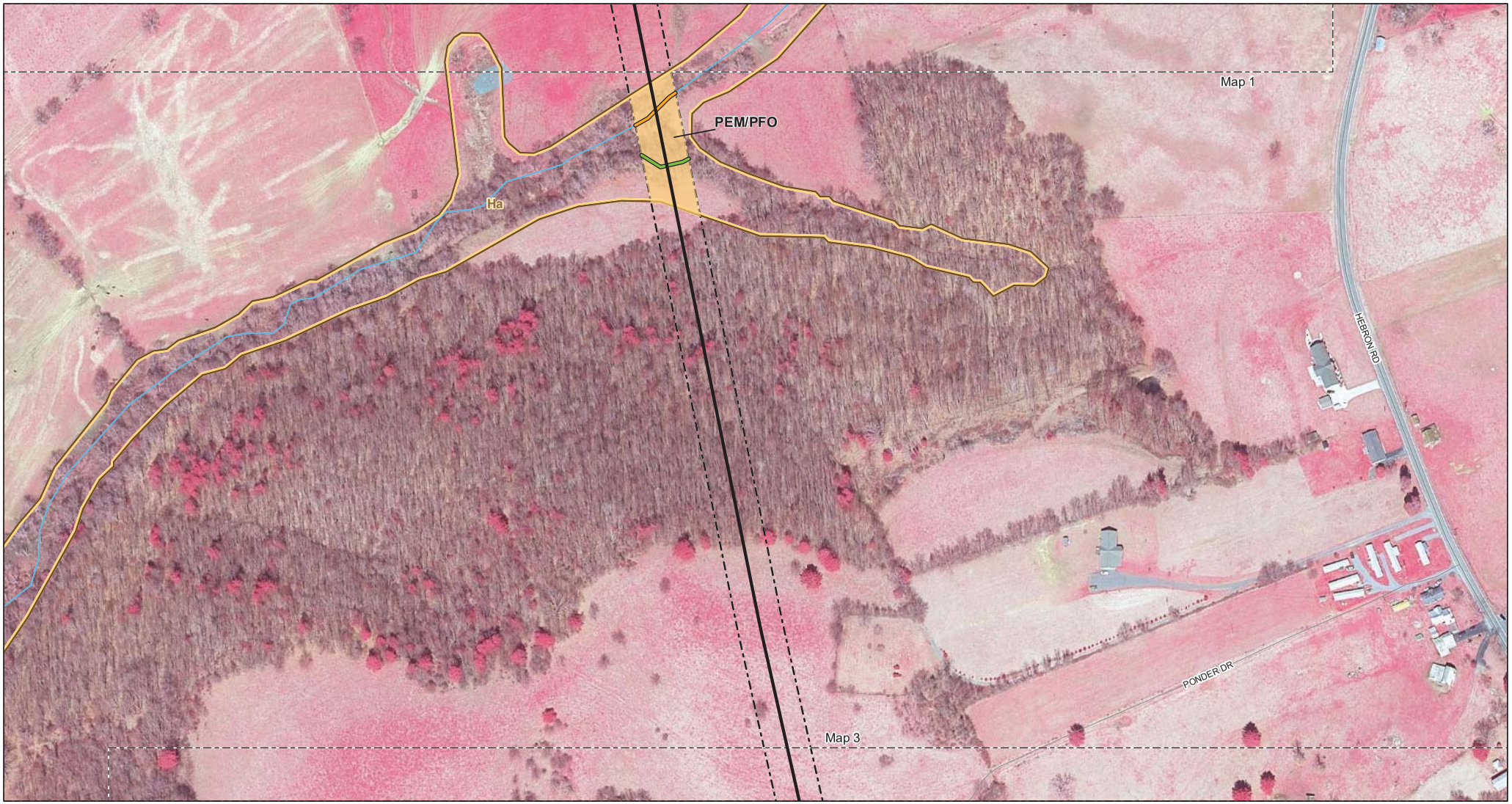

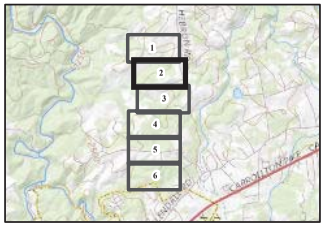

Alternative Route B (138 kV)
High Stream Probability
Moderate Stream Probability
Hydric Inclusion Soils
High Wetland Probability
Map Tile
Alternative Route B ROW Corridor (100')
Road
Stream (NHD)
Lake/Pond (NHD)

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

City of Galax and Carroll County, Virginia

0 50 100 200 300 400
Feet

1"= 200'

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Desktop Wetland and Stream Delineation Alternative Route B

Glendale Area Improvements Project

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Date: 10/30/2018;
Author: KK;
Project: 153273; P17160001

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VBMP 2015 Infrared

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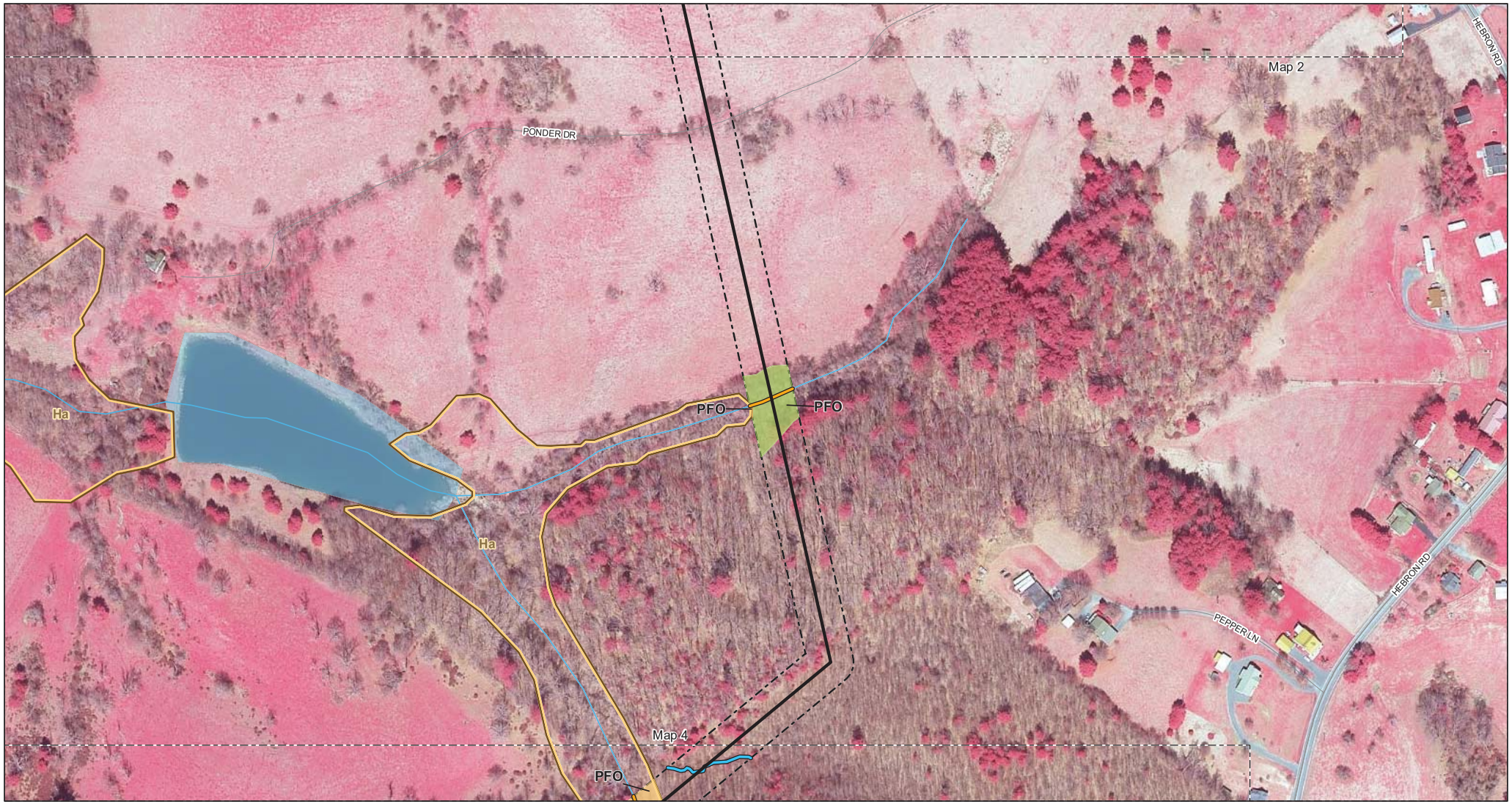

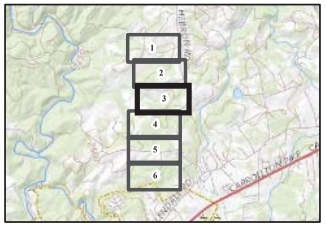

Alternative Route B (138 kV)
High Stream Probability
Low Stream Probability
Hydric Inclusion Soils
High Wetland Probability
Moderate Wetland Probabilty

Map Tile
Alternative Route B ROW Corridor (100')
Road
Stream (NHD)
Lake/Pond (NHD)

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

City of Galax and Carroll County, Virginia

0 50 100 200 300 400
Feet

1"= 200'

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Desktop Wetland and Stream Delineation Alternative Route B

Glendale Area Improvements Project

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BOUNDLESS ENERGY

Date: 10/30/2018;
Author: KK;
Project: 153273; P17160001

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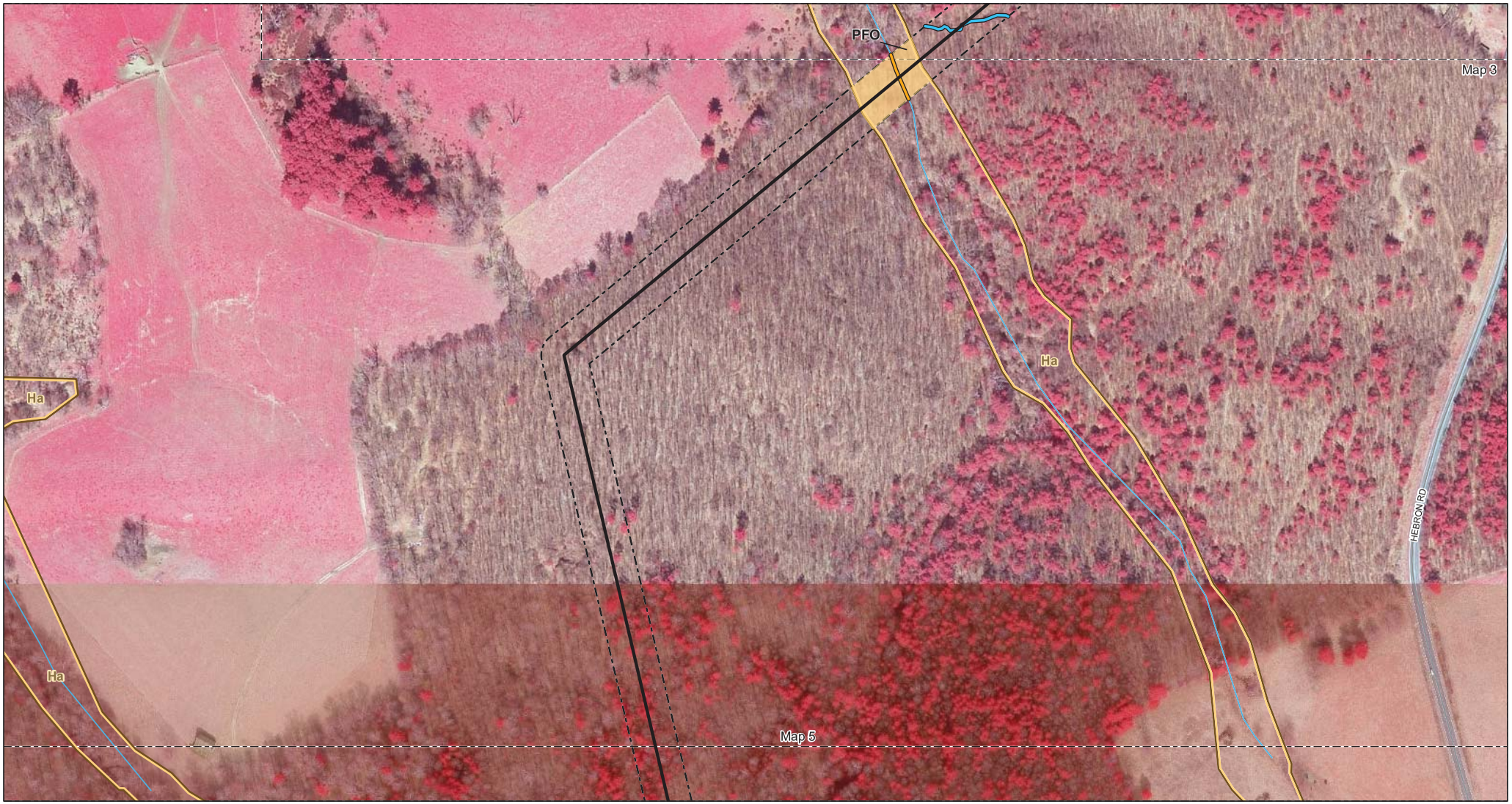
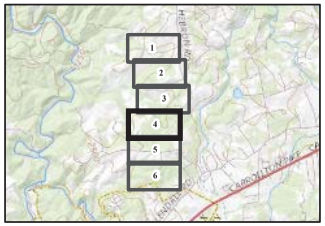




Alternative Route B (138 kV)
High Stream Probability
Low Stream Probability
Hydric Inclusion Soils
High Wetland Probability
Map Tile
Alternative Route B ROW Corridor (100')
Road
Stream (NHD)

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

City of Galax and Carroll County, Virginia

0 50 100 200 300 400
Feet

1"= 200'

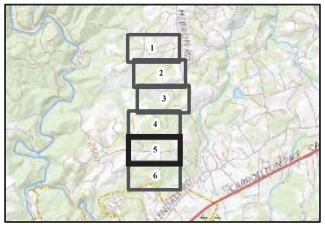
Desktop Wetland and Stream Delineation Alternative Route B

Glendale Area Improvements Project

APPALACHIAN POWER
An AEP Company
BOUNDLESS ENERGY

Date: 10/30/2018;
Author: KK;
Project: 153273; P17160001

Imagery Layer Credit:
VBMP 2015 Infrared



Alternative Route B (138 kV)
Low Stream Probability
Hydric Inclusion Soils
Map Tile
Alternative Route B ROW Corridor (100')
Road
Stream (NHD)
VOF Easement
Lake/Pond (NHD)

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

City of Galax and Carroll County, Virginia

0 50 100 200 300 400
Feet

1"= 200'

Desktop Wetland and Stream Delineation Alternative Route B

Glendale Area Improvements Project

APPALACHIAN POWER
An AEP Company
BOUNDLESS ENERGY

Date: 10/30/2018;
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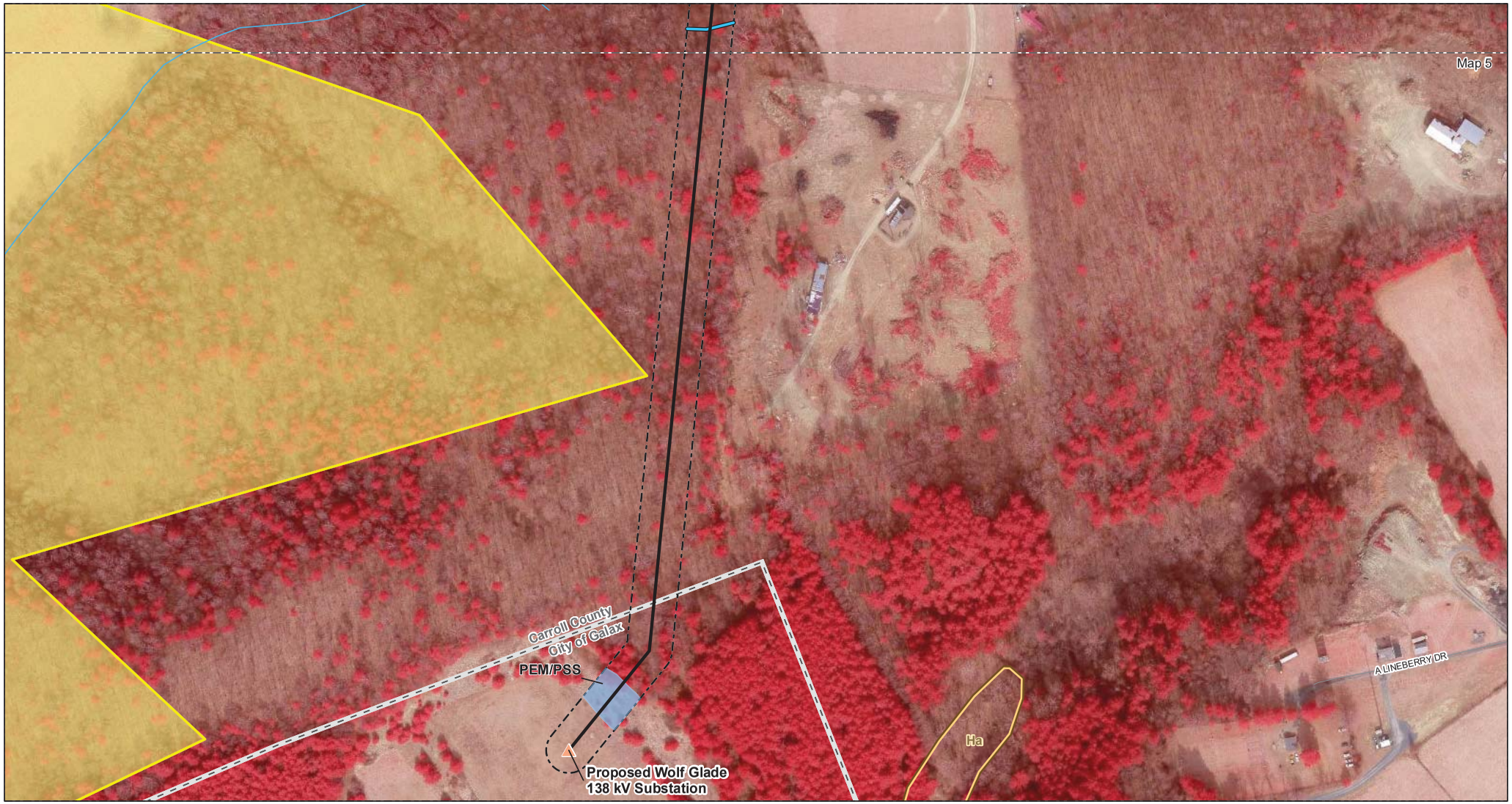

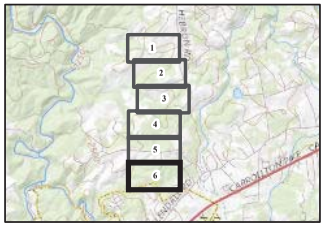

Proposed Wolf Glade Substation
Alternative Route B (138 kV)
Low Stream Probability
Hydric Inclusion Soils
Low Wetland Probability
Map Tile
Alternative Route B ROW Corridor (100')
Road
Stream (NHD)
VOF Easement
City/County Boundary

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

City of Galax and Carroll County, Virginia

0 50 100 200 300 400
Feet

1"= 200'

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Desktop Wetland and Stream Delineation Alternative Route B

Glendale Area Improvements Project

APPALACHIAN POWER
An AEP Company
BOUNDLESS ENERGY

Date: 10/30/2018;
Author: KK;
Project: 153273; P17160001

Imagery Layer Credit:
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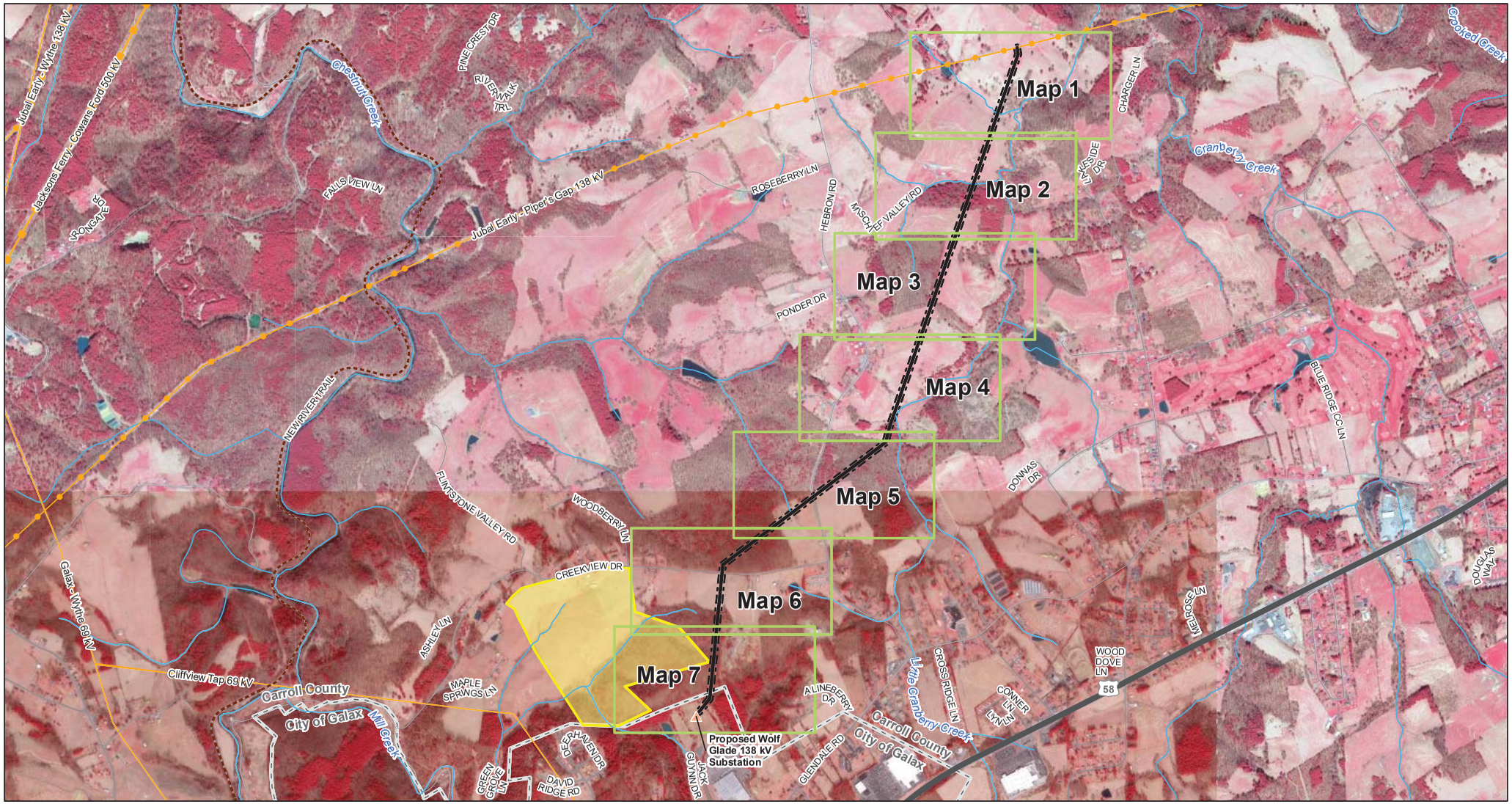

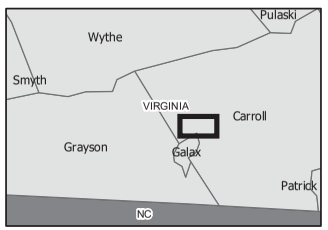

- Proposed Wolf Glade Substation
- Alternative Route C (138 kV)
- New River Trail
- Map Tile
- Alternative Route C ROW Corridor (100')
- U.S. Route
- Road
- Existing AEP Transmission Line (69 kV or lower)
- Existing AEP Transmission Line (115-230 kV)
- Existing AEP Transmission Line (345 kV +)
- Stream (NHD)
- VOF Easement

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

City of Galax and Carroll County, Virginia

0 750 1,500 3,000
Feet

1"= 1,500'

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Desktop Wetland and Stream Delineation Alternative Route C

Glendale Area Improvements Project

APPALACHIAN POWER
An AEP Company
BOUNDLESS ENERGY

Date: 10/30/2018;
Author: KK;
Project: 153273; P17160001

Imagery Layer Credit:
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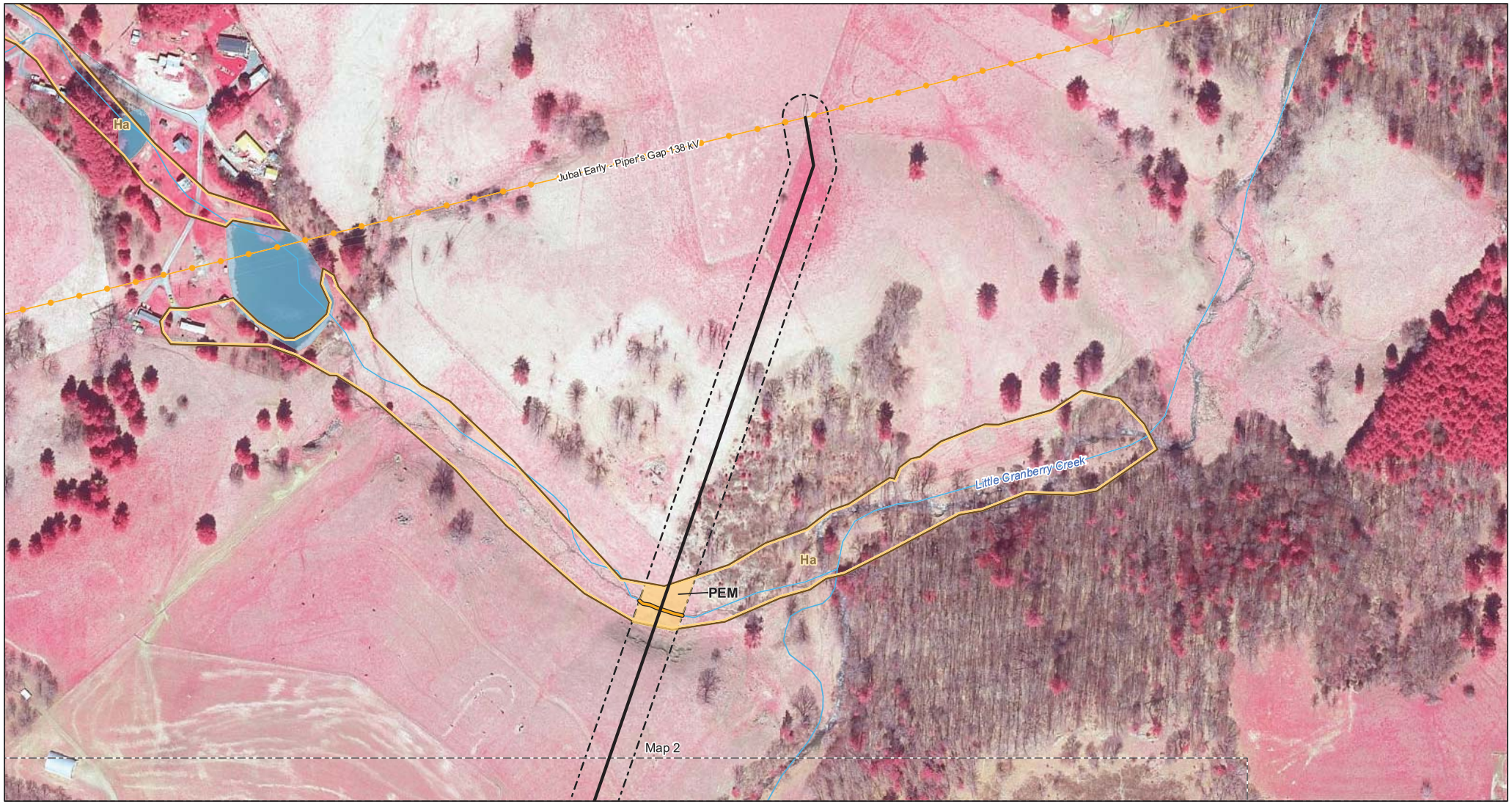

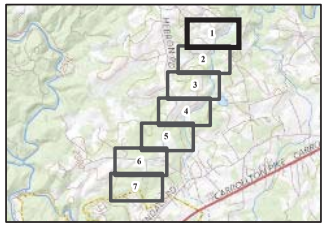

Alternative Route C (138 kV)
High Stream Probability
Hydric Inclusion Soils
High Wetland Probability
Map Tile
Alternative Route C ROW Corridor (100')
Road
Existing AEP Transmission Line (115-230 kV)
Stream (NHD)
Lake/Pond (NHD)

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

City of Galax and Carroll County, Virginia

0 50 100 200 300 400
Feet

1"= 200'

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Desktop Wetland and Stream Delineation Alternative Route C

Glendale Area Improvements Project

APPALACHIAN POWER
An AEP Company
BOUNDLESS ENERGY

Date: 10/30/2018;
Author: KK;
Project: 153273; P17160001

Imagery Layer Credit:
VBMP 2015 Infrared

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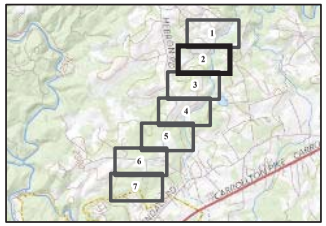

Alternative Route C (138 kV)

High Stream Probability

Hydric Inclusion Soils

Map Tile

Alternative Route C ROW Corridor (100')

Road

Stream (NHD)

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

City of Galax and Carroll County, Virginia

0 50 100 200 300 400
Feet

1"= 200'

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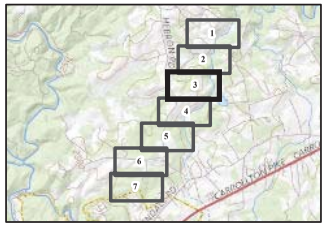
Desktop Wetland and Stream Delineation Alternative Route C

Glendale Area Improvements Project

APPALACHIAN POWER
An AEP Company
BOUNDLESS ENERGY

Date: 10/30/2018;
Author: KK;
Project: 153273; P17160001

Imagery Layer Credit:
VBMP 2015 Infrared



Alternative Route C (138 kV)

Hydric Inclusion Soils

Map Tile

Alternative Route C ROW Corridor (100')

Road

Stream (NHD)

Lake/Pond (NHD)

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

City of Galax and Carroll County, Virginia

0 50 100 200 300 400
Feet

1"= 200'

Desktop Wetland and Stream Delineation Alternative Route C

Glendale Area Improvements Project

APPALACHIAN POWER
An AEP Company
BOUNDLESS ENERGY

Date: 10/30/2018;
Author: KK;
Project: 153273; P17160001

Imagery Layer Credit:
VBMP 2015 Infrared

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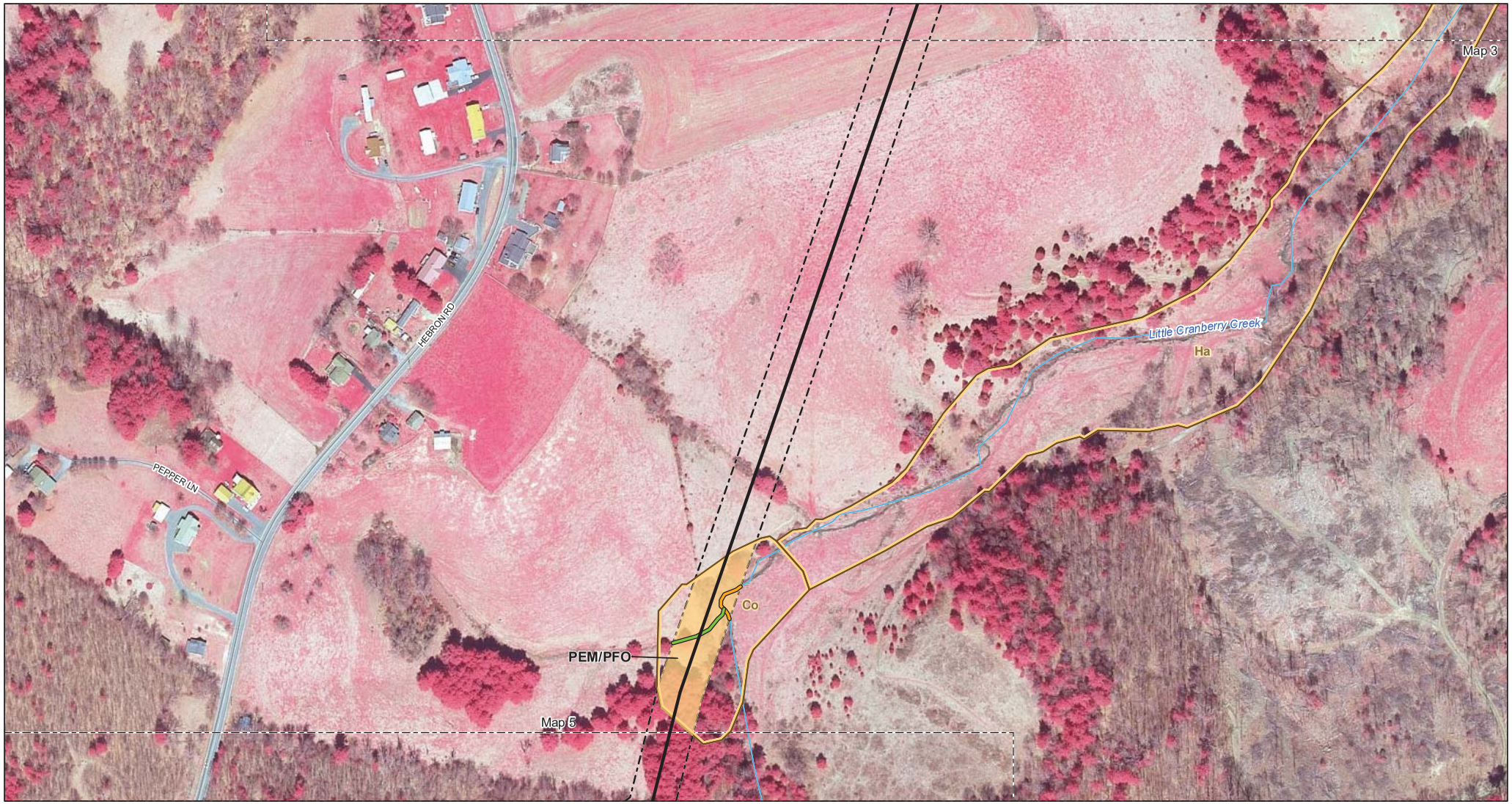
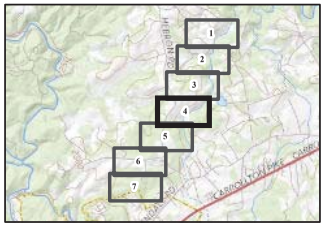




Alternative Route C (138 kV)
High Stream Probability
Moderate Stream Probability
Hydric Inclusion Soils
High Wetland Probability
Map Tile
Alternative Route C ROW Corridor (100')
Road
Stream (NHD)

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

City of Galax and Carroll County, Virginia

0 50 100 200 300 400
Feet

1"= 200'

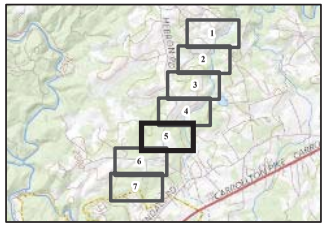
Desktop Wetland and Stream Delineation Alternative Route C

Glendale Area Improvements Project

APPALACHIAN POWER
An AEP Company
BOUNDLESS ENERGY

Date: 10/30/2018;
Author: KK;
Project: 153273; P17160001

Imagery Layer Credit:
VBMP 2015 Infrared



Alternative Route C (138 kV)
High Stream Probability
Hydric Inclusion Soils
High Wetland Probability
Map Tile
Alternative Route C ROW Corridor (100')
Road
Stream (NHD)

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

City of Galax and Carroll County, Virginia

0 50 100 200 300 400
Feet

1"= 200'

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Desktop Wetland and Stream Delineation Alternative Route C

Glendale Area Improvements Project

APPALACHIAN POWER
An AEP Company
BOUNDLESS ENERGY

Date: 10/30/2018;
Author: KK;
Project: 153273; P17160001

Imagery Layer Credit:
VBMP 2015 Infrared

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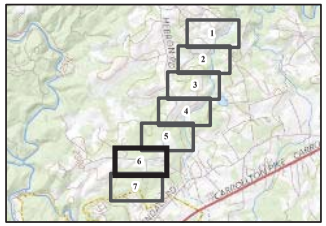

- Alternative Route C (138 kV)
- Low Stream Probability
- Hydric Inclusion Soils
- Map Tile
- Alternative Route C ROW Corridor (100')
- Road
- Stream (NHD)
- VOF Easement
- Lake/Pond (NHD)

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

City of Galax and Carroll County, Virginia

0 50 100 200 300 400
Feet

1"= 200'

Desktop Wetland and Stream Delineation Alternative Route C

Glendale Area Improvements Project

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Date: 10/30/2018;
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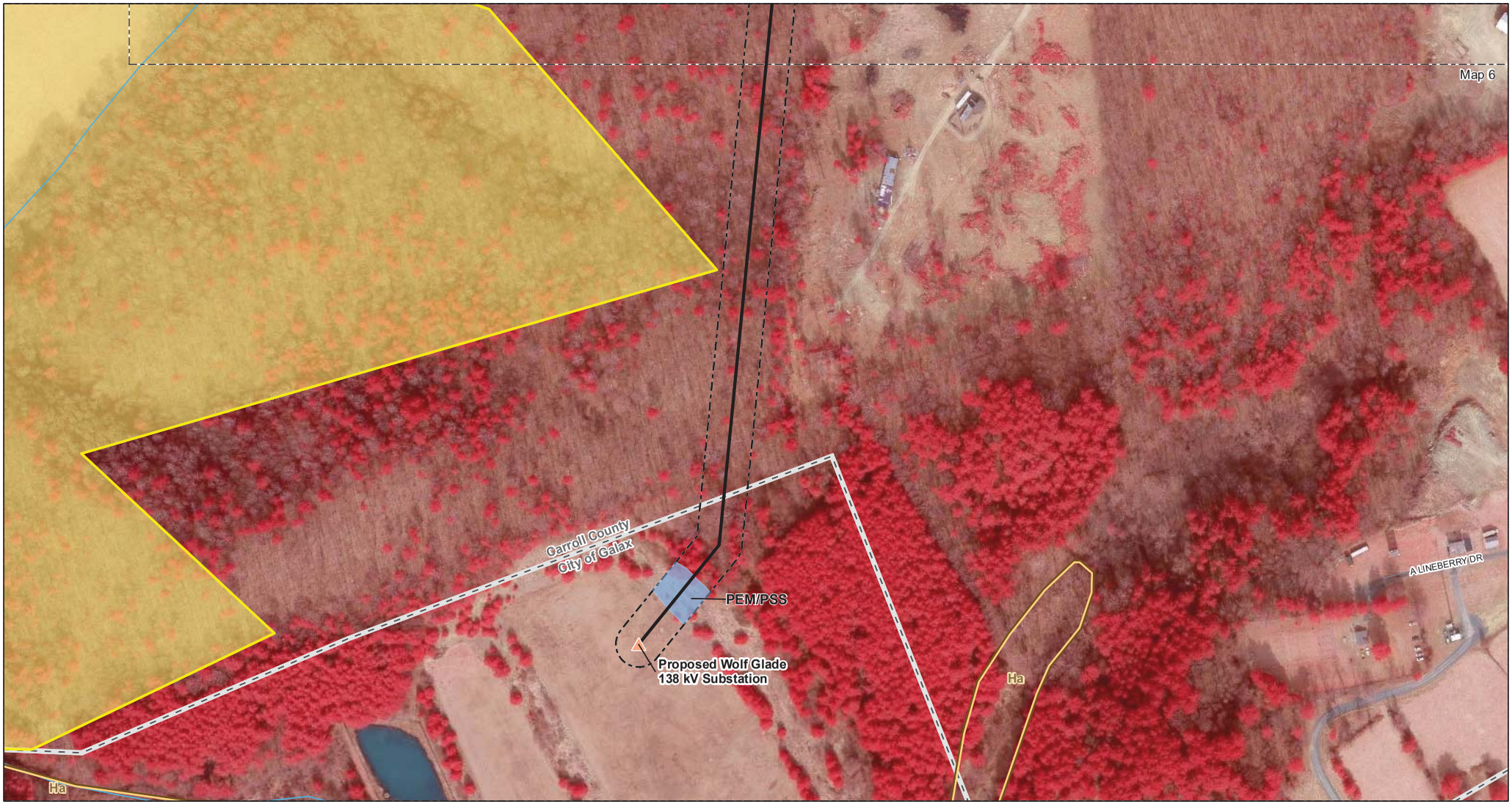
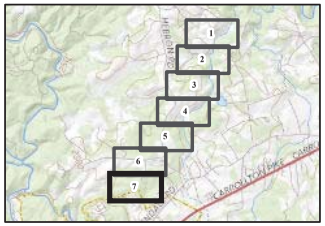
Imagery Layer Credit:
VBMP 2015 Infrared





- Proposed Wolf Glade Substation
- Alternative Route C (138 kV)
- Hydric Inclusion Soils
- Low Wetland Probability
- Map Tile
- Alternative Route C ROW Corridor (100')
- Road
- Stream (NHD)
- VOF Easement
- City/County Boundary

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

City of Galax and Carroll County, Virginia

0 50 100 200 300 400
Feet

1"= 200'

Page 7 of 7

Desktop Wetland and Stream Delineation Alternative Route C

Glendale Area Improvements Project

APPALACHIAN POWER
An AEP Company
BOUNDLESS ENERGY

Date: 10/30/2018;
Author: KK;
Project: 153273; P17160001

Imagery Layer Credit:
VBMP 2015 Infrared

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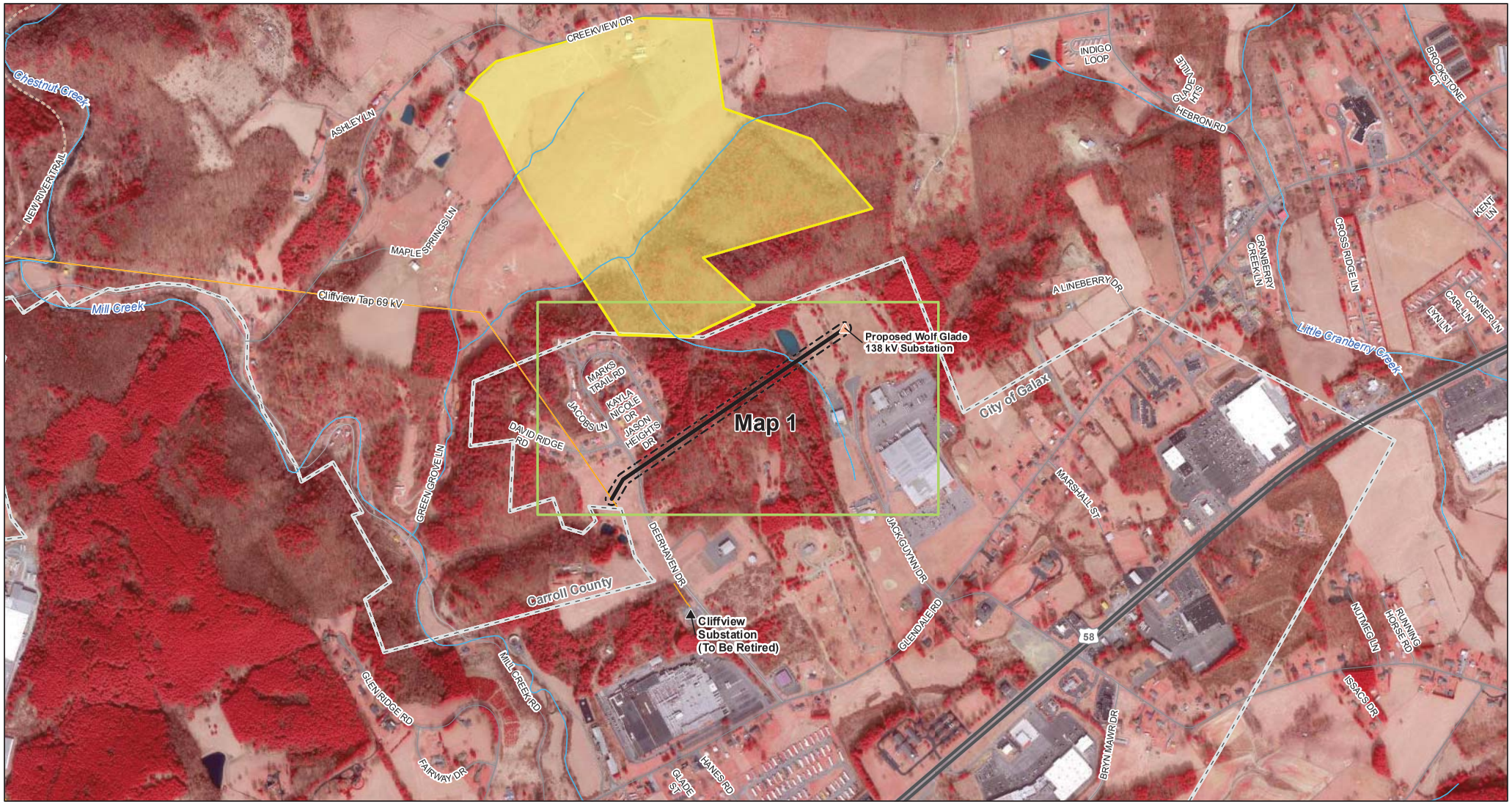

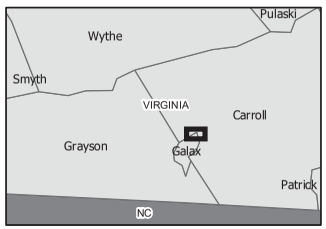

- Proposed Wolf Glade Substation
- Existing AEP Substation
- Proposed Cliffview 69 kV Tap
- New River Trail
- Map Tile
- Cliffview 69 kV Route ROW Corridor (100')
- U.S. Route
- Road
- Existing AEP Transmission Line (69 kV or lower)
- Stream (NHD)
- VOF Easement

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

City of Galax and Carroll County, Virginia

0 375 750 1,500
Feet

1"= 750'

Index

Desktop Wetland and Stream Delineation Proposed Cliffview 69 kV Tap

Glendale Area Improvements Project

APPALACHIAN POWER
An AEP Company
BOUNDLESS ENERGY

Date: 10/30/2018;
Author: KK;
Project: 153273; P17160001

Imagery Layer Credit:
VBMP 2015 Infrared

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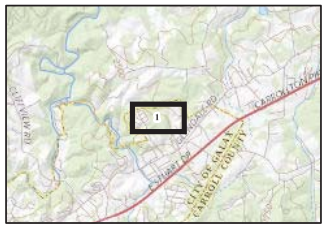

- Proposed Wolf Glade Substation
- Proposed Cliffview 69 kV Tap
- High Stream Probability
- Hydric Inclusion Soils
- High Wetland Probability
- Low Wetland Probability
- Moderate Wetland Probabilty
- Map Tile
- Cliffview 69 kV Route ROW Corridor (100')
- Road
- Existing AEP Transmission Line (69 kV or lower)
- Stream (NHD)
- VOF Easement
- City/County Boundary

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

City of Galax and Carroll County, Virginia

0 50 100 200 300 400
Feet

1"= 200'

Page 1 of 1

Desktop Wetland and Stream Delineation Proposed Cliffview 69 kV Tap

Glendale Area Improvements Project

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An AEP Company
BOUNDLESS ENERGY

Date: 10/30/2018;
Author: KK;
Project: 153273; P17160001

Imagery Layer Credit:
VBMP 2015 Infrared

ATTACHMENT 2.E.2:
VDEQ RESPONSE TO DESKTOP DELINEATION

COMMONWEALTH of VIRGINIA

DEPARTMENT OF ENVIRONMENTAL QUALITY
Street address: 1111 E. Main Street, Suite 1400, 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

December 11, 2018

Mr. Scott Kennedy, AEP
Appalachian Power Company
P.O. Box 2021
Roanoke, VA 24022

RE: Wetland Impact Consultation; Proposed Glendale Area Improvements Project, Carroll County and City of Galax, Virginia

Dear Mr. Kennedy:

In accordance with the Department of Environmental Quality-State Corporation Commission *Memorandum of Agreement Regarding Wetland Impact Consultation* (July 2003), we have reviewed the information submitted by Power Engineers, Inc. on behalf of Appalachian Power Company (here after, Appalachian Power) regarding potential wetland impacts on the above referenced project. The project proposes to construct a new overhead electric transmission line and new substation to increase the electric reliability in the Galax area in Virginia.

Based on review of the submitted wetland desktop report prepared for Appalachian Power by Power Engineers, Inc. both wetland areas and stream corridors were identified within the 100-foot right of way (ROW) of four proposed routes (Alternative Route A, Route B (the proposed route) and Alternative C for the Wolf Glad 138 kV extension. In addition, the report considers a proposed route for the Relocated Cliffview 69 kV Tap route.

Summary of Findings

According to the above-referenced offsite wetland desktop report, both wetland areas and stream corridors were identified within the project route. The approximate extent of these resources was derived from review of U.S. Geological Survey 7.5 Minute Series topographic quadrangles, National Wetland Inventory (NWI) maps, National Resource Conservation Service (NRCS) Web Soil Survey maps for the localities within the project corridor, digital ortho-rectified aerial photographs, and U.S. Geological Survey elevation and hydrography data. This report identifies nontidal wetlands and open water (nontidal streams and ponds) within the project route as shown in the table below:

Wetland Delineation Results

	Wolf Glade Alternative Route A		Wolf Glade Alternative Route B (Proposed Route)		Wolf Glade Alternative Route C		Relocated Cliffview 69 kV Tap Proposed Route	
Wetland Probability	# of Wetlands	Acreage	# of Wetlands	Acreage	# of Wetlands	Acreage	# of Wetlands	Acreage
High	4	1.40	3	1.03	3	1.42	1	0.02
Medium	5	1.31	1	0.34	0	0.00	1	0.34
Low	2	0.39	2	0.63	1	0.20	3	0.51

Stream Delineation Results

	Wolf Glade Alternative Route A		Wolf Glade Alternative Route B (Proposed Route)		Wolf Glade Alternative Route C		Relocated Cliffview 69 kV Tap Proposed Route	
Stream Probability	# of Streams	Linear	# of Streams	Linear	# of Streams	Linear	# of Streams	Linear
High	6	841	3	320	4	412	1	122
Medium	1	159	1	114	1	142	0	0
Low	0	0	2	304	1	104	0	0

Wetland and Stream Totals

	Wolf Glade Alternative Route A		Wolf Glade Alternative Route B (Proposed Route)		Wolf Glade Alternative Route C		Relocated Cliffview 69 kV Tap Proposed Route	
Totals	# of Wetlands and Streams	Acreage/ Linear	# of Wetlands and Streams	Acreage/ Linear	# of Wetlands and Streams	Acreage/ Linear	# of Wetlands and Streams	Acreage/ Linear
Wetlands	11	3.10 acres	6	2.00 acres	4	1.62 acres	5	0.87 acres
Streams	7	1,000 ft	6	738 ft	6	658 ft	1	122 ft

Based on the information provided, DEQ recommends Alternative Route C. DEQ recommends structures should be sited to avoid wetlands to the extent practicable and should be sited outside of stream channels. Timbering debris should not be placed in wetlands or streams. DEQ further recommends wetland and stream avoidance and minimization efforts, where practical, during project construction by: (1) spanning wetlands and streams, (2) maintaining 100-foot buffers along either side of streams, (3) placing support structure foundations outside of wetlands and streambeds, and (4) using removable mats in wetland areas to reduce compaction and rutting.

The DEQ Southwest Regional Office (SWRO) will make the final permitting decisions.

Recommendations and Potential Permits

Based upon review of the information provided by Dominion, we offer the following recommendations:

1. Prior to commencing project work, all wetlands and streams within the project corridor should be field delineated and verified by the U.S. Army Corps of Engineers (the Corps), using accepted methods and procedures.

2. Wetland and stream impacts should be avoided and minimized to the maximum extent practicable. Stream impacts should be minimized or avoided by spanning the transmission line across each stream. No foundations should be placed within streambeds. Where access is required across a wetland, removable mats should be used to reduce compaction and rutting. Towers should be placed avoid wetlands, wherever possible. To the extent where any footings must be installed in wetlands, each footing should occupy the minimum space necessary. When excavation for a structure is necessary in a wetland, excess spoil should not be disposed of in adjacent wetland areas unless authorized by a state or federal wetland permit.
3. If the scope of the project changes, additional review will be necessary by this office.
4. At a minimum, compensation for impacts to State Waters, if necessary, should be in accordance with all applicable state wetland regulations and wetland permit requirements, including the compensation for permanent conversion of forested wetlands to emergent wetlands.
5. Any temporary impacts to surface waters associated with this project should require restoration to pre-existing conditions.
6. No activity may substantially disrupt the movement of aquatic life indigenous to the water body, including those species, which normally migrate through the area, unless the primary purpose of the activity is to impound water. Culverts placed in streams must be installed to maintain low flow conditions. No activity may cause more than minimal adverse effect on navigation. Furthermore the activity must not impede the passage of normal or expected high flows and the structure or discharge must withstand expected high flows.
7. Erosion and sedimentation controls should be designed in accordance with the Virginia Erosion and Sediment Control Handbook, Third Edition, 1992. These controls should be placed prior to clearing and grading and maintained in good working order to minimize impacts to state waters. These controls should remain in place until the area is stabilized and should then be removed. Any exposed slopes and streambanks should be stabilized immediately upon completion of work in each permitted area. All denuded areas should be properly stabilized in accordance with the Virginia Erosion and Sediment Control Handbook, Third Edition, 1992.
8. No machinery may enter surface waters, unless authorized by a Virginia Water Protection (VWP) permit.
9. Heavy equipment in temporarily impacted surface waters should be placed on mats, geotextile fabric, or other suitable material, to minimize soil disturbance to the maximum extent practicable. Equipment and materials should be removed immediately upon completion of work.
10. Activities should be conducted in accordance with any Time-of-Year restriction(s) as recommended by the Department of Game and Inland Fisheries, the Department of Conservation and Recreation, or the Virginia Marine Resources Commission. The permittee should retain a copy of the agency correspondence concerning the Time-of-Year restriction(s), or the lack thereof, for the duration of the construction phase of the project.
11. All construction, construction access, and demolition activities associated with this project should be accomplished in a manner that minimizes construction materials or waste materials from entering surface waters, unless authorized by a permit. Wet, excess, or waste concrete should be prohibited from entering surface waters.
12. Herbicides used in or around any surface water should be approved for aquatic use by the United States Environmental Protection Agency (EPA) or the U.S. Fish & Wildlife Service. These herbicides should be applied according to label directions by a licensed herbicide applicator. A non-petroleum based surfactant should be used in or around any surface waters.

13. Consider mitigating impacts to forested or converted wetlands by establishing new forested wetlands within the impacted watershed.

Further, the following permits may be required:

1. If the project qualifies for a Nationwide Permit 12 (NWP 12) from the Corps, then a Virginia Water Protection (VWP) permit is not necessary. If the applicant does not obtain a NWP 12, then a VWP permit may be necessary.
2. If the project proposes permanent impacts to more than one-half (1/2) acre of wetlands, then a VWP permit will be required from DEQ.

Should you have any questions, please don't hesitate to contact me at 804-698-4007 or at **michelle.henicheck@deq.virginia.gov.**

Sincerely,

Michelle Henicheck

Michelle Henicheck, PWS
Senior Wetland Ecologist
Office of Wetlands & Stream Protection

Cc: Emily Larson, Power Engineers, Inc.
Mark Trent, DEQ - SWRO
Bettina Sullivan, DEQ - Office of Environmental Review

ATTACHMENT 2.F.1:
HAZARDOUS WASTE INFORMATION

Superfund

National Priorities List (NPL) Sites - by State

[View NPL Sites - by Site Name] | [View NPL Sites - by Date]

Choose a state or territory from the map or list below.

Virginia

This page provides information about sites on the NPL; including site name, city, site EPA ID, listing date, federal facility indicator, site narrative, site progress profile, and *Federal Register* Notice. Select a state from the map for a list of NPL sites in that state.

Virginia (31 sites)

Site Name	City	Site EPA ID	Listing Date	Site Score	Federal Facility Indicator	Additional Information	Site Location
Abex Corp.	Portsmouth	VAD980551683	08/30/1990	36.53	No	• Site Listing Narrative • Site Progress Profile • Federal Register Notice (PDF) (22 pp, 293 K)	Site Location
Arrowhead Associates, Inc./Scovill Corp.	Montross	VAD042916361	02/21/1990	37.15	No	• Site Listing Narrative • Site Progress Profile • Federal Register Notice (PDF) (21 pp, 326 K)	Site Location
Atlantic Wood Industries, Inc.	Portsmouth	VAD990710410	02/21/1990	37.14	No	• Site Listing Narrative • Site Progress Profile • Federal Register Notice (PDF) (21 pp, 326 K)	Site Location
Avtex Fibers, Inc.	Front Royal	VAD070358684	06/10/1986	35.39	No	• Site Listing Narrative • Site Progress Profile • Federal Register Notice (PDF) (34 pp, 369 K)	Site Location
Buckingham County Landfill	Buckingham	VAD089027973	10/04/1989	40.70	No	• Site Listing Narrative • Site Progress Profile • Federal Register Notice (PDF) (19 pp, 302 K)	Site Location
C & R Battery Co., Inc.	Chesterfield County	VAD049957913	07/22/1987	46.44	No	• Site Listing Narrative • Site Progress Profile • Federal Register Notice (PDF) (27 pp, 287 K)	Site Location

Chisman Creek	York County	VAD980712913	09/08/1983	47.19	No	• Site Listing Narrative • Site Progress Profile • Federal Register Notice (PDF) (36 pp, 441 K)	Site Location
Culpeper Wood Preservers, Inc.	Culpeper	VAD059165282	10/04/1989	45.91	No	• Site Listing Narrative • Site Progress Profile • Federal Register Notice (PDF) (19 pp, 302 K)	Site Location
Defense General Supply Center (DLA)	Chesterfield County	VA3971520751	07/22/1987	33.85	Yes	• Site Listing Narrative • Site Progress Profile • Federal Register Notice (PDF) (27 pp, 287 K)	Site Location
First Piedmont Corp. Rock Quarry (Route 719)	Pittsylvania County	VAD980554984	07/22/1987	30.16	No	• Site Listing Narrative • Site Progress Profile • Federal Register Notice (PDF) (27 pp, 287 K)	Site Location
Former Nansemond Ordnance Depot	Suffolk	VAD123933426	07/22/1999	70.71	No	• Site Listing Narrative • Site Progress Profile • Federal Register Notice (PDF) (8 pp, 183 K)	Site Location
Fort Eustis (US Army)	Newport News	VA6210020321	12/16/1994	50.00	Yes	• Site Listing Narrative • Site Progress Profile • Federal Register Notice (PDF) (13 pp, 100 K)	Site Location
Greenwood Chemical Co.	Newtown	VAD003125374	07/22/1987	53.17	No	• Site Listing Narrative • Site Progress Profile • Federal Register Notice (PDF) (27 pp, 287 K)	Site Location
H & H Inc., Burn Pit	Farrington	VAD980539878	03/31/1989	33.71	No	• Site Listing Narrative • Site Progress Profile • Federal Register Notice (PDF) (21 pp, 376 K)	Site Location
Hidden Lane Landfill	Sterling	VAD980829030	03/19/2008	50.00	No	• Site Listing Narrative • Site Progress Profile • Federal Register Notice (PDF) (9 pp, 214 K)	Site Location
Kim-Stan Landfill	Selma	VAD077923449	07/22/1999	50.00	No	• Site Listing Narrative • Site Progress Profile • Federal Register Notice (PDF) (8 pp, 183 K)	Site Location
L.A. Clarke & Son	Spotsylvania County	VAD007972482	06/10/1986	34.24	No	• Site Listing Narrative • Site Progress Profile • Federal Register Notice (PDF) (34 pp, 369 K)	Site Location
Langley Air Force Base/NASA Langley Research Center	Hampton	VA2800005033	05/31/1994	50.00	Yes	• Site Listing Narrative • Site Progress Profile • Federal Register Notice (PDF) (13 pp, 130 K)	Site Location
Marine Corps Combat Development Command	Quantico	VA1170024722	05/31/1994	50.00	Yes	• Site Listing Narrative • Site Progress Profile • Federal Register Notice (PDF) (13 pp, 130 K)	Site Location
Naval Amphibious Base Little Creek	Virginia Beach	VA5170022482	05/10/1999	50.00	Yes	• Site Listing Narrative • Site Progress Profile • Federal Register Notice (PDF) (8 pp, 189 K)	Site Location

Naval Surface Warfare - Dahlgren	Dahlgren	VA7170024684	10/14/1992	50.03	Yes	• Site Listing Narrative • Site Progress Profile • Federal Register Notice (PDF) (15 pp, 185 K)	Site Location
Naval Weapons Station - Yorktown	Yorktown	VA8170024170	10/14/1992	50.00	Yes	• Site Listing Narrative • Site Progress Profile • Federal Register Notice (PDF) (15 pp, 185 K)	Site Location
Naval Weapons Station Yorktown - Cheatham Annex	Williamsburg	VA3170024605	12/01/2000	49.27	Yes	• Site Listing Narrative • Site Progress Profile • Federal Register Notice (PDF) (8 pp, 272 K)	Site Location
Norfolk Naval Base (Sewells Point Naval Complex)	Norfolk	VA6170061463	04/01/1997	50.00	Yes	• Site Listing Narrative • Site Progress Profile • Federal Register Notice (PDF) (22 pp, 326 K)	Site Location
Norfolk Naval Shipyard	Portsmouth	VA1170024813	07/22/1999	50.00	Yes	• Site Listing Narrative • Site Progress Profile • Federal Register Notice (PDF) (8 pp, 183 K)	Site Location
Peck Iron and Metal	Portsmouth	VAN000306115	11/04/2009	48.52	No	• Site Listing Narrative • Site Progress Profile • Federal Register Notice (PDF) (8 pp, 164 K)	Site Location
Rentokil, Inc. (Virginia Wood Preserving Division)	Richmond	VAD071040752	03/31/1989	30.34	No	• Site Listing Narrative • Site Progress Profile • Federal Register Notice (PDF) (21 pp, 376 K)	Site Location
Saltville Waste Disposal Ponds	Saltville	VAD003127578	09/08/1983	29.52	No	• Site Listing Narrative • Site Progress Profile • Federal Register Notice (PDF) (36 pp, 441 K)	Site Location
Saunders Supply Co.	Chuckatuck	VAD003117389	10/04/1989	36.88	No	• Site Listing Narrative • Site Progress Profile • Federal Register Notice (PDF) (19 pp, 302 K)	Site Location
St. Juliens Creek Annex (U.S. Navy)	Chesapeake	VA5170000181	07/27/2000	50.00	Yes	• Site Listing Narrative • Site Progress Profile • Federal Register Notice (PDF) (9 pp, 275 K)	Site Location
U.S. Titanium	Piney River	VAD980705404	09/08/1983	34.78	No	• Site Listing Narrative • Site Progress Profile • Federal Register Notice (PDF) (36 pp, 441 K)	Site Location

- **You are here:** EPA Home
- Envirofacts
- SEMS
- Search Results

Search Results

Home

Multisystem Search

Topic Searches

System Data Searches

About the Data

Data Downloads

Widgets

Services

Mobile

Other Datasets

SEMS

Consolidated facility information (from multiple EPA systems) was searched to select facilities

<< Return

Search Parameters: County Name: CARROLL COUNTY
State Abbreviation: VA

Results are based on data extracted on AUG-13-2018

No Results found.

- **You are here:** EPA Home
- Envirofacts
- SEMS
- Search Results

Search Results

Home

Multisystem Search

Topic Searches

System Data Searches

About the Data

Data Downloads

Widgets

Services

Mobile

Other Datasets

SEMS

Consolidated facility information (from multiple EPA systems) was searched to select facilities

<< Return

Search Parameters: City Name: GALAX
State Abbreviation: VA

Results are based on data extracted on AUG-13-2018

No Results found.

Search Results

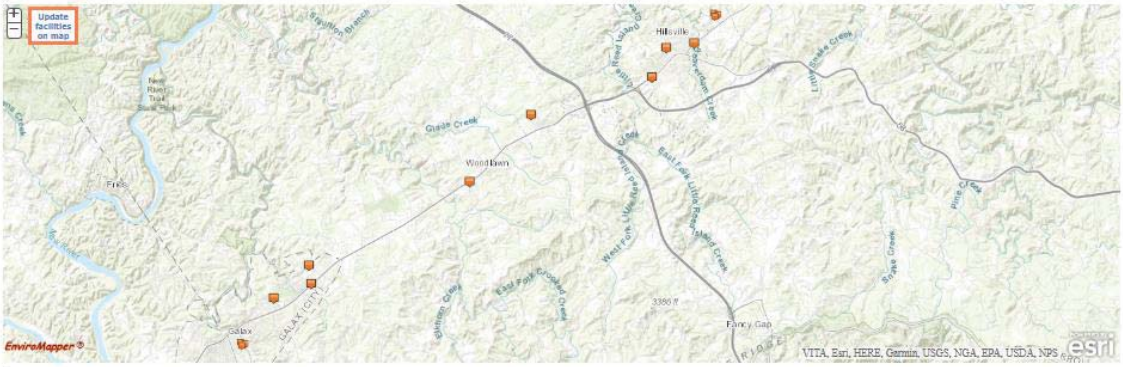
RCRAInfo

Only RCRAInfo facility information was searched to select facilities

<< Return

Search Parameters: County Name: CARROLL
State Abbreviation: VA
Sites: Only Active

Results are based on data extracted on SEP-26-2018



Print

Showing 1 to 10 of 20 entries

Show 10 entries

First Previous 1 2 Next Last

HANDLER ID	NAME	STREET	CITY	COUNTY	STATE	ZIP CODE	LATITUDE/LONGITUDE
VAR000500579	AEP WOODLAWN SERVICE CENTER	65 FOREST OAK RD.	WOODLAWN	CARROLL	VA	24381	36.71922/-80.82203
VAD002087435	BARKER MICROFARADS	205 MILL STREET	HILLSVILLE	CARROLL	VA	24343	36.765458/-80.737282
VAR000013748	CHEMICAL COATINGS INC	705 GIVENS ST	GALAX	CARROLL	VA	24333-0832	36.663652/-80.918314
VAD982698367	CONSOLIDATED GLASS & MIRROR LLC	110 JACK GUYNN DRIVE	GALAX	CARROLL	VA	24333	36.69036/-80.891443
VAR000521740	CVS PHARMACY #7308	915 WEST STUART DRIVE	HILLSVILLE	CARROLL	VA	24343	36.75549/-80.74359
VAD982710147	E. C. DODSON PLANT, VAUGHAN FUR CO., INC	47 POPLAR KNOB ROAD	GALAX	CARROLL	VA	24333	36.662746/-80.917838
VA0000136630	G & M MOTORS BODY SHOP	RT 1 BOX 157A	WOODLAWN	CARROLL	VA	24381	/
VA0000937193	J & W VALVE GRINDING SVC	104 COUNTRY CLUB LN	GALAX	CARROLL	VA	24333	36.679215/-80.906644
VAR000006437	JOHNSON JEFF CHEVROLET OLDS	RT 58 & RT 221	HILLSVILLE	CARROLL	VA	24343	36.776955/-80.715964
VAD982710204	LEE SARA KNIT PRODUCTS	CARROLL COUNTY IND PK	HILLSVILLE	CARROLL	VA	24343	36.789444/-80.838889
VAR000528489	SOUTHWESTERN VIRGINIA TRAINING CENTER	160 TRAINING CENTER ROAD	HILLSVILLE	CARROLL	VA	24343	36.74248/-80.7955
VAR000009902	SURRATTS BODY SHOP	PO BOX 838	HILLSVILLE	CARROLL	VA	24343	/
VAR000528760	TRACTOR SUPPLY #1175	1043 E. STUART DRIVE	GALAX	CARROLL	VA	24333	36.684167/-80.890241
VAD003124112	VAUGHAN BASSETT FURNITURE CO	EAST OLDTOWN ST	GALAX	CARROLL	VA	24333-1549	36.66184/-80.92041
VAD003124120	VAUGHAN FURNITURE TG VAUGHAN	100 T GEORGE VAUGHAN JR RD	GALAX	CARROLL	VA	24333	36.66399/-80.92339
VAP104201701	VDOT BRIDGE STRUCTURE 1011	ROUTE 221	DUGSPUR	CARROLL	VA	24325	/
VAD988221370	VDOT-FANCY GAP AREA HDQTRS	RT 777 1.5 MI NO INT RTS 52 &	FANCY GAP	CARROLL	VA	24328	/
VAD988221347	VDOT-HILLSVILLE SHOP & AREA HQ	RT 668 0.5 MI S INT RTS 52 &	HILLSVILLE	CARROLL	VA	24343	/
VAD988221339	VDOT-LAUREL AREA HDQTRS	RT 743 20 MI S INT RT 620 & 5	HILLSVILLE	CARROLL	VA	24343	36.776955/-80.715964
VAD136886702	WAYN-TEX, LLC	351 FLOYD PIKE	HILLSVILLE	CARROLL	VA	24343	36.767297/-80.725372

Form R

TRI

FORM R REPORTS

<< Return

ZIP Code Beginning With: 24333
Reporting Year Selected: 2017
Search Executed On: OCT-17-2018
Results are based on data extracted on: OCT-10-2018

LIST OF TRI FORM R FACILITIES IN ENVIROFACTS

Click on the TRI Facility ID to get the Form R Detailed Report.

TRI FACILITY ID	FACILITY NAME	ADDRESS
24333MRCNMPOBOX	WEBB ENTERPRISES LLC AMERICAN MIRROR	602 E STUART DR, GALAX, VA - 24333
24333CNSLD110JA	CONSOLIDATED GLASS & MIRROR LLC - PLANT 2	110 JACK GUYNN DR, GALAX, VA - 24333
24333VGHNBOLDTO	VAUGHAN-BASSETT FURNITURE CO GALAX	300 E GRAYSON ST, GALAX, VA - 24333

Total Number Of Facilities Found: 3

ATTACHMENT 2.G.1:
USFWS INFORMATION FOR PLANNING AND CONSULTATION REPORT

IPaC **U.S. Fish & Wildlife Service**

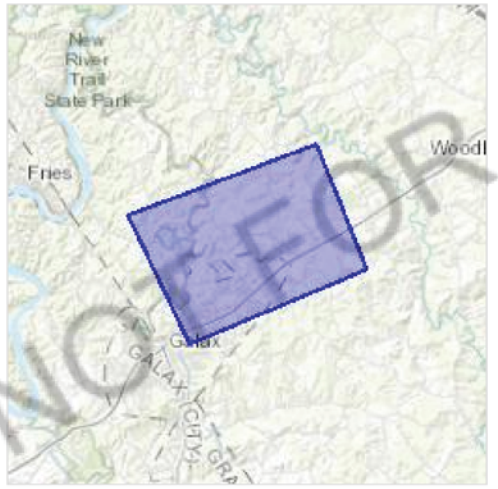
IPaC resource list

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

Carroll and Galax 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 species[1] 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 Fisheries[2]).

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

Indiana Bat Myotis sodalis — Endangered
There is **final** critical habitat for this species. Your location is outside the critical habitat.
https://ecos.fws.gov/ecp/species/5949

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

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 Act[1] and the Bald and Golden Eagle Protection Act[2].

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 Aug 31
Black-billed Cuckoo *Coccyzus erythropthalmus* This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/9399	Breeds May 15 to Oct 10
Black-capped Chickadee *Poecile atricapillus practicus* This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA	Breeds Apr 10 to Jul 31
Bobolink *Dolichonyx oryzivorus* This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.	Breeds May 20 to Jul 31
Canada Warbler *Cardellina canadensis* This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.	Breeds May 20 to Aug 10

Eastern Whip-poor-will Antrostomus vociferus — Breeds May 1 to Aug 20
This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.

Red-headed Woodpecker Melanerpes erythrocephalus — Breeds May 10 to Sep 10
This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.

Wood Thrush Hylocichla mustelina — Breeds May 10 to Aug 31
This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.

Yellow-bellied Sapsucker sphyrapicus varius — Breeds May 10 to Jul 15
This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA
https://ecos.fws.gov/ecp/species/8792

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.

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 E-bird Explore Data 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.

Please note that the NWI data being shown may be out of date. We are currently working to update our NWI data set. We recommend you verify these results with a site visit to determine the actual extent of wetlands on site.

This location overlaps the following wetlands:

FRESHWATER EMERGENT WETLAND

- PEM1Fh
- PEM1C
- PEM1B

FRESHWATER FORESTED/SHRUB WETLAND

- PSS1C
- PSS1A

FRESHWATER POND

- PUBHh
- PUBF

RIVERINE

- R5UBH
- R4SBC

A full description for each wetland code can be found at the National Wetlands Inventory website

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 tuberficid 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.

ATTACHMENT 2.G.2:
VDCR NATURAL HERITAGE REQUEST

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

August 28, 2018

Emily Larson
Power Engineers, Inc.
2920 West Broad Street, Suite 206
Richmond, VA 23230

Re: 153273, Glendale Area Improvements 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.

According to the information currently in our files, the Kanawha minnow (*Phenacobius teretulus*, G3G4/S2S3/NL/NL) has been historically documented in Chestnut Creek. The Kanawha minnow is endemic to the New River drainage occurring in North Carolina, West Virginia, and Virginia (Jenkins and Burkhead, 1993). It typically occurs in the runs and riffles of clear, moderate-gradient streams primarily over clean gravel and rubble substrates (Jenkins and Burkhead, 1993).

Threats to the Kanawha minnow include pollution, habitat alteration, and agricultural runoff (NatureServe, 2009). 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.

DCR also 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.

In addition, the proposed project will fragment a C5 core as identified in the Virginia ConservationVision. The Virginia ConservationVision is a GIS analysis for identifying and prioritizing conservation lands in Virginia.(http://www.dcr.virginia.gov/natural_heritage/vaconvision.shtml)

Cores are areas of unfragmented natural cover with at least 100 acres of interior condition and 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 carbon sequestration, along with the associated economic benefits of these functions. The cores are ranked form 1 to 5 (5 being the least ecological relevant) using many prioritization criteria, such as the number of natural heritage resources (i.e. rare species) occurring in a core.

Fragmentation occurs when a large, contiguous ecosystem is transformed into one or more smaller patches surrounded by disturbed areas resulting from the conversion and development. 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 (leaving round versus long, skinny fragments); by retaining connective corridors that allow significant migration between fragments; and by designing the intervening landscape to minimize its hostility to native wildlife (natural cover versus lawns).

There are no State Natural Area Preserves under DCR's jurisdiction in the project vicinity.

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.

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 $125.00 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. 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,

S. René Hypes
Project Review Coordinator

Literature Cited

Jenkins, R.E. and N.M. Burkhead. 1993. Freshwater fishes of Virginia. American Fisheries Society, Bethesda, Maryland. Pp. 340-341.

NatureServe. 2009. NatureServe Explorer: An online encyclopedia of life [web application]. Version 7.1. NatureServe, Arlington, Virginia. Available http://www.natureserve.org/explorer. (Accessed: June 22, 2010).

ATTACHMENT 2.G.3:
VDGIF SENSITIVE SPECIES LIST

VaFWIS Search Report Compiled on 10/16/2018, 1:53:41 PM

Help

Known or likely to occur within a **3 mile radius around point 36,42,58.6 -80,55,25.8** in **035 Carroll County, 077 Grayson County, 640 Galax City, VA**

View Map of Site Location

488 Known or Likely Species ordered by Status Concern for Conservation (displaying first 29) (29 species with Status* or Tier I** or Tier II**)

BOVA Code	Status*	Tier**	Common Name	Scientific Name
050067	FESE	Ic	Squirrel, Carolina northern flying	Glaucomys sabrinus coloratus
030061	FTSE	Ia	Turtle, bog (= Muhlenberg)	Clemmys muhlenbergii
050022	FTST	Ia	Bat, northern long-eared	Myotis septentrionalis
050020	SE	Ia	Bat, little brown	Myotis lucifugus
050027	SE	Ia	Bat, tri-colored	Perimyotis subflavus
040267	SE		Wren, Bewick's	Thryomanes bewickii
040096	ST	Ia	Falcon, peregrine	Falco peregrinus
040293	ST	Ia	Shrike, loggerhead	Lanius ludovicianus
060081	ST	IIa	Floater, green	Lasmigona subviridis
060140	ST	IIIb	Pistolgrip	Tritogonia verrucosa
040292	ST		Shrike, migrant loggerhead	Lanius ludovicianus migrans
010199	FPCC	Ib	Darter, candy	Etheostoma osburni
020020	CC	Ia	Hellbender, eastern	Cryptobranchus alleganiensis alleganiensis
030012	CC	IVa	Rattlesnake, timber	Crotalus horridus
040092		Ia	Eagle, golden	Aquila chrysaetos
040306		Ia	Warbler, golden-winged	Vermivora chrysoptera
050024		Ia	Myotis, eastern small-footed	Myotis leibii
050068		Ia	Squirrel, Virginia northern flying	Glaucomys sabrinus fuscus
100248		Ia	Fritillary, regal	Speyeria idalia idalia
020078		Ib	Salamander, Weller's	Plethodon welleri
040213		Ic	Owl, northern saw-whet	Aegolius acadicus
020011		IIa	Frog, mountain chorus	Pseudacris brachyphona
040052		IIa	Duck, American black	Anas rubripes
040320		IIa	Warbler, cerulean	Setophaga cerulea
040140		IIa	Woodcock, American	Scolopax minor
040203		IIb	Cuckoo, black-billed	Coccyzus erythropthalmus
040304		IIc	Warbler, Swainson's	Limnothlypis swainsonii
060004		IIc	Elktoe	Alasmidonta marginata
080003		IIc	Snaketail, pygmy	Ophiogomphus howei

To view **All 488 species** View 488

*FE=Federal Endangered; FT=Federal Threatened; SE=State Endangered; ST=State Threatened; FP=Federal Proposed; FC=Federal Candidate; CC=Collection Concern

**I=VA Wildlife Action Plan - Tier I - Critical Conservation Need; II=VA Wildlife Action Plan - Tier II - Very High Conservation Need; III=VA Wildlife Action Plan - Tier III - High Conservation Need; IV=VA Wildlife Action Plan - Tier IV - Moderate Conservation Need
Virginia Widlife Action Plan Conservation Opportunity Ranking:
a - On the ground management strategies/actions exist and can be feasibly implemented.;
b - On the ground actions or research needs have been identified but cannot feasibly be implemented at this time.;
c - No on the ground actions or research needs have been identified or all identified conservation opportunities have been exhausted.

Anadromous Fish Use Streams

N/A

Impediments to Fish Passage

N/A

Threatened and Endangered Waters (12 Reaches)

View Map of All Threatened and Endangered Waters

Stream Name	T&E Waters Species						View Map
	Highest TE*	BOVA Code, Status*, Tier**, Common & Scientific Name					
New River (0199252)	ST	060081	ST	IIa	Floater, green	Lasmigona subviridis	Yes
		060140	ST	IIIb	Pistolgrip	Tritogonia verrucosa	
New River (0201863)	ST	060081	ST	IIa	Floater, green	Lasmigona subviridis	Yes
		060140	ST	IIIb	Pistolgrip	Tritogonia verrucosa	
New River (0204175)	ST	060081	ST	IIa	Floater, green	Lasmigona subviridis	Yes
		060140	ST	IIIb	Pistolgrip	Tritogonia verrucosa	
New River (0204917)	ST	060081	ST	IIa	Floater, green	Lasmigona subviridis	Yes
		060140	ST	IIIb	Pistolgrip	Tritogonia verrucosa	
New River (0206440)	ST	060081	ST	IIa	Floater, green	Lasmigona subviridis	Yes
		060140	ST	IIIb	Pistolgrip	Tritogonia verrucosa	
New River (0212185)	ST	060081	ST	IIa	Floater,	Lasmigona	Yes

					green	subviridis	
		060140	ST	IIIb	Pistolgrip	Tritogonia verrucosa	
New River (0212869)	ST	060081	ST	IIa	Floater, green	Lasmigona subviridis	Yes
		060140	ST	IIIb	Pistolgrip	Tritogonia verrucosa	
New River (0213750)	ST	060081	ST	IIa	Floater, green	Lasmigona subviridis	Yes
		060140	ST	IIIb	Pistolgrip	Tritogonia verrucosa	
New River (0214833)	ST	060081	ST	IIa	Floater, green	Lasmigona subviridis	Yes
		060140	ST	IIIb	Pistolgrip	Tritogonia verrucosa	
New River (0215953)	ST	060081	ST	IIa	Floater, green	Lasmigona subviridis	Yes
		060140	ST	IIIb	Pistolgrip	Tritogonia verrucosa	
New River (0218892)	ST	060081	ST	IIa	Floater, green	Lasmigona subviridis	Yes
		060140	ST	IIIb	Pistolgrip	Tritogonia verrucosa	

To view **All 12 Threatened and Endangered Waters records** View 12

Managed Trout Streams (3 records)

View Map of All Trout Stream Surveys

Reach ID	Stream Name	Class	Brook Trout	Brown Trout	Rainbow Trout	View Map
04CRK-01	Crooked Creek	Wild trout	Y	Y		Yes
04DAL-01	Daniel Branch	Wild trout	Y			Yes
04LCB-01	Little Cranberry Creek	Wild trout	Y			Yes

Bald Eagle Concentration Areas and Roosts

N/A

Bald Eagle Nests

N/A

Habitat Predicted for Aquatic WAP Tier I & II Species (3 Reaches)

View Map Combined Reaches from Below of Habitat Predicted for WAP Tier I & II Aquatic Species

Stream Name	Tier Species							View Map
	Highest TE*	BOVA Code, Status*, Tier**, Common & Scientific Name						
Chestnut Creek (50500011)	ST	060081	ST	IIa	Floater, green	Lasmigona subviridis		Yes
Crooked Creek (50500011)	ST	060081	ST	IIa	Floater, green	Lasmigona subviridis		Yes
New River (50500011)	ST	060081	ST	IIa	Floater, green	Lasmigona subviridis		Yes
New River (50500011)	ST	060081	ST	IIa	Floater, green	Lasmigona subviridis		Yes
		060140	ST	IIIb	Pistolgrip	Tritogonia verrucosa		

Habitat Predicted for Terrestrial WAP Tier I & II Species

BOVA Code	Status*	Tier**	Common Name	Scientific Name	View Map
030061	FTSE	Ia	Turtle, bog (= Muhlenberg)	Clemmys muhlenbergii	Yes

Virginia Breeding Bird Atlas Blocks (2 records)

View Map of All Query Results
Virginia Breeding Bird Atlas Blocks

BBA ID	Atlas Quadrangle Block Name	Breeding Bird Atlas Species			View Map
		Different Species	Highest TE*	Highest Tier**	
23036	Austinville, SE	63		III	Yes
23024	Galax, CE	1		III	Yes

Public Holdings:

N/A

Summary of BOVA Species Associated with Cities and Counties of the Commonwealth of Virginia:

FIPS Code	City and County Name	Different Species	Highest TE	Highest Tier
035	Carroll	379	FTSE	I
077	Grayson	379	FTSE	I
640	Galax City	324	FTSE	I

USGS 7.5' Quadrangles:

Galax
Austinville
Woodlawn

USGS NRCS Watersheds in Virginia:

N/A

USGS National 6th Order Watersheds Summary of Wildlife Action Plan Tier I, II, III, and IV Species:

HU6 Code	USGS 6th Order Hydrologic Unit	Different Species	Highest TE	Highest Tier
NE16	New River-Eagle Bottom Creek	70	FTSE	I
NE17	Chestnut Creek	66	FTSE	I
NE18	New River-Brush Creek-Bournes Branch	70	FTSE	I
NE20	Crooked Creek-Cranberry Creek	64	FTSE	I

Compiled on 10/16/2018, 1:53:41 PM V939600.0 report=V searchType= R dist= 4828.032 poi= 36,42,58.6 -80,55,25.8

ATTACHMENT 2.I.1:
VDHR PRE-APPLICATION

POWER ENGINEERS, INC.

11733 CHESTERDALE ROAD
CINCINNATI, OHIO 45246 USA

PHONE 513-326-1500
FAX 513-326-1550

ENERGY
FACILITIES
COMMUNICATIONS
ENVIRONMENTAL

November 13, 2018
Roger Kirchen, Director
Review and Compliance Division
Virginia Department of Historic Resources
Deputy State Historic Preservation Officer
2801 Kensington Avenue
Richmond, Virginia 23221

Dear Mr. Kirchen,

POWER Engineers, Inc. (POWER), on behalf of the Appalachian Power Company (Appalachian Power), a unit of American Electric Power Company, Inc. (AEP), is submitting for your review a Pre-Application Analysis (analysis) of the proposed Glendale Area Improvements Project (Project) in the City of Galax and Carroll County, Virginia. The analysis was conducted in support of a Virginia State Corporation Commission (SCC) application to be filed in December of 2018 and completed in accordance with the Virginia Department of Historic Resources' (VDHR) *Guidelines for Assessing Impacts of Proposed Electric Transmission Lines and Associated Facilities on Historic Resources in the Commonwealth of Virginia* (2008).

The analysis was conducted for the Relocated Cliffview 69 kV Tap Proposed Route, the Wolf Glade 138 kV Extension Proposed Route (Alternative Route B), and two Wolf Glade 138 kV Extension Alternative Routes. For all four routes, there are no National Historic Landmarks located within 0.0 to 1.5 miles of the proposed centerline and no previously recorded or surveyed archaeological sites within the proposed right-of-ways. There are two resources within the tiered study areas upon which a field reconnaissance was conducted. The NRHP-eligible New River Trail State Park Historic District (VDHR # 077-5068) is located within 0.0 to 0.5 mile of and is crossed by Alternative Route A; however, it is not located within 0.0 to 0.5 mile of the Wolf Glade 138 kV Extension Proposed Route (Alternative Route B), Alternative Route C, or the Relocated Cliffview 69 kV Tap Proposed Route. The NRHP-listed A.G. Pless Jr. House (NRHP # 02000526) is located within 0.0 and 1.0 mile of all four routes. Based on a viewshed model and field reconnaissance as part of this analysis, there is a large hill located between the Project routes and the A.G. Pless Jr. House that will block the Project from being within view of the house.

AEP and POWER appreciate your timely review of the enclosed analysis. If you have any questions or concerns, please feel free to contact me via telephone at 513-326-1556 or via e-mail at lindsey.weeks@powereng.com.

Sincerely,

Lindsey R. Weeks
Midwest Cultural Area Lead, POWER Engineers, Inc.

Enclosure: Glendale Area Improvements Project Department of Historic Resources Pre-Application Analysis
cc: Scott Kennedy, AEP
Jared Webb, AEP

November 13, 2018

APPALACHIAN POWER COMPANY

Glendale Area Improvements Project
City of Galax and Carroll County, Virginia

Virginia Department of Historic Resources Pre-Application Analysis

PROJECT NUMBER:
153273.00.04

PROJECT CONTACT:
Ms. Lindsey Weeks
EMAIL:
Lindsey.weeks@powereng.com
PHONE:
1.513.326.1556

POWER ENGINEERS

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Virginia Department of Historic Resources Pre-Application Analysis

PREPARED FOR: APPALACHIAN POWER COMPANY

PREPARED BY:

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ACRONYMS AND ABBREVIATIONS

AEP	American Electric Power Company, Inc.
Appalachian Power	Appalachian Power Company
DEM	Digital elevation model
GIS	Geographic Information Systems
kV	kilovolt
NRHP	National Register of Historic Places
N&W	Norfolk and Western
POWER	POWER Engineers, Inc.
Project	Glendale Area Improvements Project
ROW	right-of-way
SCC	State Corporation Commission
US	United States
USGS	United States Geographic Systems
VDHR	Virginia Department of Historic Resources

EXECUTIVE SUMMARY

POWER Engineers, Inc. (POWER) conducted a Pre-Application Analysis (analysis) of the proposed Glendale Area Improvements Project (Project) in the City of Galax and Carroll County, Virginia. The analysis was performed on behalf of the Appalachian Power Company (Appalachian Power), a unit of American Electric Power Company, Inc. in support of a Virginia State Corporation Commission application. The analysis was conducted in accordance with Virginia Department of Historic Resources' (VDHR) *Guidelines for Assessing Impacts of Proposed Electric Transmission Lines and Associated Facilities on Historic Resources in the Commonwealth of Virginia* (2008), or simply *Guidelines.*

Appalachian Power is proposing to construct a new overhead electric transmission line and a new substation to increase the electric reliability for customers in the Galax area, Virginia. The Project consists of a new two mile double circuit 138 kilovolt (kV) transmission line (the "Wolf Glade 138 kV Extension"), a new 0.5 mile double circuit 69 kV transmission line (the "Relocated Cliffview 69 kV Tap"), and a new 138 kV substation (the "Wolf Glade 138 kV Substation"). The existing Cliffview 69 kV Substation will be retired and replaced with the new Wolf Glade 138 kV Substation in the City of Galax. The relocated 69 kV and new 138 kV transmission lines will extend from the existing Cliffview 69 kV Tap and the existing Jubal Early – Piper's Gap 138 kV Transmission Line, respectively, to the proposed Wolf Glade 138 kV Substation. A portion of the existing Cliffview 69 kV Tap and the Cliffview 69 kV Substation will be retired. The proposed Wolf Glade 138 kV Substation will be constructed on a 16.7-acre parcel located off of Jack Guynn Drive and northwest of the existing Cliffview 69 kV Substation. Other related transmission improvements and the retirement of associated transmission facilities will be included as part of the Project. Overall, the system upgrades and retirements will reduce the likelihood of customer outages.

Structure type may vary along the line route depending on the needs of the Project; however, the typical structure type used for the Project will be double circuit monopoles with davit arms for the shield wires. The transmission structures for the relocated 69 kV portion of the Project will be approximately 85 feet tall and the transmission structures for the new 138 kV portion will be approximately 110 feet tall. All transmission line components will be built within new 100-foot rights-of-way (ROWs). Tree clearing and pre-construction activities are expected to commence in February 2020 with the Project in service by June 2021.

The analysis was conducted for the Wolf Glade 138 kV Extension Proposed Route (Alternative B), two Alternative Routes (Alternative Route A and Alternative Route C), and the Relocated Cliffview 69 kV Tap Proposed Route. Background research was used to identify all previously recorded historic resources based on the tiered study areas outlined by the VDHR as defined below. Historic resources include architectural and archaeological (terrestrial and underwater) resources, historic and cultural landscapes, and historic districts. Resource documentation and current aerial photography was examined for each previously recorded historic resource from the VDHR.

DEFINITION OF TIERED RESOURCE STUDY AREA	
RADIAL BUFFER FROM THE PROPOSED CENTERLINE (MILES)	CONSIDERED RESOURCES
0.0 to 1.5	National Historic Landmarks
0.0 to 1.0	National Register of Historic Places (listed) Battlefields Historic landscapes (e.g. Rural HD)
0.0 to 0.5	National Register-eligible (determined by VDHR)
0.00 (within ROW)	Archaeological sites

There are two resources within the tiered study areas. These include the National Register of Historic Places (NRHP)-listed A.G. Pless Jr. House (NRHP # 02000526), located within 0.0 to 1.0 miles of all four routes, and the NRHP-eligible New River Trail State Park Historic District (VDHR # 077-5068) located within 0.0 to 0.5 mile of and crossed by Alternative Route A only. There are no National Historic Landmark's located within 0.0 to 1.5 miles of the four routes and no previously recorded archaeological sites within the proposed ROWs. There are also no NRHP-eligible properties within the 0.0 to 0.5 mile of the Wolf Glade 138 kV Extension Proposed Route (Alternative Route B), Alternative Route C, and Cliffview 69 kV Tap Proposed Route.

The A.G. Pless Jr. House is 0.5 mile southwest of the Cliffview 69 kV Proposed Route, 0.7 mile southwest of Alternative Route A, and 0.9 mile southwest of the Wolf Glade 138 kV Proposed Route (Alternative Route B) and Alternative Route C. The A.G. Pless Jr. House will not have a view of the Project based on topography and vegetation. There is a large hill located between the Project and the A.G. Pless Jr. House that will block the Project from being within view of the house. As such, POWER recommends that the Project will have no impact on the A.G. Pless Jr. House.

The New River Trail State Park Historic District is located within 0.0 to 0.5 mile and is crossed by Alternative Route A. No direct impacts to the historic district are anticipated and, due to the topography, the proposed transmission lines would span high above the historic district. Based on the tree cover, the proposed transmission line wires will likely only be visible from directly under or from close proximity to the proposed ROW. As such, POWER recommends that the Project will have a minimal, indirect impact that will not introduce any substantial changes to the viewshed or detract from the characteristics that make the New River Trail State Park Historic District eligible for the NRHP. A finding of no adverse effect is recommended.

1.0 INTRODUCTION

POWER Engineers, Inc. (POWER) conducted an analysis of the proposed Glendale Area Improvements Project (Project) in the City of Galax, Carroll County, Virginia (**Appendix A: Figure 1**). The analysis was performed on behalf of the Appalachian Power Company (Appalachian Power), a unit of American Electric Power Company, Inc. (AEP) in support of a Virginia State Corporation Commission (SCC) application. The analysis was conducted in accordance with the Virginia Department of Historic Resources' (VDHR) *Guidelines for Assessing Impacts of Proposed Electric Transmission Lines and Associated Facilities on Historic Resources in the Commonwealth of Virginia* (2008), or simply *Guidelines*.

The analysis was conducted to determine the potential impact of the Project on previously recorded historic resources that are eligible or listed, on the National Register of Historic Places (NRHP), as well as previously recorded archaeological sites located within the proposed rights-of way (ROWs) for the Wolf Glade 138 kilovolt (kV) Extension and Cliffview 69 kV Tap. Assessment of the potential impacts to unrecorded and/or historic resources that have not been evaluated for listing on the NRHP is not required as part of the pre-application process. If a federal undertaking is identified for the Project, this analysis will not satisfy Section 106 of the National Historic Preservation Act cultural resource identification and evaluation requirements. However, it can serve as a planning tool for Section 106 and assist in determining if further cultural resource identification efforts may be warranted.

This report contains a research design outlining the scope and methodology of the analysis, discussion of previously identified historic properties and an assessment of potential impacts. Dr. Karen Garrard, Ph.D., authored the report, Tanner Haynes, M.A., conducted the analysis, and Lindsey Weeks supervised all work.

2.0 PROJECT DESCRIPTION

The Project entails construction of a new two mile double circuit 138 kilovolt (kV) transmission line (the "Wolf Glade 138 kV Extension"), a new 0.5 mile double circuit 69 kV transmission line (the "Relocated Cliffview 69 kV Tap"), and a new 138 kV substation (the "Wolf Glade 138 kV Substation"). The existing Cliffview 69 kV Substation will be retired and replaced with the new Wolf Glade 138 kV Substation in the City of Galax. The relocated 69 kV and new 138 kV transmission lines will extend from the existing Cliffview 69 kV Tap and the existing Jubal Early – Piper's Gap 138 kV Transmission Line, respectively, to the proposed Wolf Glade 138 kV Substation. A portion of the existing Cliffview 69 kV Tap and the Cliffview 69 kV Substation will be retired. The proposed Wolf Glade 138 kV Substation will be constructed on a 16-acre parcel located off Jack Guynn Drive and northwest of the existing Cliffview 69 kV Substation. Other related transmission improvements and the retirement of associated transmission facilities will be included as part of the Project. Overall, the system upgrades and retirements will reduce the likelihood of customer outages.

Structure type may vary along the line route depending on the needs of the Project (**Appendix B**); however, the typical structure type used for the Project will be double circuit monopoles with davit arms for the shield wires. The transmission structures for the relocated 69 kV portion of the Project will be approximately 85 feet tall and the transmission structures for the new 138 kV portion will be approximately 110 feet tall. All transmission line Project components will be built within a new 100-foot ROW. Tree clearing and pre-construction activities for the Wolf Glade 138 kV Substation and Wolf Glade 138 kV Extension are expected to commence in February 2020 with the Project in service by June 2021.

3.0 STATEMENT OF SCOPE AND METHODOLOGY

3.1 Methods

The background research conducted as part of this analysis was designed to identify all previously recorded historic resources utilizing the tiered study areas outlined within VDHR's *Guidelines* and shown in Table 1.

TABLE 1 DEFINITION OF TIERED RESOURCE STUDY AREA

RADIAL BUFFER FROM THE PROPOSED CENTERLINE (MILES)	CONSIDERED RESOURCES
0.0 to 1.5	National Historic Landmarks
0.0 to 1.0	National Register of Historic Places (NRHP) (listed) Battlefields Historic landscapes (e.g., Rural Historic District)
0.0 to 0.5	NRHP-eligible (determined by Virginia Department of Historic Resources)
0.00 (within ROW)	Archaeological sites

Historic resources include architectural and archaeological (terrestrial and underwater) resources, historic and cultural landscapes, and historic districts. Resource documentation and current aerial photography was examined for each previously recorded historic resource.

The POWER personnel who conducted this analysis meet the professional qualification standards of the United States Department of the Interior (48 Federal Register 44738-9).

3.2 Archival Research

In October 2018, POWER conducted background research with the goal of identifying all previously recorded historic resources and any additional potentially historic resource locations referred to in historic documents and other archives, as well as consultation with local informants and other professionals with intimate knowledge of the region, as appropriate. Background research included review of the following sources:

- VDHR Architectural Survey Records (VDHR 2018a)
- VDHR Archaeological Site Records (VDHR 2018b)
- NRHP Inventory Nomination Forms

3.3 Field Reconnaissance

Based on VDHR's *Guidelines*, for each previously recorded historic resource that meets the criteria of the tiered study areas, a field reconnaissance was conducted to assess each resource's integrity of feeling, setting, and association, and to provide photo documentation of the property including views toward the proposed Project components. There are two resources within the tiered study areas upon which a field reconnaissance was conducted. These include the NRHP-listed A.G. Pless Jr. House (NRHP # 02000526), located within 0.0 to 1.0 miles of all four routes, and the NRHP-eligible New River Trail

State Park Historic District (VDHR # 077-5068) located within 0.0 to 0.5 mile and crossed by Alternative Route A only. There are no National Historic Landmark's located within 0.0 to 1.5 miles of the four routes and no previously recorded archaeological sites within the proposed ROWs. There are also no NRHP-eligible properties within the 0.0 to 0.5 mile of the Wolf Glade 138 kV Extension Proposed Route (Alternative Route B), Alternative Route C, and Cliffview 69 kV Tap Proposed Route.

The field reconnaissance included visual inspection of the two resources within the tired study area. Visual inspection included digital photo documentation of each property's existing conditions including its setting and views toward the Project. All photographs were taken from a point of public access and where feasible, photographs were taken of primary elevations, general setting, and existing viewsheds.

A viewshed analysis was also conducted to gain a better understanding of the potential visual impacts on the landscape. The viewshed analysis extends 1.5 miles to account for the tiered study area criteria. The viewshed was completed using Geographic Information Systems (GIS) software and publicly available data to determine the visibility of structures. Visibility of the Project was modeled using preliminary structure heights and locations based upon information engineers had at the time. The viewshed analysis was modeled without tree cover information to illustrate bare earth or worst-case conditions using the United States Geographic Systems (USGS) 10-meter digital elevation model (DEM) data. Vegetation was considered by digitizing blocks of tree cover or wooded areas using available aerial imagery and overlaying forest cover data on top of the elevation data to visually show where tree cover is present in the Project Area. Individual trees, areas of scattered tree cover, and field rows were not included in the digitized tree cover.

3.4 Assessment of Potential Impacts

Based on VDHR's *Guidelines,* the identification of previously recorded historic resources that meet the criteria of the tiered study areas, an assessment of the potential impacts of the Project for the resources identified was conducted. This entails consideration of those qualities and characteristics that qualify the property for listing on the NRHP and whether the Project has the potential to alter or diminish the integrity of the property and its associated significance. Impacts on historic properties can be direct (e.g., if a ROW crosses a historic property) as well as indirect (e.g., if a project adversely affects a significant viewshed of a historic property). Assessment of potential impacts to unrecorded and/or historic resources that have not been evaluated for listing on the NRHP is not required to be addressed as part of the SCC pre-application process.

3.5 Report Preparation

The results of the analysis were synthesized and summarized in this report along with supporting documentation (e.g., maps, photographs) as appropriate.

4.0 PREVIOUSLY IDENTIFIED HISTORIC PROPERTIES

The analysis was conducted for the Wolf Glade 138 kV Extension Proposed Route (Alternative Route B) and two Alternative Routes (Alternative Route A and Alternative Route C), and Cliffview 69 kV Tap Proposed Route. Table 2 provides a summary of considered resources utilizing the tiered study areas outlined within VDHR's *Guidelines*. There are two considered resources within the tiered study areas: the NRHP-listed A. G. Pless Jr. House (NRHP # 02000526), which is located within 0.0 to 1.0 mile of all four routes; and the NRHP-eligible New River Trail State Park Historic District (VDHR # 077-5068), which is located within 0.0 to 0.5 mile of and crossed by Alternative Route A (**Appendix A: Figure 2a**).

There are no National Historic Landmark's located within 0.0 to 1.5 miles of the four routes and no previously recorded archaeological sites within the proposed ROWs. There are also no NRHP-eligible properties within the 0.0 to 0.5 mile of the Wolf Glade 138 kV Extension, Proposed Route (Alternative Route B) or Alternative Route C, nor the Cliffview 69 kV Tap Proposed Route.

TABLE 2 CONSIDERED RESOURCES WITHIN TIERED STUDY AREAS

RADIAL BUFFER FROM THE PROPOSED CENTERLINE (MILES)	CONSIDERED RESOURCES	WOLF GLADE 138 KV EXTENSION ALTERNATIVE ROUTE B (PROPOSED ROUTE)	WOLF GLADE 138 KV EXTENSION ALTERNATIVE ROUTE A	WOLF GLADE 138 KV EXTENSION ALTERNATIVE ROUTE C	CLIFFVIEW 69 KV TAP PROPOSED ROUTE
0.0 to 1.5	National Historic Landmarks	None	None	None	None
0.0 to 1.0	National Register (listed) Historic landscapes (e.g. Rural HD)	NRHP # 02000526	NRHP # 02000526	NRHP # 02000526	NRHP # 02000526
0.0 to 0.5	National Register-eligible (determined by VDHR)	None	VDHR # 077-5068	None	None
0.00 (within ROW)	Archaeological sites	None	None	None	None

5.0 RESULTS OF FIELD RECONNAISSANCE

In accordance with the VDHR's *Guidelines*, each of the previously recorded historic properties either listed or determined eligible for listing in the NRHP located within 1.0 mile or 0.5 mile of the centerline were field verified, and photo documented. As noted, these historic properties include the NRHP-listed A.G. Pless Jr. House (NRHP # 02000526), located within 0.0 to 1.0 mile of all four routes, and the NRHP-eligible New River Trail State Park Historic District (VDHR # 077-5068), located within 0.0 to 0.5 mile of and crossed by Alternative Route A. The results of the field reconnaissance for each resource are summarized below.

A. G. Pless Jr. House (NRHP # 02000526)

The A.G. Pless Jr. House is located at 924 Glendale Road (Old US 58) in the eastern section of the City of Galax, Virginia. The property consists of a wood frame Colonial Revival home built in 1939 and detached garage built in 1941. The house features a two-story, side gabled main section with a two-story rear wing, one-story west wing, and one-story, shed roofed sun porch on the east. There are two flanking chimneys on either side of the main section of the house. Colonial Revival detailing includes beaded clapboard and backbanded moldings around the window and door casings. The house has box cornices with beaded frieze boards, carved modillion blocks, simple rakes, and copper ogee built-in gutters. The garage is also wood frame and gable ended and is similar in detailing to the main house. An English garden with a circular drive is located on the front and southwest side of the house and there are tennis court remnants located to the northeast. The house was designed by architect William Roy Wallace of Winston-Salem, North Carolina, for a local businessman and civic leader, Asbury Glenn Pless Jr. Wallace is known for his outstanding residential Colonial Revival designs in the North Carolina-Piedmont area and in southwestern Virginia during the first half of the twentieth century. The house sits on a lot that is approximately 1.7 acres in size and terraced on the east and north sides. The house fronts the Galax Municipal Golf Course, which was established during the 1940s, and the overall historical residential

setting is largely intact. In 2001, the property was listed on the NRHP under Criterion C because it embodies the distinctive characteristics of a type, period, or method of construction and represents the work of a master.

The location of the A.G. Pless Jr. House in relationship to the four routes is depicted in **Appendix A: Figure 3**. The property is 0.5 mile southwest of the Cliffview 69 kV Tap Proposed Route, 0.7 mile southwest of Alternative Route A, and 0.9 mile southwest of the Wolf Glade 138 kV Extension Proposed Route (Route B) and Alternative Route C. Photos 1 through 7 document the property and its setting; the location of each photo and the direction it faces is also keyed on **Appendix A: Figure 3**. Thick bushes and trees border the eastern and southern limits of the property and it was not possible to obtain an unobstructed view of the house and garage from a public roadway as permission to access the property was not granted at the time of the field reconnaissance.

The results of the viewshed analysis conducted for the Project are depicted on **Appendix A: Figures 2a through 2d**. In addition, **Appendix A: Figure 4** provides a photo simulation for the Project and depicts the topography and line of sight from the A.G. Pless Jr. House to the closet Project component.

The A.G. Pless Jr. House is not visible from the Wolf Glade 138 kV Extension Proposed Route (Alternative Route B), the two 138 kV Alternative Routes (Alternative Route A and Alternative Route C), nor the Cliffview 69 kV Tap Proposed Route based on topography and field review (**Appendix A: Figures 2a through 2d**). Based on field reconnaissance and available elevation data, there is a large hill located within the line of sight from the property to the Project that would block a view of the Project (**Appendix A: Figure 4).** As such, POWER recommends that the Project will have no impact on the NRHP-listed A.G. Pless Jr. House.

PHOTO 1. VIEW OF THE A.G. PLESS JR. HOUSE, MAIN AND SIDE ELEVATIONS, FACING NORTHEAST

PHOTO 2. PARTIAL VIEW OF THE A.G. PLESS JR. HOUSE, MAIN ELEVATION, FACING NORTHWEST

PHOTO 3. PARTIAL VIEW OF THE A.G. PLESS JR. HOUSE, SIDE ELEVATION, FACING SOUTHWEST

PHOTO 4. PARTIAL VIEW OF THE A.G. PLESS JR. HOUSE, NORTHERN PORTION OF PROPERTY, FACING WEST

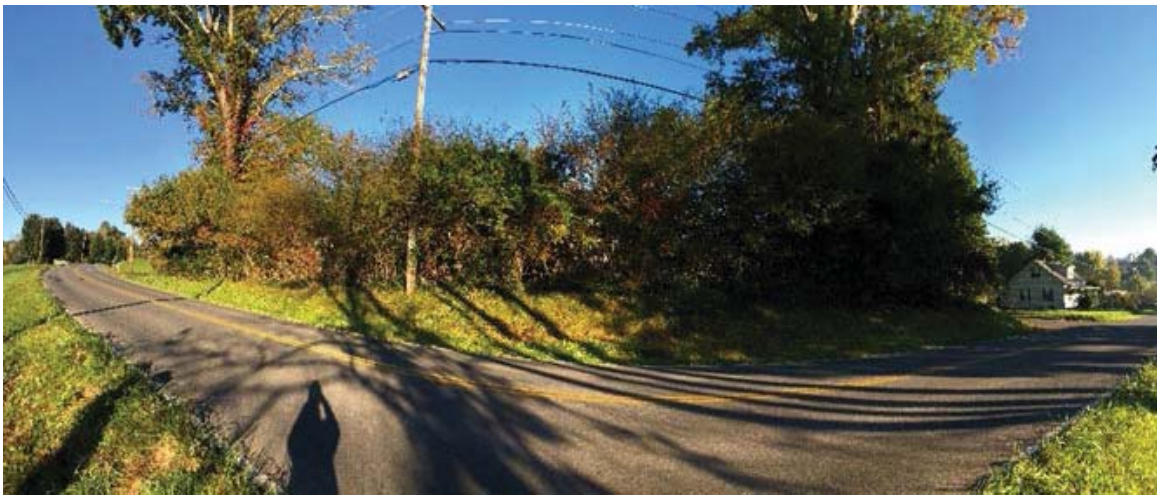


PHOTO 5. PANORAMIC VIEW ALONG GLENDALE ROAD (OLD US 58) AND MILL CREEK ROAD AND SHOWING THE THICK BUSHES AND TREES BORDERING THE A.G. PLESS JR. HOUSE, FACING WEST

PHOTO 6. PANORAMIC VIEW ALONG GLENDALE ROAD (OLD US 58), FACING SOUTHWEST

PHOTO 7. PANORAMIC VIEW TAKEN FROM NEAR THE NORTHEASTERN CORNER OF THE A.G. PLESS JR. HOUSE PROPERTY BOUNDARY, FACING NORTHEAST TOWARDS PROJECT NEW RIVER TRAIL STATE PARK HISTORIC DISTRICT (VDHR # 077-5068)

The NRHP-eligible New River Trail State Park Historic District (VDHR # 077-5068) is located within 0.0 to 0.5 mile of and crossed by Alternative Route A (**Appendix A: Figure 2a**). The historic district is over 0.5 mile from the remaining routes and is not a considered resource according to VDHR's Guidelines. The 57.7-miles long historic district is typically 80 feet in width and extends through portions of the City of Galax and Carroll, Grayson, Pulaski, and Wythe counties, Virginia. It encompasses the former North Carolina Branch of the Norfolk and Western (N&W) Railway and associated extant structures (trestles, culverts, bridges, depots, and related buildings). From its northern terminus in Dora Junction (two miles southeast of the Town of Pulaski), the historic district parallels the New River for 39 miles southward and then follows along Chestnut Creek (the former Galax Fries branch of the Radford Division of the railroad) to the City of Galax. The historic district passes through rural and agricultural lands, several towns and small villages, and extensive wooded areas. Beginning in the 1980s, the former N&W railbed was converted to the multi-use New River Trail and designated a National Recreation Trail by the United States Department of the Interior.

The North Carolina Branch of the N&W Railway is historically significant as the primary source of transportation for both people and natural resources in southwestern Virginia during the late nineteenth and mid-twentieth centuries. Construction of the railroad began in the 1880s to provide rail services for the iron and lead mining and production operations of the region. From Dora Junction, the railroad reached to the City of Galax by 1904 with both passenger and freight services. Due to the rough terrain of southwestern Virginia, the N&W Railway developed powerful engines to haul resources through the mountains. The massive steam engines of the N&W were engineering feats, moving raw materials over some of the steepest mountains ever traversed by train. When the mines of southwestern Virginia began

closing in the early twentieth century, the importance of the railroad declined. The North Carolina Branch of the N&W Railway ceased operations in 1985. In 2001, The VDHR determined that the historic district was eligible for the NRHP under Criterion A for the railway's contributions to the broad patterns of history in southwestern Virginia, most notably in the areas of transportation and industry. A subsequent 2013 re-evaluation is listed on the historic district's VDHR inventory form that states that it appeared to possess sufficient integrity to retain this status.

Appendix A: Figure 5 depicts the location of the New River Trail State Park Historic District in relationship to Alternative Route A. Alternative Route A crosses the Galax Fries Branch portion of the historic district in a northwest-southeast direction. The Galax Fries Branch portion of the historic district has historically been known for iron ore mining. Photos 8 through 10 document the historic district and its setting; the location of each photo and the direction it faces is also keyed on **Appendix A: Figure 5.** Due to the extensive length of the historic district and rugged terrain of the general area, photo documentation was limited to the vicinity of the Alternative Route A crossing. In the vicinity of Alternative Route A, the historic district passes through deciduous woods on the western side of Chestnut Creek. Its historical setting is considered to be largely intact and there is generally little to no view of any modern structures or intrusions due to the tree canopy and intervening topography.

The results of the viewshed analysis conducted for Alternative Route A are depicted **on Appendix A: Figure 2a**. In addition, **Appendix A: Figure 6** provides a photo simulation for Alternative Route A and depicts the topography and line of sight from the historic district to the route. Based on available and approximate elevation data, the top of the transmission line wires would be approximately 300 feet above the trail bed.

The closest preliminary structure locations for Alternative Route A are situated approximately 515 feet northwest and 960 feet southeast of where the route crosses the historic district (**Appendix A: Figure 6**). Due to the topography where the proposed transmission line would cross, Alternative Route A would span high above the historic district and it is considered unlikely that tree clearing would be required down to the footpath of the trail. As such, no direct impacts to the historic district are anticipated. Based on the tree cover, the transmission line wires will likely only be visible from directly under or from close proximity to the proposed ROW (**Appendix A: Figure 6**). As such, POWER recommends that Alternative Route A would have a minimal, indirect impact that will not introduce any substantial changes to the viewshed or detract from the characteristics that make the New River Trail State Park Historic District eligible for the NRHP. A finding of no adverse effect is recommended. If a Federal undertaking has been identified for the Project, and if the historic district will be impacted, then consultation with the VDHR will be undertaken.

PHOTO 8. VIEW OF THE NEW RIVER TRAIL HISTORIC DISTRICT, FACING SOUTHWEST

PHOTO 9. VIEW OF THE NEW RIVER TRAIL HISTORIC DISTRICT, FACING SOUTHWEST

PHOTO 10. VIEW OVERLOOKING THE CHESTNUT CREEK WITHIN THE NEW RIVER HISTORIC DISTRICT, FACING SOUTH

6.0 SUMMARY

The analysis was conducted to determine the potential impact of the Project on previously recorded historic resources that are eligible or are listed on the NRHP, as well as previously recorded archaeological sites located within the Project's potential ROW. The analysis was conducted for the Wolf Glade 138 kV Extension Proposed Route (Alternative Route B), two 138 kV Alternative Routes (Alternative Route A and Alternative Route C), and Cliffview 69 kV Tap Proposed Route. Background research was used to identify all previously recorded historic resources based on the tiered study areas outlined by the VDHR.

There are no National Historic Landmarks located within 0.0 to 1.5 miles of the four routes and no previously recorded archaeological sites within the proposed ROWs. There are also no NRHP-eligible properties within 0.0 to 0.5 mile of the Wolf Glade 138 kV Extension Proposed Route (Alternative Route B), Alternative Route C, or the Cliffview 69 kV Tap Proposed Route.

The NRHP-listed A.G. Pless Jr. House is within 0.0 and 1.0 mile of all four routes (Wolf Glade 138 kV Alternatives and the Cliffview 69 kV Proposed Route). The property will not have a view of the Project based on topography. Based on a viewshed model and field reconnaissance, there is a large hill located between the Project routes and the A.G. Pless Jr. House that will block the Project from being within view of the house. As such, POWER recommends that the Project will have no impact on the A.G. Pless Jr. House.

The NRHP-eligible New River Trail State Park Historic District is located within 0.0 to 0.5 mile of and is crossed by Alternative Route A. The NRHP-eligible New River Trail State Park Historic District is not

crossed or within 0.0 to 0.5 mile of the Wolf Glade 138 kV Extension Proposed Route, Alternative Route C, nor the Cliffview 69 kV Tap Proposed Route. No direct impacts to the historic district are anticipated and, due to the topography, the proposed transmission lines would span high above the historic district. Based on the tree cover, the proposed transmission line wires will likely only be visible from directly under or from close proximity to the proposed ROW. As such, POWER recommends that Alternative Route A will have a minimal, indirect impact that will not introduce any substantial changes to the viewshed or detract from the characteristics that make the New River Trail State Park Historic District eligible for the NRHP. A finding of no adverse effect is recommended. If a federal undertaking is identified and if the historic district will be impacted by the Project, then consultation with the VDHR will be undertaken.

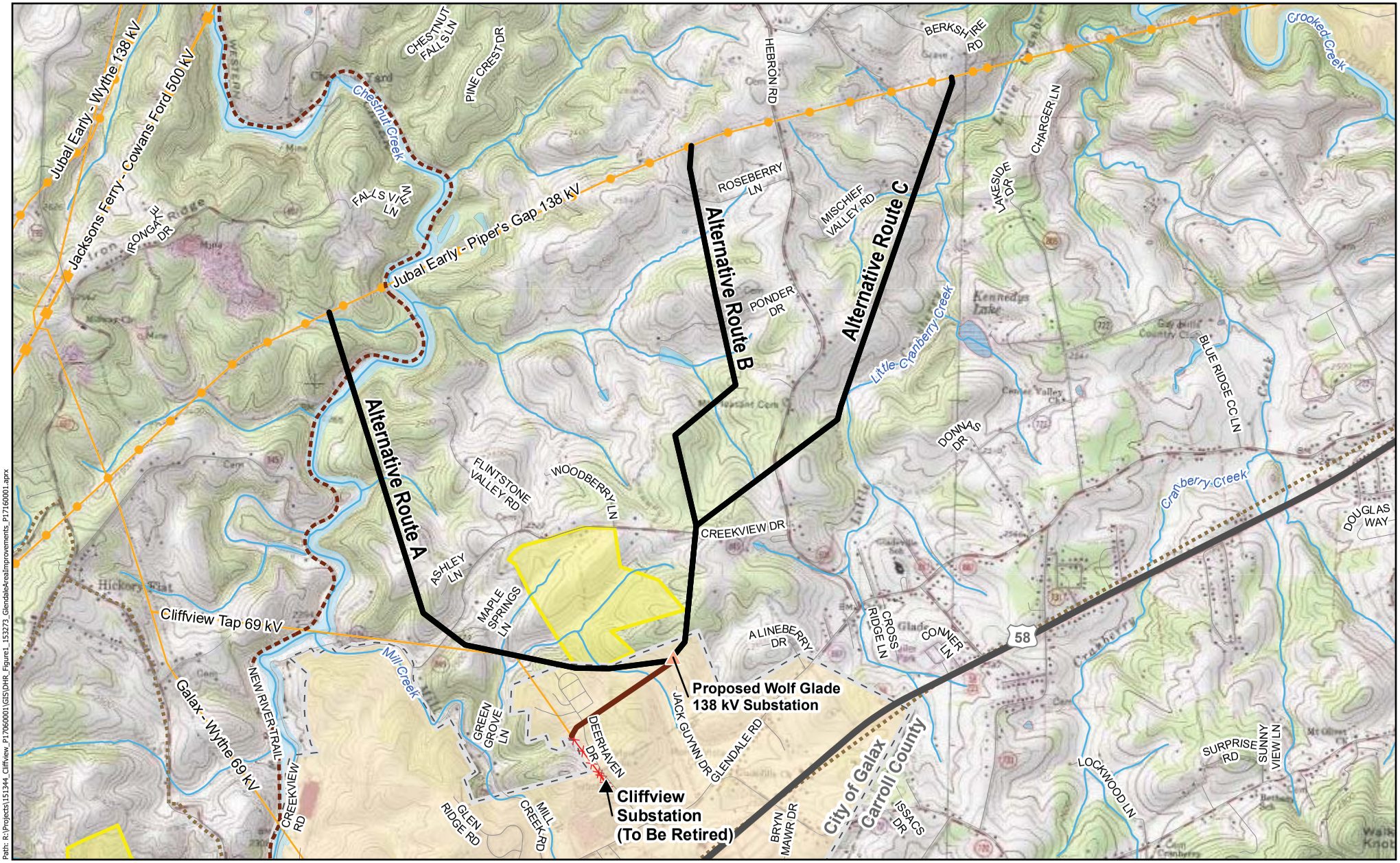
7.0 REFERENCES

Virginia Department of Historic Resources (VDHR). 2008. *Guidelines for Assessing Impacts of Proposed Electric Transmission Lines and Associated Facilities on Historic Resources in the Commonwealth of Virginia.*

_____. 2018a. Architectural Survey Records. Available online at https://vcris.dhr.virginia.gov/vcris/Account/Login?ReturnUrl=%2fvcris%2f. Accessed October 2018.

_____. 2018b. Archaeology Site Files. Available online at https://vcris.dhr.virginia.gov/vcris/Account/Login?ReturnUrl=%2fvcris%2f. Accessed October 2018.

APPENDIX A PROJECT FIGURES



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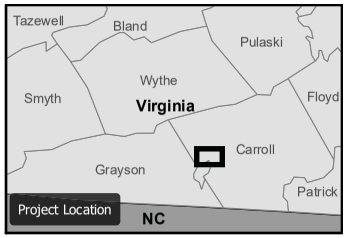
- Proposed Wolf Glade Substation
- Existing AEP Substation
- New River Trail
- Alternative Route (138 kV)
- Proposed Cliffview 69 kV Tap
- U.S. Route
- Secondary Route/ Urban Road
- Recreation Trail
- Existing AEP Transmission Line (69 kV or lower)
- Existing AEP Transmission Line (115-230 kV)
- Existing AEP Transmission Line (345 kV +)
- Stream (NHD)
- City/County Boundary
- VOF Easement
- Lake/Pond (NHD)
- 100-year Floodplain
- City Boundary
- Existing 69 kV Transmission Line to be Removed

1" =2,500'

0 500 1,000 1,500

Feet



Glendale Area Improvements Project

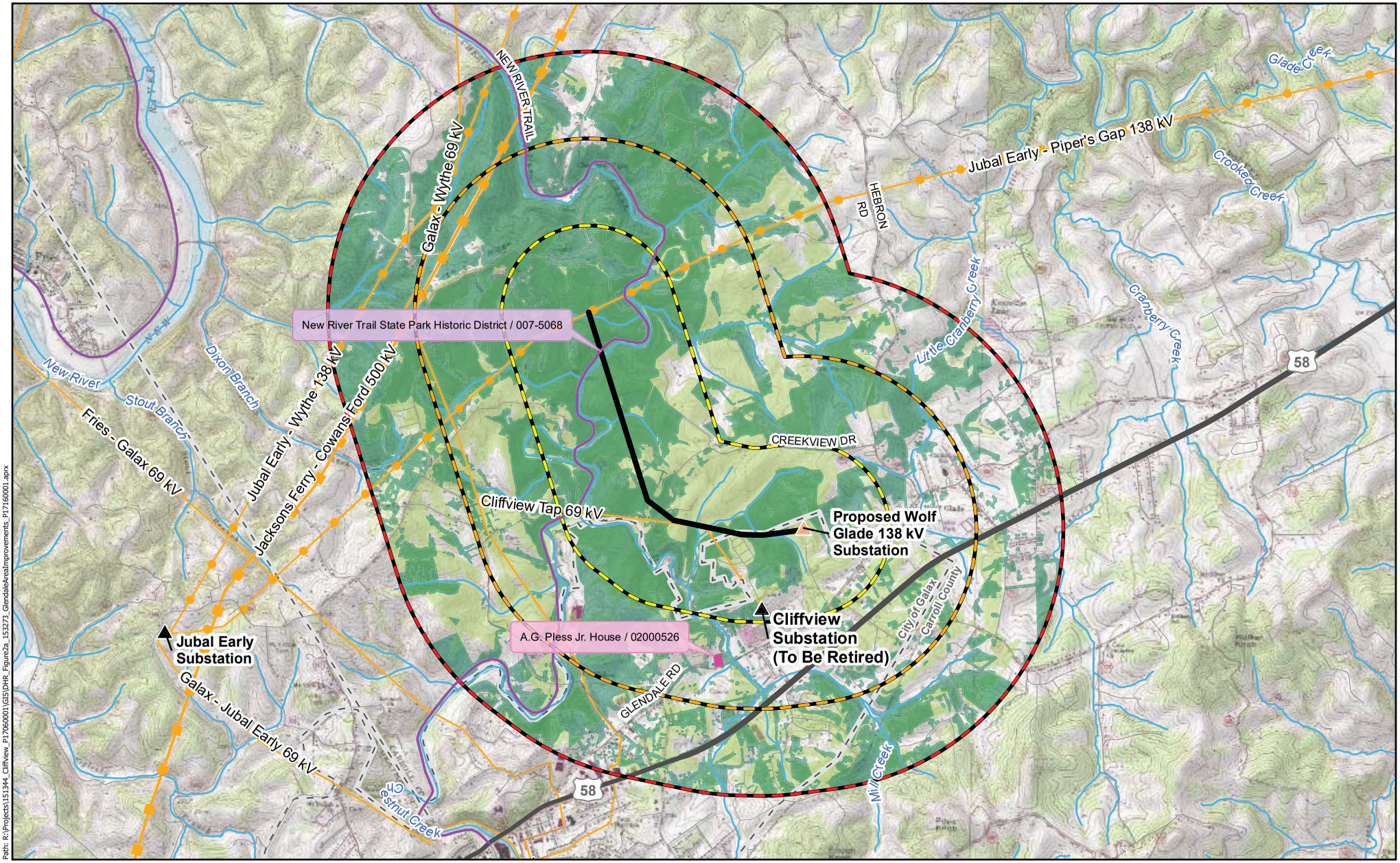
City of Galax and Carroll County Virginia

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

Date: 10/31/2018
Author: KK
POWER: 153273; P17160001

Figure 1: DHR Pre-Application Review

APPALACHIAN POWER
An AEP Company
BOUNDLESS ENERGY



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- Proposed Wolf Glade Substation
- Existing AEP Substation
- Alternative Route (138 kV)
- U.S. Route
- State Route
- Secondary Route/ Urban Road
- Existing AEP Transmission Line (69 kV or lower)
- Existing AEP Transmission Line (115-230 kV)
- Existing AEP Transmission Line (345 kV +)
- Stream (NHD)
- City/County Boundary
- NRHP-Listed Property
- NRHP-Eligible Property
- 0.5 Mile Buffer
- 1 Mile Buffer
- 1.5 Miles Buffer

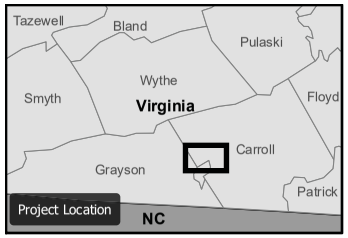
Viewshed Analysis

- Visible from Transmission Structure (No Tree Canopy)
- Digitized Tree Cover

1" =4,000'

0 1,000 2,000 3,000

Feet



Glendale Area Improvements Project

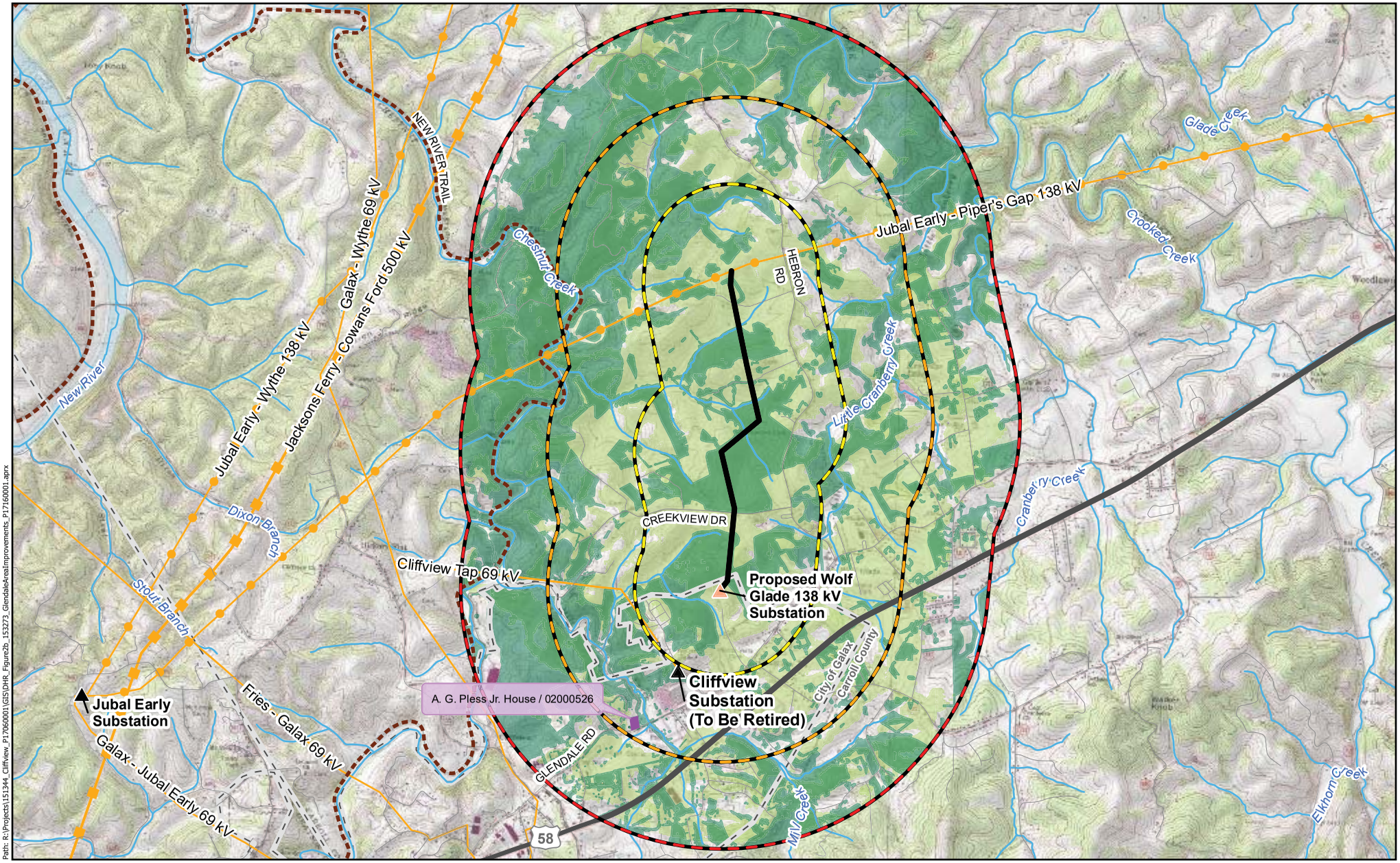
City of Galax and Carroll County Virginia

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

Date: 10/31/2018
Author: KK
POWER: 153273; P17160001

Figure 2a: Alternative Route A

APPALACHIAN POWER
An AEP Company
BOUNDLESS ENERGY



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- Proposed Wolf Glade Substation
- Existing AEP Substation
- New River Trail
- Alternative Route (138 kV)
- U.S. Route
- Secondary Route/ Urban Road
- Existing AEP Transmission Line (69 kV or lower)
- Existing AEP Transmission Line (115-230 kV)
- Existing AEP Transmission Line (345 kV +)
- Stream (NHD)
- City/County Boundary
- NRHP-Listed Property
- 0.5 Mile Buffer
- 1 Mile Buffer
- 1.5 Miles Buffer

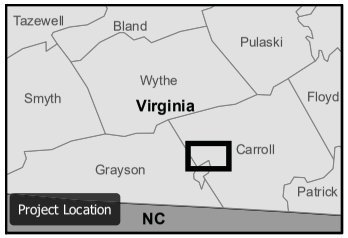
Viewshed Analysis

- Visible from Transmission Structure (No Tree Canopy)
- Digitized Tree Cover

1" =4,000'

0 1,000 2,000 3,000

Feet



Glendale Area Improvements Project

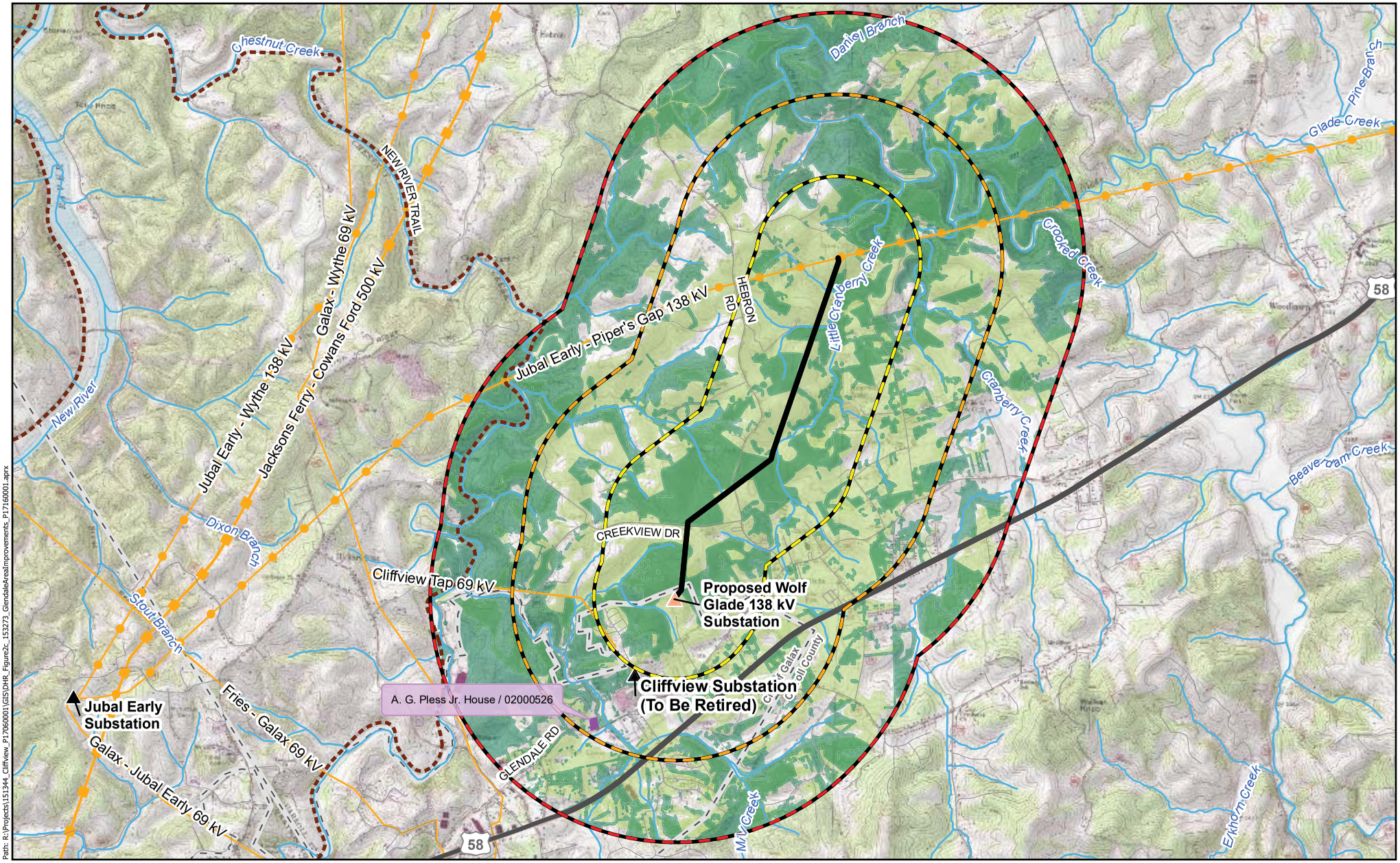
City of Galax and Carroll County Virginia

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

Date: 10/31/2018
Author: KK
POWER: 153273; P17160001

Figure 2b: Wolf Glade 138 kV Extension Proposed Route (Alternative Route B)

APPALACHIAN POWER
An AEP Company
BOUNDLESS ENERGY



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- Proposed Wolf Glade Substation
- Existing AEP Substation
- New River Trail
- Alternative Route (138 kV)
- U.S. Route
- Secondary Route/ Urban Road
- Existing AEP Transmission Line (69 kV or lower)
- Existing AEP Transmission Line (115-230 kV)
- Existing AEP Transmission Line (345 kV +)
- Stream (NHD)
- City/County Boundary
- NRHP-Listed Property
- 0.5 Mile Buffer
- 1 Mile Buffer
- 1.5 Miles Buffer

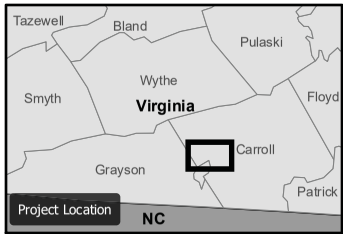
Viewshed Analysis

- Visible from Transmission Structure (No Tree Canopy)
- Digitized Tree Cover

1" =4,250'

0 1,250 2,500

Feet



Glendale Area Improvements Project

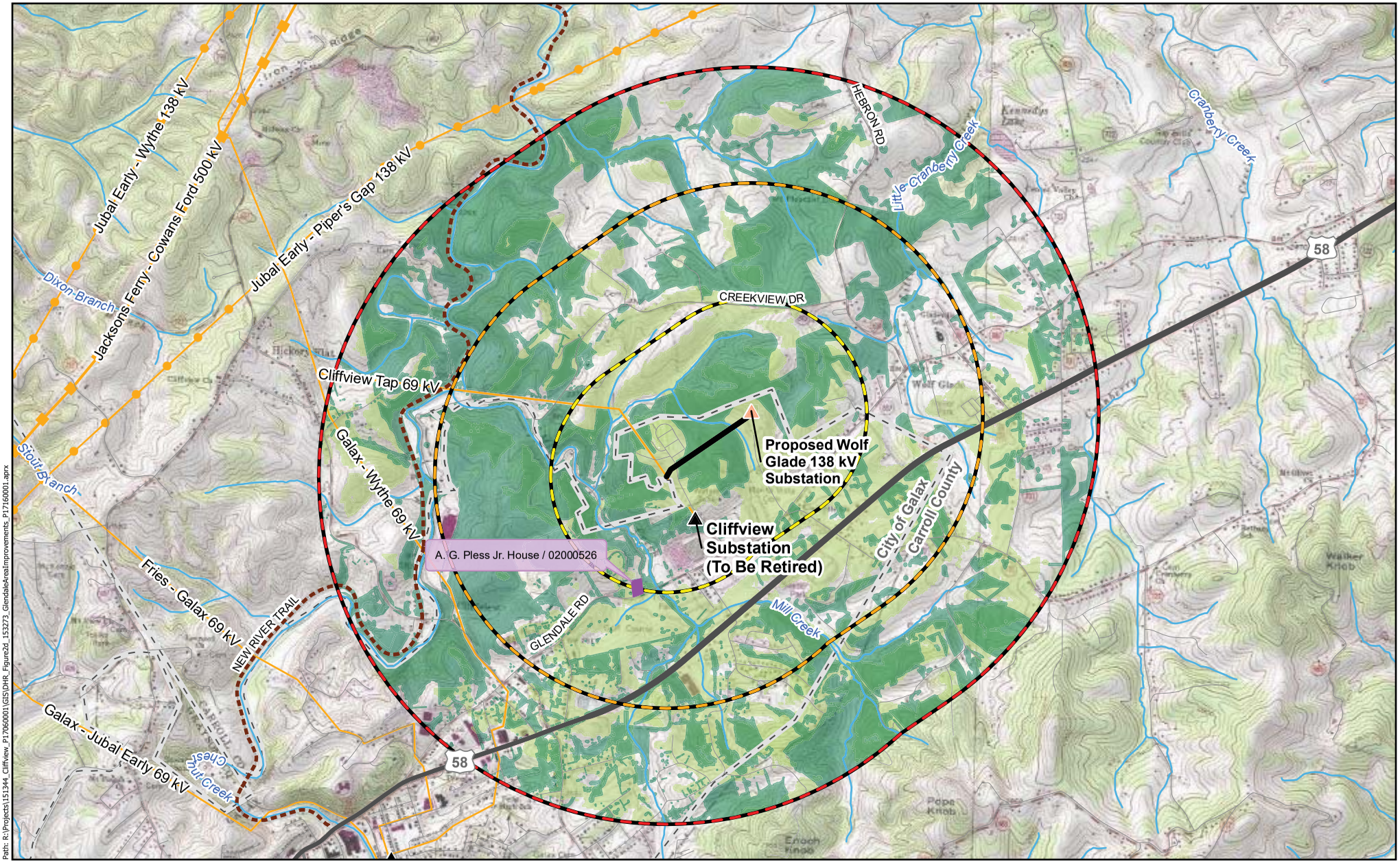
City of Galax and Carroll County Virginia

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

Date: 10/31/2018
Author: KK
POWER: 153273; P17160001

Figure 2c: Alternative Route C

APPALACHIAN POWER
An AEP Company
BOUNDLESS ENERGY



- Proposed Wolf Glade Substation
- Existing AEP Substation
- New River Trail
- Proposed Cliffview 69 kV Tap
- U.S. Route
- State Route
- Secondary Route/ Urban Road
- Existing AEP Transmission Line (69 kV or lower)
- Existing AEP Transmission Line (115-230 kV)
- Existing AEP Transmission Line (345 kV +)
- Stream (NHD)
- City/County Boundary
- NRHP-Listed Property
- 0.5 Mile Buffer
- 1 Mile Buffer
- 1.5 Miles Buffer

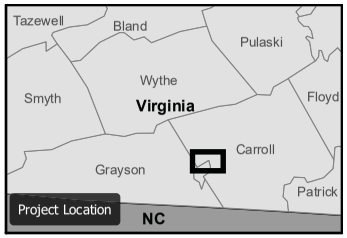
Viewshed Analysis

- Visible from Transmission Structure (No Tree Canopy)
- Digitized Tree Cover

1" =3,000'

0 1,000 2,000

Feet



Glendale Area Improvements Project

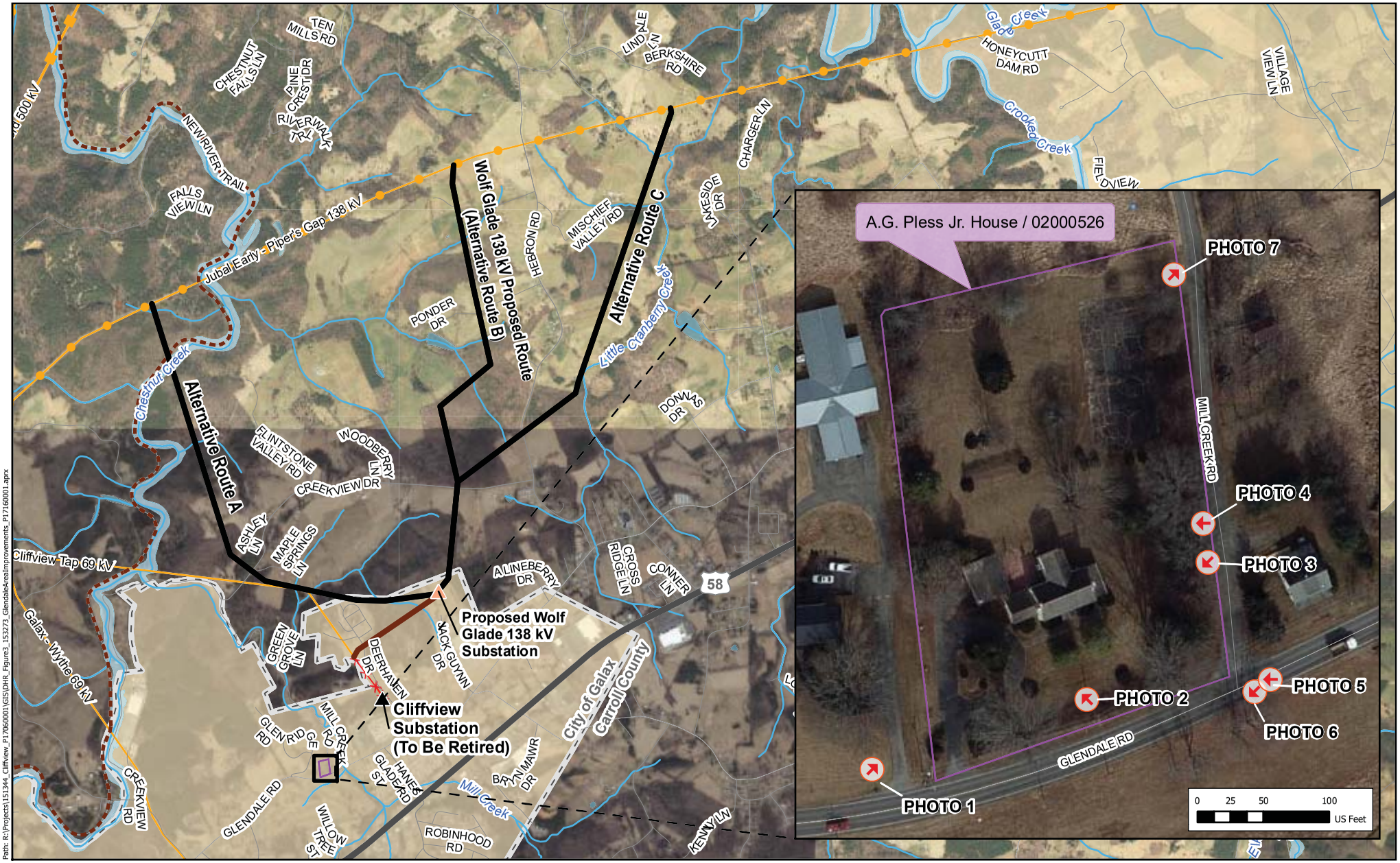
City of Galax and Carroll County Virginia

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

Date: 10/31/2018
Author: KK
POWER: 153273; P17160001

Figure 2d: Cliffview 69 kV Tap Proposed Route

APPALACHIAN POWER
An AEP Company
BOUNDLESS ENERGY



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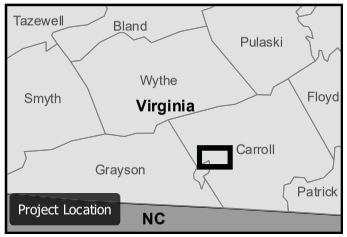
- Proposed Wolf Glade Substation
- Existing AEP Substation
- New River Trail
- Alternative Route (138 kV)
- Proposed Cliffview 69 kV Tap
- U.S. Route
- Secondary Route/ Urban Road
- Existing AEP Transmission Line (69 kV or lower)
- Existing AEP Transmission Line (115-230 kV)
- Existing AEP Transmission Line (345 kV +)
- Stream (NHD)
- City/County Boundary
- Lake/Pond (NHD)
- 100-year Floodplain
- City Boundary
- Existing 69 kV Transmission Line to be Removed
- NRHP-Listed Property
- Historic Resource Photo Location

1" =3,000'

0 500 1,0001,500

Feet



Glendale Area Improvements Project

City of Galax and Carroll County Virginia

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

Imagery Layer Credit: VBMP 2015

Date: 10/31/2018
Author: KK
POWER: 153273; P17160001

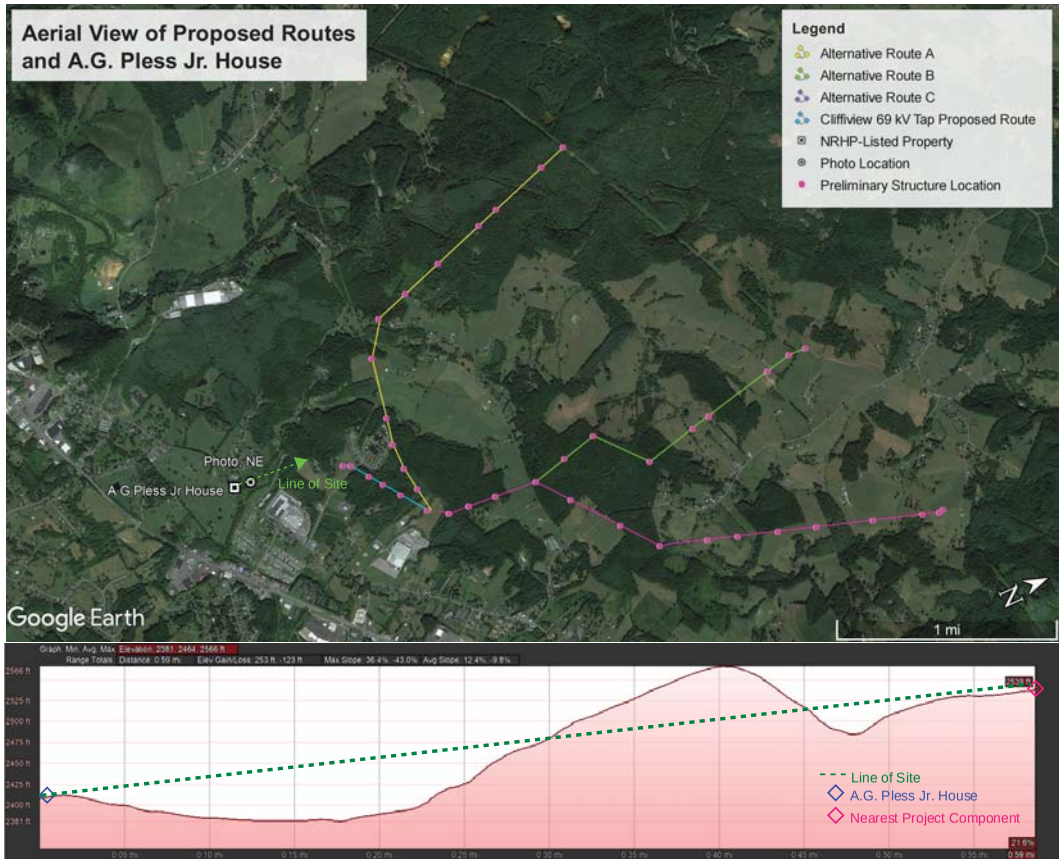
Figure 3: Location of Alternative Routes and A.G. Pless Jr. House / 02000526

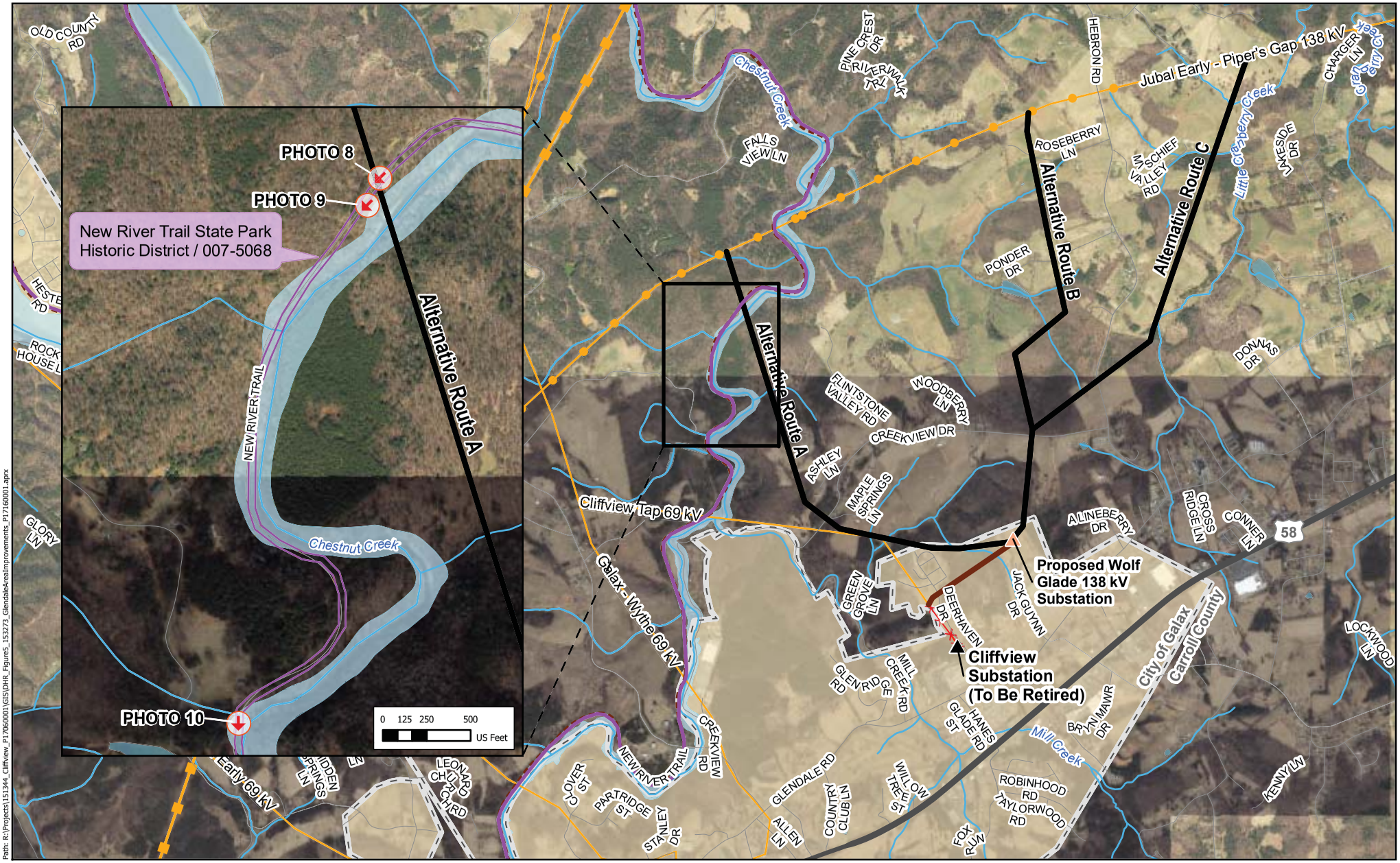
APPALACHIAN POWER

Figure 4:
Alternative Routes and A.G. Pless Jr. House / 02000526
Visual Simulation and Line of Sight Analysis

Glendale Area Improvements Project

10/26/2018





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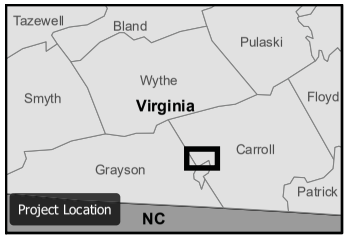
- Existing AEP Substation
- New River Trail
- Alternative Route (138 kV)
- Proposed Cliffview 69 kV Tap
- U.S. Route
- Secondary Route/ Urban Road
- Existing AEP Transmission Line (69 kV or lower)
- Existing AEP Transmission Line (115-230 kV)
- Existing AEP Transmission Line (345 kV +)
- Stream (NHD)
- City/County Boundary
- Lake/Pond (NHD)
- 100-year Floodplain
- City Boundary
- Existing 69 kV Transmission Line to be Removed
- NRHP-Eligible Property
- Historic Resource Photo Location

1" =3,000'

0 500 1,0001,500

Feet



Glendale Area Improvements Project

City of Galax and Carroll County Virginia

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

Imagery Layer Credit: VBMP 2015

Date: 10/31/2018
Author: KK
POWER: 153273; P17160001

Figure 5: Locations of Alternative Route A and New River Trail State Park Historic District / 007-5068

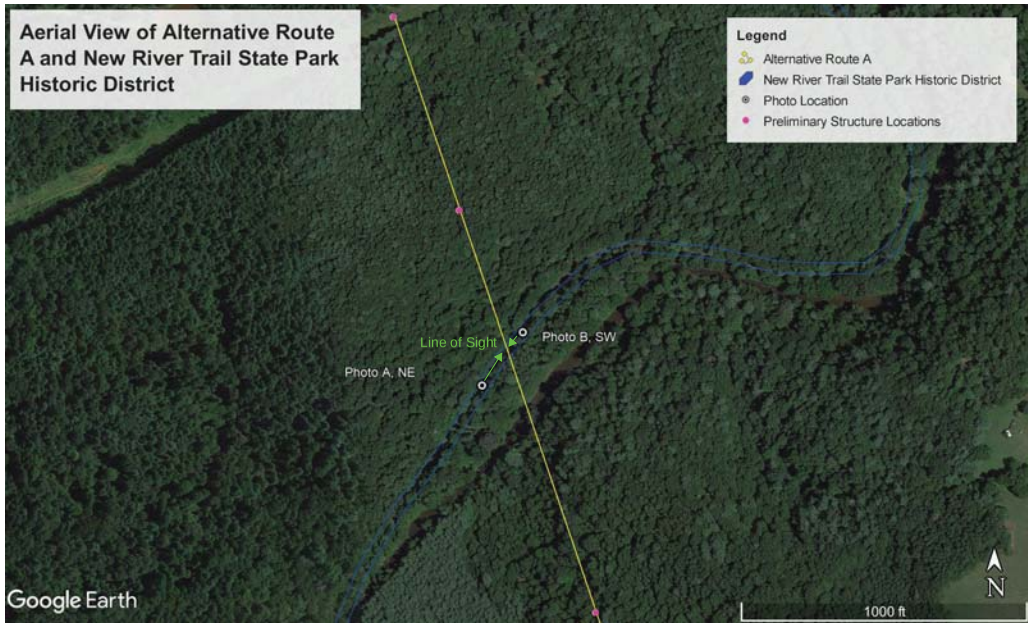
APPALACHIAN POWER
An AEP Company
BOUNDLESS ENERGY

Figure 6:
Alternative Route A and New River Trail State Park Historic District / 007-5068
Visual Simulation and Line of Sight Analysis

Glendale Area Improvements Project

10/26/2018

POWER ENGINEERS



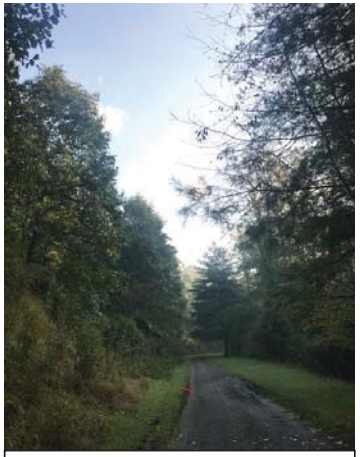
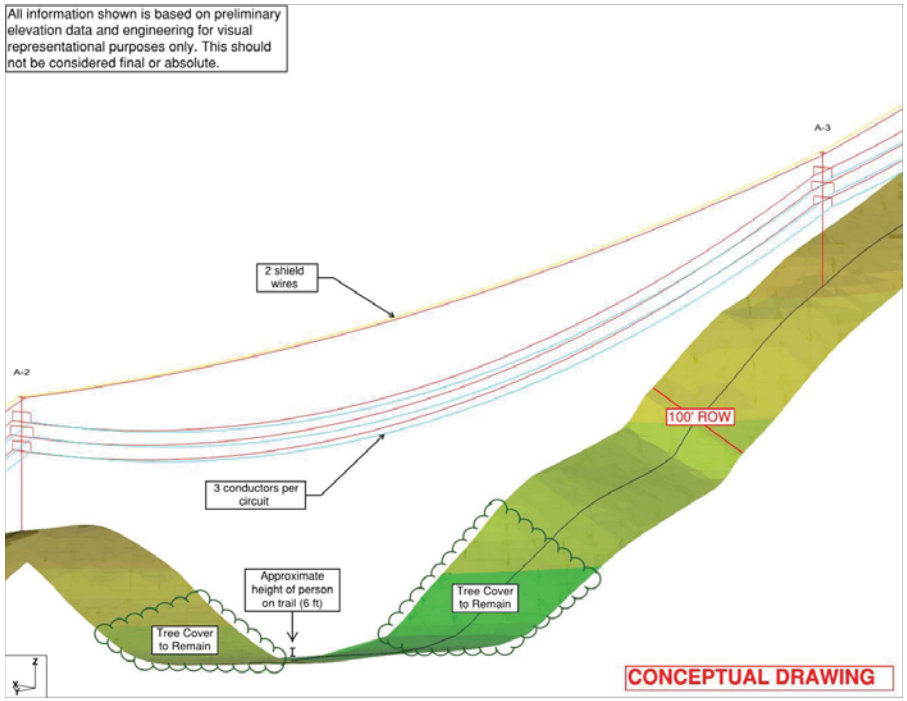


Photo A: Proposed Alternative Route A ROW, facing northeast

Photo B: Proposed Alternative Route A ROW, facing southwest



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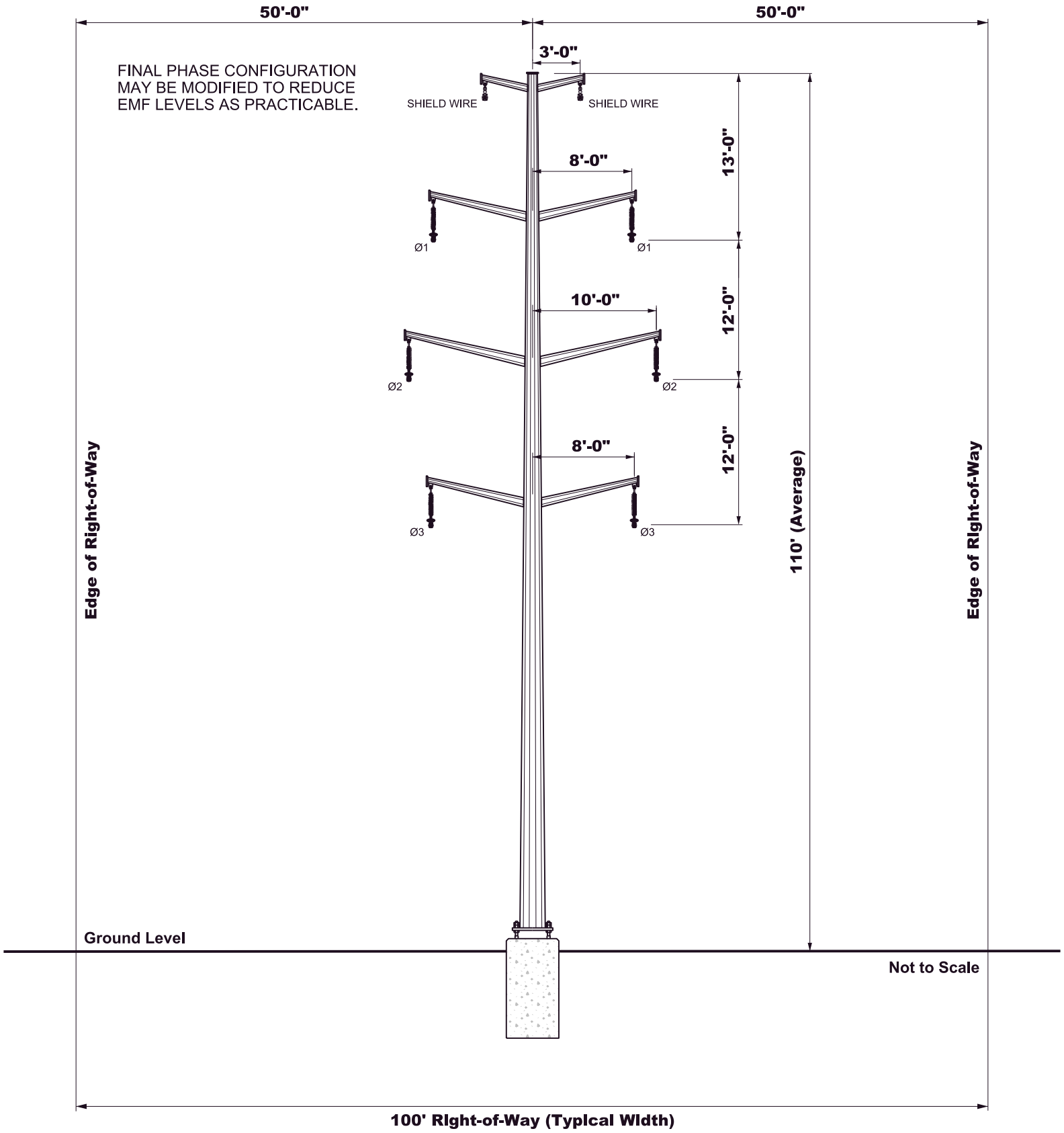
APPENDIX B PROPOSED TYPICAL STRUCTURES

DOUBLE CIRCUIT 138KV MONOPOLE WITH DAVIT ARMS
TRANSMISSION LINE STRUCTURE

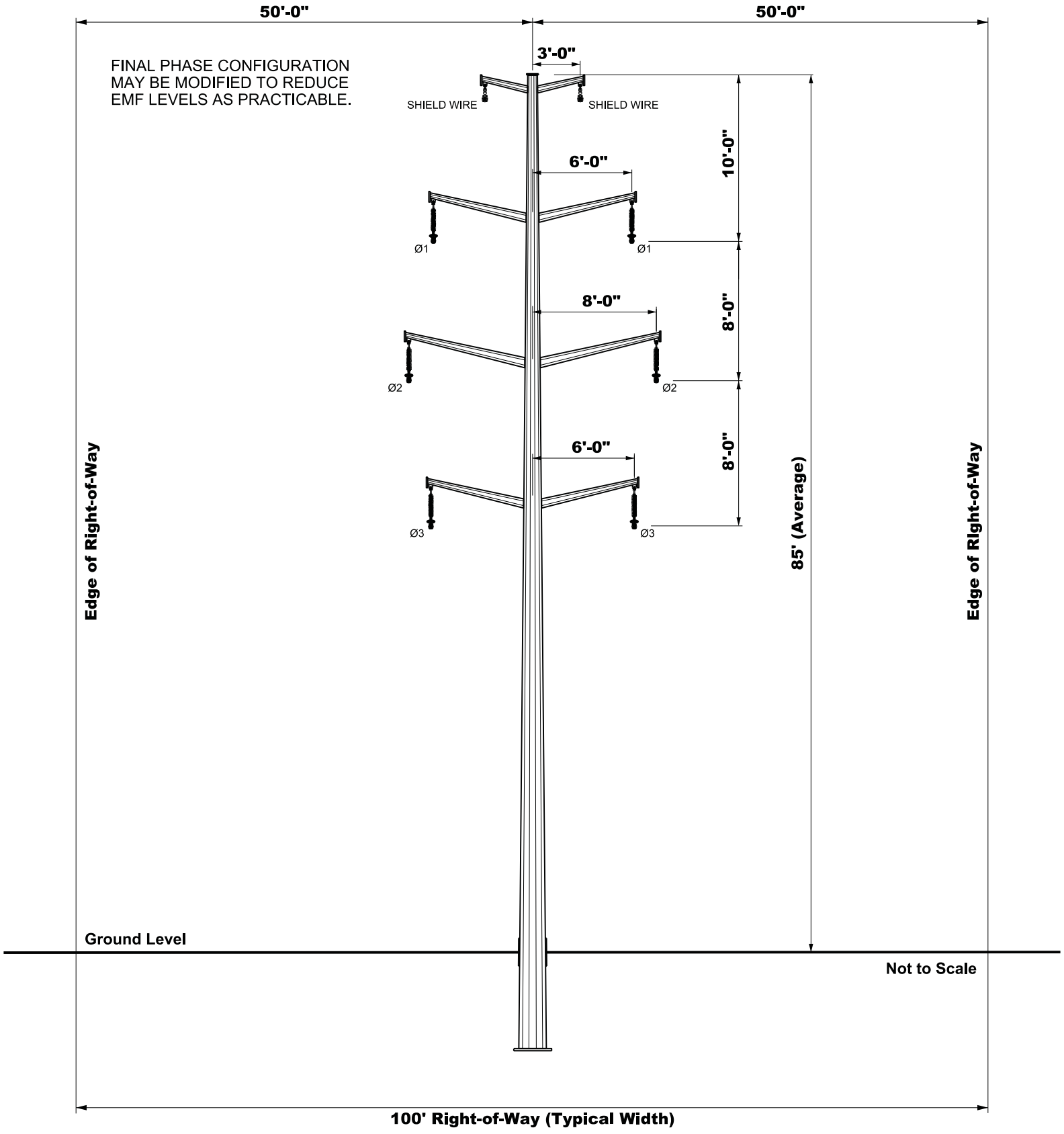


TYPICAL RIGHT-OF-WAY CROSS SECTION

DOUBLE CIRCUIT 138KV MONOPOLE WITH DAVIT ARMS
TRANSMISSION LINE STRUCTURE

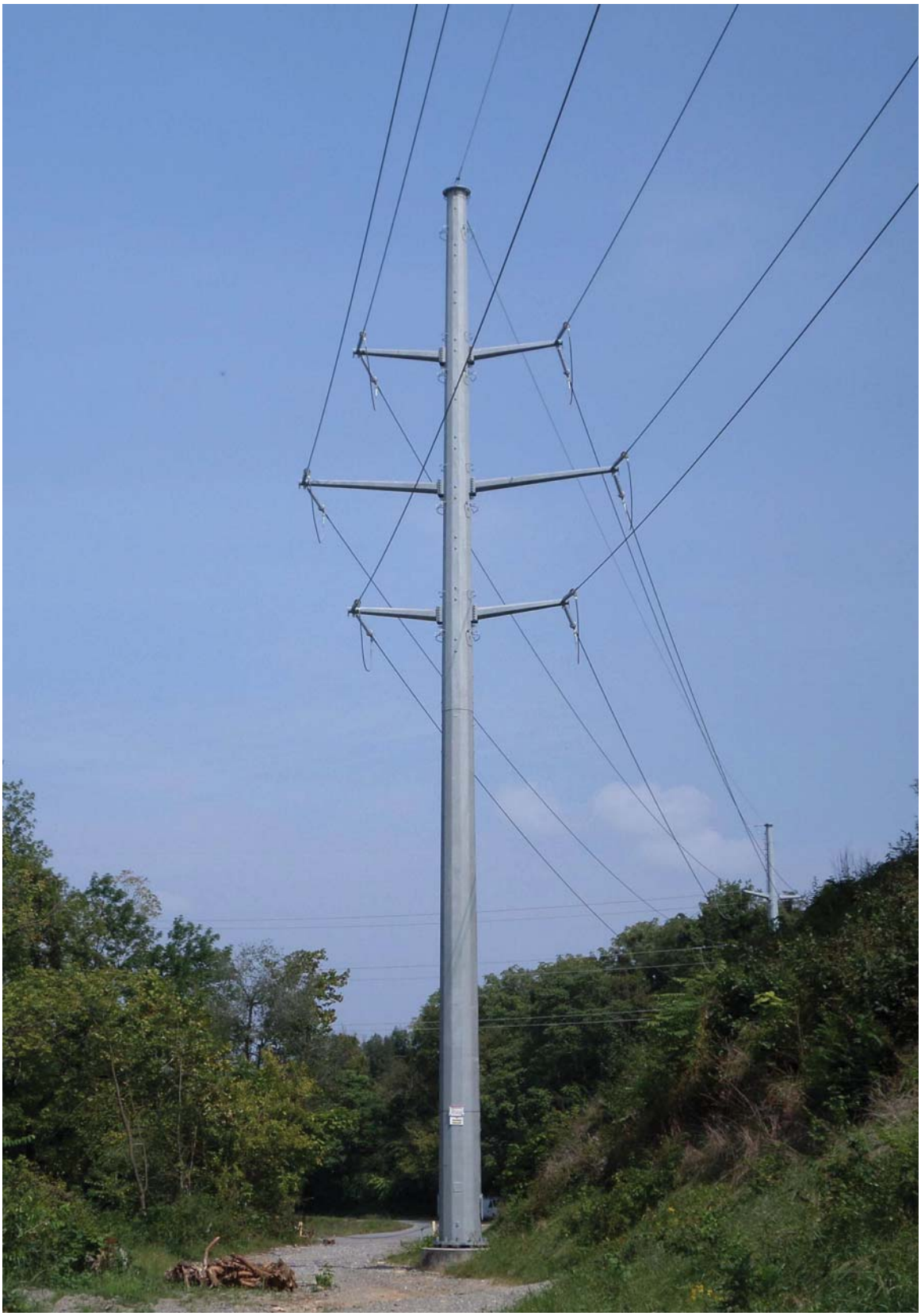
COMPARABLE STRUCTURE PHOTOGRAPH

DOUBLE CIRCUIT 69KV MONOPOLE WITH DAVIT ARMS
TRANSMISSION LINE STRUCTURE



TYPICAL RIGHT-OF-WAY CROSS SECTION

DOUBLE CIRCUIT 69KV MONOPOLE WITH DAVIT ARMS
TRANSMISSION LINE STRUCTURE



COMPARABLE STRUCTURE PHOTOGRAPH

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