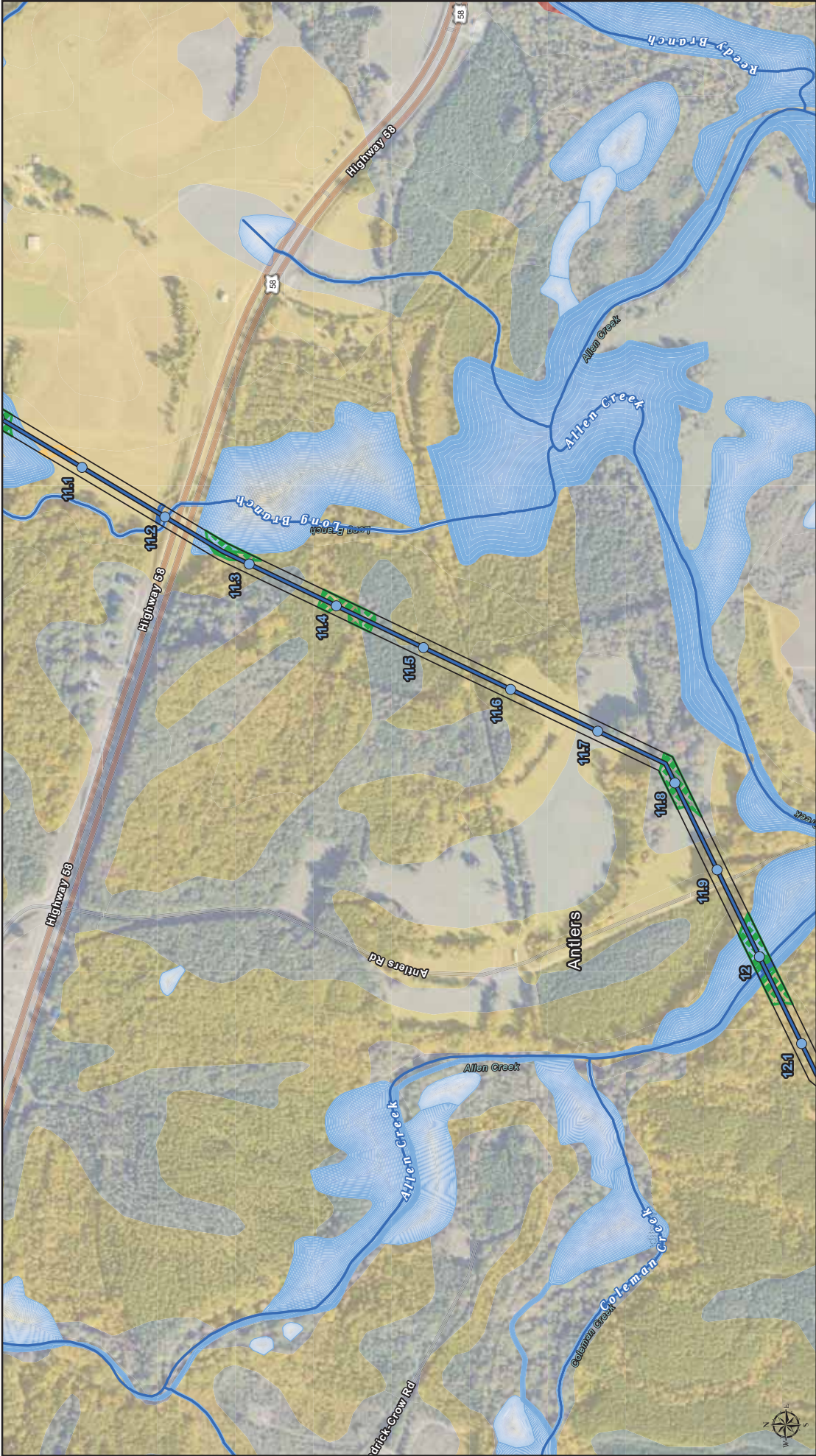
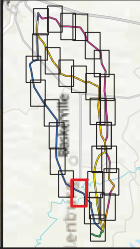


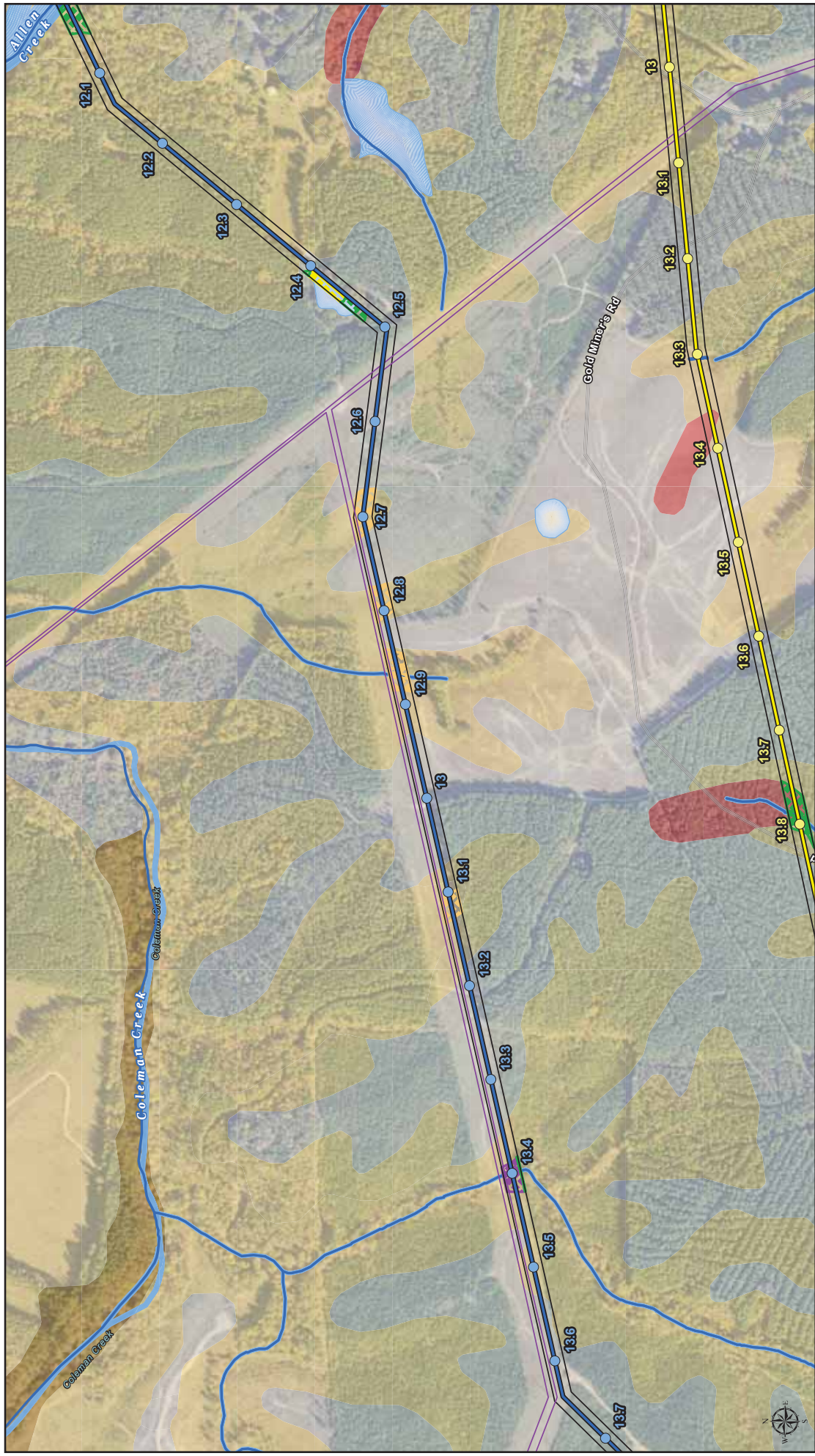
- Nonhydryc
- Predominantly nonhydryc
- Predominantly hydryc

- PFO
- Riverine
- NHD Stream
- NWI Wetland

- Nebula-Raines Route 5 MP
- Nebula-Raines Route 5
- Wetland Cover Type
- PEM



Note: All route Rights-of-Way are 100-foot wide



Page 30 of 31

Attachment 2
Wetland Probability Map Set - Wetland Type
Cloud-Nebula-Raines 230 kV Transmission Line Project
Dominion Energy Virginia
Mecklenburg County, Virginia

ERM

Dominion Energy

0 250 500 Feet
1:6,000

Wetland Cover Type
Nebula-Raines Route 4 MP
Nebula-Raines Route 5 MP
Nebula-Raines Route 4
Nebula-Raines Route 5

Wetland Type
PEM
PFO
PSS

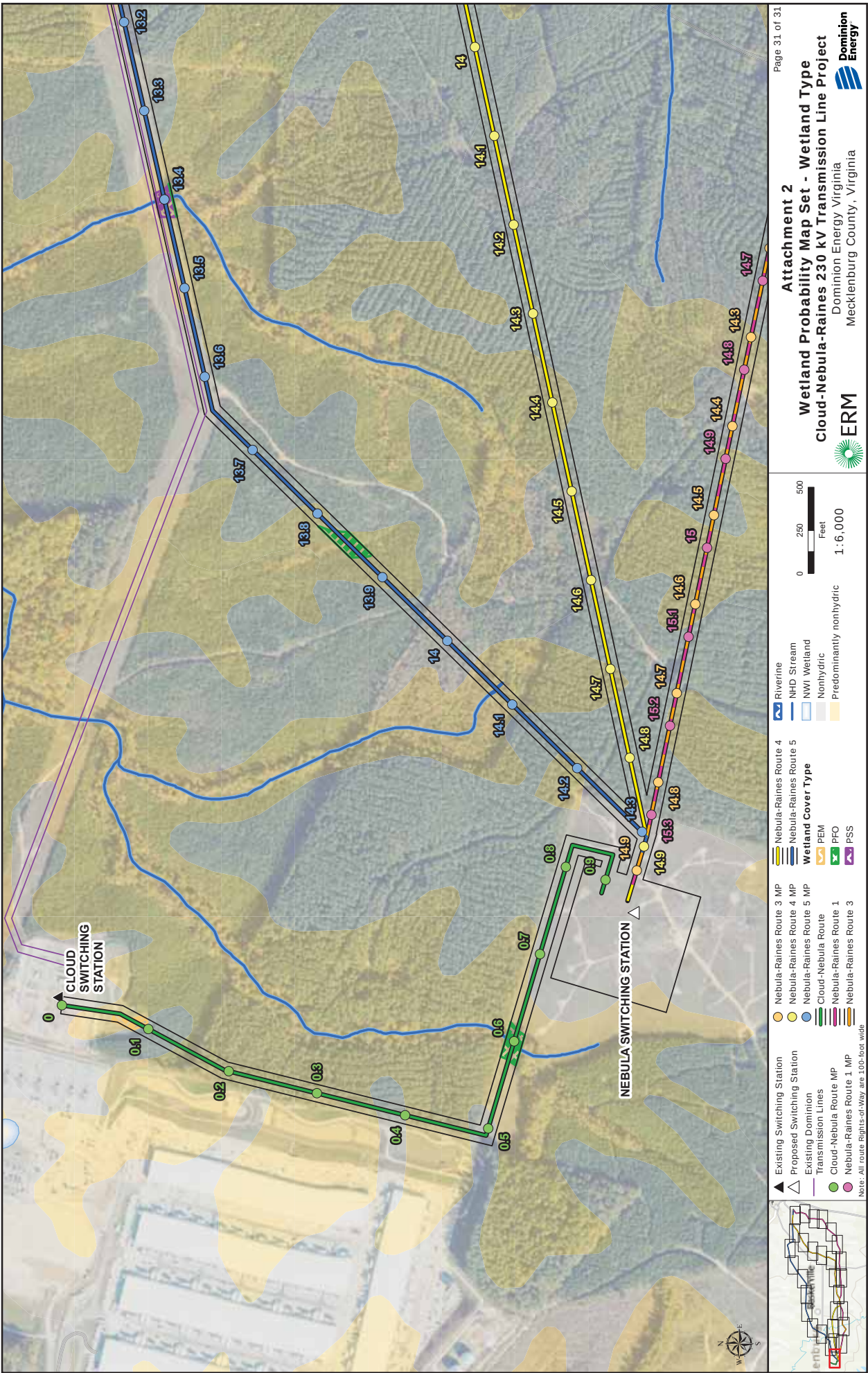
Wetland
Riverine
NHD Stream
NWI Wetland
Nonhydryc

Wetland
Predominantly nonhydryc
Partially hydryc
Predominantly hydryc

Wetland
PUB
Riverine
NHD Stream
NWI Wetland
Nonhydryc

Existing Dominion
Transmission Lines
Nebula-Raines Route 4 MP
Nebula-Raines Route 5 MP
Nebula-Raines Route 4
Nebula-Raines Route 5

Note: All route Rights-of-Way are 100-foot wide





APPENDIX E VDCR CORRESPONDENCE AND FEDERAL-
AND STATE-LISTED SPECIES
INFORMATION



COMMONWEALTH of VIRGINIA
DEPARTMENT OF CONSERVATION AND RECREATION

September 11, 2024

Briana Cooney
Environmental Resource Management, Inc.
222 South 9th Street, Suite 2900
Minneapolis, MN 55402

Re: 0706631, Nebula-Raines

Dear Ms. Cooney:

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.

Boydton and La Crosse Quadrangles

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

Baskerville, H Kerr Dam, and South Hill Quadrangles

According to DCR's predicted suitable habitat modeling and review by a DCR biologist, there is a potential for the Carolina Darter (*Etheostoma collis*, G3/S2/NL/LT) and the Whitemouth shiner (*Notropis alborus*, G4/S1/NL/LT) in the study area if suitable habitat exists on site. In addition, according to the information currently in our files, Kettles Creek, Mines Creek, Unnamed tributary of Kettles Creek and Unnamed tributary of Mines Creek have been designated by the VDWR as a "Threatened and Endangered Species Water" for the Whitemouth shiner and the Carolina Darter. Allen Creek has also been designated as a "Threatened and Endangered Species Water" for the Whitemouth shiner.

In Virginia, the Carolina darter is known from lower and middle piedmont streams of the Roanoke River drainage. Additional populations occur in North and South Carolina (NatureServe, 2009). This fish inhabits small creeks and rivulets in wooded and deforested areas, living in open and stick-littered portions of pools and very slow runs, usually on sand, gravel, and detritus substrates. Please note that this species is currently listed as threatened by the Virginia Department of Wildlife Resources (VDWR).

Chemical runoff from agricultural land may be a factor limiting this species. In addition, this sight-feeding fish may be adversely affected by moderate or high levels of turbidity caused by excessive amounts of silt in the waters (Burkhead & Jenkins, 1991).

The Whitemouth shiner is known from the Roanoke River drainage in Virginia and from other Atlantic Slope drainages in North Carolina and South Carolina (NatureServe, 2009). It inhabits warm, clear or somewhat turbid, small to medium sized creeks in the middle and lower Piedmont. This species may be found in shallow, small pools and in deep and shallow portions of long pools, in places having a silt, sand, and bedrock substrate. Please note that this species is currently classified as threatened by the Virginia Department of Wildlife (VDWR).

Impoundment, channelization, siltation, and agricultural runoff are threats to the habitat of the Whitemouth shiner (Burkhead and Jenkins, 1991).

Due to the potential for the Carolina darter and the Whitemouth shiner to occur within the study area, DCR recommends avoidance of impacts to streams. 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. Due to the legal status of the Carolina darter and the Whitemouth shiner, DCR recommends coordination with Virginia's regulatory authority for the management and protection of these species, the VDWR, to ensure compliance with the Virginia Endangered Species Act (VA ST §§ 29.1-563 – 570).

All Quads

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

The proposed project will impact multiple Ecological Cores (**C2, C3, C4 and C5**) as identified in the Virginia Natural Landscape Assessment (<https://www.dcr.virginia.gov/natural-heritage/vaconvisvnl>). Mapped cores in the project area can be viewed via the Virginia Natural Heritage Data Explorer, available here: <http://vanhde.org/content/map>.

Ecological Cores are areas of at least 100 acres of continuous interior, natural cover that provide habitat for a wide range of species, from interior-dependent forest species to habitat generalists, as well as species that utilize marsh, dune, and beach habitats. Interior core areas begin 100 meters inside core edges and continue to the deepest parts of cores. Cores also provide the natural, economic, and quality of life benefits of open space, recreation, thermal moderation, water quality (including drinking water recharge and protection, and erosion prevention), and air quality (including sequestration of carbon, absorption of gaseous pollutants, and production of oxygen). Cores are ranked from C1 to C5 (C5 being the least significant) using nine prioritization criteria, including the habitats of natural heritage resources they contain.

Impacts to cores occur when their natural cover is partially or completely converted permanently to developed land uses. Habitat conversion to development causes reductions in ecosystem processes, native biodiversity, and habitat quality due to habitat loss; less viable plant and animal populations; increased predation; and increased introduction and establishment of invasive species.

DCR recommends avoidance of impacts to cores. When avoidance cannot be achieved, DCR recommends minimizing the area of impacts overall and concentrating the impacted area at the edges of cores, so that the most interior remains intact.

The proposed project will impact one or more cores with very high (C2) to outstanding (C1) ecological integrity. Further investigation of these impacts is recommended and DCR-DNH can conduct a formal impact

analysis upon request. This analysis would estimate impacts to cores and habitat fragments, providing an estimate of the total acreage of direct and indirect impacts of the project. For more information about the analysis and service charges, please contact Joe Weber, DCR Chief of Biodiversity Information and Conservation Tools at Joseph.Weber@dcr.virginia.gov.

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

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

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 \$1000.00 has been assessed for the service of providing this information. Please find attached an invoice for that amount. Please return one copy of the invoice along with your remittance made payable to the Treasurer of Virginia, DCR Finance, 600 East Main Street, 24th Floor, Richmond, VA 23219. Payment is due within thirty days of the invoice date. Please note late payment may result in the suspension of project review service for future projects.

The Virginia Department of Wildlife Resources (VDWR) 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 <https://services.dwr.virginia.gov/fwis/> or contact Hannah Schul at Hannah.Schul@dwr.virginia.gov.

Should you have any questions or concerns, feel free to contact me at 804-625-3979. Thank you for the opportunity to comment on this project.

Sincerely,

A handwritten signature in black ink, appearing to read "Nicki Gustafson". The signature is fluid and cursive, with the first name "Nicki" and last name "Gustafson" clearly distinguishable.

Nicki Gustafson
Natural Heritage Project Review Assistant

Cc: Hannah Schul, VDWR

Literature Cited

Burkhead, N.M. and R.E. Jenkins. 1991. Carolina darter. In Virginia's Endangered Species: Proceedings of a Symposium. K. Terwilliger ed. The McDonald and Woodward Publishing Company, Blacksburg, VA.

Burkhead, N.M. and R.E. Jenkins. 1991. Whitemouth shiner. In Virginia's Endangered Species: Proceedings of a Symposium. K. Terwilliger ed. The McDonald and Woodward Publishing Company, Blacksburg, VA.

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 15, 2010).

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 16, 2010).



United States Department of the Interior

FISH AND WILDLIFE SERVICE
Virginia Ecological Services Field Office
6669 Short Lane
Gloucester, VA 23061-4410
Phone: (804) 693-6694



In Reply Refer To:
Project Code: 2024-0133035
Project Name: Nebula-Raines

08/20/2024 22:31:11 UTC

Subject: List of threatened and endangered species that may occur in your proposed project location or may be affected by your proposed project

To Whom It May Concern:

The enclosed species list identifies threatened, endangered, proposed, and candidate species, as well as proposed and final designated critical habitat, that may occur within the boundary of your proposed project and/or may be affected by your proposed project. The species list fulfills the requirements of the U.S. Fish and Wildlife Service (Service) under section 7(c) of the Endangered Species Act (Act) of 1973, as amended (16 U.S.C. 1531 *et seq.*).

New information based on updated surveys, changes in the abundance and distribution of species, changed habitat conditions, or other factors could change this list. Please feel free to contact us if you need more current information or assistance regarding the potential impacts to federally proposed, listed, and candidate species and federally designated and proposed critical habitat. Please note that under 50 CFR 402.12(e) of the regulations implementing section 7 of the Act, the accuracy of this species list should be verified after 90 days. This verification can be completed formally or informally as desired. The Service recommends that verification be completed by visiting the IPaC website at regular intervals during project planning and implementation for updates to species lists and information. An updated list may be requested through IPaC by completing the same process used to receive the enclosed list.

The purpose of the Act is to provide a means whereby threatened and endangered species and the ecosystems upon which they depend may be conserved. Under sections 7(a)(1) and 7(a)(2) of the Act and its implementing regulations (50 CFR 402 *et seq.*), Federal agencies are required to utilize their authorities to carry out programs for the conservation of threatened and endangered species and to determine whether projects may affect threatened and endangered species and/or designated critical habitat.

A Biological Assessment is required for construction projects (or other undertakings having similar physical impacts) that are major Federal actions significantly affecting the quality of the human environment as defined in the National Environmental Policy Act (42 U.S.C. 4332(2)(c)). For projects other than major construction activities, the Service suggests that a biological

evaluation similar to a Biological Assessment be prepared to determine whether the project may affect listed or proposed species and/or designated or proposed critical habitat. Recommended contents of a Biological Assessment are described at 50 CFR 402.12.

If a Federal agency determines, based on the Biological Assessment or biological evaluation, that listed species and/or designated critical habitat may be affected by the proposed project, the agency is required to consult with the Service pursuant to 50 CFR 402. In addition, the Service recommends that candidate species, proposed species and proposed critical habitat be addressed within the consultation. More information on the regulations and procedures for section 7 consultation, including the role of permit or license applicants, can be found in the "Endangered Species Consultation Handbook" at: <https://www.fws.gov/sites/default/files/documents/endangered-species-consultation-handbook.pdf>

Migratory Birds: In addition to responsibilities to protect threatened and endangered species under the Endangered Species Act (ESA), there are additional responsibilities under the Migratory Bird Treaty Act (MBTA) and the Bald and Golden Eagle Protection Act (BGEPA) to protect native birds from project-related impacts. Any activity, intentional or unintentional, resulting in take of migratory birds, including eagles, is prohibited unless otherwise permitted by the U.S. Fish and Wildlife Service (50 C.F.R. Sec. 10.12 and 16 U.S.C. Sec. 668(a)). For more information regarding these Acts, see [Migratory Bird Permit | What We Do | U.S. Fish & Wildlife Service \(fws.gov\)](#).

The MBTA has no provision for allowing take of migratory birds that may be unintentionally killed or injured by otherwise lawful activities. It is the responsibility of the project proponent to comply with these Acts by identifying potential impacts to migratory birds and eagles within applicable NEPA documents (when there is a federal nexus) or a Bird/Eagle Conservation Plan (when there is no federal nexus). Proponents should implement conservation measures to avoid or minimize the production of project-related stressors or minimize the exposure of birds and their resources to the project-related stressors. For more information on avian stressors and recommended conservation measures, see <https://www.fws.gov/library/collections/threats-birds>.

In addition to MBTA and BGEPA, Executive Order 13186: *Responsibilities of Federal Agencies to Protect Migratory Birds*, obligates all Federal agencies that engage in or authorize activities that might affect migratory birds, to minimize those effects and encourage conservation measures that will improve bird populations. Executive Order 13186 provides for the protection of both migratory birds and migratory bird habitat. For information regarding the implementation of Executive Order 13186, please visit <https://www.fws.gov/partner/council-conservation-migratory-birds>.

We appreciate your concern for threatened and endangered species. The Service encourages Federal agencies to include conservation of threatened and endangered species into their project planning to further the purposes of the Act. Please include the Consultation Code in the header of this letter with any request for consultation or correspondence about your project that you submit to our office.

Attachment(s):

- Official Species List

OFFICIAL SPECIES LIST

This list is provided pursuant to Section 7 of the Endangered Species Act, and fulfills the requirement for Federal agencies to "request of the Secretary of the Interior information whether any species which is listed or proposed to be listed may be present in the area of a proposed action".

This species list is provided by:

Virginia Ecological Services Field Office

6669 Short Lane

Gloucester, VA 23061-4410

(804) 693-6694

PROJECT SUMMARY

Project Code: 2024-0133035

Project Name: Nebula-Raines

Project Type: Transmission Line - New Constr - Above Ground

Project Description: The Project would provide two new single circuit 230 kV transmission lines, measuring up to approximately 13 to 16 miles in length, between a pending Raines Substation near South Hill, and a new substation (proposed as part of the Project) adjacent to the existing Cloud Switching Station east of Boynton in Mecklenburg County, Virginia. Both circuits would be located adjacent to each other in the same corridor, likely on independent structures.

Project Location:

The approximate location of the project can be viewed in Google Maps: <https://www.google.com/maps/@36.6850343,-78.24102153445746,14z>



Counties: Mecklenburg County, Virginia

ENDANGERED SPECIES ACT SPECIES

There is a total of 3 threatened, endangered, or candidate species on this species list.

Species on this list should be considered in an effects analysis for your project and could include species that exist in another geographic area. For example, certain fish may appear on the species list because a project could affect downstream species.

IPaC does not display listed species or critical habitats under the sole jurisdiction of NOAA Fisheries¹, as USFWS does not have the authority to speak on behalf of NOAA and the Department of Commerce.

See the "Critical habitats" section below for those critical habitats that lie wholly or partially within your project area under this office's jurisdiction. Please contact the designated FWS office if you have questions.

-
1. [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.

MAMMALS

NAME	STATUS
Northern Long-eared Bat <i>Myotis septentrionalis</i> No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/9045	Endangered
Tricolored Bat <i>Perimyotis subflavus</i> No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/10515	Proposed Endangered

INSECTS

NAME	STATUS
Monarch Butterfly <i>Danaus plexippus</i> No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/9743	Candidate

CRITICAL HABITATS

THERE ARE NO CRITICAL HABITATS WITHIN YOUR PROJECT AREA UNDER THIS OFFICE'S JURISDICTION.

YOU ARE STILL REQUIRED TO DETERMINE IF YOUR PROJECT(S) MAY HAVE EFFECTS ON ALL ABOVE LISTED SPECIES.

IPAC USER CONTACT INFORMATION

Agency: Private Entity
Name: Madison Adams
Address: 222 South 9th Street, Suite 2900
City: Minneapolis
State: MN
Zip: 55402
Email: madisonkadams16@gmail.com
Phone: 2188397343

VAFWIS - Department of Wildlife Resources

36.67607 -78.24740

is the Search Point

Submit

Cancel

Search Point

- ☒ **Change** to "clicked" map point
- ☐ **Fixed** at 36.67607 -78.24740

Show Position Rings

- ☐ Yes ☒ No

4 miles and 1 mile at the Search Point

Show Search Area

- ☒ Yes ☐ No

2 Search distance miles buffer

Search Point is at map center

Base Map [Choices](#)

Color Aerial Photography ▼

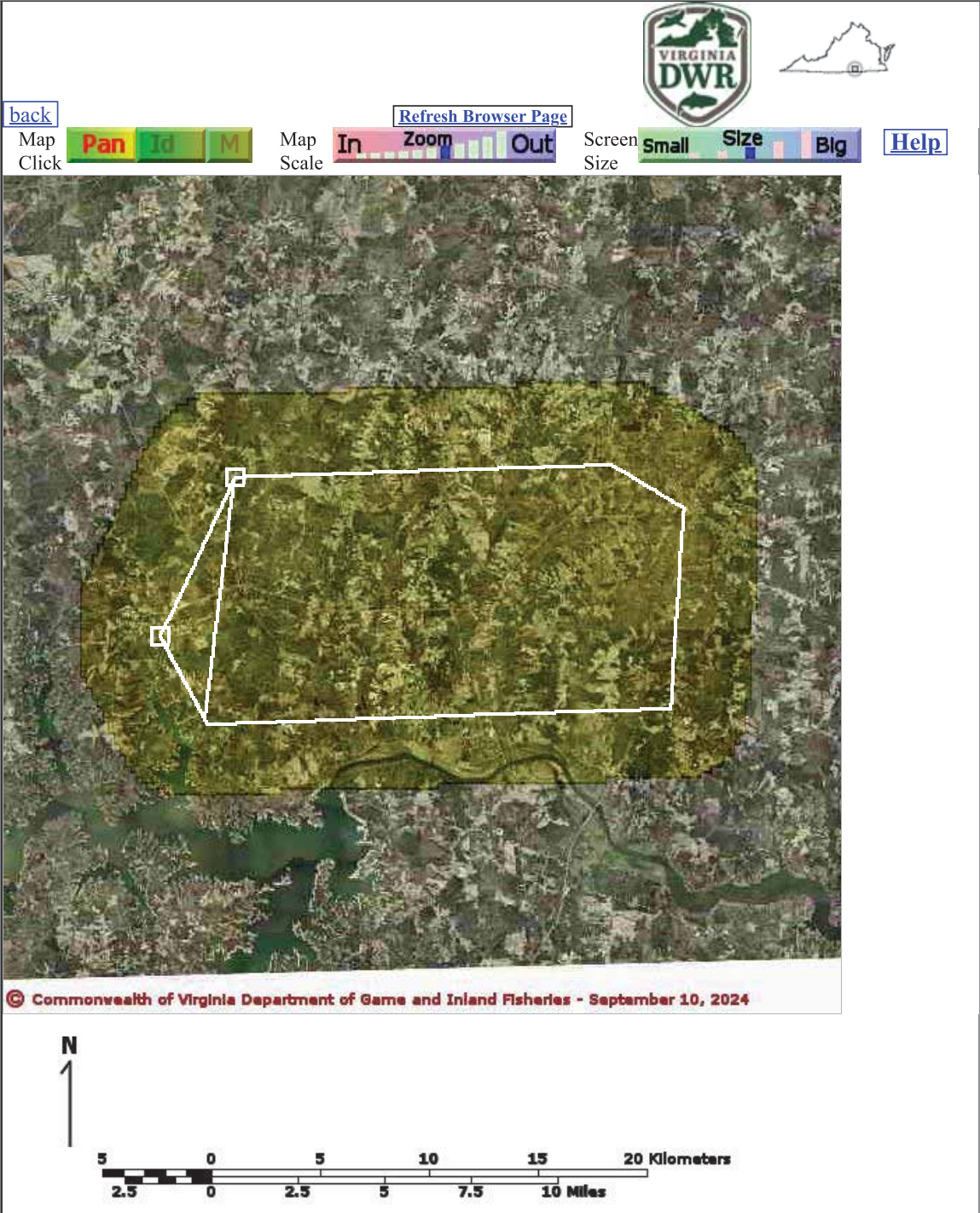
Map Overlay [Choices](#)

Current List: Search

Map Overlay Legend



**2 mile radius
Search Area**



Point of Search 36.67607 -78.24740

Map Location 36.67607 -78.24740

- Select **Coordinate System**:
- ☐ Degrees, Minutes, Seconds Latitude - Longitude
 - ☒ Decimal Degrees Latitude - Longitude
 - ☐ Meters UTM NAD83 East North Zone
 - ☐ Meters UTM NAD27 East North Zone

Base Map source: Color Aerial Photography 2002 - Virginia Base Mapping Program, Virginia Geographic Information Network

Map projection is UTM Zone 17 NAD 1983 with left 726777 and top 4081671. Pixel size is 50. . Coordinates displayed are decimal Degrees North and West. Map is currently displayed as 600 columns by 600 rows for a total of 360000 pixels. The map display represents 38400 meters east to west by 38400 meters north to south for a total of 1474.5 square kilometers. The map display

represents 126005 feet east to west by 126005 feet north to south for a total of 569.5 square miles.

Topographic maps and Black and white aerial photography for year 1990+-
are from the United States Department of the Interior, United States Geological Survey.
Color aerial photography aquired 2002 is from Virginia Base Mapping Program, Virginia
Geographic Information Network.

Shaded topographic maps are from TOPO! ©2006 National Geographic

<http://www.national.geographic.com/topo>

All other map products are from the Commonwealth of Virginia Department of Wildlife Resources.

map assembled 2024-09-10 16:21:47 (qa/qc March 21, 2016 12:20 - tn=2408962 dist=3218 I
)

\$poi=36.7267900 -78.3413700

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| [DWR](#) | [Credits](#) | [Disclaimer](#) | [Contact](#) | [Web Policy](#) |

VaFWIS Search Report Compiled on 9/10/2024, 4:24:39 PM[Help](#)

Known or likely to occur within a **2 mile buffer around polygon; center 36.7267900 -78.3413699**
in **117 Mecklenburg County, VA**

[View Map of
Site Location](#)

440 Known or Likely Species ordered by Status Concern for Conservation
(displaying first 23) (23 species with Status* or Tier I** or Tier II**)

BOVA Code	Status*	Tier**	Common Name	Scientific Name	Confirmed	Database(s)
050022	FEST	Ia	Bat, northern long-eared	Myotis septentrionalis		BOVA
010214	FESE	IIa	Logperch, Roanoke	Percina rex		BOVA
060173	FTST	Ia	Pigtoe, Atlantic	Fusconaia masoni	Potential	BOVA,Habitat,HU6
050020	SE	Ia	Bat, little brown	Myotis lucifugus		BOVA
050027	FPSE	Ia	Bat, tri- colored	Perimyotis subflavus		BOVA
040293	ST	Ia	Shrike, loggerhead	Lanius ludovicianus	Potential	BOVA,BBA,HU6
040385	ST	Ia	Sparrow, Bachman's	Peucaea aestivalis		BOVA,HU6
040379	ST	Ia	Sparrow, Henslow's	Centronyx henslowii		BOVA
060081	FPST	IIa	Floater, green	Lasmigona subviridis		HU6
010353	ST	IIc	Darter, Carolina	Etheostoma collis	Yes	BOVA,TEWaters,Habitat,SppObs,HU6
010070	ST	IIc	Shiner, whitemouth	Miniellus alborus	Yes	BOVA,TEWaters,Habitat,SppObs,HU6
040292	ST		Shrike, migrant loggerhead	Lanius ludovicianus migrans		BOVA
030063	CC	IIIa	Turtle, spotted	Clemmys guttata	Yes	BOVA,SppObs,HU6
010174		Ia	Bass, Roanoke	Ambloplites cavifrons		BOVA,HU6
040052		IIa	Duck, American black	Anas rubripes		BOVA,HU6
040036		IIa	Night-heron, yellow-	Nyctanassa violacea		BOVA

			crowned	violacea		
040181		IIa	Tern, common	Sterna hirundo		BOVA,HU6
040320		IIa	Warbler, cerulean	Setophaga cerulea		BOVA,HU6
040140		IIa	Woodcock, American	Scolopax minor		BOVA,HU6
060071		IIa	Lampmussel, yellow	Lampsilis cariosa		BOVA,HU6
040203		IIb	Cuckoo, black-billed	Coccyzus erythrophthalmus	Potential	BOVA,BBA
040105		IIb	Rail, king	Rallus elegans		BOVA
060175		IIb	Slabshell, Roanoke	Elliptio roanokensis	Potential	BOVA,Habitat,HU6

To view **All 440 species** [View 440](#)

*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 Wildlife 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.

[View Map of All Query Results from All
Observation Tables](#)

Bat Colonies or Hibernacula: **Not Known**

Anadromous Fish Use Streams

N/A

Impediments to Fish Passage

N/A

Colonial Water Bird Survey

N/A

Threatened and Endangered Waters (52 Reaches - displaying first 20)

[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					
(0341509.)	ST	010070	ST	IIC	Shiner, whitemouth	Miniellus alborus	Yes
		010353	ST	IIC	Darter, Carolina	Etheostoma collis	
(0341530.)	ST	010070	ST	IIC	Shiner, whitemouth	Miniellus alborus	Yes
		010353	ST	IIC	Darter, Carolina	Etheostoma collis	
(0341576.)	ST	010070	ST	IIC	Shiner, whitemouth	Miniellus alborus	Yes
		010353	ST	IIC	Darter, Carolina	Etheostoma collis	
(0343292.)	ST	010070	ST	IIC	Shiner, whitemouth	Miniellus alborus	Yes
		010353	ST	IIC	Darter, Carolina	Etheostoma collis	
(0343410.)	ST	010070	ST	IIC	Shiner, whitemouth	Miniellus alborus	Yes
		010353	ST	IIC	Darter, Carolina	Etheostoma collis	
(0343494.)	ST	010070	ST	IIC	Shiner, whitemouth	Miniellus alborus	Yes
		010353	ST	IIC	Darter, Carolina	Etheostoma collis	
(0344536.)	ST	010353	ST	IIC	Darter, Carolina	Etheostoma collis	Yes
(0345486.)	ST	010070	ST	IIC	Shiner, whitemouth	Miniellus alborus	Yes
		010353	ST	IIC	Darter, Carolina	Etheostoma collis	
(0346612.)	ST	010070	ST	IIC	Shiner, whitemouth	Miniellus alborus	Yes
		010353	ST	IIC	Darter, Carolina	Etheostoma collis	
(0346858.)	ST	010070	ST	IIC	Shiner, whitemouth	Miniellus alborus	Yes
		010353	ST	IIC	Darter, Carolina	Etheostoma collis	

(0347177.)	ST	010070	ST	Ilc	Shiner, whitemouth	Miniellus alborus	Yes
		010353	ST	Ilc	Darter, Carolina	Etheostoma collis	
(0347365.)	ST	010070	ST	Ilc	Shiner, whitemouth	Miniellus alborus	Yes
		010353	ST	Ilc	Darter, Carolina	Etheostoma collis	
(0347834.)	ST	010070	ST	Ilc	Shiner, whitemouth	Miniellus alborus	Yes
		010353	ST	Ilc	Darter, Carolina	Etheostoma collis	
(0348275.)	ST	010070	ST	Ilc	Shiner, whitemouth	Miniellus alborus	Yes
		010353	ST	Ilc	Darter, Carolina	Etheostoma collis	
(0352334.)	ST	010070	ST	Ilc	Shiner, whitemouth	Miniellus alborus	Yes
		010353	ST	Ilc	Darter, Carolina	Etheostoma collis	
(0352412.)	ST	010070	ST	Ilc	Shiner, whitemouth	Miniellus alborus	Yes
		010353	ST	Ilc	Darter, Carolina	Etheostoma collis	
Allen Creek (0341512.)	ST	010070	ST	Ilc	Shiner, whitemouth	Miniellus alborus	Yes
Allen Creek (0341762.)	ST	010070	ST	Ilc	Shiner, whitemouth	Miniellus alborus	Yes
Allen Creek (0343400.)	ST	010070	ST	Ilc	Shiner, whitemouth	Miniellus alborus	Yes
Allen Creek (0343936.)	ST	010070	ST	Ilc	Shiner, whitemouth	Miniellus alborus	Yes
Allen Creek (0344282.)	ST	010070	ST	Ilc	Shiner, whitemouth	Miniellus alborus	Yes
Allen Creek (0345337.)	ST	010070	ST	Ilc	Shiner, whitemouth	Miniellus alborus	Yes
Allen Creek (0347171.)	ST	010070	ST	Ilc	Shiner, whitemouth	Miniellus alborus	Yes

To view **All 52 Threatened and Endangered Waters records** [View 52](#)

Managed Trout Streams

N/A

Bald Eagle Concentration Areas and Roosts

N/A

Bald Eagle Nests (7 records)
[View Map of All Query Results](#)
[Bald Eagle Nests](#)

Nest	N Obs	Latest Date	DGIF Nest Status	View Map
ME0002	12	May 6 2008	UNKNOWN	Yes
ME0201	11	May 6 2008	Unknown	Yes
ME0701	4	May 6 2008	UNKNOWN	Yes
ME0801	2	May 13 2008	Unknown	Yes
ME9703	8	Mar 9 2000	HISTORIC	Yes
ME9704	3	Jan 1 2005	HISTORIC	Yes
ME9901	4	Mar 9 2000	HISTORIC	Yes

Displayed 7 Bald Eagle Nests

Species Observations (167 records - displaying first 20 ,
15 Observations with Threatened or
Endangered species)
[View Map of All Query Results](#)
[Species Observations](#)

obsID	class	Date Observed	Observer	N Species			View Map
				Different Species	Highest TE*	Highest Tier**	
3168	SppObs	Mar 2 1991	Robert E. Jenkins, Kaitlin M. Nahil	9	ST	II	Yes
4786	SppObs	Oct 19 1990	Bob Graham, R. S. Andrews, Va Power, W. R. Willis, Va Power, Bill Kittrel, VDGIF	3	ST	II	Yes
4791	SppObs	Oct 19 1990	Bob Graham, R. S. Andrews, Va Power, W. R. Willis, Va Power, Bill Kittrel, VDGIF	2	ST	II	Yes
4790	SppObs	Oct 19 1990	Bob Graham, R. S. Andrews, Va Power, W. R. Willis, Va Power, Bill Kittrel, VDGIF	1	ST	II	Yes
4788	SppObs	Oct 19 1990	Bob Graham, R. S. Andrews, Va Power, W. R. Willis, Va Power, Bill Kittrel, VDGIF	2	ST	II	Yes
4787	SppObs	Oct 19 1990	Bob Graham, R. S. Andrews, Va Power, W. R. Willis, Va Power,	1	ST	II	Yes

			Bill Kittrel, VDGIF				
4789	SppObs	Oct 19 1990	Bob Graham, R. S. Andrews, Va Power, W. R. Willis, Va Power, Bill Kittrel, VDGIF	2	ST	II	Yes
4785	SppObs	Oct 19 1990	Bob Graham, R. S. Andrews, Va Power, W. R. Willis, Va Power, Bill Kittrel, VDGIF	1	ST	II	Yes
337923	SppObs	Jan 1 1984	SPM-B-MCINICH	10	ST	II	Yes
337900	SppObs	Jan 1 1984	SPM-B-MCINICH	9	ST	II	Yes
337941	SppObs	Jan 1 1984	SPM-B-MCINICH	9	ST	II	Yes
337922	SppObs	Jan 1 1984	SPM-B-MCINICH	5	ST	II	Yes
337902	SppObs	Jan 1 1984	SPM-B-MCINICH	5	ST	II	Yes
332795	SppObs	Jan 1 1962	VPI-B-VA. POLY. INST.	5	ST	II	Yes
363254	SppObs	Jan 1 1900		1	CC	III	Yes
627146	SppObs	Mar 29 2017	Chad Coley	1		III	Yes
635229	SppObs	Mar 29 2017	Chad Coley	1		III	Yes
623501	SppObs	Jun 8 2013	Paul; Sattler Jason; Gibson Susan; Watson Dave; Perry Mike ; Clifford	14		III	Yes
100276	SppObs	Jun 18 2007	Harding, Sergio	13		III	Yes
100271	SppObs	Jun 18 2007	Harding, Sergio	14		III	Yes

Displayed 20 Species Observations

Selected 167 Observations [View all 167 Species Observations](#)

Habitat Predicted for Aquatic WAP Tier I & II Species (19 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					
Allen Creek (30101061)	ST	010070	ST	IIC	Shiner, whitemouth	Miniellus alborus	Yes
Allen Creek (30101062)		060175		IIB	Slabshell, Roanoke	Elliptio roanokensis	Yes

Cotton Creek (30101061)		060175		IIb	Slabshell, Roanoke	Elliptio roanokensis	Yes
Cotton Creek (30101062)		060175		IIb	Slabshell, Roanoke	Elliptio roanokensis	Yes
Flat Creek (30101061)		060175		IIb	Slabshell, Roanoke	Elliptio roanokensis	Yes
Kettles Creek (30101061)	ST	010070	ST	IIc	Shiner, whitemouth	Miniellus alborus	Yes
		010353	ST	IIc	Darter, Carolina	Etheostoma collis	
Kettles Creek (30101061)	ST	010353	ST	IIc	Darter, Carolina	Etheostoma collis	Yes
Kettles Creek (30101062)	ST	010070	ST	IIc	Shiner, whitemouth	Miniellus alborus	Yes
		010353	ST	IIc	Darter, Carolina	Etheostoma collis	
Kettles Creek (30101062)	ST	010353	ST	IIc	Darter, Carolina	Etheostoma collis	Yes
Miles Creek (30101061)		060175		IIb	Slabshell, Roanoke	Elliptio roanokensis	Yes
Miles Creek (30101062)		060175		IIb	Slabshell, Roanoke	Elliptio roanokensis	Yes
Mines Creek (30101061)	ST	010070	ST	IIc	Shiner, whitemouth	Miniellus alborus	Yes
		010353	ST	IIc	Darter, Carolina	Etheostoma collis	
Parham Creek (30101061)		060175		IIb	Slabshell, Roanoke	Elliptio roanokensis	Yes
Roanoke River (30101062)		060175		IIb	Slabshell, Roanoke	Elliptio roanokensis	Yes
tributary (03010204)	FTST	060173	FTST	Ia	Pigtoe, Atlantic	Fusconaia masoni	Yes
tributary (30101061)		060175		IIb	Slabshell, Roanoke	Elliptio roanokensis	Yes
Unnamed trib. of Kettles Creek (30101061)	ST	010070	ST	IIc	Shiner, whitemouth	Miniellus alborus	Yes
		010353	ST	IIc	Darter, Carolina	Etheostoma collis	
Unnamed trib. of Kettles Creek (30101062)	ST	010070	ST	IIc	Shiner, whitemouth	Miniellus alborus	Yes

		010353	ST	IIC	Darter, Carolina	Etheostoma collis	
Unnamed trib. of Mines Creek (30101061)	ST	010070	ST	IIC	Shiner, whitemouth	Miniellus alborus	Yes
		010353	ST	IIC	Darter, Carolina	Etheostoma collis	

Habitat Predicted for Terrestrial WAP Tier I & II Species

N/A

Virginia Breeding Bird Atlas Blocks (12 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 **	
44026	Baskerville, SE	68		III	Yes
44025	Baskerville, SW	62		III	Yes
43024	Boydton, CE	1		III	Yes
43026	Boydton, SE	65		III	Yes
45012	Bracey, NE	69		III	Yes
45011	Bracey, NW	47	ST	I	Yes
44012	John H. Kerr Dam, NE	67		III	Yes
44011	John H. Kerr Dam, NW	32		III	Yes
46021	La Crosse, NW	59	ST	I	Yes
45036	North View, SE	68		III	Yes
45026	South Hill, SE	57		III	Yes
44036	Wightman, SE	66		III	Yes

Public Holdings: (2 names)

Name	Agency	Level
Dick Cross Wildlife Management Area	Va DGIF	
Kerr Reservoir/Buggs Island Lake	Army Corps of Engineers	Federal

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
117	Mecklenburg	390	FESE	I

USGS 7.5' Quadrangles:

Tungsten
Boydton

John H. Kerr Dam
Baskerville
Wightman
Bracey
South Hill
North View
South Hill SE
La Crosse

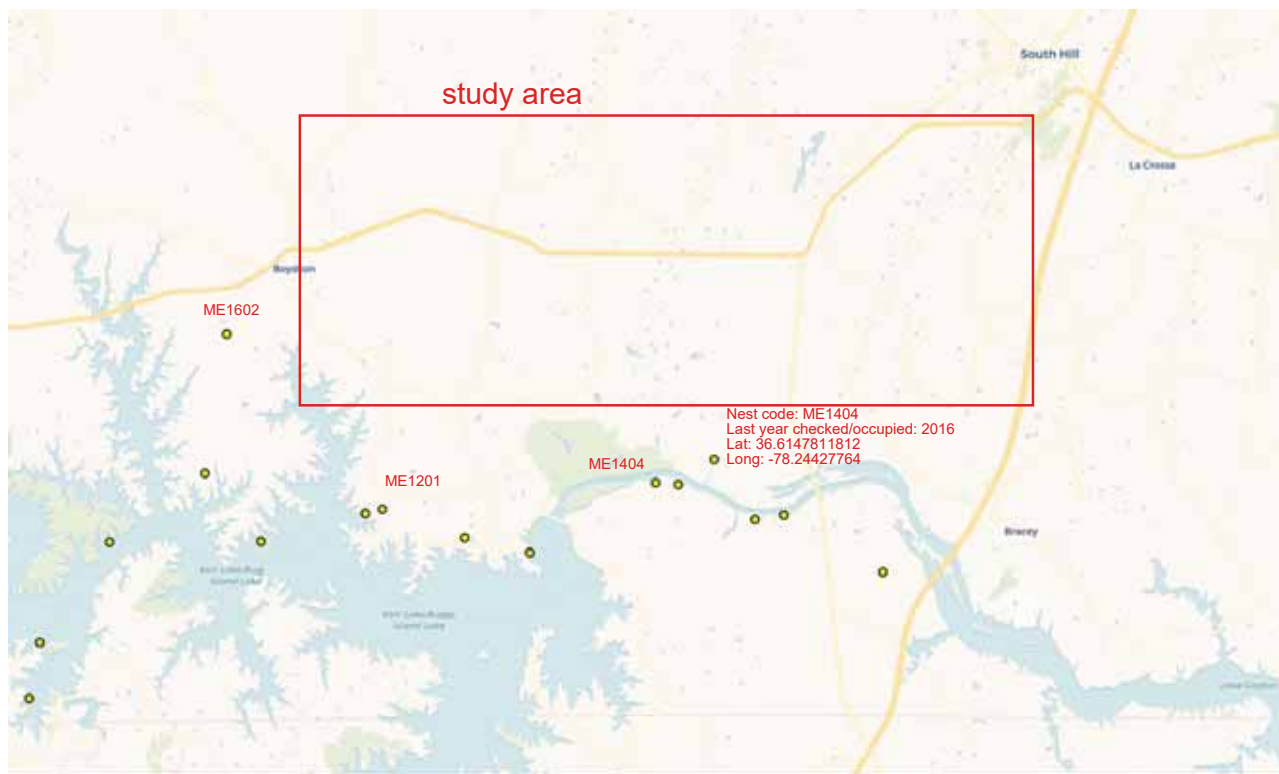
USGS NRCS Watersheds in Virginia:

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
CM09	Meherrin River-Crooked Creek	64	FTST	I
CM11	Meherrin River-Stony Creek	66	FTST	I
CM12	Meherrin River-Taylors Creek	69	FTST	I
CM13	Genito Creek	63	FTST	I
RL07	Butcher Creek/John H Kerr Reservoir	59	ST	I
RL09	Roanoke River/John H Kerr Reservoir-Eastland Creek	56	ST	I
RL10	Allen Creek-Layton Creek	58	ST	I
RL11	Allen Creek-Cox Creek	62	ST	I
RL12	Lake Gaston-Cotton Creek	57	ST	I
RL13	Miles Creek-Dockery Creek	58	ST	I
RL14	Lake Gaston-Flat Creek	58	ST	I
RL18	Roanoke River/Lake Gaston-Great Creek	58	ST	I

Compiled on 9/10/2024, 4:24:39 PM I2408962.0 report=all searchType= P dist= 3218 poi= 36.7267900 -78.3413699 siteDD= 36.7267897 -78.3413753;36.7268047 -78.3379632;36.7268195 -78.3345512;36.7268342 -78.3311392;36.7268489 -78.3277271;36.7268634 -78.3243151;36.7268778 -78.3209031;36.7268922 -78.3174910;36.7269064 -78.3140790;36.7269205 -78.3106669;36.7269346 -78.3072549;36.7269485 -78.3038429;36.7269624 -78.3004308;36.7269761 -78.2970188;36.7269897 -78.2936067;36.7270033 -78.2901947;36.7270167 -78.2867826;36.7270301 -78.2833706;36.7270433 -78.2799585;36.7270565 -78.2765464;36.7270695 -78.2731344;36.7270824 -78.2697223;36.7270953 -78.2663103;36.7271080 -78.2628982;36.7271207 -78.2594862;36.7271332 -78.2560741;36.7271457 -78.2526620;36.7271580 -78.2492500;36.7271703 -78.2458379;36.7271824 -78.2424258;36.7271945 -78.2390138;36.7272064 -78.2356017;36.7272183 -78.2321896;36.7272300 -78.2287776;36.7272417 -78.2253655;36.7272533 -78.2219534;36.7272647 -78.2185413;36.7272761 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-79.2235223 -79.2263891 -79.2292559 -79.2321227 -79.2349895 -79.2378563 -79.2407231 -79.2435899 -79.2464567 -79.2493235 -79.2521903 -79.2550571 -79.2579239 -79.2607907 -79.2636575 -79.2665243 -79.2693911 -79.2722579 -79.2751247 -79.2779915 -79.2808583 -79.2837251 -79.2865919 -79.2894587 -79.2923255 -79.2951923 -79.2980591 -79.3009259 -79.303792



Layers: VA Eagle Nest Locator

Map Center [longitude, latitude]: [-78.24050903320312, 36.626411878849005]

Map Link:

<https://ccbbirds.org/maps/#layer=VA+Eagle+Nest+Locator&zoom=12&lat=36.626411878849005&lng=-78.24050903320312&base=Street+Map+%28OSM%2FCarto%29>

Report Generated On: 11/07/2024

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Report generated by [The Center for Conservation Biology Mapping Portal](#).

To learn more about CCB visit ccbbirds.org or contact us at info@ccbbirds.org

Critical Habitat - Nebula-Raines

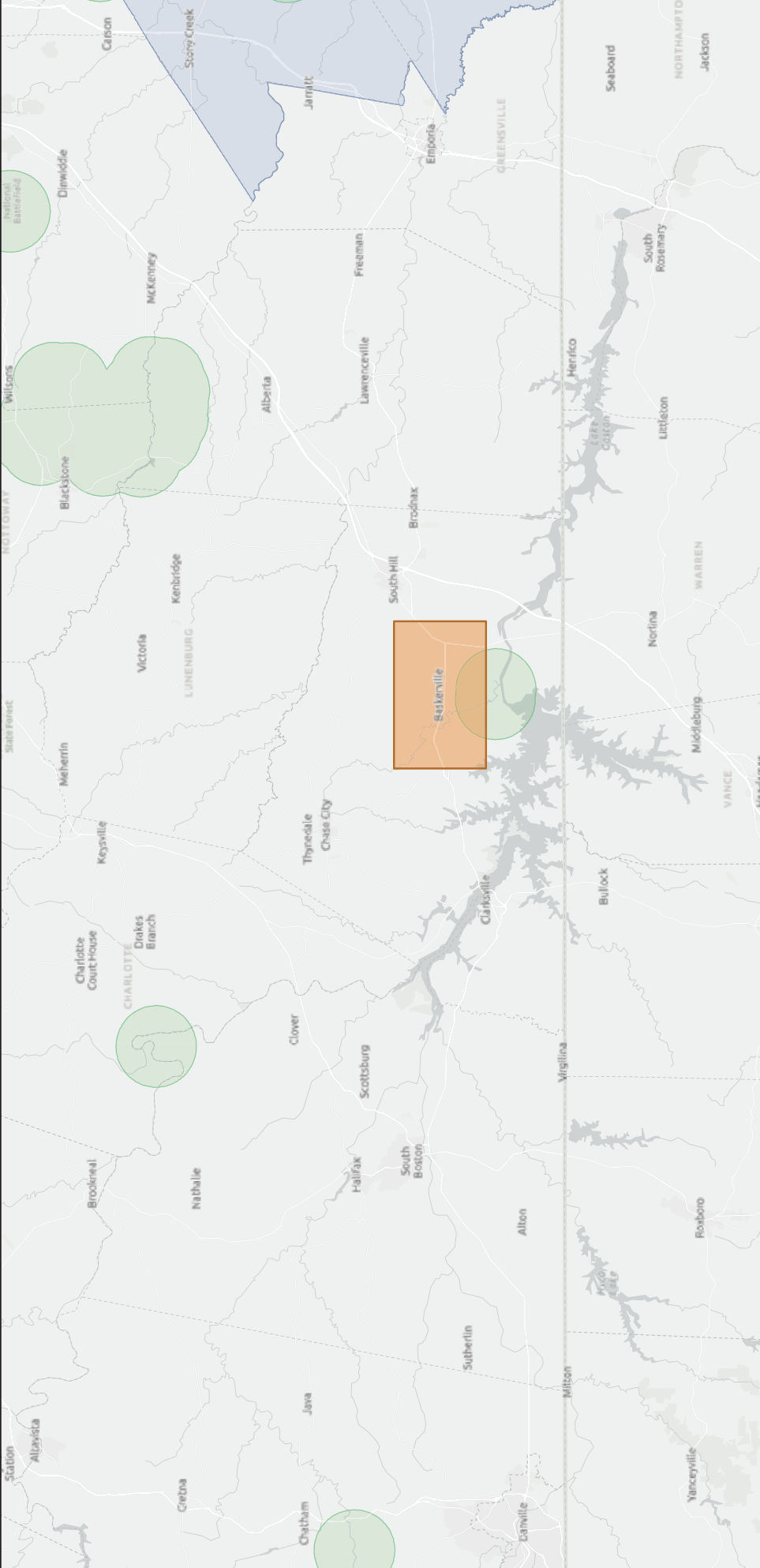


October 7, 2024

Virginia Critical Habitat (published)

Esri, HERE, Garmin, FAO, USGS, EPA, NPS

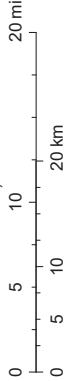
NLEB Locations and Roost Trees - Nebula-Raines



10/7/2024, 5:28:41 PM

- NLEB Capture 3 Mile Buffer
- NLEB Year-Round Presence

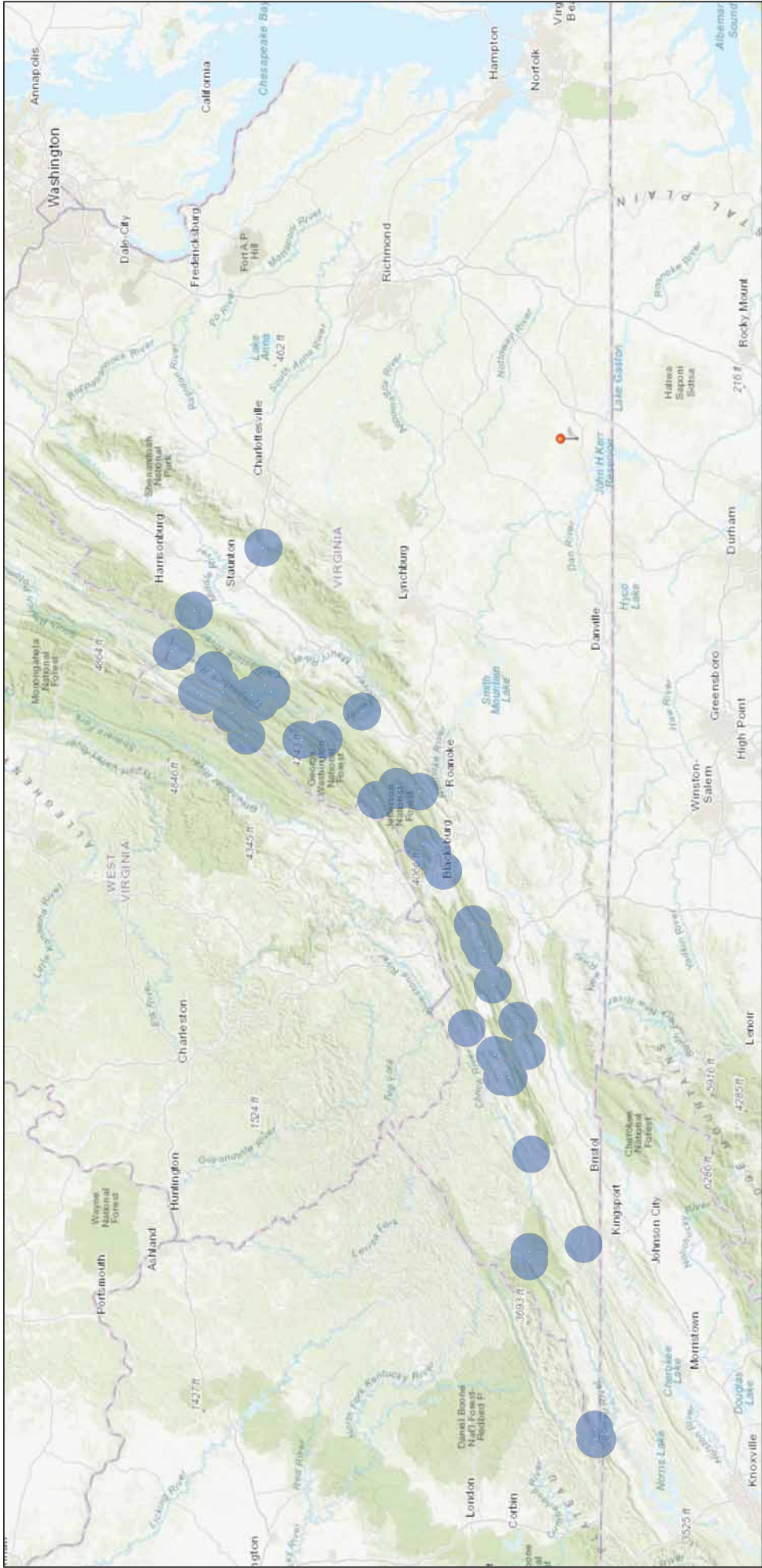
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Southside PDC, VGIN, Esri, TomTom, Garmin, SafeGraph, FAO, MET/INASA, USGS, EPA, NPS, USFWS

Southside PDC, VGIN, Esri, TomTom, Garmin, SafeGraph, FAO, MET/INASA, USGS, EPA, NPS, USFWS | Virginia Geographic Information Network (VGIN), and the Census and Localities and Towns submitting data to the project | Southside PDC, VGIN, Esri, TomTom, Garmin, SafeGraph, FAO, MET/INASA, USGS, EPA, NPS, USFWS

MYLU-PESU Locations and Roost Trees - Nebula-Raines



10/7/2024, 5:22:32 PM

1:2,311,162

Tri-colored and Little Brown Hibernaculum Half Mile Buffer

Tri-colored and Little Brown Hibernaculum 5.5 Mile Buffer

Esri, HERE, Garmin, FAO, USGS, EPA, NPS

Dept. Game and Inland Fisheries
Esri, HERE, Garmin, FAO, USGS, EPA, NPS |

Tier Reaches Group tributary (03010204)

36,43,36.4 -78,20,28.9
is the Search Point

Display at center	Item Location is not at map center
----------------------	---------------------------------------

Show Position Rings

☒ Yes ☐ No

4 miles and 1 mile at the Search
Point

Show Search Area

☒ Yes ☐ No

2 Search distance miles
buffer

Display at center	Search Point is not at map center
----------------------	--------------------------------------

Base Map [Choices](#)

BW Aerial Photography ▼

Map Overlay [Choices](#)

Current List: Position, Search,
Observation

Map Overlay Legend

-  **Position Rings**
4 miles and 1
mile at the
Search Point
-  **2 mile radius**
Search Area
-  **Data**
Observation Site

[back](#)
Map
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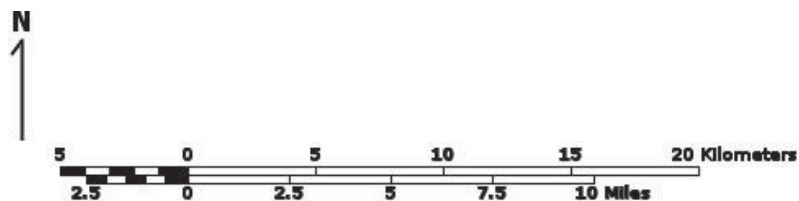
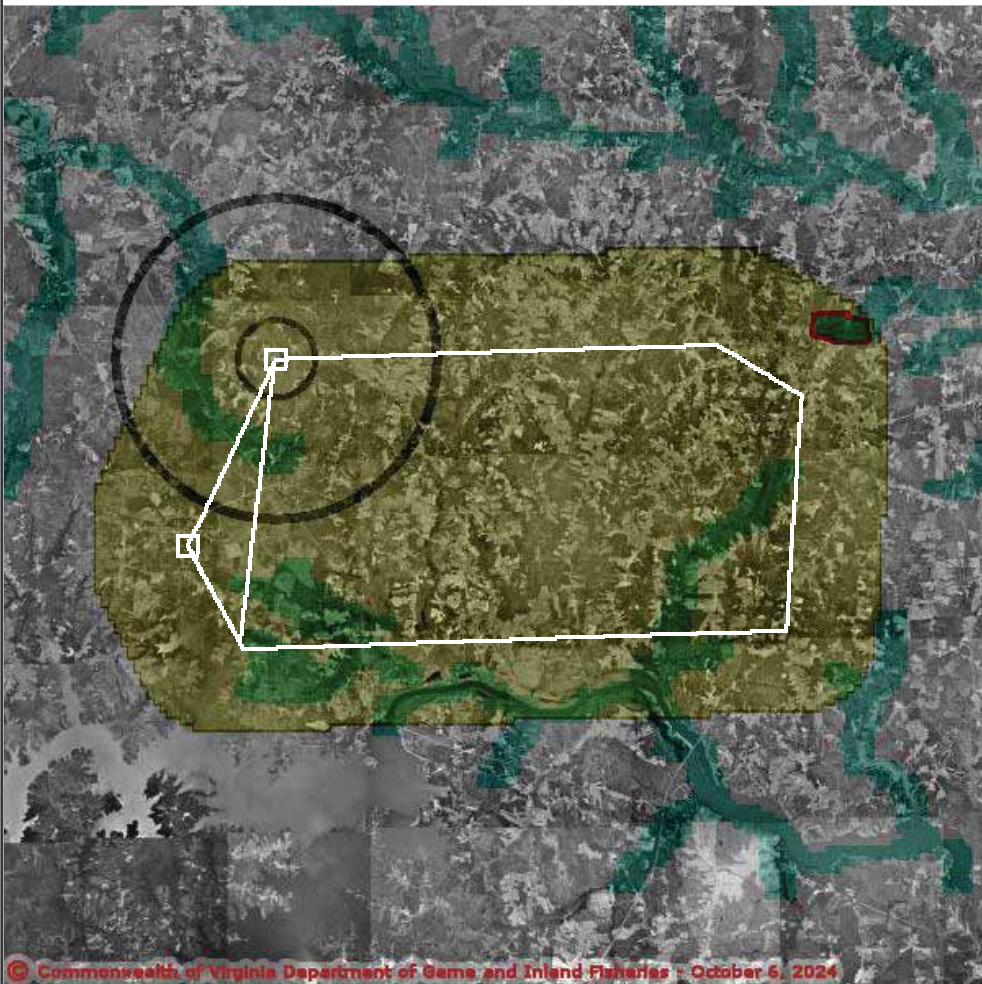
[Refresh Browser Page](#)
Map
Scale

In
Zoom

Screen
Size

Small
Size
Big

[Help](#)



Point of Search 36,43,36.4 -78,20,28.9

Map Location 36,40,33.8 -78,14,50.6

Select **Coordinate System**: ☒ Degrees, Minutes, Seconds Latitude - Longitude
☐ Decimal Degrees Latitude - Longitude
☐ Meters UTM NAD83 East North Zone
☐ Meters UTM NAD27 East North Zone

Base Map source: Black & White USGS Aerial Photography (see [Microsoft terraserver-usa.com](https://microsoft.terraserver-usa.com) for details)

Map projection is UTM Zone 17 NAD 1983 with left 726777 and top 4081671. Pixel size is 50. . Coordinates displayed are Degrees, Minutes, Seconds North and West. Map is currently displayed as 600 columns by 600 rows for a total of 360000 pixels. The map display represents 38400 meters east to west by 38400 meters north to south for a total of 1474.5 square kilometers. The map

display represents 126005 feet east to west by 126005 feet north to south for a total of 569.5 square miles.

Topographic maps and Black and white aerial photography for year 1990+- are from the United States Department of the Interior, United States Geological Survey. Color aerial photography aquired 2002 is from Virginia Base Mapping Program, Virginia Geographic Information Network.

Shaded topographic maps are from TOPO! ©2006 National Geographic
<http://www.national.geographic.com/topo>

All other map products are from the Commonwealth of Virginia Department of Wildlife Resources.

map assembled 2024-10-06 23:07:58 (qa/qc March 21, 2016 12:20 - tn=2700532.1 dist=3218
1)

\$poi=36.7267900 -78.3413699\$query=select Convert(varchar(10),floor((minx+maxx)/2))
+ '' + Convert(varchar(10),floor((miny+maxy)/2)) from
vafwis_tables.dbo.cvTierReaches where SEG_ID in ('0301020412594')

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Virginia Department of Wildlife Resources

10/6/2024 11:07:32 PM

Fish and Wildlife Information Service

VaFWIS Search Report Compiled on 10/6/2024, 11:07:32 PM

[Help](#)

Observations reported or potential habitat occurs within a **2 mile buffer around polygon;**
center 36.7267900 -78.3413699
 in **117 Mecklenburg County, VA**
 where (060173) [Pigtoe, Atlantic](#) observed.

[View Map of
Site Location](#)

Habitat Predicted for Aquatic WAP Tier I & II Species where Pigtoe, Atlantic (060173) observed

(1 Reach)

[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					
tributary (03010204)	FTST	060173	FTST	Ia	Pigtoe, Atlantic	Fusconaia masoni	Yes

*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 Wildlife 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.

Habitat Predicted for Terrestrial WAP Tier I & II Species where Pigtoe, Atlantic (060173) observed

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
CM09	Meherrin River-Crooked Creek	64	FTST	I

CM11	Meherrin River-Stony Creek	66	FTST	I
CM12	Meherrin River-Taylors Creek	69	FTST	I
CM13	Genito Creek	63	FTST	I

Compiled on 10/6/2024, 11:07:32 PM I2700532.1 report=BOVA searchType= P dist= 3218 poi= 36.7267900 -78.3413699

audit no. 2700532 10/6/2024 11:07:32 PM Virginia Fish and Wildlife Information Service

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Virginia Department of Wildlife Resources

10/6/2024 11:41:54 PM

Fish and Wildlife Information Service

VaFWIS Search Report Compiled on 10/6/2024, 11:41:54 PM

[Help](#)

Known or likely to occur within a **2 mile buffer around polygon; center 36.7267900 -78.3413699**
 in **117 Mecklenburg County, VA**
 where (010353) [Darter, Carolina](#) observed.

[View Map of Site Location](#)

Threatened and Endangered Waters where Darter, Carolina (010353) observed

(39 Reaches - displaying first 20)

[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					
(0341509.)	ST	010070	ST	IIc	Shiner, whitemouth	Miniellus alborus	Yes
		010353	ST	IIc	Darter, Carolina	Etheostoma collis	
(0341530.)	ST	010070	ST	IIc	Shiner, whitemouth	Miniellus alborus	Yes
		010353	ST	IIc	Darter, Carolina	Etheostoma collis	
(0341576.)	ST	010070	ST	IIc	Shiner, whitemouth	Miniellus alborus	Yes
		010353	ST	IIc	Darter, Carolina	Etheostoma collis	
(0343292.)	ST	010070	ST	IIc	Shiner, whitemouth	Miniellus alborus	Yes
		010353	ST	IIc	Darter, Carolina	Etheostoma collis	
(0343410.)	ST	010070	ST	IIc	Shiner, whitemouth	Miniellus alborus	Yes
		010353	ST	IIc	Darter, Carolina	Etheostoma collis	

(0343494.)	ST	010070	ST	IIC	Shiner, whitemouth	Miniellus alborus	Yes
		010353	ST	IIC	Darter, Carolina	Etheostoma collis	
(0344536.)	ST	010353	ST	IIC	Darter, Carolina	Etheostoma collis	Yes
(0345486.)	ST	010070	ST	IIC	Shiner, whitemouth	Miniellus alborus	Yes
		010353	ST	IIC	Darter, Carolina	Etheostoma collis	
(0346612.)	ST	010070	ST	IIC	Shiner, whitemouth	Miniellus alborus	Yes
		010353	ST	IIC	Darter, Carolina	Etheostoma collis	
(0346858.)	ST	010070	ST	IIC	Shiner, whitemouth	Miniellus alborus	Yes
		010353	ST	IIC	Darter, Carolina	Etheostoma collis	
(0347177.)	ST	010070	ST	IIC	Shiner, whitemouth	Miniellus alborus	Yes
		010353	ST	IIC	Darter, Carolina	Etheostoma collis	
(0347365.)	ST	010070	ST	IIC	Shiner, whitemouth	Miniellus alborus	Yes
		010353	ST	IIC	Darter, Carolina	Etheostoma collis	
(0347834.)	ST	010070	ST	IIC	Shiner, whitemouth	Miniellus alborus	Yes
		010353	ST	IIC	Darter, Carolina	Etheostoma collis	
(0348275.)	ST	010070	ST	IIC	Shiner, whitemouth	Miniellus alborus	Yes
		010353	ST	IIC	Darter, Carolina	Etheostoma collis	
(0352334.)	ST	010070	ST	IIC	Shiner, whitemouth	Miniellus alborus	Yes
		010353	ST	IIC	Darter, Carolina	Etheostoma collis	
(0352412.)	ST	010070	ST	IIC	Shiner, whitemouth	Miniellus alborus	Yes

		010353	ST	IIC	Darter, Carolina	Etheostoma collis	
Kettles Creek (0339691)	ST	010070	ST	IIC	Shiner, whitemouth	Miniellus alborus	Yes
		010353	ST	IIC	Darter, Carolina	Etheostoma collis	
Kettles Creek (0341307)	ST	010070	ST	IIC	Shiner, whitemouth	Miniellus alborus	Yes
		010353	ST	IIC	Darter, Carolina	Etheostoma collis	
Kettles Creek (0341621)	ST	010070	ST	IIC	Shiner, whitemouth	Miniellus alborus	Yes
		010353	ST	IIC	Darter, Carolina	Etheostoma collis	
Kettles Creek (0341949)	ST	010070	ST	IIC	Shiner, whitemouth	Miniellus alborus	Yes
		010353	ST	IIC	Darter, Carolina	Etheostoma collis	
Kettles Creek (0343444)	ST	010070	ST	IIC	Shiner, whitemouth	Miniellus alborus	Yes
		010353	ST	IIC	Darter, Carolina	Etheostoma collis	
Kettles Creek (0343887)	ST	010070	ST	IIC	Shiner, whitemouth	Miniellus alborus	Yes
		010353	ST	IIC	Darter, Carolina	Etheostoma collis	
Kettles Creek (0343941)	ST	010070	ST	IIC	Shiner, whitemouth	Miniellus alborus	Yes

To view **All 39 Threatened and Endangered Waters records** [View 39](#)

*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 Wildlife 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.

Species Observations where Darter, Carolina (010353) observed (12 records , 12 Observations with Threatened or Endangered species)

[View Map of All Query Results](#)[Species Observations where Darter, Carolina \(010353\) observed](#)

obsID	class	Date Observed	Observer	N Species			View Map
				Different Species	Highest TE *	Highest Tier **	
3168	SppObs	Mar 2 1991	Robert E. Jenkins, Kaitlin M. Nahil	9	ST	II	Yes
4786	SppObs	Oct 19 1990	Bob Graham, R. S. Andrews, Va Power, W. R. Willis, Va Power, Bill Kittrel, VDGIF	3	ST	II	Yes
4788	SppObs	Oct 19 1990	Bob Graham, R. S. Andrews, Va Power, W. R. Willis, Va Power, Bill Kittrel, VDGIF	2	ST	II	Yes
4789	SppObs	Oct 19 1990	Bob Graham, R. S. Andrews, Va Power, W. R. Willis, Va Power, Bill Kittrel, VDGIF	2	ST	II	Yes
4790	SppObs	Oct 19 1990	Bob Graham, R. S. Andrews, Va Power, W. R. Willis, Va Power, Bill Kittrel, VDGIF	1	ST	II	Yes
4791	SppObs	Oct 19 1990	Bob Graham, R. S. Andrews, Va Power, W. R. Willis, Va Power, Bill Kittrel, VDGIF	2	ST	II	Yes
337900	SppObs	Jan 1 1984	SPM-B-MCINICH	9	ST	II	Yes
337902	SppObs	Jan 1 1984	SPM-B-MCINICH	5	ST	II	Yes
337922	SppObs	Jan 1 1984	SPM-B-MCINICH	5	ST	II	Yes
337923	SppObs	Jan 1 1984	SPM-B-MCINICH	10	ST	II	Yes
337941	SppObs	Jan 1 1984	SPM-B-MCINICH	9	ST	II	Yes
332795	SppObs	Jan 1 1962	VPI-B-VA. POLY. INST.	5	ST	II	Yes

Displayed 12 Species Observations where Darter, Carolina (010353) observed

Habitat Predicted for Aquatic WAP Tier I & II Species where Darter, Carolina (010353) observed

(8 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					
Kettles Creek (30101061)	ST	010070	ST	IIc	Shiner, whitemouth	Miniellus alborus	Yes
		010353	ST	IIc	Darter, Carolina	Etheostoma collis	
Kettles Creek (30101061)	ST	010353	ST	IIc	Darter, Carolina	Etheostoma collis	Yes
Kettles Creek (30101062)	ST	010070	ST	IIc	Shiner, whitemouth	Miniellus alborus	Yes
		010353	ST	IIc	Darter, Carolina	Etheostoma collis	
Kettles Creek (30101062)	ST	010353	ST	IIc	Darter, Carolina	Etheostoma collis	Yes
Mines Creek (30101061)	ST	010070	ST	IIc	Shiner, whitemouth	Miniellus alborus	Yes
		010353	ST	IIc	Darter, Carolina	Etheostoma collis	
Unnamed trib. of Kettles Creek (30101061)	ST	010070	ST	IIc	Shiner, whitemouth	Miniellus alborus	Yes
		010353	ST	IIc	Darter, Carolina	Etheostoma collis	
Unnamed trib. of Kettles Creek (30101062)	ST	010070	ST	IIc	Shiner, whitemouth	Miniellus alborus	Yes
		010353	ST	IIc	Darter, Carolina	Etheostoma collis	
Unnamed trib. of Mines Creek (30101061)	ST	010070	ST	IIc	Shiner, whitemouth	Miniellus alborus	Yes
		010353	ST	IIc	Darter, Carolina	Etheostoma collis	

Habitat Predicted for Terrestrial WAP Tier I & II Species where Darter, Carolina (010353) observed

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
RL07	Butcher Creek/John H Kerr Reservoir	59	ST	I
RL10	Allen Creek-Layton Creek	58	ST	I
RL11	Allen Creek-Cox Creek	62	ST	I
RL13	Miles Creek-Dockery Creek	58	ST	I
RL14	Lake Gaston-Flat Creek	58	ST	I
RL18	Roanoke River/Lake Gaston-Great Creek	58	ST	I

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audit no. 2700537 10/6/2024 11:41:54 PM Virginia Fish and Wildlife Information Service
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Threatened and Endangered Waters where Darter, Carolina (010353) observed

36,43,36.4 -78,20,28.9
is the Search Point

Show Position Rings

☒ Yes ☐ No

4 miles and 1 mile at the Search Point

Show Search Area

☒ Yes ☐ No

2 Search distance miles buffer

Display	Search Point is not at center
---------	-------------------------------

Base Map Choices

BW Aerial Photography ▼

Map Overlay Choices

Current List: Position, Search, TEWaters

Map Overlay Legend

T & E Waters

Federal

State



Position Rings
4 miles and 1 mile at the Search Point



2 mile radius Search Area

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[Refresh Browser Page](#)
[Pan](#) [Id](#) [M](#)

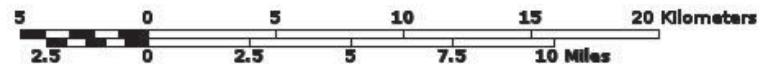
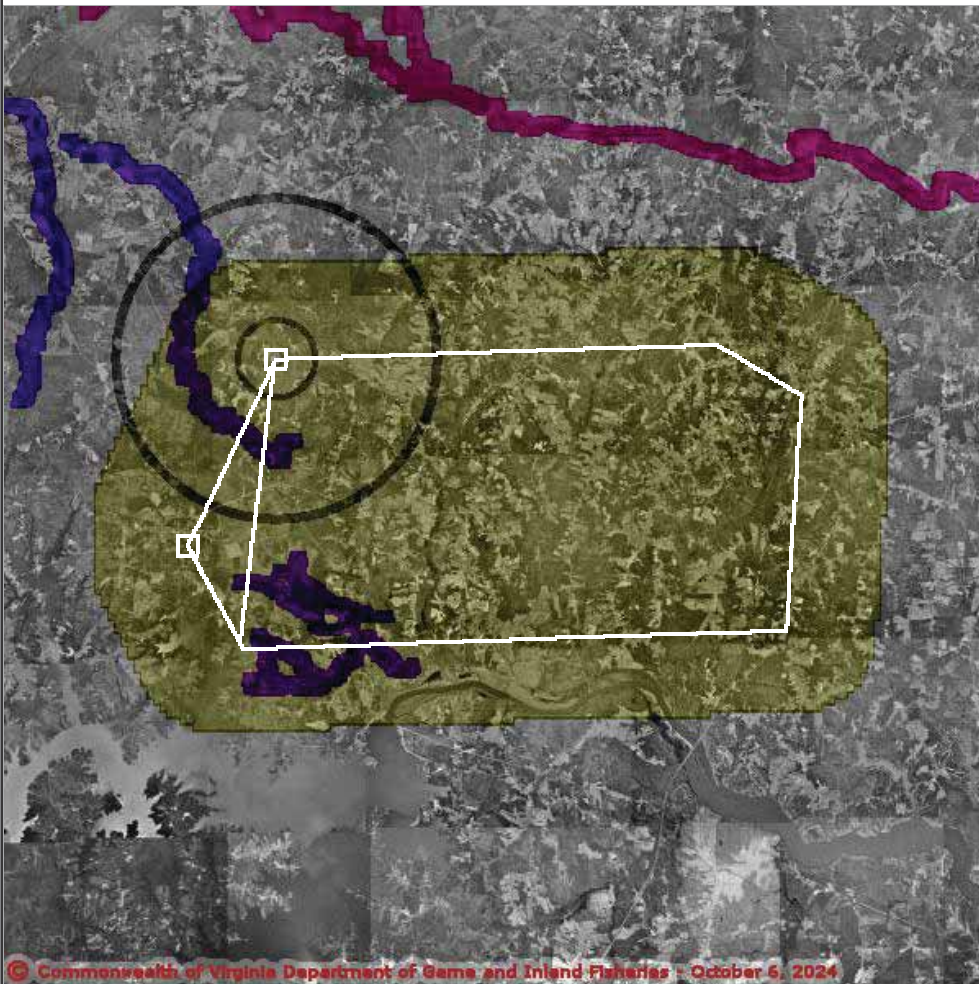
Map Scale

[In](#) [Zoom](#)

Screen Size

[Small](#) [Size](#) [Big](#)

[Help](#)



Point of Search 36,43,36.4 -78,20,28.9

Map Location 36,40,33.8 -78,14,50.6

Select **Coordinate System**: ☒ Degrees, Minutes, Seconds Latitude - Longitude
☐ Decimal Degrees Latitude - Longitude
☐ Meters UTM NAD83 East North Zone
☐ Meters UTM NAD27 East North Zone

Base Map source: Black & White USGS Aerial Photography (see [Microsoft terraserver-usa.com](https://microsoft.terraserver-usa.com) for details)

Map projection is UTM Zone 17 NAD 1983 with left 726777 and top 4081671. Pixel size is 50. . Coordinates displayed are Degrees, Minutes, Seconds North and West. Map is currently displayed as 600 columns by 600 rows for a total of 360000 pixels. The map display represents 38400 meters east to west by 38400 meters north to south for a total of 1474.5 square kilometers. The map

display represents 126005 feet east to west by 126005 feet north to south for a total of 569.5 square miles.

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map assembled 2024-10-06 23:42:54 (qa/qc March 21, 2016 12:20 - tn=2700537.1 dist=3218
1)
\$poi=36.7267900 -78.3413699

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Virginia Breeding Bird Atlas Blocks

36,43,36.4 -78,20,28.9
is the Search Point

Show Position Rings

☒ Yes ☐ No

4 miles and 1 mile at the Search Point

Show Search Area

☒ Yes ☐ No

2 Search distance miles
buffer

Display	Search Point is not
at center	at map center

Base Map [Choices](#)

BW Aerial Photography ▼

Map Overlay [Choices](#)

Current List: Position, Search, BBA

Map Overlay Legend

-  **Position Rings**
4 miles and 1 mile at the Search Point
-  **2 mile radius Search Area**
-  **Data Observation Site**

[back](#)
Map Click

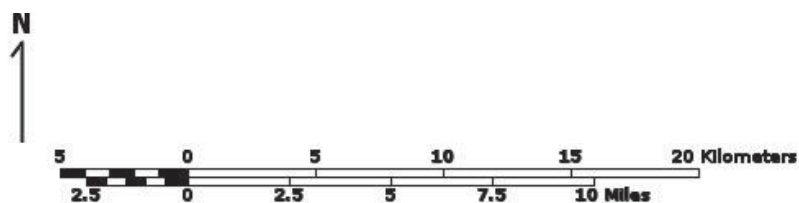
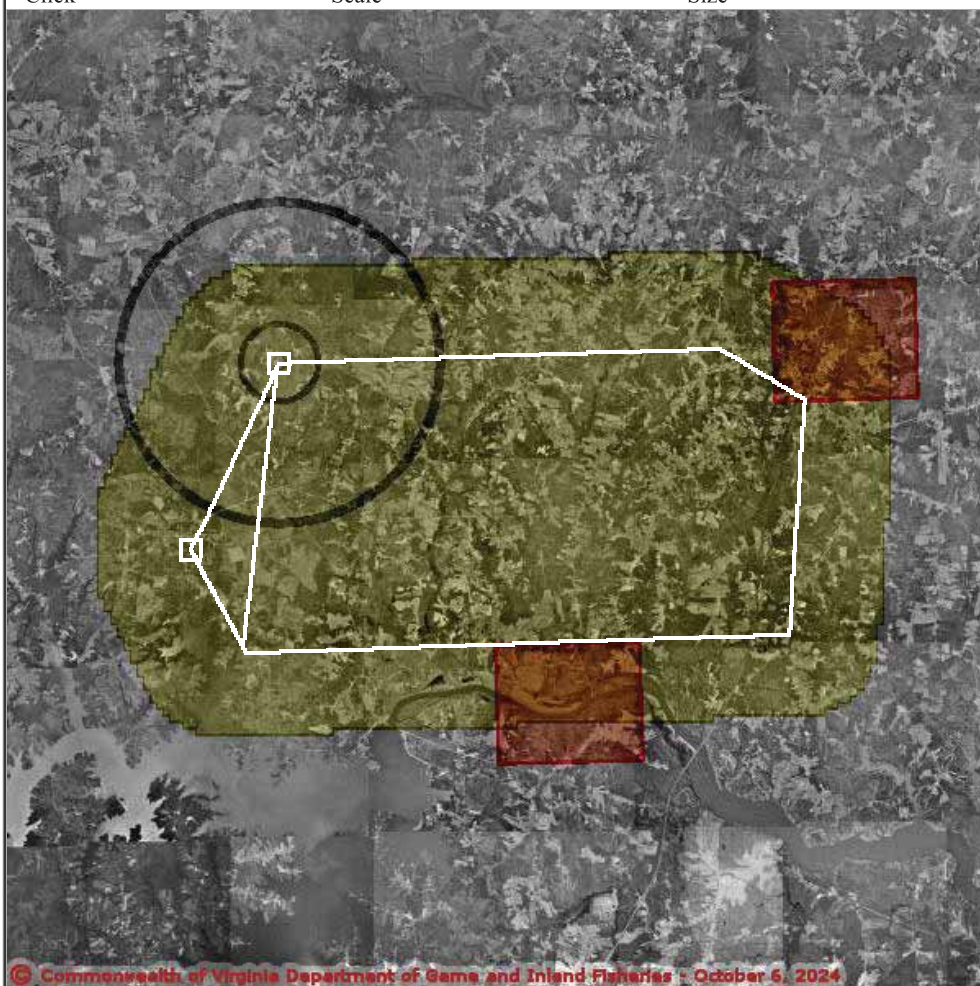
[Refresh Browser Page](#)
In Zoom

[Help](#)
Screen Size

Pan
Id
M

Map Scale

Small
Size
Big



Point of Search 36,43,36.4 -78,20,28.9

Map Location 36,40,33.8 -78,14,50.6

Select **Coordinate System**: ☒ Degrees, Minutes, Seconds Latitude - Longitude
☐ Decimal Degrees Latitude - Longitude
☐ Meters UTM NAD83 East North Zone
☐ Meters UTM NAD27 East North Zone

Base Map source: Black & White USGS Aerial Photography (see [Microsoft terraserver-usa.com](https://microsoft.terraserer-usa.com) for details)

Map projection is UTM Zone 17 NAD 1983 with left 726777 and top 4081671. Pixel size is 50. . Coordinates displayed are Degrees, Minutes, Seconds North and West. Map is currently displayed as 600 columns by 600 rows for a total of 360000 pixels. The map display represents 38400 meters east to west by 38400 meters north to south for a total of 1474.5 square kilometers. The map

display represents 126005 feet east to west by 126005 feet north to south for a total of 569.5 square miles.

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map assembled 2024-10-06 23:37:01 (qa/qc March 21, 2016 12:20 - tn=2700537.1 dist=3218
1)
\$poi=36.7267900 -78.3413699

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Virginia Department of Wildlife Resources

10/6/2024 11:36:37 PM

Fish and Wildlife Information Service

VaFWIS Search Report Compiled on 10/6/2024, 11:36:37 PM

[Help](#)

Observations reported or potential habitat occurs within a **2 mile buffer around polygon;**
center 36.7267900 -78.3413699
 in **117 Mecklenburg County, VA**
 where (040293) [Shrike](#), [loggerhead](#) observed.

[View Map of
Site Location](#)

Virginia Breeding Bird Atlas Blocks where Shrike, loggerhead (040293) observed

(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 ^{**}	
45011	Bracey, NW	47	ST	I	Yes
46021	La Crosse, NW	59	ST	I	Yes

*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 Wildlife 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.

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
RL07	Butcher Creek/John H Kerr Reservoir	59	ST	I

Compiled on 10/6/2024, 11:36:37 PM 12700537.1 report=BOVA searchType= P dist= 3218 poi= 36.7267900 -78.3413699

audit no. 2700537 10/6/2024 11:36:37 PM Virginia Fish and Wildlife Information Service

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Virginia Department of Wildlife Resources

10/6/2024 11:40:23 PM

Fish and Wildlife Information Service

VaFWIS Search Report Compiled on 10/6/2024, 11:40:23 PM

[Help](#)

Known or likely to occur within a **2 mile buffer around polygon; center 36.7267900 -78.3413699**
 in **117 Mecklenburg County, VA**
 where (010070) [Shiner, whitemouth](#) observed.

[View Map of Site Location](#)

Threatened and Endangered Waters where Shiner, whitemouth (010070) observed

(51 Reaches - displaying first 20)

[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					
(0341509.)	ST	010070	ST	IIC	Shiner, whitemouth	Miniellus alborus	Yes
		010353	ST	IIC	Darter, Carolina	Etheostoma collis	
(0341530.)	ST	010070	ST	IIC	Shiner, whitemouth	Miniellus alborus	Yes
		010353	ST	IIC	Darter, Carolina	Etheostoma collis	
(0341576.)	ST	010070	ST	IIC	Shiner, whitemouth	Miniellus alborus	Yes
		010353	ST	IIC	Darter, Carolina	Etheostoma collis	
(0343292.)	ST	010070	ST	IIC	Shiner, whitemouth	Miniellus alborus	Yes
		010353	ST	IIC	Darter, Carolina	Etheostoma collis	
(0343410.)	ST	010070	ST	IIC	Shiner, whitemouth	Miniellus alborus	Yes
		010353	ST	IIC	Darter, Carolina	Etheostoma collis	

(0343494.)	ST	010070	ST	IIC	Shiner, whitemouth	Miniellus alborus	Yes
		010353	ST	IIC	Darter, Carolina	Etheostoma collis	
(0345486.)	ST	010070	ST	IIC	Shiner, whitemouth	Miniellus alborus	Yes
		010353	ST	IIC	Darter, Carolina	Etheostoma collis	
(0346612.)	ST	010070	ST	IIC	Shiner, whitemouth	Miniellus alborus	Yes
		010353	ST	IIC	Darter, Carolina	Etheostoma collis	
(0346858.)	ST	010070	ST	IIC	Shiner, whitemouth	Miniellus alborus	Yes
		010353	ST	IIC	Darter, Carolina	Etheostoma collis	
(0347177.)	ST	010070	ST	IIC	Shiner, whitemouth	Miniellus alborus	Yes
		010353	ST	IIC	Darter, Carolina	Etheostoma collis	
(0347365.)	ST	010070	ST	IIC	Shiner, whitemouth	Miniellus alborus	Yes
		010353	ST	IIC	Darter, Carolina	Etheostoma collis	
(0347834.)	ST	010070	ST	IIC	Shiner, whitemouth	Miniellus alborus	Yes
		010353	ST	IIC	Darter, Carolina	Etheostoma collis	
(0348275.)	ST	010070	ST	IIC	Shiner, whitemouth	Miniellus alborus	Yes
		010353	ST	IIC	Darter, Carolina	Etheostoma collis	
(0352334.)	ST	010070	ST	IIC	Shiner, whitemouth	Miniellus alborus	Yes
		010353	ST	IIC	Darter, Carolina	Etheostoma collis	
(0352412.)	ST	010070	ST	IIC	Shiner, whitemouth	Miniellus alborus	Yes
		010353	ST	IIC	Darter, Carolina	Etheostoma collis	

Allen Creek (0341512.)	ST	010070	ST	IIC	Shiner, whitemouth	Miniellus alborus	Yes
Allen Creek (0341762.)	ST	010070	ST	IIC	Shiner, whitemouth	Miniellus alborus	Yes
Allen Creek (0343400.)	ST	010070	ST	IIC	Shiner, whitemouth	Miniellus alborus	Yes
Allen Creek (0343936.)	ST	010070	ST	IIC	Shiner, whitemouth	Miniellus alborus	Yes
Allen Creek (0344282.)	ST	010070	ST	IIC	Shiner, whitemouth	Miniellus alborus	Yes
Allen Creek (0345337.)	ST	010070	ST	IIC	Shiner, whitemouth	Miniellus alborus	Yes
Allen Creek (0347171.)	ST	010070	ST	IIC	Shiner, whitemouth	Miniellus alborus	Yes
Allen Creek (0347738.)	ST	010070	ST	IIC	Shiner, whitemouth	Miniellus alborus	Yes

To view **All 51 Threatened and Endangered Waters records** [View 51](#)

*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 Wildlife 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.

Species Observations where Shiner, whitemouth (010070) observed

(10 records , 10 Observations with Threatened or Endangered species)

[View Map of All Query Results](#)

[Species Observations where Shiner, whitemouth \(010070\) observed](#)

obsID	class	Date Observed	Observer	N Species			View Map
				Different Species	Highest TE *	Highest Tier **	
3168	SppObs	Mar 2 1991	Robert E. Jenkins, Kaitlin M. Nahil	9	ST	II	Yes
4785	SppObs	Oct 19 1990	Bob Graham, R. S. Andrews, Va Power, W. R. Willis, Va Power, Bill Kittrel, VDGIF	1	ST	II	Yes
4786	SppObs	Oct 19 1990	Bob Graham, R. S. Andrews, Va Power, W. R.	3	ST	II	Yes

			Willis, Va Power, Bill Kittrel, VDGIF				
4787	SppObs	Oct 19 1990	Bob Graham, R. S. Andrews, Va Power, W. R. Willis, Va Power, Bill Kittrel, VDGIF	1	ST	II	Yes
4788	SppObs	Oct 19 1990	Bob Graham, R. S. Andrews, Va Power, W. R. Willis, Va Power, Bill Kittrel, VDGIF	2	ST	II	Yes
4789	SppObs	Oct 19 1990	Bob Graham, R. S. Andrews, Va Power, W. R. Willis, Va Power, Bill Kittrel, VDGIF	2	ST	II	Yes
4791	SppObs	Oct 19 1990	Bob Graham, R. S. Andrews, Va Power, W. R. Willis, Va Power, Bill Kittrel, VDGIF	2	ST	II	Yes
337900	SppObs	Jan 1 1984	SPM-B-MCINICH	9	ST	II	Yes
337923	SppObs	Jan 1 1984	SPM-B-MCINICH	10	ST	II	Yes
337941	SppObs	Jan 1 1984	SPM-B-MCINICH	9	ST	II	Yes

Displayed 10 Species Observations where Shiner, whitemouth (010070) observed

Habitat Predicted for Aquatic WAP Tier I & II Species where Shiner, whitemouth (010070) observed

(7 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					
Allen Creek (30101061)	ST	010070	ST	IIC	Shiner, whitemouth	Miniellus alborus	Yes
Kettles Creek (30101061)	ST	010070	ST	IIC	Shiner, whitemouth	Miniellus alborus	Yes
		010353	ST	IIC	Darter, Carolina	Etheostoma collis	
Kettles Creek (30101062)	ST	010070	ST	IIC	Shiner, whitemouth	Miniellus alborus	Yes
		010353	ST	IIC	Darter, Carolina	Etheostoma collis	

Mines Creek (30101061)	ST	010070	ST	IIC	Shiner, whitemouth	Miniellus alborus	Yes
		010353	ST	IIC	Darter, Carolina	Etheostoma collis	
Unnamed trib. of Kettles Creek (30101061)	ST	010070	ST	IIC	Shiner, whitemouth	Miniellus alborus	Yes
		010353	ST	IIC	Darter, Carolina	Etheostoma collis	
Unnamed trib. of Kettles Creek (30101062)	ST	010070	ST	IIC	Shiner, whitemouth	Miniellus alborus	Yes
		010353	ST	IIC	Darter, Carolina	Etheostoma collis	
Unnamed trib. of Mines Creek (30101061)	ST	010070	ST	IIC	Shiner, whitemouth	Miniellus alborus	Yes
		010353	ST	IIC	Darter, Carolina	Etheostoma collis	

Habitat Predicted for Terrestrial WAP Tier I & II Species where Shiner, whitemouth (010070) observed

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
CM09	Meherrin River-Crooked Creek	64	FTST	I
CM11	Meherrin River-Stony Creek	66	FTST	I
CM12	Meherrin River-Taylors Creek	69	FTST	I
CM13	Genito Creek	63	FTST	I
RL07	Butcher Creek/John H Kerr Reservoir	59	ST	I
RL09	Roanoke River/John H Kerr Reservoir-Eastland Creek	56	ST	I
RL10	Allen Creek-Layton Creek	58	ST	I
RL11	Allen Creek-Cox Creek	62	ST	I
RL12	Lake Gaston-Cotton Creek	57	ST	I
RL13	Miles Creek-Dockery Creek	58	ST	I
RL14	Lake Gaston-Flat Creek	58	ST	I
RL18	Roanoke River/Lake Gaston-Great Creek	58	ST	I

Compiled on 10/6/2024, 11:40:23 PM I2700537.1 report=BOVA searchType= P dist= 3218 poi= 36.7267900 -78.3413699

audit no. 2700537 10/6/2024 11:40:23 PM Virginia Fish and Wildlife Information Service

Threatened and Endangered Waters where Shiner, whitemouth (010070) observed

36,43,36.4 -78,20,28.9
is the Search Point

Show Position Rings

☒ Yes ☐ No

4 miles and 1 mile at the Search Point

Show Search Area

☒ Yes ☐ No

2 Search distance miles buffer

Display	Search Point is not at center
---------	-------------------------------

Base Map [Choices](#)

BW Aerial Photography ▼

Map Overlay [Choices](#)

Current List: Position, Search, TEWaters

Map Overlay Legend

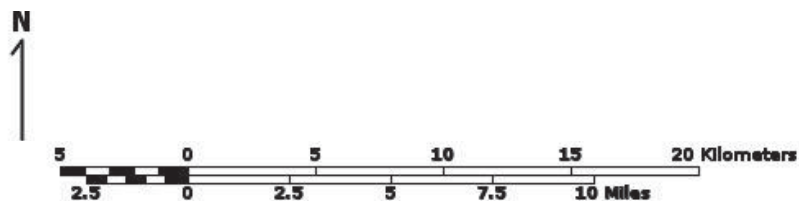
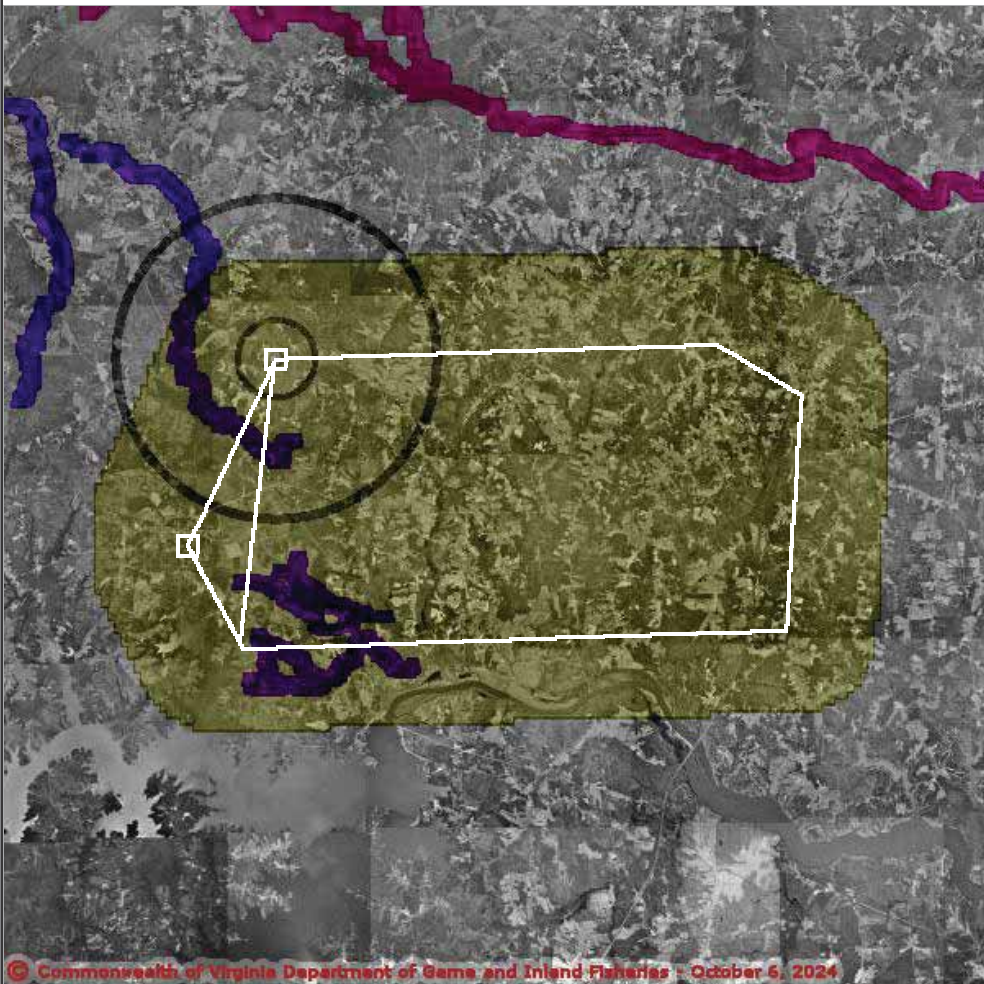
T & E Waters

Federal

State



back Map Click **Pan** **Id** **M** Map Scale **In** **Zoom** Screen Size **Small** **Size** **Big** [Help](#) [Refresh Browser Page](#)



Point of Search 36,43,36.4 -78,20,28.9

Map Location 36,40,33.8 -78,14,50.6

Select **Coordinate System**: ☒ Degrees, Minutes, Seconds Latitude - Longitude
☐ Decimal Degrees Latitude - Longitude
☐ Meters UTM NAD83 East North Zone
☐ Meters UTM NAD27 East North Zone

Base Map source: Black & White USGS Aerial Photography (see [Microsoft terraserver-usa.com](https://microsoft.terraserver-usa.com) for details)

Map projection is UTM Zone 17 NAD 1983 with left 726777 and top 4081671. Pixel size is 50. . Coordinates displayed are Degrees, Minutes, Seconds North and West. Map is currently displayed as 600 columns by 600 rows for a total of 360000 pixels. The map display represents 38400 meters east to west by 38400 meters north to south for a total of 1474.5 square kilometers. The map

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map assembled 2024-10-06 23:43:31 (qa/qc March 21, 2016 12:20 - tn=2700537.1 dist=3218
1)
\$poi=36.7267900 -78.3413699

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From: [nhreview \(DCR\)](#)
To: [Briana Cooney](#)
Cc: [Hypes, Rene \(DCR\)](#); [Weber, Joseph \(DCR\)](#)
Subject: Re: 0642267, Golden-Mars
Date: Thursday, May 23, 2024 9:58:13 AM
Attachments: [image002.png](#)
[image003.png](#)
[image.png](#)
[image.png](#)

EXTERNAL MESSAGE

Briana,

Thanks for your patience with this. I've reiterated your questions in blue, with answers below.

I was reviewing the SCS shapefile you all sent, and I noticed that there are pieces of the SCS that are now developed. Have there been any studies of this area recently? Are you able to tell me when this SCS area was created or last modified?

- Our **Chief of Biodiversity Information and Conservation Tools** said that there does seem to be areas of the SCS that were developed since it was created. Much of the SCS is still intact, however, and perhaps even more important for maintaining water quality for NHR.
- It looks like the SCS was last modified 7/6/2023. Stream Conservation Sites do not represent protected areas, but waterways and terrestrial areas that contribute to the habitat quality of the documented resource. These areas will affect the water quality of the Yellow lampmussel habitat regardless of their current land use.

I also noticed that the natural heritage resource associated with this SCS is the Yellow lampmussel; however, in my database searches, I haven't seen a documented occurrence of this species within the SCS or study area. Do you have additional information on the presence of this species?

- Generally we do not share the location of our documented resources, only the associated SCS or Conservation Site. Looking at my data, the Yellow lampmussel **is documented within the SCS**. The documented locations are in Broad Run, the main branch of the SCS in the northern portion. The other stream areas included in the SCS are upstream of documented occurrences and changes to the water quality within the SCS will impact the documented resource.
- I can't really comment on the lack of the Yellow lampmussel in the databases without knowing which ones you used. It would not be found in DWR or USFWS databases as it is not a listed species. NHDE (*Natural Heritage Database Explorer*) only shows documented occurrences to Tier 3 users, which is only available to our conservation partners.

I've also noticed in this project and previous projects that some ecological cores identified are less than 100 acres, and the VDCR letter states: "Ecological Cores are areas of at least 100 acres of continuous interior..." Should we continue to study cores that are under 100 acres?

- The cores are found in [Virginia Natural Landscape Assessment](#) Ecological Cores and Habitat Fragments data layer. It looks like the feature in question is a habitat fragment, the link above can give you some more information about Cores and Habitat Fragments.
- From our Chief of Biodiversity Information and Conservation Tools: "**Smaller areas of continuous interior cover (i.e., 10 to 99 acres) called Habitat Fragments support Ecological**

Cores and provide similar functions and values. Both feature types are discussed on the website.

- Ecological Cores and Habitat Fragments are ranked by Ecological Integrity based on variables including rare species habitats, habitat diversity, resilience, and water quality, to reflect the wide range of important benefits and ecosystem services they provide. Brief descriptions of Ecological Integrity rankings are:
 - C1 – Outstanding: These cores tend to be large in area, of deepest interior, of greatest water quality protections, highest in habitat diversity and rich in rare species, including species listed as threatened or endangered. Of all Ecological Cores in the Commonwealth 1% are ranked as C1.
 - C2 – Very High: These cores have all or many of the same characteristics and values as C1 cores, though to a lesser extent. About 2.5% of all cores in the Commonwealth are ranked C2.
 - C3 – High, C4 – Moderate, and C5 – General: These cores, as well as **habitat fragments**, have some of the same quantifiable values and characteristics as higher-ranked cores, though much reduced due to their having substantially less interior area and smaller area overall.
 -
- There are no Habitat Fragments ranked above C3. "
- Due to Habitat Fragments ability to provide important ecological functions and values, we do still recommend avoiding impacts and when impacts can not be avoided to keep them to the edge of the fragment/core. We only recommend a formal impact analysis for C1 and C2 Cores, which never include fragments.

Hopefully this information is helpful. I have Cc'd Joe Weber our Chief of Biodiversity Information and Conservation Tools and Rene' Hypes our Project Review Coordinator. Let me know if you have anymore questions or if any of the information here needs clarification.

Thank you,

Nicki Gustafson (*she/her*)

Project Review Assistant

Division of Natural Heritage

Virginia Department of Conservation and Recreation

600 E. Main Street, 24th Floor

Richmond, VA 23219

804-625-3979 | nicki.gustafson@dcr.virginia.gov





APPENDIX F VISUAL SIMULATIONS

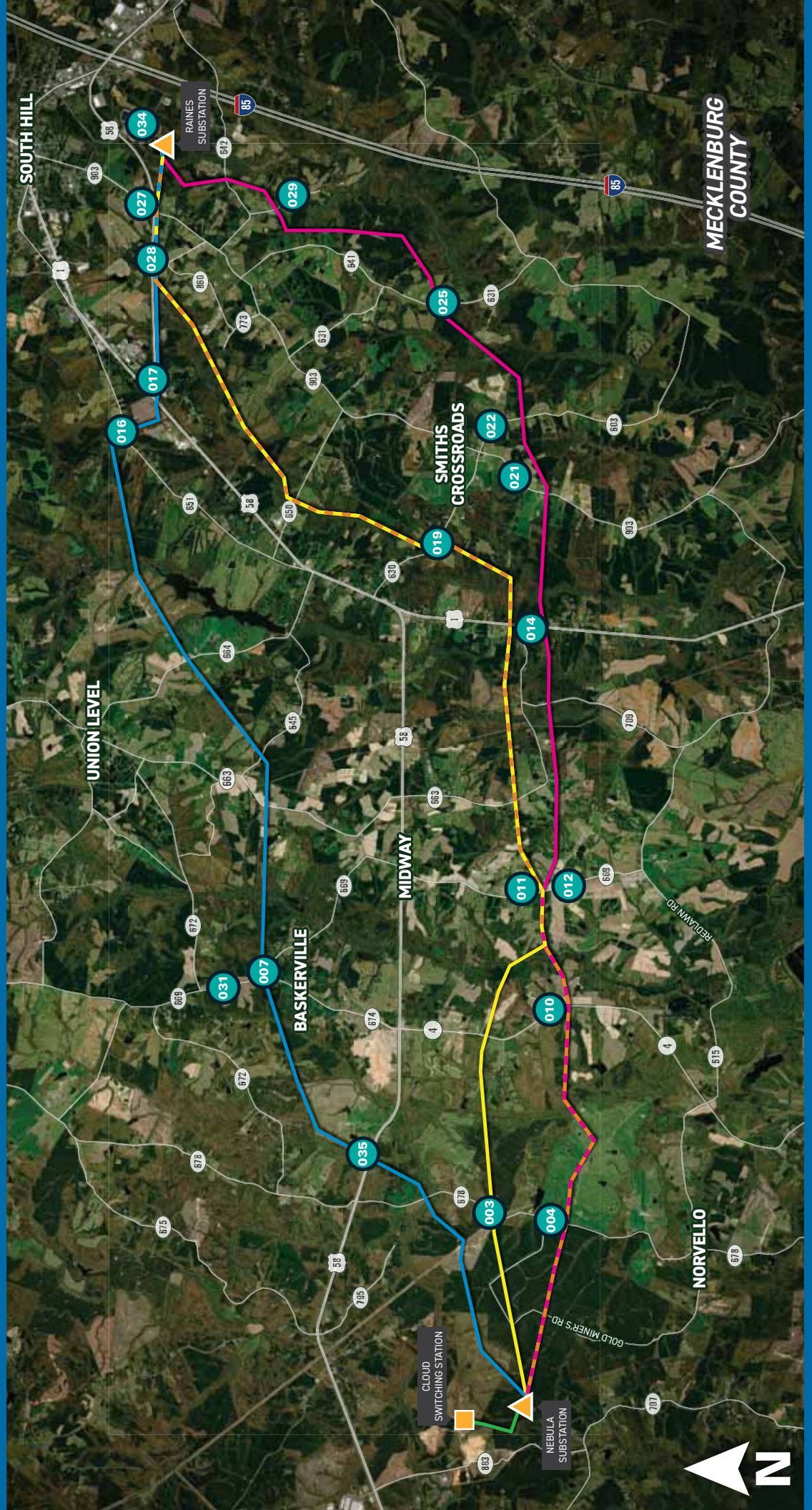
NEBULA TO RAINES

Transmission Line Project

Photo Location Map



- KOP Location
- Proposed Substation
- Proposed Switching Station
- Nebula to Cloud Route 1
- Route 1
- Route 3
- Route 4
- Route 5

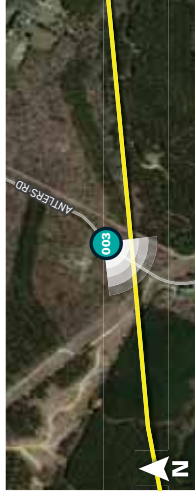


NEBULA TO RAINES

Transmission Line Project

KOP 003

Date: 05/21/2024 Time: 1:10 pm Viewing Direction: Southwest
KOP Location Route 4



EXISTING CONDITIONS



PROPOSED CONDITIONS

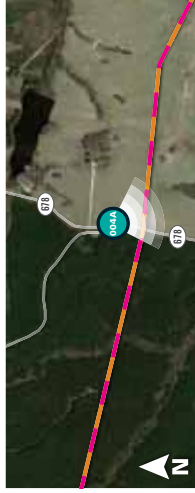
Photo simulations are for discussion purposes only. Final design is subject to change pending public, engineering, and regulatory review.

NEBULA TO RAINES

Transmission Line Project

KOP 004A

Date: 05/21/2024 Time: 12:44 pm Viewing Direction: Southeast
KOP Location Route 1 Route 3



EXISTING CONDITIONS



PROPOSED CONDITIONS

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

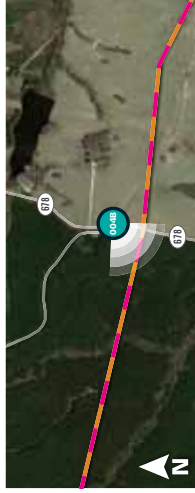
NEBULA TO RAINES

Transmission Line Project

KOP 004B

Date: 05/21/2024 Time: 12:44 pm Viewing Direction: Southwest

KOP Location Route 1 Route 3



EXISTING CONDITIONS



PROPOSED CONDITIONS



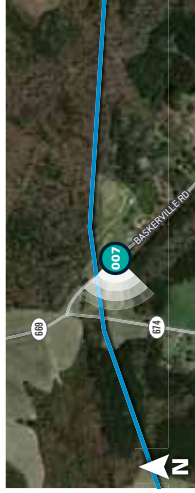
Photo simulations are for discussion purposes only. Final design is subject to change pending public, engineering, and regulatory review.

NEBULA TO RAINES

Transmission Line Project

KOP 007

Date: 05/20/2024 Time: 1:52 pm Viewing Direction: West
KOP Location — Route 5



EXISTING CONDITIONS



PROPOSED CONDITIONS



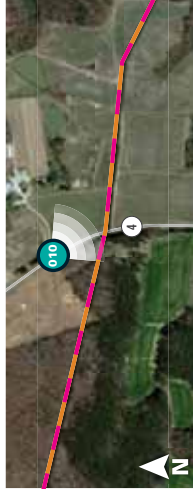
Photo simulations are for discussion purposes only. Final design is subject to change pending public, engineering, and regulatory review.

NEBULA TO RAINES

Transmission Line Project

KOP 010

Date: 05/21/2024 Time: 1:42 pm Viewing Direction: Southeast
KOP Location Route 1 Route 3



EXISTING CONDITIONS



PROPOSED CONDITIONS

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

NEBULA TO RAINES

Transmission Line Project

KOP 011

Date: 05/21/2024 Time: 2:46 pm Viewing Direction: South
KOP Location Route 1 Route 3 Route 4



EXISTING CONDITIONS



PROPOSED CONDITIONS

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

NEBULA TO RAINES

Transmission Line Project

KOP 011

Date: 05/21/2024 Time: 2:46 pm Viewing Direction: South
KOP Location Route 1 Route 3 Route 4



EXISTING CONDITIONS



PROPOSED CONDITIONS

OVERLAY

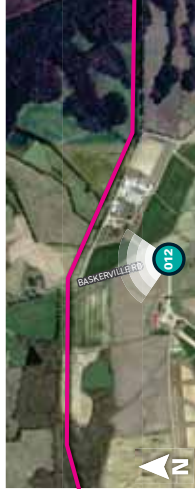
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NEBULA TO RAINES

Transmission Line Project

KOP 012

Date: 05/21/2024 Time: 3:18 pm Viewing Direction: North
KOP Location Route 1



EXISTING CONDITIONS



PROPOSED CONDITIONS



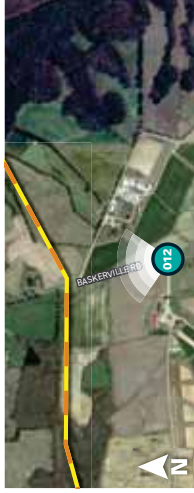
Photo simulations are for discussion purposes only. Final design is subject to change pending public, engineering, and regulatory review.

NEBULA TO RAINES

Transmission Line Project

KOP 012

Date: 05/21/2024 Time: 3:18 pm Viewing Direction: North
KOP Location Route 3 Route 4



EXISTING CONDITIONS



PROPOSED CONDITIONS

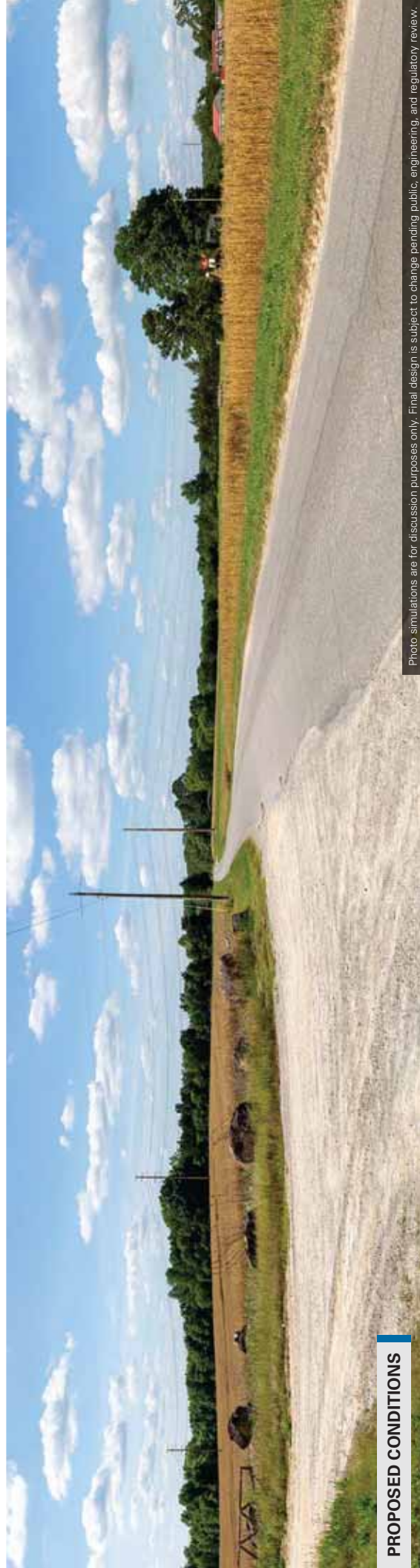


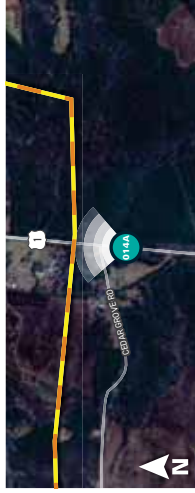
Photo simulations are for discussion purposes only. Final design is subject to change pending public, engineering, and regulatory review.

NEBULA TO RAINES

Transmission Line Project

KOP 014A

Date: 05/22/2024 Time: 9:55 pm Viewing Direction: North
KOP Location Route 3 Route 4



EXISTING CONDITIONS



PROPOSED CONDITIONS

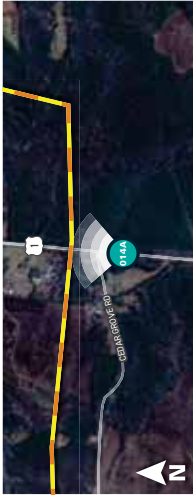
Photo simulations are for discussion purposes only. Final design is subject to change pending public, engineering, and regulatory review.

NEBULA TO RAINES

Transmission Line Project

KOP 014A

Date: 05/22/2024 Time: 9:55 pm Viewing Direction: North
KOP Location Route 3 Route 4



EXISTING CONDITIONS



PROPOSED CONDITIONS

OVERLAY

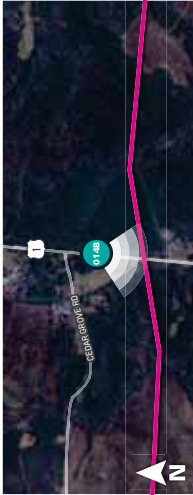
Objects displayed in yellow will be partially obscured by vegetation. Photo simulations are for discussion purposes only. Final design is subject to change pending public, engineering, and regulatory review.

NEBULA TO RAINES

Transmission Line Project

KOP 014B

Date: 05/22/2024 Time: 9:55 am Viewing Direction: South
KOP Location Route 1



EXISTING CONDITIONS



PROPOSED CONDITIONS

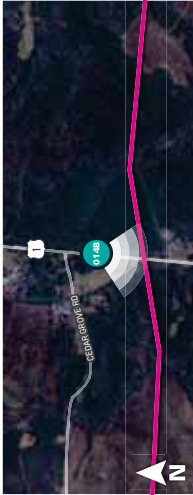
Photo simulations are for discussion purposes only. Final design is subject to change pending public, engineering, and regulatory review.

NEBULA TO RAINES

Transmission Line Project

KOP 014B

Date: 05/22/2024 Time: 9:55 am Viewing Direction: South
KOP Location  Route 1



EXISTING CONDITIONS



PROPOSED CONDITIONS

OVERLAY

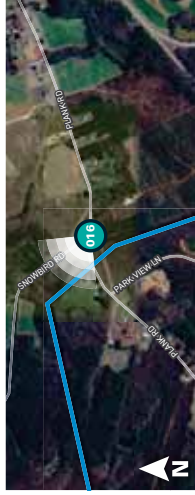
Objects displayed in yellow will be partially obscured by vegetation. Photo simulations are for discussion purposes only. Final design is subject to change pending public, engineering, and regulatory review.

NEBULA TO RAINES

Transmission Line Project

KOP 016

Date: 05/20/2024 Time: 3:27 pm Viewing Direction: Northwest
KOP Location — Route 5



EXISTING CONDITIONS



PROPOSED CONDITIONS

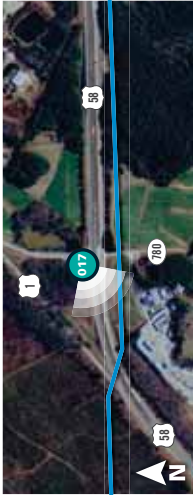
Photo simulations are for discussion purposes only. Final design is subject to change pending public, engineering, and regulatory review.

NEBULA TO RAINES

Transmission Line Project

KOP 017

Date: 05/22/2024 Time: 11:53 am Viewing Direction: Southwest
KOP Location Route 5



EXISTING CONDITIONS



PROPOSED CONDITIONS

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

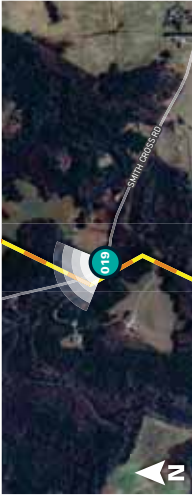
NEBULA TO RAINES

Transmission Line Project

KOP 019

Date: 05/22/2024 Time: 10:48 am Viewing Direction: Northwest

KOP Location Route 3 Route 4



EXISTING CONDITIONS



PROPOSED CONDITIONS

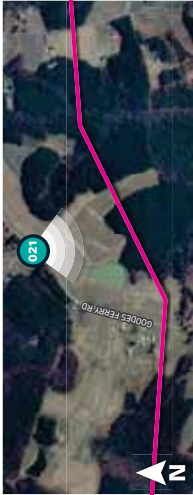
Photo simulations are for discussion purposes only. Final design is subject to change pending public, engineering, and regulatory review.

NEBULA TO RAINES

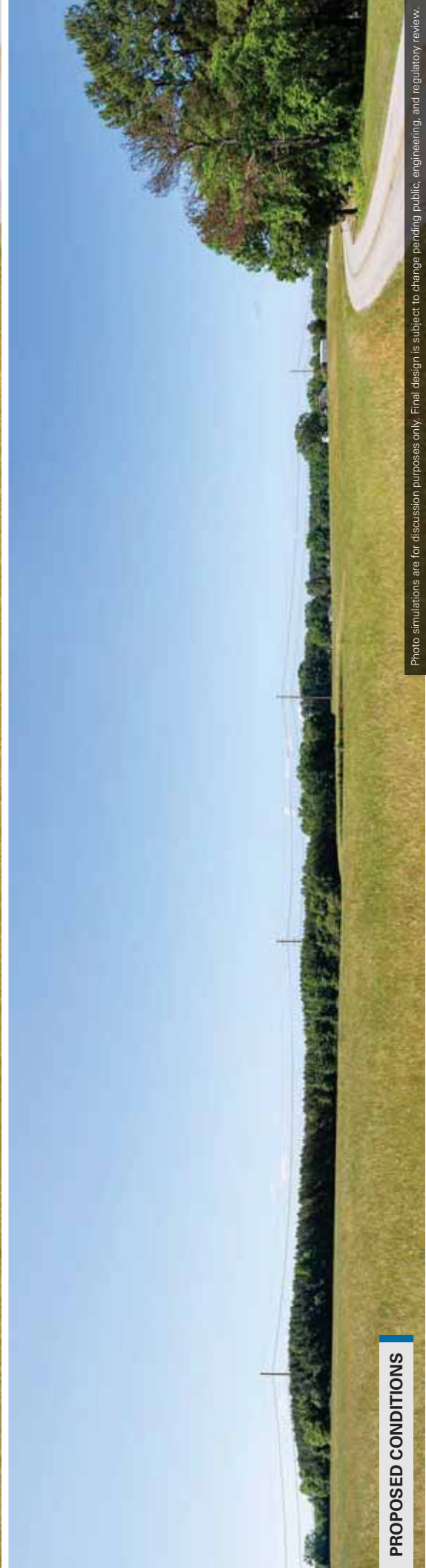
Transmission Line Project

KOP 021

Date: 05/21/2024 Time: 9:33 am Viewing Direction: South
KOP Location Route 1



EXISTING CONDITIONS



PROPOSED CONDITIONS

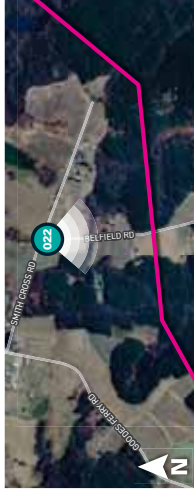
Photo simulations are for discussion purposes only. Final design is subject to change pending public, engineering, and regulatory review.

NEBULA TO RAINES

Transmission Line Project

KOP 022

Date: 05/21/2024 Time: 9:20 am Viewing Direction: South
KOP Location Route 1



EXISTING CONDITIONS



PROPOSED CONDITIONS

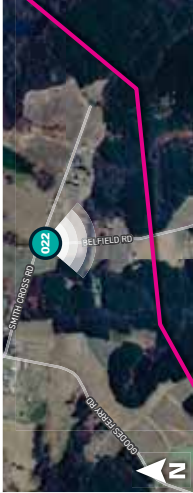
Photo simulations are for discussion purposes only. Final design is subject to change pending public, engineering, and regulatory review.

NEBULA TO RAINES

Transmission Line Project

KOP 022

Date: 05/21/2024 Time: 9:20 am Viewing Direction: South
KOP Location  Route 1



EXISTING CONDITIONS



PROPOSED CONDITIONS

OVERLAY

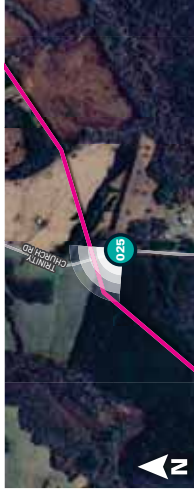
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NEBULA TO RAINES

Transmission Line Project

KOP 025

Date: 05/21/2024 Time: 10:48 am Viewing Direction: Northwest
KOP Location Route 1



EXISTING CONDITIONS



PROPOSED CONDITIONS



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

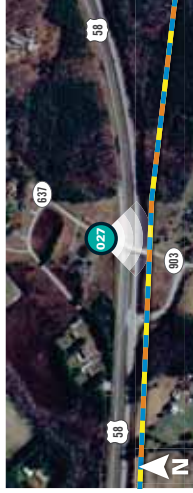
NEBULA TO RAINES

Transmission Line Project

KOP 027

Date: 05/22/2024 Time: 7:16 am Viewing Direction: South

KOP Location Route 3 Route 4 Route 5



EXISTING CONDITIONS



PROPOSED CONDITIONS



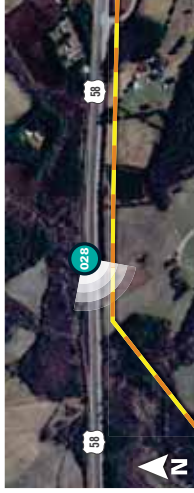
Photo simulations are for discussion purposes only. Final design is subject to change pending public, engineering, and regulatory review.

NEBULA TO RAINES

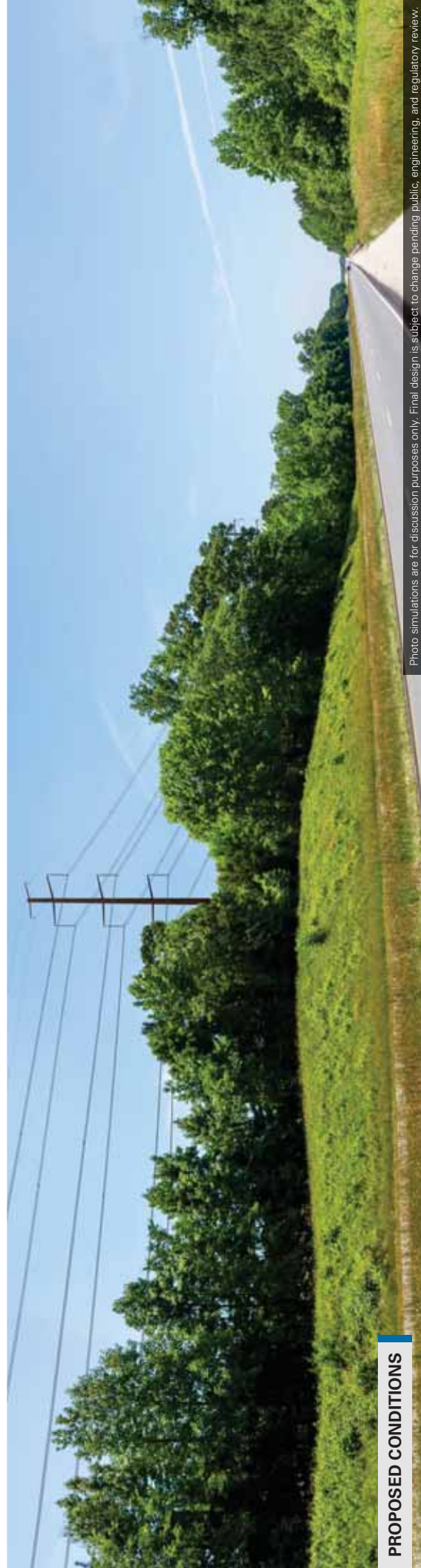
Transmission Line Project

KOP 028

Date: 05/22/2024 Time: 12:10 pm Viewing Direction: Southwest
KOP Location Route 3 Route 4



EXISTING CONDITIONS



PROPOSED CONDITIONS

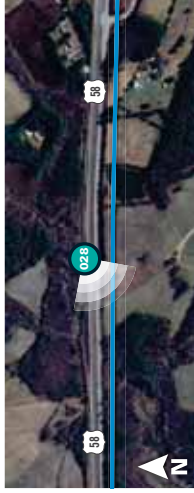
Photo simulations are for discussion purposes only. Final design is subject to change pending public, engineering, and regulatory review.

NEBULA TO RAINES

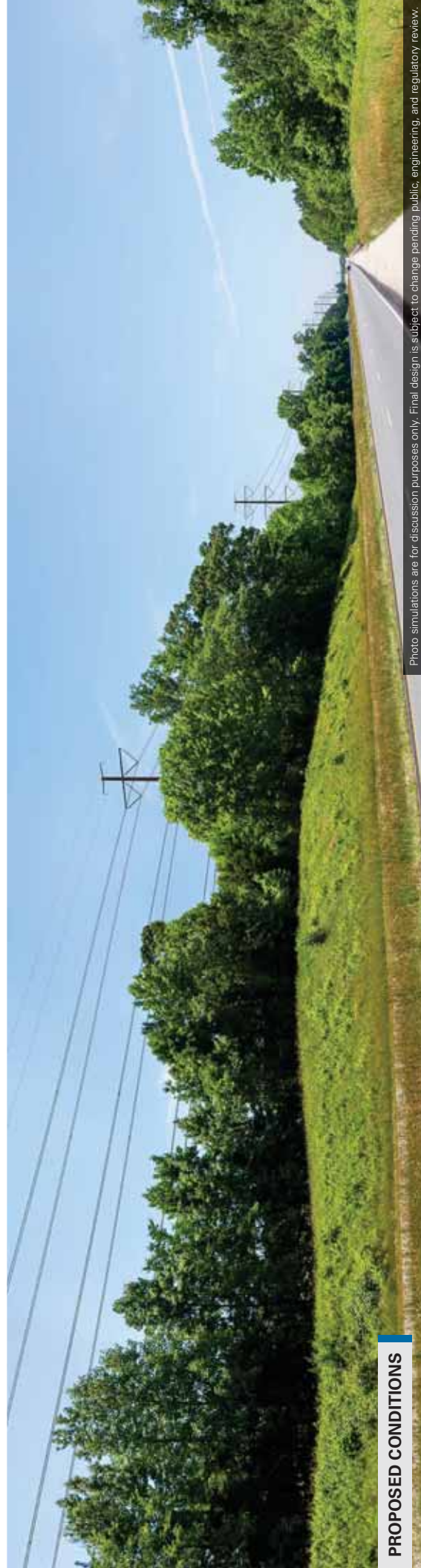
Transmission Line Project

KOP 028

Date: 05/22/2024 Time: 12:10 pm Viewing Direction: Southwest
KOP Location — Route 5



EXISTING CONDITIONS



PROPOSED CONDITIONS

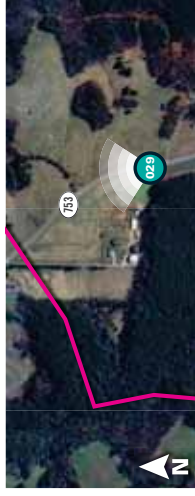
Photo simulations are for discussion purposes only. Final design is subject to change pending public, engineering, and regulatory review.

NEBULA TO RAINES

Transmission Line Project

KOP 029

Date: 05/22/2024 Time: 7:53 am Viewing Direction: North
KOP Location Route 1



EXISTING CONDITIONS



PROPOSED CONDITIONS

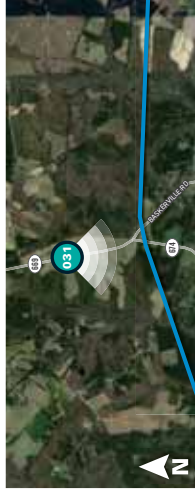
Photo simulations are for discussion purposes only. Final design is subject to change pending public, engineering, and regulatory review.

NEBULA TO RAINES

Transmission Line Project

KOP 031

Date: 05/20/2024 Time: 1:28 pm Viewing Direction: South
KOP Location — Route 5



EXISTING CONDITIONS



PROPOSED CONDITIONS



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

NEBULA TO RAINES

Transmission Line Project

KOP 034

Date: 05/21/2024 Time: 7:27 am Viewing Direction: Southwest

KOP Location Route 1 Route 3 Route 4 Route 5



EXISTING CONDITIONS



PROPOSED CONDITIONS



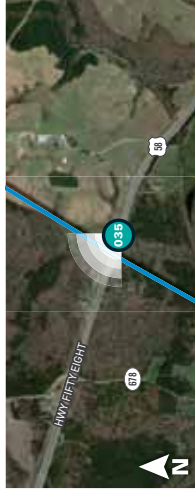
Photo simulations are for discussion purposes only. Final design is subject to change pending public, engineering, and regulatory review.

NEBULA TO RAINES

Transmission Line Project

KOP 035

Date: 05/20/2024 Time: 12:50 pm Viewing Direction: Northwest
KOP Location — Route 5



EXISTING CONDITIONS



PROPOSED CONDITIONS

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



APPENDIX G

STAGE 1 PRE-APPLICATION ANALYSIS OF CULTURAL RESOURCES



230 kV Nebula-Raines Line, 230 kV Nebula Switching Station, and 230 kV Cloud-Nebula Line Project

Pre-Application Analysis Report

Redacted

PREPARED FOR



Dominion Energy Virginia

DATE

22 January 2025

REFERENCE

0706631



230 kV Nebula-Raines Line, 230 kV Nebula Switching Station, and 230 kV Cloud-Nebula Line Project

Pre-Application Analysis Report **Redacted**
0706631



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ACRONYMS AND ABBREVIATIONS

Acronyms	Description
3D	Three dimensional
DP	Delivery Point
ERM	Environmental Resources Management
ESRI	Environmental Systems Research Institute
GNSS	Global Navigation Satellite System
HABS	Historic American Buildings Survey
ISO	International Organization for Standardization
JPEG	Joint Photographic Experts Group format
KOP	Key Observation Point
kV	Kilovolt
MEC	Mecklenburg Electric Cooperative
MP	Mile Post
NHL	National Historic Landmark
NPS	National Park Service
NRHP	National Register of Historic Places
PBR	Physically Based Rendering
PDF	Portable Document Format
Project	230 kV Nebula-Raines Line, 230 kV Nebula Switching Station, and 230 kV Cloud-Nebula Line Project
RAW	an unprocessed image
ROW	Right-of-Way
SCC	State Corporation Commission
SLR	Single-Lens Reflex
UTM	Universal Transverse Mercator
UVA	University of Virginia
VCRIS	Virginia Cultural Resource Information System
VDHR	Virginia Department of Historic Resources
VDOT	Virginia Department of Transportation

EXECUTIVE SUMMARY

This report presents the findings of the pre-application analysis prepared by Environmental Resources Management (ERM) on behalf of Virginia Electric and Power Company (herein referred to as Dominion Energy Virginia, Dominion, or the Company) for the proposed 230 kilovolt (kV) Nebula-Raines Line, 230 kV Nebula Switching Station, and 230 kV Cloud-Nebula Line Project (Project) in Mecklenburg County, Virginia.

Dominion Energy Virginia proposes to construct and operate new single circuit 230 kV transmission lines to (1) provide service to a new delivery point (DP) pursuant to a request by Old Dominion Electric Cooperative on behalf of Mecklenburg Electric Cooperative (MEC or the Customer) to provide service to one of its data center customers; (2) to relieve identified violations of mandatory North American Electric Reliability Corporation (“NERC”) Reliability Standards; and (2) maintain the structural integrity and reliability of the transmission system.

To provide the service requested by the Customer, Dominion proposes to construct and operate the following facilities:

- An approximately 14.4-mile-long overhead single circuit¹ 230 kV transmission line in new right-of-way from the future Raines Substation, located just south of South Hill, Virginia, to the proposed Nebula Switching Station located east of Boynton, Virginia;
- An approximately 0.9-mile-long overhead single circuit 230 kV transmission line in new right-of-way from the proposed Nebula Switching Station to the existing Cloud Substation, located just north of the proposed Nebula Switching Station; and
- The new Nebula Switching Station, which will be a new 230 kV switching station and will be located approximately 0.5 mile south of the existing Cloud Substation.

In developing alternative routes for the new transmission line, the Company considered the facilities required to construct and operate the Project, the length of new rights-of-way that would be required, the amount of existing development in the area, the potential for environmental impacts and impacts on communities, and cost. As discussed in detail below, ERM identified four viable route options for the Nebula-Raines portion of the Project; only one option has been identified for the Cloud-Nebula portion of the Project.

This pre-application analysis assesses and compares potential impacts on previously recorded historic and archaeological resources in relation to each alternative route. Impacts associated with construction and operations of the proposed Nebula Switching Station were also considered. ERM conducted the analysis on behalf of Dominion Energy Virginia to assist in the development of a feasible project design that minimizes impacts to historic resources. The pre-application analysis is a required study for transmission line projects regulated by the State Corporation Commission (SCC). The study was completed in accordance with the Virginia Department of Historic Resources’ (VDHR’s) *Guidelines for Assessing Impacts of Proposed Electric Transmission Lines and*

¹ The Company believes that it is reasonable and prudent to construct the Nebula-Raines and Cloud-Nebula Lines utilizing 230 kV double circuit construction with an idle 230 kV conductor installed on the proposed double circuit monopole to allow for the future addition of a 230 kV circuit. The Company will seek Commission approval to energize the idle 230 kV single circuit line in the future.



Associated Facilities on Historic Resources in the Commonwealth of Virginia (VDHR 2008) (Guidelines).

Eight known archaeological sites were identified within the right-of-way of the route alternatives. None of the archaeological sites have been formally evaluated for National Register of Historic Places (NRHP) eligibility. Because portions of some routes share common alignments, the same sites may be impacted by more than one route. [REDACTED]

[REDACTED] No archaeological sites were identified within the right-of-way of the Cloud-Nebula Route, nor within the proposed Nebula Switching Station. The archaeological sites associated with each route and their current NRHP status are summarized in the table below (Table 1).

Nine resources meeting the criteria specified in the Guidelines fall within study tiers defined by the VDHR for identifying aboveground historic sites along and near transmission line routes: eight historic resources recorded in the Virginia Cultural Resource Information System (VCRIS) and one historic site of local significance. The likely impacts on individual historic resources associated with each route are presented in the table below (Table 2).

The Cloud-Nebula Route passes near one historic resource meeting the criteria specified in the Guidelines, the Nebula-Raines Route 1 passes near three historic resources, the Nebula-Raines Route 3 passes near five historic resources, the Nebula-Raines Route 4 passes near eight historic resources, and Nebula-Raines Route 5 passes near four historic resources. ERM recommends that the Cloud-Nebula Route would have no impact on the one resource near this route. For the Nebula-Raines transmission line alternatives, ERM recommends that Nebula-Raines Route 1 would have no impact on one resource, and a minimal impact on two resources; Nebula-Raines Route 3 would have no impact on two resources and a minimal impact on three; Nebula-Raines Route 4 would have no impact on four resources and a minimal impact on four resources; and finally that Nebula-Raines Route 5 would have no impact on three resources and a severe impact on one resource.

Considering both archaeological and historic resources, for the Nebula-Raines Line, Nebula-Raines Route 1 appears to present the least impact on cultural resources with one archaeological site in the right-of-way, and the smallest number of considered historic resources near this alternative with no more than a minimal impact. Although Nebula-Raines Route 5 only has five archaeological sites within the right-of-way and four considered historic resources, one of the resources would be severely impacted, and thus, this route appears to present the greatest impact on cultural resources. The Cloud-Nebula Route is the only route option for the Cloud-Nebula Line. This route has no archaeological sites in the right-of-way and no impact on the considered historic resources.

TABLE 1 EXECUTIVE SUMMARY OF CONSIDERED ARCHAEOLOGICAL RESOURCES IN THE STUDY AREA OF THE ROUTES REDACTED

	Route Alternatives
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Considered Resource	Cloud-Nebula Route	Nebula-Raines Route 1	Nebula-Raines Route 3	Nebula-Raines Route 4	Nebula-Raines Route 5

Source: VDHR 2024

TABLE 2 EXECUTIVE SUMMARY OF PROJECT IMPACTS TO CONSIDERED ABOVEGROUND HISTORIC RESOURCES IN THE STUDY AREA OF THE ROUTES

Considered Resource	Route Alternatives				
	Cloud-Nebula Route	Nebula-Raines Route 1	Nebula-Raines Route 3	Nebula-Raines Route 4	Nebula-Raines Route 5
058-0057			None	None	
058-0073			Minimal	Minimal	
058-0140		Minimal	Minimal	Minimal	None
058-0141				None	Severe
058-0175				Minimal	
058-0309				None	None
058-5092	None	None	None	None	None
058-5412		Minimal			
East End High School			Minimal	Minimal	

Source: VDHR 2024

1. INTRODUCTION

This report presents the findings of the pre-application analysis conducted for Dominion Energy Virginia's 230 kV Nebula-Raines Line, 230 kV Nebula Switching Station, and 230 kV Cloud-Nebula Line Project in Mecklenburg County, Virginia. For this Project, the Company is proposing to construct and operate:

- An approximately 14.4-mile-long overhead single circuit² 230 kV transmission line in new right-of-way from the future Raines Substation, located just south of South Hill, Virginia, to the proposed Nebula Switching Station located east of Boydton, Virginia;
- An approximately 0.9-mile-long overhead single circuit 230 kV transmission line in new right-of-way from the proposed Nebula Switching Station to the existing Cloud Substation, located just north of the proposed Nebula Switching Station; and
- The new Nebula Switching Station, which will be a new 230 kV switching station and will be located approximately 0.5 mile south of the existing Cloud Substation.

The pre-application analysis assesses potential impacts on previously recorded historic and archaeological resources relative to each route. ERM conducted the pre-application analysis on behalf of Dominion Energy Virginia to assist in the development of a feasible Project design that minimizes impacts on historic resources. The study was completed in accordance with Virginia Department of Historic Resources' (VDHR's) *Guidelines for Assessing Impacts of Proposed Electric Transmission Lines and Associated Facilities on Historic Resources in the Commonwealth of Virginia* (VDHR 2008) (Guidelines).

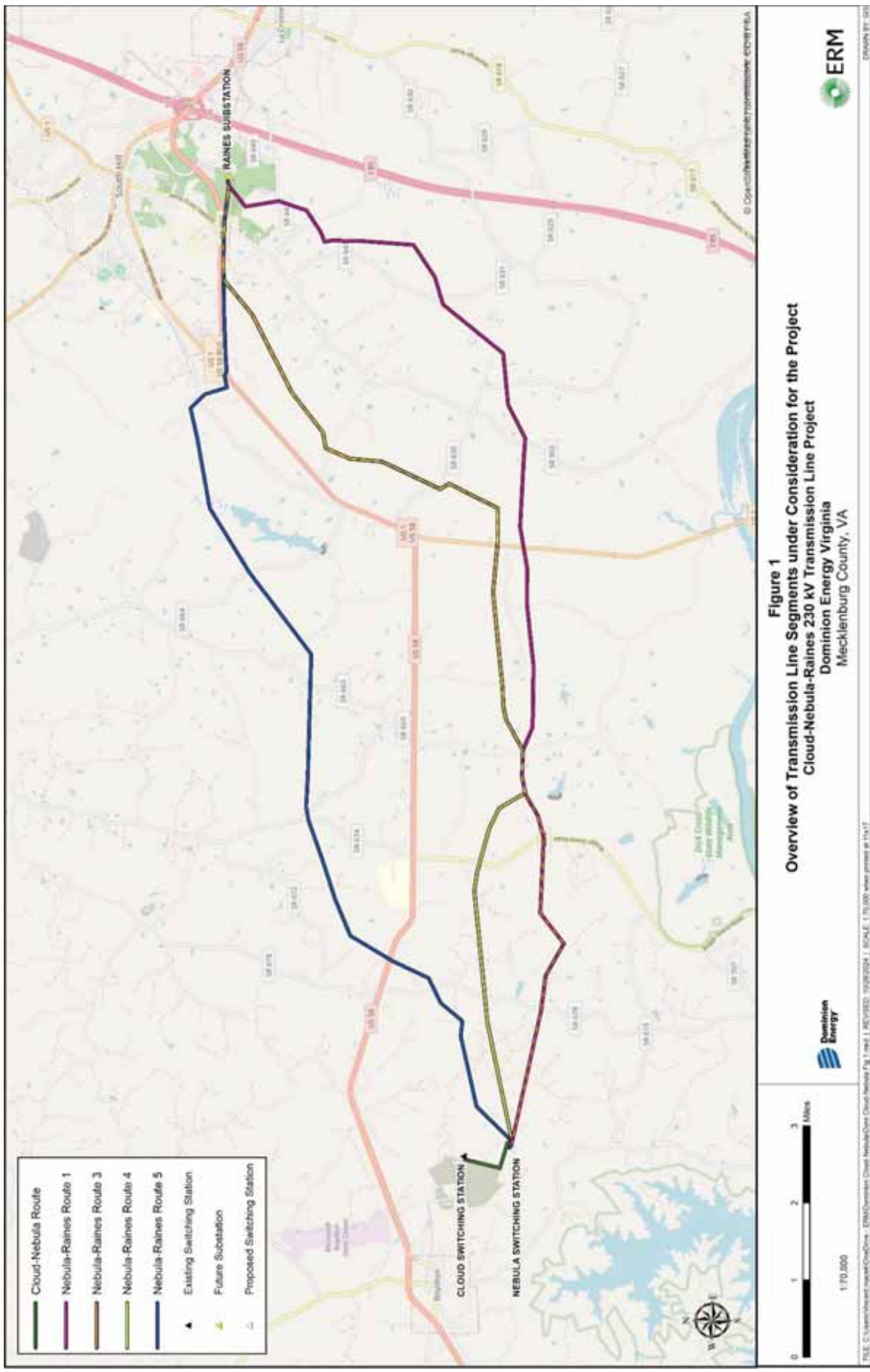
1.1 OVERVIEW

In developing alternative routes for the new transmission line, the Company considered the facilities required to construct and operate the Project, the length of new rights-of-way that would be required, the amount of existing development in the area, the potential for environmental impacts and impacts on communities, and cost. As discussed in detail below, ERM identified four viable route options for the Nebula-Raines portion of the Project; only one option has been identified for the Cloud-Nebula portion of the Project (Figure 1).

² The Company believes that it is reasonable and prudent to construct the Nebula-Raines and Cloud-Nebula Lines utilizing 230 kV double circuit construction with an idle 230 kV conductor installed on the proposed double circuit monopole to allow for the future addition of a 230 kV circuit. The Company will seek Commission approval to energize the idle 230 kV single circuit line in the future.



FIGURE 1 OVERVIEW OF TRANSMISSION LINE SEGMENTS UNDER CONSIDERATION FOR THE PROJECT



1.1.1 CLOUD-NEBULA ROUTE

Starting at the existing Cloud Switching Station, the Cloud-Nebula Route heads south for 0.5 mile adjacent to the station's western parcel boundary, crossing through mostly managed timber land. The route then turns to the east for 0.3 mile before turning south and terminating at the proposed Nebula Switching Station.

The Cloud-Nebula Route measures approximately 0.8 mile in length. Existing land uses along the route largely consist of managed timber lands with some previously cleared timber lands.

1.1.2 NEBULA-RAINES ROUTE 1

Starting at the future Raines Substation, Route 1 heads southwest for about 0.4 mile through forested areas and crosses Flat Creek before turning south for an additional 0.8 mile, crossing Rocky Branch Road at approximately milepost (MP) 0.8, just west of the South Hill WWTP. The route then turns to the southwest for 0.5 mile, crossing Turtle Road at approximately MP 1.5. The route then turns to the south for 1.1 miles, crossing through mostly forested areas (including managed timber land). At this point, the route turns southwest for 1.9 miles, crossing Trinity Church Road at approximately MP 3.6. This segment of the route crosses through mostly dense forested areas. The route then runs west then southwest then west for 1.2 miles, crossing Belfield Road at approximately MP 5.2. The route then turns west and continues for 3.7 miles, crossing Goodes Ferry Road at approximately MP 6.0, US 1 at MP 7.3, and Eureka Road at MP 8.1. This segment of the route is primarily through heavily forested land up to approximately MP 8.4, at which point the route crosses through mixed forest and agricultural land. At approximately MP 9.6, the route turns northwest and crosses Baskerville Road at approximately MP 10.0. The route then turns to the west and then southwest for 1.2 miles across forested and agricultural land before crossing Buggs Island Road at approximately MP 11.2. The route continues to the west for 1.0 mile, crossing mostly recently cleared timber lands and some agricultural grazing fields before turning southwest for 0.5 mile, and then northeast for 0.5 mile through primarily agricultural and grazing land. At this point the route turns to the west-northwest for the remaining 2.3 miles, crossing the Company's existing Kerr Dam-Ridge Road Line #137 and Cloud-Kerr Dam Line #38 at approximately MP 13.2 and Antlers Road at approximately MP 13.5, before terminating at the proposed Nebula Station. The segment of the route west of approximate MP 13.5 is through dense managed timber land. Nebula-Raines Route 1 measures 15.4 miles in length. Existing land uses along the route largely consist of a mix of agricultural and forested lands with scattered residences and other developments at and near road crossings. Some of the forested land along the route is managed or replanted timber.

1.1.3 NEBULA-RAINES ROUTE 3

Starting at the future Raines Substation, Nebula-Raines Route 3 heads west for about 0.5 mile through forested areas before continuing west and collocating with the south side of US 58 for 0.8 mile across primarily agricultural lands. The route then turns to the southwest and crosses through mostly forested areas for 2.4 miles. At this point, the route turns to the west for 0.2 mile and then southwest for 0.3 mile across forested land, crossing Dockery Road at approximately MP 3.9. The route then turns south for 0.4 mile, crossing through dense forested areas before turning southwest for 0.8 mile and crossing Smith Cross Road at approximately MP 5.5. After crossing

Smith Cross Road, the route turns southeast for 0.1 mile and then southwest for 0.7 mile, crossing through mostly dense forested areas. The route then turns to the west, crossing through a mix of forested areas and cleared agricultural lands for 2.7 miles and crossing US 1 at approximately MP 6.8 and Cedar Grove Road at approximately MP 8.5. At this point the route heads southwest for 0.4 mile, crossing through open agricultural lands. At approximately MP 9.5, Nebula-Raines Route 3 crosses Baskerville Road and intersects Route 1. From this point, Nebula-Raines Route 3 follows the same alignment as Nebula-Raines Route 1 for the remaining 5.4 miles to the proposed Nebula Station. Nebula-Raines Route 3 measures approximately 14.9 miles in length. Existing land uses along the route largely consist of a mix of agricultural and forested lands with scattered residences and other developments at and near road crossings. Some of the forested land along the route is managed or replanted timber.

1.1.4 NEBULA-RAINES ROUTE 4

Nebula-Raines Route 4 follows the same alignment as Nebula-Raines Route 3 for the first 10.1 miles from the future Raines Substation to a point 0.6 mile west of Baskerville Road. At this point, the route turns to the northwest for 0.4 mile, crossing through mostly forested lands, then turns to the west-northwest for 0.8 mile, crossing Cox Creek at approximately MP 10.5, Buggs Island Road at approximately MP 11.2. The route then turns to the west/southwest for 3.7 miles, crossing Antlers Road at approximately MP 13.0, the Company's existing Lines #137 and #38 at approximately MP 13.1, and Gold Miners Road at approximately MP 13.2. The route then turns northwest for 0.1 mile (using the same right-of-way as Routes 1 and 3) and terminates at the proposed Nebula Station. Nebula-Raines Route 4 measures approximately 15.0 miles in length. Existing land uses along the route largely consist of a mix of agricultural and forested lands with scattered residences and other developments at and near road crossings. Some of the forested land along the route is managed or replanted timber.

1.1.5 NEBULA-RAINES ROUTE 5

Starting at the future Raines Substation, Nebula-Raines Route 5 follows the same alignment as Nebula-Raines Route 3 for the first 1.3 miles from the future Raines Substation along the south side of US 58. From this point, the route continues along the south side of US 58 for another 1.1 miles before turning to the northwest for 0.1 mile, crossing US 58 and US 1 (where the two roads divide) at approximately MP 2.5, before turning west for 0.1 mile. The route then turns north-northwest for 0.6 mile, crossing Plank Road at approximately MP 3.1. The route then turns to the west for 1.3 miles and then southwest for 2.3 miles, crossing Miles Creek at approximately MP 4.5, Union Level Road at approximately MP 5.6, and Gordon Lake Road at approximately MP 6.8. At this point the route turns to the west for 2.0 miles, crossing Busy Bee Road at approximately MP 7.3. The route turns to the west/southwest for 1.7 miles, crossing Baskerville Road and Wooden Bridge Road at approximately MP 9.0 and then running through mainly forested areas. The route then heads southwest for 1.9 miles, across agricultural land east of the county landfill and crossing U.S. 58 at approximately MP 11.2 and Antlers Road at approximately MP 11.9. At approximately MP 12.5 the route turns to the west, crosses the Company's existing right-of-way for Lines #137 and #38, and shares right-of-way with the south side of the Company's existing right-of-way for Lines #1041 and #38 for 0.9 mile. The route then turns to the southwest (away from Lines #1041 and #38) for 0.6 mile across managed timber lands, before turning west for 0.1

mile (using the same right-of-way as Routes 1 and 3) and terminating at the proposed Nebula Station. Nebula-Raines Route 5 measures approximately 14.4 miles in length. Existing land uses along the route largely consist of a mix of agricultural and forested lands with scattered residences and other developments at and near road crossings. Some of the forested land along the route is managed or replanted timber.

1.2 MANAGEMENT SUMMARY

Eight known archaeological sites were identified within the rights-of-way for the various route alternatives. One site was identified within the right-of-way for Nebula-Raines Route 1. Five archaeological sites were identified within the right-of-way for Nebula-Raines Route 3. Six were identified within the right-of-way for Nebula-Raines Route 4. Finally, five archaeological sites were identified within the right-of-way for Nebula-Raines Route 5. None of the eight sites have been formally evaluated to determine their eligibility for listing in the NRHP. No previously recorded archaeological sites were identified within the right-of-way for the Cloud-Nebula Route or the proposed Nebula Switching Station.

Eight previously recorded historic architectural resources and one previously unrecorded architectural resource meeting criteria specified in the Guidelines fall within study tiers defined by the VDHR for identifying aboveground historic sites along and near transmission line routes. Of these, the Cloud-Nebula Route passes through the least number of resources (one), while Nebula-Raines Route 1 passes near three resources, Nebula-Raines Route 3 passes near five resources, Nebula-Raines Route 4 passes near eight resources, and Nebula-Raines Route 5 passes near four resources. ERM recommends that the Cloud-Nebula Route would have no impact on the one resource within the vicinity of the route. For the Nebula-Raines Line, ERM recommends that Nebula-Raines Route 1 would have no impact on one resource, and a minimal impact on two resources; Nebula-Raines Route 3 would have no impact on two resources and a minimal impact on three resources; Nebula-Raines Route 4 would have no impact on four resources and a minimal impact on four resources; and finally that Nebula-Raines Route 5 would have no impact on two resources, a minimal impact on one resource, and a severe impact on one resource.

Considering both archaeological and historic resources, for the Nebula-Raines Line, Nebula-Raines Route 1 appears to present the least impact on cultural resources with one archaeological site in the right-of-way for the route, and the smallest number of considered historic resources near this alternative with no more than a minimal impact. Although Nebula-Raines Route 5 only has five archaeological sites within the right-of-way and four considered historic resources, one of the resources has a severe impact, and thus, this route appears to present the greatest impact on cultural resources. The Cloud-Nebula Route is the only route option for the Cloud-Nebula Transmission Line. This route would have no archaeological sites in the right-of-way and no impact on the considered historic resources.

2. RECORDS REVIEW

2.1 DATA COLLECTION APPROACH

ERM conducted an analysis of potential cultural resource impacts for the routes under consideration in accordance with the VDHR Guidelines. For each route, this analysis identified and considered the following previously recorded resources.

- National Historic Landmarks (NHLs) within a 1.5-mile radius of the centerline;
- NRHP-listed properties, NHLs, battlefields, and historic landscapes within a 1.0-mile radius of the centerline;
- NRHP-eligible and NRHP-listed properties, NHLs, battlefields, and historic landscapes within a 0.5-mile radius of the centerline; and
- All of the above qualifying resources as well as archaeological sites within the right-of-way for the route.

Data on previously recorded cultural resources within each study tier was obtained from the Virginia Cultural Resources Information System (VCRIS). Among the resources identified in VCRIS that meets the criteria for including in the study tiers, one was demolished in the 1990s, and is therefore only discussed in Section 2.4, and is not included in the assessment of potential impacts. In addition to the information gleaned from VCRIS, ERM collected information from the Historically Black Schools of Mecklenburg County Virginia (2024) and Preservation Virginia (2024), and contacted several possibly interested parties (South Central Virginia Genealogical Society, Virginia Museum of History and Culture, Virginia Genealogical Society, Mecklenburg County Planning Commission, and the Tobacco Heritage Trail) to find locally significant resources within a 1.0-mile radius of each proposed route centerline. ERM also included historic architectural resources within a 1.0-mile radius of each centerline that were mentioned in a May 30, 2024 email response from Logan Parham of Preservation Virginia about sensitive resources in the area. These resources were included in the locally significant category.

Along with the records review, ERM conducted field assessments of the considered aboveground resources along the routes in accordance with the Guidelines. Digital photographs of each historic resource and views to the proposed transmission line were taken. Photo simulations were then prepared to assess the potential for visual impacts from the new transmission infrastructure on the resources. For previously recorded archaeological sites under consideration, aerial photographs were examined to assess the current land condition and the spatial relationship between the sites and any existing development.

2.2 ARCHAEOLOGICAL RESOURCES

Crossings of archaeological sites were considered a constraint in this study due to the potential for an electric transmission line to impact cultural deposits in these areas (for example, due to transmission structure placement, tree clearing, or heavy equipment traffic within a site). Information on the known archaeological sites in the right-of-way for each transmission line route are summarized in Table 3 and the site locations are depicted on Figure 2. Individual maps for each route alternative are provided in Attachment 1.



None of the eight previously recorded sites within the rights-of-way for the routes have been formally evaluated for NRHP eligibility. Because portions of some routes share common alignments, the same sites may occur in the same tier for more than one route. Of the eight known archaeological sites proximate to the routes, one is located along Nebula-Raines Route 1 ([REDACTED]); five along Nebula-Raines Route 3 ([REDACTED]); six along Nebula-Raines Route 4 ([REDACTED]); and five along Nebula-Raines Route 5 ([REDACTED]). No archaeological sites were identified within the right-of-way of the Cloud-Nebula Route or the proposed Nebula Switching Station. A confident evaluation of the nature of archaeological deposits at each site and impacts on the sites from prior land use activities would require a field survey.

FIGURE 1 LOCATIONS OF ARCHAEOLOGICAL RESOURCES WITHIN THE RIGHT-OF-WAY FOR EACH ROUTE REDACTED



TABLE 3 ARCHAEOLOGICAL RESOURCES IN THE RIGHT-OF-WAY FOR EACH ROUTE

REDACTED

Project Component	Greenfield or Existing / Expanded ROW?	Site Number	Description	NRHP Status
[REDACTED]				

Source: VDHR 2024

ROW = right-of-way

2.3 HISTORIC RESOURCES

The following discussion summarizes the known historic resources in the vicinity of each route based on the VDHR's tiered study model defined in the Guidelines. The locations of the considered historic resources and the various routes are shown on Figure 3. Individual maps for each proposed route are provided in Attachment 1.

Resources located within the right-of-way of a route may be subject to both direct impacts from placement of the line across the property as well as visual impacts from changes to the viewshed introduced by the new transmission line structures and conductors. Resources in the 0.5-mile tier would not be directly impacted, but would likely be visually impacted, unless topography, vegetation, or the built environment obscures the view to the transmission line. At a distance of over 0.5 mile, it becomes less likely that a resource would be within line-of-sight of the proposed transmission line. Beyond 1.0 mile, it becomes even less likely that a given resource would be within line-of-sight of a transmission line.

The nature of the impacts, while estimated in this study with the assistance of photo simulations, would depend on the final Project design in which the exact placement and height of transmission structures are determined. The purpose of the simulations and associated assessments in this report are to provide data on likely impacts and to compare those impacts to support the selection of a preferred route.

Once a route is selected by the SCC, that route would be subject to a full historic architectural survey in which additional (as of yet, unrecorded) historic properties could be identified and Project impacts assessed. The survey area would be defined based on the design height of the transmission line structures, topography, tree cover, and other factors impacting line-of-sight from historic resources to the selected route.

2.3.1 CLOUD-NEBULA ROUTE

The considered resource that lies within the VDHR tiers for the Cloud-Nebula Route is presented in Table 4 and depicted in the map provided as Attachment 1, Sheet 1. The considered resource was subjected to field reconnaissance and a preliminary assessment of impact, discussed in the next chapter.

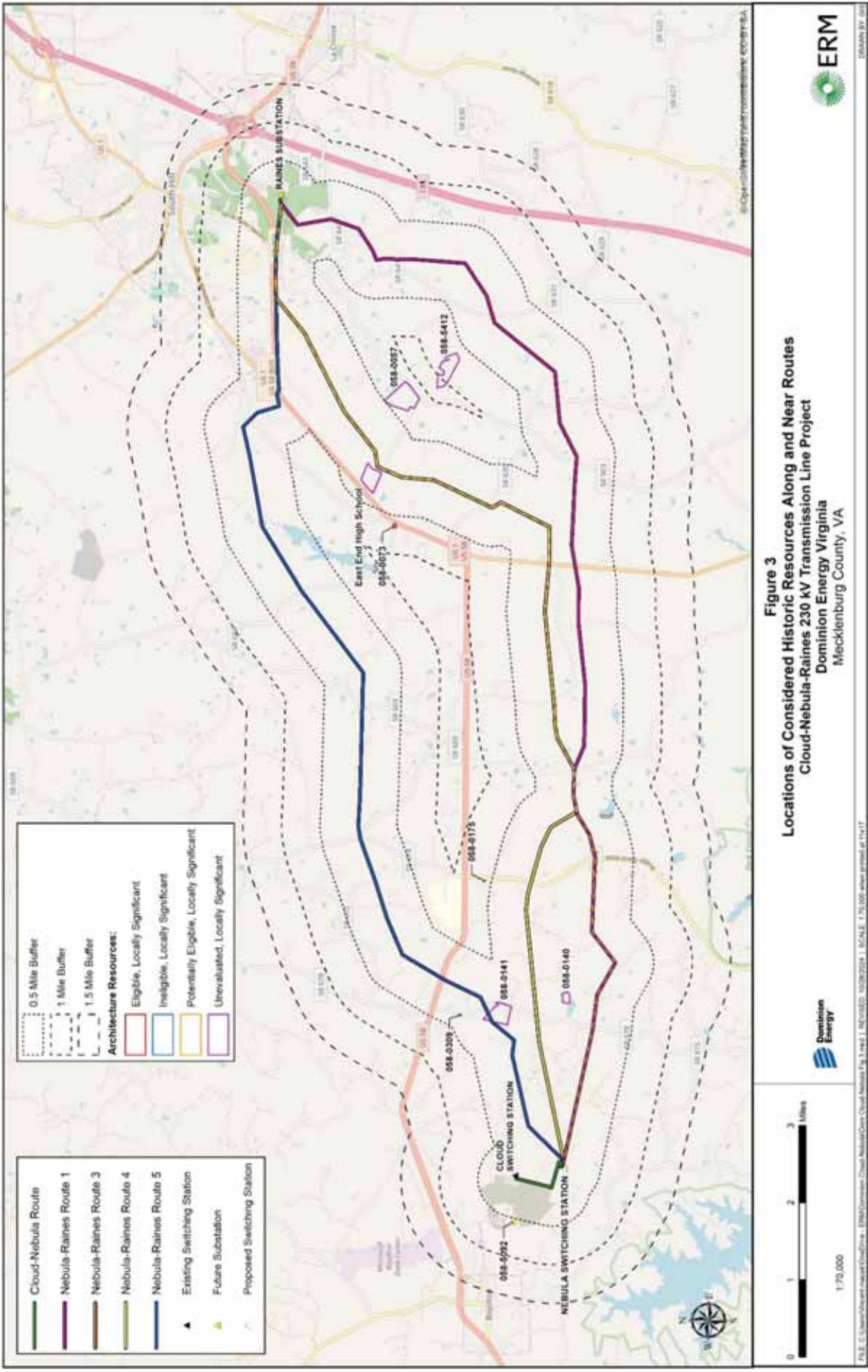
TABLE 4 HISTORIC RESOURCES IN VDHR TIERS FOR THE CLOUD-NEBULA ROUTE

Buffer (miles)	Resource Category	Resource Number	Description
0.5 to 1.0	Locally Significant (National Register – Eligible)	058-5092 ^a	Mecklenburg County Poor House Cemetery

Source: VDHR 2024

^a Resource is within the designated tiers for the proposed Nebula Switching Station

FIGURE 3 LOCATIONS OF CONSIDERED HISTORIC RESOURCES ALONG AND NEAR ROUTES



2.3.2 NEBULA-RAINES ROUTE 1

The three considered resources that lie within the VDHR tiers for Nebula-Raines Route 1 are presented in Table 5 and depicted in the map provided as Attachment 1, Sheet 2. The considered resources were subjected to field reconnaissance and a preliminary assessment of impact, discussed in the next chapter.

TABLE 5 HISTORIC RESOURCES IN VDHR TIERS FOR NEBULA-RAINES ROUTE 1

Buffer (miles)	Resource Category	Resource Number	Description
0.5 to 1.0	Locally Significant (National Register – Eligible)	058-5092 ^a	Mecklenburg County Poor House Cemetery
	Locally Significant	058-5412	Carey Farmhouse
0.0 to 0.5	Locally Significant	058-0140	M.H. Upton House

Source: VDHR 2024

^a Resource is within the designated tiers for the proposed Nebula Switching Station

2.3.3 NEBULA-RAINES ROUTE 3

The five considered resources that lie within the VDHR tiers for Nebula-Raines Route 3 are presented in Table 6 and depicted in the map provided as Attachment 1, Sheet 3. The considered resources were subjected to field reconnaissance and a preliminary assessment of impact, discussed in the next chapter.

TABLE 6 HISTORIC RESOURCES IN VDHR TIERS FOR NEBULA-RAINES ROUTE 3

Buffer (miles)	Resource Category	Resource Number	Description
0.5 to 1.0	Locally Significant (National Register – Eligible)	058-0073	Lombardy Grove Tavern
		058-5092 ^a	Mecklenburg County Poor House Cemetery
0.0 to 0.5	Locally Significant	058-0057	Sycamore Lodge
		058-0140	M.H. Upton House
		Not applicable	East End High School

Source: VDHR 2024

^a Resource is within the designated tiers for the proposed Nebula Switching Station

2.3.4 NEBULA-RAINES ROUTE 4

The eight considered resources that lie within the VDHR tiers for Nebula-Raines Route 4 are presented in Table 7 and depicted in the map provided as Attachment 1, Sheet 4. The considered resources were subjected to field reconnaissance and a preliminary assessment of impact, discussed in the next chapter.

TABLE 7 HISTORIC RESOURCES IN VDHR TIERS FOR NEBULA-RAINES ROUTE 4

Buffer (miles)	Resource Category	Resource Number	Description
0.5 to 1.0	Locally Significant (National Register – Eligible)	058-0073	Lombardy Grove Tavern
	Locally Significant	058-0175	Tobacco barns
		058-0309	Tobacco barn
	Locally Significant (National Register – Eligible)	058-5092 ^a	Mecklenburg County Poor House Cemetery
0.0 to 0.5	Locally Significant	058-0057	Sycamore Lodge
		058-0140	M.H. Upton House
		058-0141	Sanders Farm
		Not applicable	East End High School

Source: VDHR 2024

^a Resource is within the designated tiers for the proposed Nebula Switching Station

2.3.5 NEBULA-RAINES ROUTE 5

The four considered resources that lie within the VDHR tiers for Nebula-Raines Route 5 are presented in Table 8 and depicted in the map provided as Attachment 1, Sheet 5. The considered resources were subjected to field reconnaissance and a preliminary assessment of impact, discussed in the next chapter.

TABLE 8 HISTORIC RESOURCES IN VDHR TIERS FOR NEBULA-RAINES ROUTE 5

Buffer (miles)	Resource Category	Resource Number	Description
0.5 to 1.0	Locally Significant	058-0140	M.H. Upton House
	Locally Significant (National Register – Eligible)	058-5092 ^a	Mecklenburg County Poor House Cemetery
0.0 to 0.5	Locally Significant	058-0309	Tobacco barn
0.0 (within the ROW)	Locally Significant	058-0141	Sanders Farm

Source: VDHR 2024

ROW = right-of-way

^a Resource is within the designated tiers for the proposed Nebula Switching Station

2.4 RESOURCE NO LONGER EXTANT EXCLUDED FROM ANALYSIS

One resource on file with VCRIS appears in the study tiers for Nebula-Raines Routes 3 and 4 (Figure 4). However, the resource, Baisey's Grocery (058-0245), is no longer extant (Figures 5 and 6), so it was excluded from the analysis. The resource is described below.

FIGURE 4 MAPPED LOCATION OF BAISEY'S GROCERY (058-0245) RELATIVE TO NEBULA-RAINES ROUTES 3 AND 4

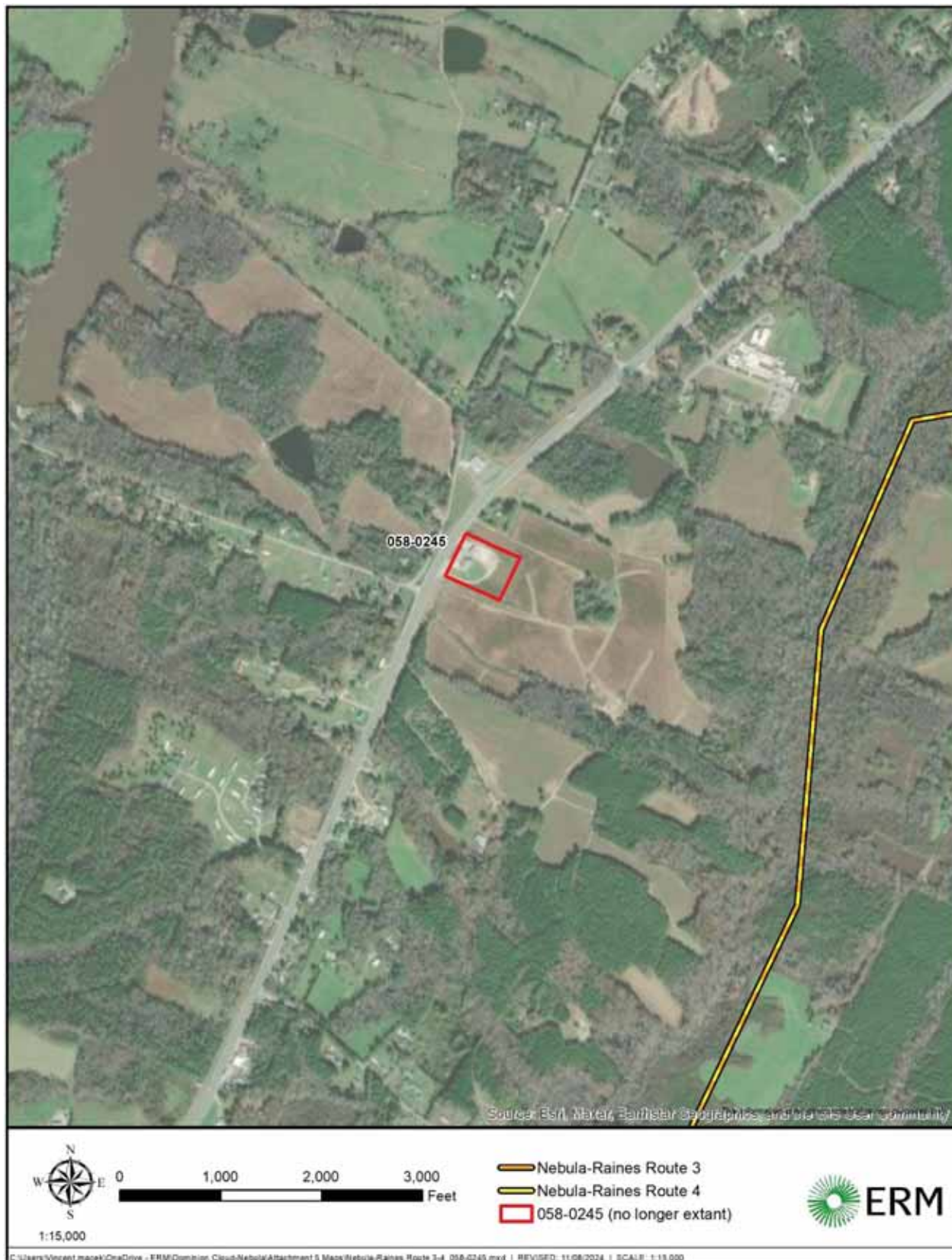


FIGURE 5 AERIAL IMAGERY SHOWING THE ACTUAL LOCATION OF BAISEY'S GROCERY (058-0245) IN 2002 AFTER DEMOLITION

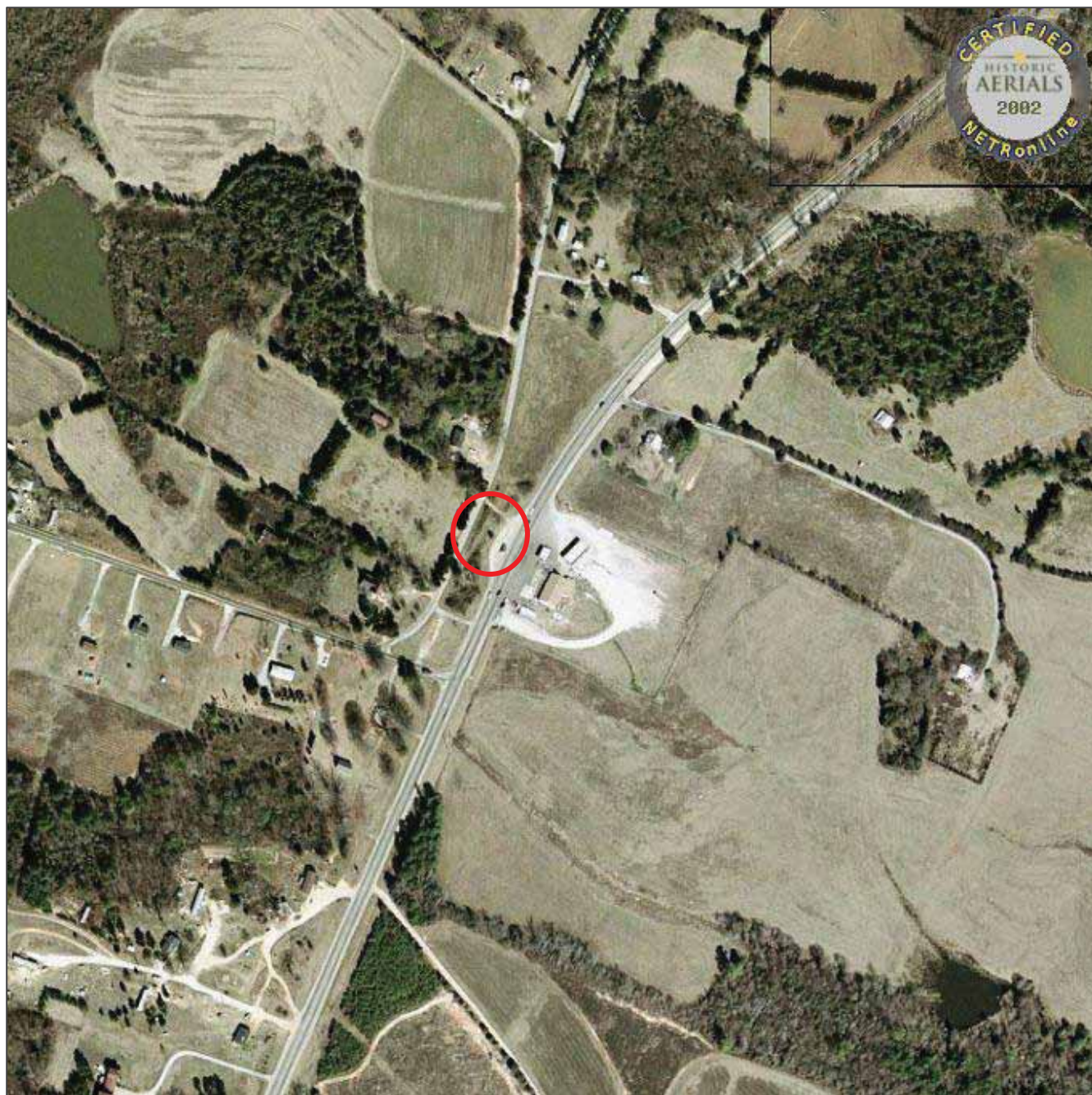


FIGURE 6 SURVEY PHOTOGRAPH OF THE LOCATION OF BAISEY'S GROCERY (058-0245),
VIEW FACING NORTHEAST (RESOURCE WOULD HAVE BEEN BETWEEN PLANK ROAD, TO THE
LEFT, AND ROUTE 58, TO THE RIGHT)



2.4.1 058-0245, BAISEY'S GROCERY

058-0245 was located on the west side of Route 58 and on the east side of Route 651 (now Plank Road) on a narrow parcel of land between two buildings in South Hill, prior to the widening of Route 58. The property was mis-mapped in VCRIS as being located on the east side of Route 58 (see Figure 4). The actual location was approximately 300 feet to the west of the mis-mapped location, directly off the east side of Plank Road and west of Route 58, prior to its widening (see Figure 5). The actual location of the resource was depicted in a topographic map in a survey report and verified using historic aerial photographs and topographic maps (NETROnline 2024; Smead and Stevens 1994). The surrounding environment is mostly rural with agricultural land and a few dwellings. A gas station is located to the east.

058-0245 was previously recorded multiple times, with the most recent being in 1993 (Smead 1993b). Smead described the resource as a circa 1915–1930 one-story T-shaped vernacular store/service station and residence with Craftsman details. The T-shape building was comprised of two rectangular sections: the eastern commercial section and the western residential section. The building had a hipped, asphalt shingle roof, weatherboard siding, and a brick pier foundation. The store's entrance was located on the southeast elevation through a recessed three-part store front covered by a porte cochere, which also sheltered the gas station service area. The windows included single pane glass windows and two-over-two double-hung wood sash. The residential section of the building consisted of four rooms and was accessed via a porch on the southeast elevation's southernmost corner. Smead also mentioned three outbuildings: a hipped-roof garage, a pyramidal-roofed shed, and a shed-roofed storage building. All the outbuildings featured weatherboard siding. At the time of the 1993 survey, the buildings were in poor condition. ERM visited the resource in 2024, and no buildings were visible (see Figure 6). A more detailed desktop analysis was completed in October 2024, which showed that the resource was demolished between 1994 and 2002 (NETROnline 2024), as shown in Figure 5.

058-0245 was determined eligible for the NRHP in 1994 under Criteria A and C for associations with domestic, transportation, and commerce/trade themes, as well as architecture. The resource was located within the half-mile study tiers for Nebula-Raines Routes 3 and 4 (see Figure 4). However, because the resource has no longer been extant for at least 20 years, ERM is not including it in the analysis of potential Project impacts. It is discussed here to provide VDHR with updated records on its status.

2.5 PREVIOUS SURVEYS

Some portions of the routes under consideration and associated facilities were previously surveyed for cultural resources. Research indicates that 22 prior Phase I cultural resource surveys have been conducted within 1.0 mile of the routes, including 11 that overlap portions of various individual routes. Because the routes share some common segments, many of the previous surveys have covered portions of multiple routes. Information on these previous surveys—including VDHR survey number, report title, report authors, and report date—is provided in Table 9. The extent of the previous survey coverage is depicted in Attachment 2.

TABLE 9 CULTURAL RESOURCE SURVEYS WITHIN 1.0 MILE OF THE PROPOSED PROJECT

VDHR Survey #	Title	Author(s)	Date
MC-010	A Phase I Archaeological Survey South Hill Wastewater Treatment System Mecklenburg County, Virginia Project	Antony F. Opperman	1984
MC-011	A Preliminary Archaeological Reconnaissance of Selected Locations in Mecklenburg County, Virginia	William M. Gardner	1985
MC-014	Phase I Archaeological Reconnaissance Survey, Route 663, Mecklenburg County, Virginia	J. Cooper Wamsley	1984
MC-018	A Phase I Cultural Resource Survey of the Proposed Route 58 Widening, Mecklenburg County, Virginia	Joe B. Jones, Dennis B. Blanton, Charles M. Downing, Willie Graham, Lawrence McLaughlin, and Christopher McDaid	1990
MC-019	Phase I Cultural Resource Survey of the Proposed Route 58, South Hill Bypass, Mecklenburg County, Virginia	Joe B. Jones, Dennis B. Blanton, Charles M. Downing, and Willie Graham	1990
MC-020	Phase I Cultural Resource Reconnaissance of the Proposed Interstate Industrial Park in the Town of South Hill, Virginia	Christopher Egghart and Luke Boyd	1991
MC-025	A Phase I Cultural Resource Survey of The Proposed Route 708 Widening in Mecklenburg County, Virginia	Craig R. Lukezic	1992
MC-031	Phase I Cultural Resources Investigation for the U.S. Route 58 Widening Study Between Boydton and South Hill, Mecklenburg County, Virginia	J. Sanderson Stevens, Margarita Jerabek Wuellner, and Joshua Lea Thackston	1992
MC-032	An Additional Phase I Cultural Resource Survey of Redesigned Sections of The Proposed Route 58 South Hill Bypass Project, Mecklenburg County, Virginia	Stevan C. Pullins and Charles M. Downing	1993
MC-045	A Phase I Archaeological Survey of a Realignment of Section E23 of the Proposed Route 58, South Hill Bypass, Mecklenburg County, Virginia	Kenneth E. Stuck and Charles M. Downing	1996
MC-050	A Supplemental Archaeological Survey of Route 58 Widening, Mecklenburg County, Virginia	Maureen Myers	1999
MC-068	Roanoke Rapids and Gaston Hydropower Project: Cultural Resources Overview and Survey of Eroded Shoreline in Locations of Previously Recorded Sites, Brunswick and Mecklenburg Counties, Virginia	Lawrence E. Abbott, Erica E. Sanborn, and John S. Cable	1998
MC-070	Roanoke Rapids and Gaston Hydropower Project: Cultural Resources Survey of	Lawrence E. Abbott and Peter E. Siegel	1998

VDHR Survey #	Title	Author(s)	Date
	High Probability Areas Parallel to the Shoreline, Brunswick and Mecklenburg Counties, Virginia		
MC-074	Archaeological Survey of the Proposed Routes 1/58 to Route 47 Connector Project, Town of South Hill, Mecklenburg County, Virginia	Courtney J. Birkett	2005
MC-081	A Phase I Cultural Resources Survey of Approximately 0.5 Acres for the Baskerville Cellular Tower Site Mecklenburg County, Virginia	Aimee J. Leithoff and Ellen M. Brady	2007
MC-084	Phase I Cultural Resources Survey and Cemetery Delineation Study for the Proposed Boydton Horse Park, Mecklenburg County, Virginia	Mike Klein, Tracy McDonald, Emily J. Lindtveit, and Dane T. Magoon	2010
MC-099	Phase I Cultural Resources Survey of the ±69.6 Hectare (±172 Acre) Mecklenburg County Public Schools Project Area, Mecklenburg County, Virginia	David Dutton	2019
MC-100	Phase I Cultural Resources Survey of the ±105 Hectare (±260 Acre) Prison Property Project Area, Mecklenburg County, Virginia	David Dutton and Hope Smith	2017
MC-101	Phase I Cultural Resources Survey of the ±12.92-Hectare (±31.93-Acre) Prison Expansion Project Area, Mecklenburg County, Virginia	Hope Smith	2019
MC-104	Dominion Virginia Power Cloud Breaker Station and Coleman Creek Delivery Point Project, Phase I Cultural Resource Survey Report	Tanner Haynes and Derek Parrott	2020
MC-119	Phase I Cultural Resources Survey of the Line #235 Extension to Cloud 230-kV And Related Projects, Mecklenburg County, Virginia	Robert J. Taylor and David H. Dutton	2023
MC-122	Phase IA Cultural Resource Assessment of the ±53.8-Hectare (±133-Acre) AVC43 Project Area, Mecklenburg County, Virginia	David Dutton	2021

* Gray shaded rows denote surveys that overlap portions of the route alternatives

3. STAGE I PRE-APPLICATION ANALYSIS FINDINGS

3.1 METHODS FOR ANALYSIS

Fieldwork for the pre-application analysis was conducted by Haley Hoffman and Emma Jennings under the direction of Secretary of the Interior Qualified architectural historian Mary Beth Derrick between August 13–15, 2024. The fieldwork involved photographing the resources requiring visual assessment according to the Guidelines and examining potential line-of-sight views from each resource toward the Project. For resources where property owner approval was granted for historic resource documentation, photographs were taken toward the proposed transmission line from the property at the most prominent view of the landscape. When such permission was not available, photographs were taken from the public right-of-way (typically a road) nearest to the resource facing toward the route and/or substation/switching station.

Panoramic photographs were taken from each resource, with an effort to capture the direction with the clearest, most unobstructed view toward the route. The precise location of the photograph was captured with a mobile tablet device connected to a sub-meter accurate Global Navigation Satellite System (GNSS) receiver, the Trimble R1. The locations where photographs were taken were noted as Key Observation Points (KOP). Site visits to the KOPs were prioritized based on their location relative to the resource, so that viewpoints east of the resource were visited in the morning and viewpoints west of the resource were visited in the afternoon. This helped ensure, where possible, that the sun was behind the photographer at the time the viewpoint photography was captured. Additionally, minor adjustments to position were made to obtain as clear a view to the site center as possible, avoiding trees, landscaping, or built obstructions. Tablets recorded the center bearing, angle of view, altitude, and camera lens height. Upon receipt of the viewpoint location information, the viewpoints were plotted onto open source mapping from the Environmental Systems Research Institute (ESRI) using the Universal Transverse Mercator (UTM) 18N coordinate system.

The process of taking panoramas included setting up the tripod and camera. The camera was placed on the panoramic head in a landscape orientation where its lens height was confirmed and set at 1.5 meters (note: a portrait camera orientation was sometimes used in situations where the viewpoint is very close to a development so that the top of the development is not cut off by the image boundaries). The tripod head and camera combination were then leveled. With the camera's viewfinder centered on the perceived site center, exposure and focus settings were taken. These were then fixed manually on the camera so that they could not be inadvertently altered. The head was rotated 90 degrees to the left where the first frame of the 360-degree sequence was then taken. Each subsequent frame was taken using a 50 percent overlap of the previous frame until the full 360-degree sequence was captured. The camera was then removed from the tripod and a viewpoint location photograph was captured showing the tripod in its position.

The following camera and tripod configuration was used:

- Camera body: Nikon D800 professional specification digital SLR (full frame CMOS sensor)
- Camera lens: Nikkor AF 50mm f1.8 prime
- Tripod: Manfrotto 055MF4 with Manfrotto 438 ball leveller
- Panoramic head: Manfrotto 303SPH

The following camera settings were used for all photography:

- Camera mode: Manual Priority
- ISO: 100
- Aperture: f13
- Image format: RAW

After the photos were complete, they were uploaded to a server to begin the simulation/ visualization process. The single-frame photographs were opened in Adobe Photoshop CC 2022 where they were checked, and any camera sensor dust spots were removed before being saved as high-resolution JPEG images. If required, discrete color and tonal adjustments were made to each frame before they were saved. The single-frame photographs were stitched together in PTGui Pro version 12.11 professional photographic stitching software using cylindrical projection settings. The camera locations were plotted in Global Mapper version 23.1. Digital models of the transmission line structures were provided by Dominion, then cleaned up and textured in Autodesk 3DS Max 2021. The transmission structures along each route were rendered in Vray version 5.2 from each KOP camera location. 3D imagery was produced at the field of view using camera matching. Renderings for each route and each tower combination were then exported for use as an overlay.

Detailed, correctly dimensioned 3D computer models of the transmission structures were generated using Autodesk 3DS Max 2021 and iToo RailClone. The virtual 3D model of the structures was created using real-world measurements and elevation drawings provided by the Company (see Attachment 3). These were textured using Vray Physically Based Rendering (PBR) materials to simulate the weathering steel texture. The detailed, textured models were rendered to a digital image using a simulated physical camera and a sun and sky simulation lighting model in the computer software consistent with conditions within the original viewpoint photography.

Photomontages were produced by overlaying the rendered image on the photograph, using known control points and the wireline imagery showing the tower columns at the correct height and distance. Final adjustments were then made to the brightness and contrast of the rendered images to match them to the photograph. Final photomontages were prepared from each viewpoint for the route. These were then opened in Adobe Photoshop CC 2022 where minor changes were made such as placing relevant tree/building/hedge screening or telegraph wires over the proposed development renders where necessary. Finally, the final images were cropped to the proportions required for the visual simulation figures, and the visualization figures were prepared in Adobe InDesign CC2022 and exported in a Portable Document Format (PDF) format.

3.2 STRUCTURE TYPES AND RIGHT-OF-WAY WIDTHS

The proposed transmission line would be constructed on new right-of-way supported primarily by double circuit capable, galvanized steel monopoles. The proposed right-of-way width for the Project is 100 feet. For the Nebula-Raines Line, the estimated minimum structure height is 105 feet, the estimated maximum structure height is 175 feet, and the estimated average structure height is 124 feet. For the Cloud-Nebula Line, the estimated minimum structure height is 105 feet, the estimated maximum structure height is 130 feet, and the estimated average structure height is 122 feet. The estimated heights are based on preliminary conceptual design, do not include foundation reveal, and are subject to change based on final engineering design. Section views depicting typical right-of-way widths and structure configurations are provided in Attachment 3.

3.3 ASSESSMENT OF POTENTIAL IMPACTS

The assessment of potential Project impacts on individual resources made use of the visual assessment findings and categorized the severity level of impacts according to the following scale devised by VDHR:

- **None**—Project is not visible from the resource.
- **Minimal**—Viewsheds have existing transmission lines, there would be only a minor change in height, and/or other views are partially obscured by topography or vegetation.
- **Moderate**—Viewsheds have more expansive views of the transmission line, more dramatic changes in height are proposed, and/or the overall visibility of the Project would be greater.
- **Severe**—Existing viewshed contains no transmission line, the view to the Project would be relatively unobstructed, the new transmission line would introduce a significant change to the setting of historic properties, and/or a dramatic change in the height of an existing transmission line would take place in close proximity to historic properties.

3.4 HISTORIC RESOURCE DESCRIPTIONS

3.4.1 058-0057, SYCAMORE LODGE

Sycamore Lodge, 058-0057 is located at 4586 Goodes Ferry Road/Route 903 in South Hill. The resource is accessible via a long private single lane gravel driveway enclosed by automated 3-foot iron gates attached to a wood fence. The property consists of manicured lawn and mature trees near the entrance and along the driveway. Included on the property is a manmade pond to the northeast of the dwelling. The surrounding neighborhood is relatively rural, with residential dwellings on similarly sized parcels of land with land use consisting of manicured lawns, cultivated fields, and forest.

Sycamore Lodge was last surveyed in June of 1958 by Robert Wiggins for a Historic American Buildings Survey (HABS) inventory on behalf of the University of Virginia (UVA) (Wiggins 1958). It was home to Henry Deloney, the owner of the famous racehorse, Polly Williams. Wiggins described the circa 1788 one-and-half story wood frame dwelling as featuring a gambrel roof clad in standing metal and weatherboard siding. The 1958 survey noted four-over-four and nine-over-nine, double-hung wood sash windows. The dwelling included an exterior end chimney

constructed of brick laid in a Flemish bond pattern. Finally, Wiggins noted the dwelling sat on a continuous stone foundation. ERM was unable to view the resource from the public right-of-way due to vegetation and the long driveway that blocks the view (Attachment 4, Figure 1). However, desktop analysis showed that between 2003 and 2007 the dwelling's northwest elevation was expanded (NETROnline 2024). At the time of the 1958 survey, there were several auxiliary structures to the northwest of the dwelling. However, the majority of these were demolished by circa 1996 (NETROnline 2024). As of 2024 only two gabled structures located close to the dwelling's driveway remain.

Although 058-0057 has not been evaluated for listing on the NRHP, the previous surveyor recommended additional research should be completed on the resource. An email from Logan Parham of Preservation Virginia noted this resource as a significant property in the area. Thus, ERM has included it in this report as a locally significant resource. Sycamore Lodge is located within the half-mile study tier for Nebula-Raines Routes 3 and 4.

3.4.2 058-0073, LOMBARDY GROVE TAVERN

Lombardy Grove Tavern, 058-0073, is located at 4782 Plank Road in South Hill. The resource is shrouded by mature trees. The driveway from Plank Road that once provided access to the resource has been consumed by the trees. To the north is an agricultural field and to the south of Union Level Road are dwellings.

058-0073 is a circa 1790 two-story building that underwent an enlargement during the mid-nineteenth century (Smead 1993a). The original one-and-a-half story section is located to the west (rear) and represents what remains of the eight-room building. It has a steep-pitched gabled roof clad in standing seam metal with a large brick exterior chimney at the west end laid in an irregular Flemish bond pattern. The chimney sits on a rough stone foundation. The original block also features a central brick flue. Two narrow gable-roofed dormers project from the roof's east elevation. Along the north and south elevations of the original block are single-story shed-roofed enclosed porches sitting on brick piers. A second interior brick flue is located on the south shed-roofed enclosed porch. This circa 1790 block sits on a rough-faced stone foundation. Four rooms were removed from the east end prior to the construction of the tavern's circa 1850–1865 addition.

The circa 1850–1865 east addition reoriented the building to face east (Smead 1993a). It features two stories and a standing seam metal-clad gabled roof. This addition is five bays wide with a center-passage plan. There is a single shouldered, exterior chimney laid in four-course common bond at the north elevation. A second interior chimney is located at the south end. The addition features a Craftsman style single-story, four-bay front porch with paneled square wood posts on square brick piers. This porch replaced an earlier, simpler Colonial Revival porch of similar size. The entrance under the porch is flanked by five-light sidelights. This addition is sitting on a raised foundation of oversized brick laid in a five-course common bond pattern.

The ornamentation uniting the original one-and-a-half story building and two-story consists of the beaded clapboards, narrow cornerboards, and the boxed cornice (Smead 1993a). The windows throughout the tavern are double-hung wood sash windows. The first floor of the front section has

nine-over-nine windows with six-over-six windows on the second floor. The rear section features four-over-four and six-over-six windows.

In circa 1943, the tavern underwent remodeling, which included the reconstruction of the front porch, the replacement of a one-bay-wide section on the circa 1850–1865 addition's south elevation with a one-bay, hipped roof garage (Smead 1993a). The interior of the tavern had the stairs on the first floor reconstructed, but otherwise went through minimal remodeling in circa 1943.

During the 1993 survey, a circa 1790 smokehouse, garage, barn, log storage building, stable, and three sheds were noted, but not described (Smead 1993a).

ERM visited the resource in 2024 and was unable to see any buildings from the nearest public right-of-way due to thick vegetation (Attachment 4, Figure 2). Based on available historic aerial imagery, the outbuildings mentioned in the 1993 survey were located to the west of the tavern. By 2002, only two gabled outbuildings were visible from aerial views amongst the vegetation that had begun overtaking the western property boundary (NETROnline 2024). The outbuilding farthest west appears to have collapsed by 2019, and only the smaller gabled outbuilding closer to the tavern appears to remain in a 2024 aerial image (GoogleEarth Pro 2024).

Lombardy Grove Tavern was determined eligible for listing on the NRHP by VDHR staff in August of 1994 under Criteria A and C after an intensive survey was completed in the year prior. An email from Logan Parham of Preservation Virginia noted this resource as a significant property in the area. Thus, ERM has also included it in this report as a locally significant resource. 058-0073 is located within the 1-mile study tier for Nebula-Raines Routes 3 and 4.

3.4.3 058-0140, M.H. UPTON HOUSE

M.H. Upton House, 058-0140, is located at 3642 Antlers Road/Route 678 in Boynton. The resource is set back from the road by approximately 1,440 feet and is accessible via a gravel driveway that winds through cultivated fields. The Johnsons Pond is located near Antlers Road, to the southwest corner of the resource's parcel. A forest is to the north.

058-0140 was last surveyed by EAC/WJG in October of 1984 (EAC/WJG 1984). At the time of the survey, a circa 1900 two-story T-plan dwelling with a central passage and simple Italianate features was noted. The dwelling was further described as having a standing seam metal clad roof and wood siding with front and right side octagonal projections (EAC/WJG 1984). The projections and gables are finished with decorative shingles. The front gable of the dwelling has elaborate sawn work. The dwelling featured an interior end brick chimney. The fenestration described included two-over-two double-hung wood sash windows. The survey further described an exterior door providing access to a parlor in a projecting wing. During the 1984 survey, a corncrib and two barns were noted but not described.

ERM visited the resource in 2024, but was not able to view any structures due to the resource's distance from the nearest public right-of-way and intervening vegetation (Attachment 4, Figure 3). However, based on available historic aerial imagery, the dwelling was demolished prior to 1994 and a mobile home was moved to its location between 2003 and 2004. Aerial views also show that

the three outbuildings are still extant, and two additional, small outbuildings are also present (GoogleEarth Pro 2024; NETROnline 2024).

The M.H. Upton House has not been formally evaluated for listing on the NRHP. However, an email from Logan Parham of Preservation Virginia noted this resource as a significant property in the area. Thus, ERM has included it in this report as a locally significant resource. 058-0140 lies within the half-mile study tiers for Nebula-Raines Routes 1, 3, and 4 and within the 1-mile study tier for Nebula-Raines Route 5.

3.4.4 058-0141, SANDERS FARM

Sanders Farm is located at 4357 Antlers Road/Route 678 in Boynton. The resource sits on a 40-acre lot pushed back from the road and is accessible via a gravel driveway. To the south of the architectural components is a small pond, while to the west is an agricultural field. Surrounding the parcel is dense woodland.

058-0141 was last surveyed in January of 2017 by Robert Taylor (Taylor 2017). In the survey, Taylor described a circa 1900 two-story vernacular I-house with minimal Folk Victorian embellishments. The dwelling had a standing seam metal roof, replacement vinyl siding, and a continuous concrete block foundation. It featured louvered shutters bracketing the two-over-two, double-hung, wood sash windows and a molded cornice. Attached to the rear of the main block was a full-width two-story rear ell (Taylor 2017). The primary entrance was accessible via a hipped-roof, partial-width, single-story porch with a concrete floor and turned wood posts. Attached to the rear ell was a single-story addition. To the east of the primary dwelling was a circa 1800 single-room square-notched log house. The log house had a front-gabled, metal clad roof and a stuccoed exterior stone chimney with a rebuilt brick cap. There was a single centered window on the rear wall and two gable windows for the attic.

In addition to the I-house and log house, several outbuildings were noted on the property, including a pre-1900 smokehouse, a circa 1900 corncrib, a circa 1900 wood-frame shed, a circa 1990 rectangular barn, and a circa 1990 garage (Taylor 2017). A 1984 survey also noted two diamond notched log tobacco barns; however, they were not observed by Taylor in 2017 possibly due to limited visibility of the property.

ERM visited the resource in 2024 and was not able to see any buildings due to thick vegetation surrounding the parcel (Attachment 4, Figure 4). However, desktop analysis shows that the two tobacco barns were demolished prior to 2002 (GoogleEarth Pro 2024). The other outbuildings, along with the dwelling and the log house are still extant and no obvious changes have occurred since the 2017 survey.

Sanders Farm has not been formally evaluated for listing on the NRHP. However, an email from Logan Parham of Preservation Virginia noted this resource as a significant property in the area. Thus, ERM has included it in this report as a locally significant resource. The resource's northern boundary lies within the right-of-way for Nebula-Raines Route 5 and the half-mile study tier for Nebula-Raines Route 4.

3.4.5 058-0175, TOBACCO BARN

058-0175 is located at 10733 Buggs Island Road/Route 4 in Baskerville (Office of the Commissioner of the Revenue 2024). The parcel includes a cleared agricultural field and is surrounded by other agricultural and residential lots in all directions. Densely wooded areas encroach on the lots immediately to the east and south.

058-0175 was previously recorded in 1984, but the VCRIS form contains limited information on the resource. Three tobacco barns were present at the site. The surveyor noted that “each contains five tier levels and an open frame shed” (Unknown 1984). The previous surveyor also noted that the exterior walls of the barns were covered by shingled pent roofs known colloquially as “bonnets”. No other information regarding the barns, or the previous surveyor was available.

ERM visited the resource in 2024, and the barns were not visible behind a mobile home which is now on the property (Attachment 4, Figure 5). Aerial imagery shows that two of the barns were demolished between 1996 and 2003 (NETROnline 2024). The barns have been replaced by two sheds and a mobile home. A single tobacco barn appears to be extant in aerial imagery and has a gabled, metal roof.

058-0175 is currently unevaluated for listing in the NRHP, but is considered locally significant by Preservation Virginia due to the type and function of the structures. It is located within the 1-mile study tier for Nebula-Raines Route 4.

3.4.6 058-0309, TOBACCO BARN

058-0309 is located on Antlers Road/Route 678 in Boynton. The property was mis-mapped in VCRIS and the resource is actually located about 0.4 mile north of location marked on VCRIS, which was verified in the original report (Stevens et al. 1992). The correct location of the resource is depicted on the maps in this report. The surrounding environment is rural, and the barns sit within a large cleared field. Immediately north, west, and south of the property are dense woodlands, and past a tree line on the east are additional large, open fields.

058-0309 was previously surveyed by Margarita Ja. in 1992. Ja speculated that the resource may have been a part of the Rolfe House property, and that the barns were of typical design and construction for their function and time period. The resource was described as a pair of one-story, circa 1900 tobacco barns with standing seam metal, gabled roofs, wood frames, and concrete foundations. Both barns also displayed low door openings on the front, and the northern barn contains an open-bay side porch (Ja 1992). No other architectural details were provided from the previous surveys.

ERM visited the resource in 2024 and noted some changes from the earlier survey. Only one tobacco barn was visible (Attachment 4, Figure 6). This barn has a side-gabled roof, and diagonally slanted wooden plank cladding on the exterior, which create a “V” pattern. Peeling asphalt siding with brick patterning covers a portion of the upper story. Two lean-to shed extensions are located on the north and south elevations. A hinged wooden door located on the

east elevation provides access to the interior. According to aerial imagery, the other tobacco barn was demolished between 2019 and 2020 (GoogleEarth Pro 2024).

058-0309 was previously determined ineligible for listing on the NRHP by the VDHR in 1993. However, due to the function of the structures and their continued existence, they are considered locally significant by Preservation Virginia. 058-0309 is located within the 1-mile tier for Nebula-Raines Route 4 and the half-mile tier for Nebula-Raines Route 5.

3.4.7 058-5092, MECKLENBURG COUNTY POORHOUSE CEMETERY

058-5092 occupies 1.42 rural acres located east of Prison Road. The parcel is heavily wooded and is enclosed on three sides by a driveway and a parking lot. Residential and commercial lots are located to the north, south, and east, and a densely wooded area is located immediately to the west.

Poorhouse Cemetery is associated with the Mecklenburg Poor House (058-0321), which has been relocated. The cemetery was recorded as an archaeological site (44MC0813) and was most recently surveyed in March of 2010 by Mike Klein (Klein 2010). The investigator interviewed a Dr. Shelton, who provided the approximate location of the cemetery. The association of the cemetery with the Mecklenburg Poor House, which was constructed in circa 1780, dates the cemetery to the 1780s–1790s (Klein 2010). The cemetery grounds measure approximately 350 feet east-west and 225 feet north-south. Despite the size, the cemetery has only 1–5 identified gravestones. The cemetery was in use until about 1950.

ERM visited the cemetery in 2024, but was not able to survey the resource in deference to a sign noting that it was a restricted area (Attachment 4, Figure 7). However, aerial views show no changes to the cemetery since the previous survey (GoogleEarth Pro 2024).

058-5092 was recommend potentially eligible for listing on the NRHP by Klein in 2010 under Criterion D. The VDHR concurred with this recommendation the same year. In addition to its NRHP eligibility, ERM considers the cemetery to be a locally significant resource because of its association with the local African American community. The cemetery is located within the 1-mile study tier for the Cloud-Nebula Route, Nebula-Raines Routes 1, 3, 4, and 5 and the proposed Nebula Switching Station.

3.4.8 058-5412, CAREY FARMHOUSE

058-5412 is located on a 100-acre parcel at 630 Spring Road/Route 837 in South Hill. The resource is far removed from the main road and is only accessible via a single lane dirt road. The farm consists of woodlands, manicured lawn, and agricultural fields. A manmade pond is situated at the center of the parcel.

Carey Farmhouse is a farmstead that was most recently surveyed in August of 2022 by Amanda Gibson (Gibson 2022). The farmstead originally was constructed circa 1920 and remained in the Parham family until 1958, when it was purchased by Snead Sr. and Goldie White Carey (Gibson 2022). The family farmed tobacco and food crops. The farmstead is currently retained by the Carey family.

The primary dwelling on the farmstead is a circa 1920 one-and-a-half story Craftsman Bungalow, which is in fair condition. At the time of 2022 survey, Gibson described the dwelling as having the original wooden clapboard siding and a standing seam tin roof (Gibson 2022). The dwelling had a low-pitched gabled roof with exposed rafters on the overhang and a single shed-roof dormer protruding from the half story. Gibson noted three interior brick chimneys and a fourth block chimney that was added in the 1970s. The primary entrance is accessible via a full-width porch. At an unknown point in time, the front porch's columns were replaced with brick and the deck the columns sit on was rebuilt (Gibson 2022). There is a secondary, enclosed porch on the rear. ERM could not view the dwelling from the vantage point of the nearest public right-of-way. However, a desktop review of the dwelling using aerial imagery showed no major changes to the resource (GoogleEarth Pro 2024).

In addition to the Craftsman Bungalow, Gibson recorded two circa 1920 smokehouses, a tobacco barn, and two storage barns. The two smokehouses were described as small outbuildings behind the dwelling (Gibson 2022). One of the smokehouses was built of stacked logs, similar to the tobacco barn. The second smokehouse featured clapboard siding with a shed to one side. The two storage barns sit to the east of the dwelling, but were not described. When ERM revisited the location, no outbuildings were visible from the right-of-way and a desktop review revealed that all the outbuildings are still extant (Attachment 4, Figure 8; GoogleEarth Pro 2024).

058-5412 is currently unevaluated for NRHP eligibility; however, Gibson recommended further research be completed on the resource to understand the significance Carey Farmstead had with respect to local history. An email from Logan Parham of Preservation Virginia noted this resource as a significant property in the area. Thus, ERM has included it in this report as a locally significant resource. 058-5412 is located inside the 1-mile study tier for Nebula-Raines Route 1.

3.4.9 EAST END HIGH SCHOOL

The former East End High School was located at 365 Dockery Road in South Hill, just east of its intersection with U.S. Highway 1, and about 4.0 miles southwest of South Hill, in Mecklenburg County. The building, constructed in 1953 to serve the African American community of eastern Mecklenburg County, was demolished in March 2024 (Snead 2024), although the foundation remains (Attachment 4, Figure 9). It was located on a 23-acre parcel of maintained lawn, woods, and an athletic field. A row of trees was planted along Dockery Road in front of the school. Vehicular access was via a circular drive in front of the school. A driveway along the west side of the building connected with the circular drive and provided bus access. A parking lot was between Dockery Road and the east wing of the school. The main building was roughly H-shaped, with a connected wing off the southeast corner. An additional building was located to the north and was connected to the main building by walkways (NETROnline 2024).

East End High School was a historically black school that operated from 1953 until county schools were integrated under a court order in 1969. The building was then converted to a middle school serving both black and white students (Snead 2021; VDHR 2022).

The school had its origins in a school for Black students established in 1916 in the old True Reformer Hall. A three-room school building was constructed in 1918 with funds from the county school board and parent contributions. This school became the Mecklenburg County Training

School. The East End High School was built in 1953 with a grant from the Battle Fund, a program instituted under Governor John S. Battle to directly fund local school construction. Students came to the new high school from the Mecklenburg County Training School, the Thyne Institute, and other schools for African Americans in eastern Mecklenburg County. Initial enrollment at the school was 450 students under its first and only principal, Mr. Emmett Taliaferro.

Historic aerial photographs show that the main building and the separate building to the north were part of the original plan, and that the southeast wing was added between 1958 and 1967. The athletic field was originally located behind the building to the north, but by 1967 an additional field had been constructed on the east side of the building. By 1983, the original field to the north was used as a baseball field, while a track was constructed in the field to the east (NETROnline 2024). A circa 1960 photograph and an architectural rendering show that the school was a one-story flat-roofed brick building with a central entryway covered by a projecting portico. The wings had rows of tall 3 x 6-paned windows (Classmates 2024). The style was typical of mid twentieth century International Style-influenced public buildings.

East End High School was not recorded in VDHR's historic architectural database. It appears to have been a well-preserved example of a public school building from the period, and was an important part of the social and educational history of Mecklenburg County. The school represented an effort to provide "separate but equal" facilities for African Americans in the segregated South and was later adapted as an integrated school. However, because the building has been demolished, the resource no longer possesses sufficient integrity to be considered an historic architectural resource. The foundation of the school remains and an historical marker was installed near the site in 2022 (VDHR 2022). ERM included the resource as locally significant historic site because of its status as an important African-American institution in the county (Historically Black Schools of Mecklenburg County Virginia 2024) that it is still memorialized by a historical marker. The resource was located within the half-mile study tier for Nebula-Raines Routes 3 and 4.

3.5 HISTORIC RESOURCE FINDINGS FOR CLOUD-NEBULA ROUTE

3.5.1 058-5092, MECKLENBURG COUNTY POORHOUSE CEMETERY

058-5092 is located approximately 0.5 mile to the west of the Cloud-Nebula Route where the route would use a greenfield alignment and connects to Dominion's existing Cloud Switching Station. It is also approximately 0.8 mile to the northwest of the proposed Nebula Switching Station (Attachment 5, Figure 1). The area between the resource and the route is occupied by data centers and paved roads. The resource itself is surrounded by dense vegetation. One simulation was prepared for the resource, KOP 112, near Herbert Drive. As shown by the simulation, the resource would have no view of either the switching station or the route due to the distance between the resource and the Project, vegetation surrounding the resource, and higher ground directly east of the resource (Attachment 5, Figure 2). Thus, ERM recommends that there would be **No Impact** on Mecklenburg County Poorhouse Cemetery from this route or the proposed Nebula Switching Station.

3.6 HISTORIC RESOURCE FINDINGS FOR NEBULA-RAINES ROUTE 1

3.6.1 058-0140, M.H. UPTON HOUSE

058-0140 is located approximately 0.3 mile to the north of Nebula-Raines Route 1 in an area where the route would use a greenfield alignment (Attachment 5, Figure 3). The area between the resource and the route consists of pastureland intersected by a tree-lines drainage. The route intersects with Dominion's existing Lines #38 and #137 in this area.

One simulation was prepared for the resource at KOP 104, on Antlers Road. This point was chosen because it was the closest point to the resource from the public right-of-way and represented a similar view across pastureland to the south. The simulation indicates that the conductors would be visible between the trees (Attachment 5, Figure 4). Most vantage points from within the resource itself would likely have no line of sight to the route due to intervening tree cover. Moreover, the existing Dominion transmission line located to the west of the resource already occupies the resource's viewshed, and would be in the foreground along the sight line from the resource southwest to Route 1. Although there are trees and dense vegetation bordering the southern resource boundary, the transmission line route would be visible from at least one vantage point at the resource's southwest corner and it would add an additional modern element to the viewshed. Because the historic viewshed has already been diminished by the existing transmission line, ERM recommends the route would have a **Minimal Impact** on the M.H. Upton House.

3.6.2 058-5092, MECKLENBURG COUNTY POORHOUSE CEMETERY

058-5092 is located approximately 0.9 mile to the northwest of Nebula-Raines Route 1 where the route would use a greenfield alignment and approximately 0.8 mile to the northwest of the proposed Nebula Switching Station (Attachment 5, Figure 5). The area between the resource and the route consists of forest and data centers. The resource itself is surrounded by dense vegetation and trees. One simulation was prepared for the resource, KOP 112, near Herbert Drive. As shown by the simulation, the resource would have no view of the switching station or route due to the resource being surrounded by trees, along with the distance between the resource and the Project and the higher elevation of the land directly east of the resource (Attachment 5, Figure 6). Thus, ERM recommends that there would be **No Impact** on Mecklenburg County Poorhouse Cemetery from this route or the proposed Nebula Switching Station.

3.6.3 058-5412, CAREY FARMHOUSE

058-5412 is located approximately 0.6 mile to the northwest of Nebula-Raines Route 1 where the route would use a greenfield alignment (Attachment 5, Figure 7). The space between the resource and the route consists of pastureland, agricultural land, and forested areas.

One simulation was taken for the resource at KOP 113, along Spring Road. As shown in the simulation, most of the resource would have no view of the route (Attachment 5, Figure 8). However, the top of one transmission structure could be visible from the eastern and southern edges of the resource. Although this would be a minor change, it would introduce a modern

element to the southern viewshed where there currently are none. Thus, ERM recommends that the route would have a **Minimal Impact** on the Carey Farmhouse.

3.7 HISTORIC RESOURCE FINDINGS FOR NEBULA-RAINES ROUTE 3

3.7.1 058-0057, SYCAMORE LODGE

058-0057 is located approximately 0.5 mile to the southeast of Nebula-Raines Route 3 in an area where the route would use a greenfield alignment (Attachment 5, Figure 9). The area between the resource and the route consists of agricultural land, pastureland, and dense forest. One simulation was prepared for the resource, KOP 101, on Dockery Road. As shown by the simulation, the resource would have no view of the route due to the distance and the vegetation to the south of the route (Attachment 5, Figure 10). Thus, ERM recommends that there would be **No Impact** on Sycamore Lodge from this route.

3.7.2 058-0073, LOMBARDY GROVE TAVERN

058-0073 is located approximately 0.6 mile to the west of Nebula-Raines Route 3 in an area where the route would use a greenfield alignment (Attachment 5, Figure 11). The area between the resource and the route consists of pastureland and forest. Additionally, the resource is surrounded by trees and dense vegetation.

One simulation was taken for the resource: KOP 103. The KOP is located in the median between Plank Road and Highway 1, near their connection with Union Level Road. As shown in the simulation, the tops of three structures would be visible from the eastern boundary of the resource when looking to the east (Attachment 5, Figure 12). Because of the dense vegetation surrounding the tavern, the route would not be visible from the tavern itself or anywhere other than the eastern edge of the resource boundary, where it would present a minor change to the existing viewshed. Thus, ERM recommends that Nebula-Raines Route 3 would have a **Minimal Impact** on the Lombardy Grove Tavern.

3.7.3 058-0140, M.H. UPTON HOUSE

058-0140 is located approximately 0.3 mile to the north of Nebula-Raines Route 3 in an area where the route would use a greenfield alignment, but intersects with Dominion's existing Lines #38 and #137 (Attachment 5, Figure 13). The area between the resource and the route consists of pastureland intersected by a tree-lined drainage.

One simulation was prepared for the resource at KOP 104, on Antlers Road. This point was chosen because it was the closest point to the resource from the public right-of-way and represents a similar view across pastureland to the south. According to the simulation, the conductors would be visible between the trees (Attachment 5, Figure 14). Most vantage points from within the resource itself would likely have no line of sight to the transmission line due to intervening tree cover. Moreover, the existing Dominion transmission line located to the west of the resource, already occupies the resource's viewshed, and would be in the foreground along the sight line from the resource southwest to Nebula-Raines Route 1. Although there are trees and dense vegetation bordering the southern resource boundary, the route would be visible from at least one vantage point at the resource's southwest corner and it would add an additional modern element

to the viewshed. Because the historic viewshed has already been diminished by the existing transmission line, ERM recommends the route would have a **Minimal Impact** on the M.H. Upton House.

3.7.4 058-5092, MECKLENBURG COUNTY POORHOUSE CEMETERY

058-5092 is located approximately 0.9 mile to the northwest of Nebula-Raines Route 3 where the route would use a greenfield alignment and approximately 0.8 mile to the northwest of the proposed Nebula Switching Station (Attachment 5, Figure 15). The area between the resource and the route consists of dense forest and data centers. The resource itself is surrounded by dense vegetation. One simulation was prepared for the resource, KOP 112, near Herbert Drive. As shown by the simulation, the resource would have no view of the switching station or route due to the resource being surrounded by trees, along with the distance between the resource and the Project and the higher elevation of the land directly east of the resource (Attachment 5, Figure 16). Thus, ERM recommends that there would be **No Impact** on Mecklenburg County Poorhouse Cemetery from Nebula-Raines Route 3 or the proposed Nebula Switching Station.

3.7.5 EAST END HIGH SCHOOL

The East End High School historic site is located approximately 192 feet to the west of Nebula-Raines Route 3 where the route would use a greenfield alignment (Attachment 5, Figure 17). The area between the resource and the route consists of forest with some areas of open agricultural land.

One simulation was prepared for the resource at KOP 114, located alongside Dockery Road and the school parking lot. This location was chosen because the areas closer to the eastern boundary of the resource, which is closest to the route, did not have a point of access to safely take photos from. As shown in the simulation, there would be no view of the structures associated with the route from that location; it is likely that the conductors would only be visible from a vantage point at the resource's southern corner, looking down Dockery Road to the point where the route spans the road (Attachment 5, Figure 18). The construction of the route would also include tree clearing, which could be visible from the southern corner of the resource. In addition, the route might be visible from the resource's eastern boundary during the leaf off portion of the year. The other portions of the resource would have no view of the route. Thus, ERM recommends that Nebula-Raines Route 3 would have a **Minimal Impact** on the site of East End High School.

3.8 HISTORIC RESOURCE FINDINGS FOR NEBULA-RAINES ROUTE 4

3.8.1 058-0057, SYCAMORE LODGE

058-0057 is located approximately 0.5 mile to the southeast of Nebula-Raines Route 4 in an area where the route would use a greenfield alignment (Attachment 5, Figure 19). The area between the resource and the route consists of agricultural land, pastureland, and forest. One simulation was prepared for the resource, KOP 101, on Dockery Road. As shown by the simulation, the resource would have no view of the route due to distance and vegetation to the south of the route (Attachment 5, Figure 20). Thus, ERM recommends that there would be **No Impact** on Sycamore Lodge from Nebula-Raines Route 4.

3.8.2 058-0073, LOMBARDY GROVE TAVERN

058-0073 is located approximately 0.6 mile to the west of Nebula-Raines Route 4 in an area where the route would use a greenfield alignment (Attachment 5, Figure 21). The area between the resource and the route consists of pastureland and forest. In addition, the resource itself is surrounded by trees.

One simulation was prepared for the resource, at KOP 103, located on the median between Plank Road and Highway 1, near their connection with Union Level Road. As shown in the simulation, the tops of three structures would be visible from the eastern boundary of the resource when looking to the east (Attachment 5, Figure 22). Because of the dense vegetation surrounding the tavern itself, the route would not be visible from the tavern itself or anywhere other than the eastern edge of the resource boundary. Thus, ERM recommends that Nebula-Raines Route 4 would have a **Minimal Impact** on the Lombardy Grove Tavern.

3.8.3 058-0140, M.H. UPTON HOUSE

058-0140 is located approximately 0.3 mile to the south of Nebula-Raines Route 4 in an area where the route would use a greenfield alignment but intersects with Dominion's existing Lines #38 and #137 (Attachment 5, Figure 23). The area between the resource and the route consists of pastureland, forest, and dense vegetation.

One simulation was prepared for the resource at KOP 105, along Antlers Road. This point was chosen because it was the closest point to the resource along a public right-of-way. As shown in the simulation, a small portion of the conductors would be visible where the route intersects the existing Dominion transmission line to the north of the KOP (Attachment 5, Figure 24). However, the resource is farther away from the route than the KOP and it is unlikely that the resource itself would have line of sight to the route due to the intervening vegetation and trees, except perhaps in one location on the resource's western boundary looking northwest. However, that sight line would have the existing transmission line in the foreground, largely obscuring the new line associated with Nebula-Raines Route 4. Because the new transmission line could be visible from at least one location within the resource, introducing a new element of modern infrastructure to the viewshed, ERM recommends that Nebula-Raines Route 4 would have a **Minimal Impact** on the M.H. Upton House.

3.8.4 058-0141, SANDERS FARM

058-0141 is located approximately 0.3 mile to the north of Nebula-Raines Route 4 in an area where the route would use a greenfield alignment but intersects with Dominion's existing Lines #38 and #137 (Attachment 5, Figure 25). The area between the resource and the route consists of dense vegetation and forest. One simulation was taken for the resource, at KOP 106 on Antlers Road. As shown in the simulation, Nebula-Raines Route 4 would not be visible from the resource due to distance and intervening vegetation (Attachment 5, Figure 26). Thus, ERM recommends Nebula-Raines Route 4 would have **No Impact** on Sanders Farm.

3.8.5 058-0175, TOBACCO BARNS

058-0175 is located approximately 0.6 mile to the north of Nebula-Raines Route 4 in an area where the route would use a greenfield alignment (Attachment 5, Figure 27). The area between the resource and the route consists of mobile homes, mid-century modern dwellings, industrial buildings, open agricultural land, and forested areas.

One simulation was prepared for the resource at KOP 108, on Buggs Island Road/Route 4. Although the resource is over a half-mile north of the route, the top of one structure would be visible when looking south from the road (Attachment 5, Figure 28). While this is a minor change, the construction of Nebula-Raines Route 4 would introduce a modern element to the southern viewshed, which currently consists of rural land and vegetation. Thus, ERM recommends that the route would have a **Minimal Impact** on 058-0175.

3.8.6 058-0309, TOBACCO BARN

058-0309 is located approximately 1.0 mile to the north of Nebula-Raines Route 4 in an area where the route would use a greenfield alignment but intersects with Dominion's existing Lines #38 and #137 (Attachment 5, Figure 29). The area between the resource and the route consists of forest and a farmstead. In addition, the road turns to the east between the resource and the route. One simulation was prepared for the resource at KOP 110, alongside Antlers Road. As shown in the simulation, the route would not be visible from the resource due to the bend in the road and distance (Attachment 5, Figure 30). Thus, ERM recommends that Nebula-Raines Route 4 would have **No Impact** on the tobacco barn.

3.8.7 058-5092, MECKLENBURG COUNTY POORHOUSE CEMETERY

058-5092 is located approximately 0.9 mile to the northwest of Nebula-Raines Route 4 where the route would use a greenfield alignment and approximately 0.8 mile to the northwest of the proposed Nebula Switching Station (Attachment 5, Figure 31). The area between the resource and the route consists of dense forest and data centers. The resource itself is surrounded by dense vegetation. One simulation was prepared for the resource, KOP 112, near Herbert Drive. As shown by the simulation, the resource would have no view of the switching station or route due to the resource being surrounded by trees, along with the distance between the resource and the Project and the higher elevation of the land directly east of the resource (Attachment 5, Figure 32). Thus, ERM recommends that there would be **No Impact** on Mecklenburg County Poorhouse Cemetery from Nebula-Raines Route 4 or the proposed Nebula Switching Station.

3.8.8 EAST END HIGH SCHOOL

The East End High School historic site is located approximately 192 feet to the west of Nebula-Raines Route 4 where the route would use a greenfield alignment (Attachment 5, Figure 33). The area between the resource and the route consists of forest with some areas of open agricultural land.

One simulation was prepared for the resource at KOP 114, located alongside Dockery Road and the school parking lot. This location was chosen because the areas closer to the eastern boundary of the resource, closest to the route, did not have access area to safely take photos from. As

shown in the simulation, there would be no view of the structures associated with the route from that location; it is likely that the conductors would only be visible from a vantage point at the resource's southern corner, looking down Dockery Road to the point where the route spans the road (Attachment 5, Figure 34). The construction of the route would also include tree clearing, which could be visible from the southern corner of the resource. In addition, the route might be visible from the resource's eastern boundary during the leaf off portion of the year. The other portions of the resource would have no view of the route. Thus, ERM recommends that Nebula-Raines Route 4 would have a **Minimal Impact** on the East End High School site.

3.9 HISTORIC RESOURCE FINDINGS FOR NEBULA-RAINES ROUTE 5

3.9.1 058-0140, M.H. UPTON HOUSE

058-0140 is located approximately 0.8 mile to the southeast of Nebula-Raines Route 5 in an area where the route would use a greenfield alignment but intersects with Dominion's existing Lines #38 and #137 (Attachment 5, Figure 35). The area between the resource and the route consists of pastureland, forest, and dense vegetation. One simulation was prepared for the resource at KOP 105, alongside Antlers Road. This KOP was chosen because it was the closest ERM could get to the resource from a public right-of-way. As shown in the simulation, the route would not be visible from the resource due to distance and intervening vegetation (Attachment 5, Figure 36). Although the simulation was not taken from the edge of the resource, the KOP chosen is closer to the route and features less intervening vegetation than the resource does. Thus, ERM recommends Nebula-Raines Route 5 would have **No Impact** on the M.H. Upton House.

3.9.2 058-0141, SANDERS FARM

Nebula-Raines Route 5 traverses approximately 575 feet of 058-0141's northernmost boundary where the route would use a greenfield alignment but connects to Dominion's existing Lines #38 and #137 to the southwest of the resource (Attachment 5, Figure 37). The area surrounding the resource is heavily wooded.

One simulation was taken for the resource at KOP 107, located on Antlers Road. As shown in the simulation, the route's conductors would be visible from the KOP when looking to the north, at its intersection with Antlers Road (Attachment 5, Figure 38). In addition, because the route intersects the resource's northern tip, it directly impacts the resource. Moreover, the outbuildings associated with the dwelling are likely to have views of the route where it turns south, to the west of the resource, before tying into the existing Dominion transmission line. The construction of Nebula-Raines Route 5 would include tree removal and introduce modern elements to the western viewshed and the resource itself. Thus, ERM recommends that the route would have a **Severe Impact** on Sanders Farm.

3.9.3 058-0309, TOBACCO BARN

058-0309 is located approximately 0.3 mile to the west of Nebula-Raines Route 5 in an area where the route would use a greenfield alignment (Attachment 5, Figure 39). The area between the resource and the route consists of a tree line and an open field.

One simulation was prepared for the resource at KOP 110, located along Antlers Road. As shown in the simulation, the route would not be visible to the southwest or southeast due to the dense vegetation between the resource and the route and the curvature of Antlers Road looking south to the point where Nebula-Raines Route 5 crosses the road (Attachment 5, Figure 40). Even from a vantage point at the far southern edge of the resource, there would be enough curvature along Antlers Road and change in elevation to hide the transmission line. For this reason, ERM recommends the route would have a **No Impact** on the tobacco barn.

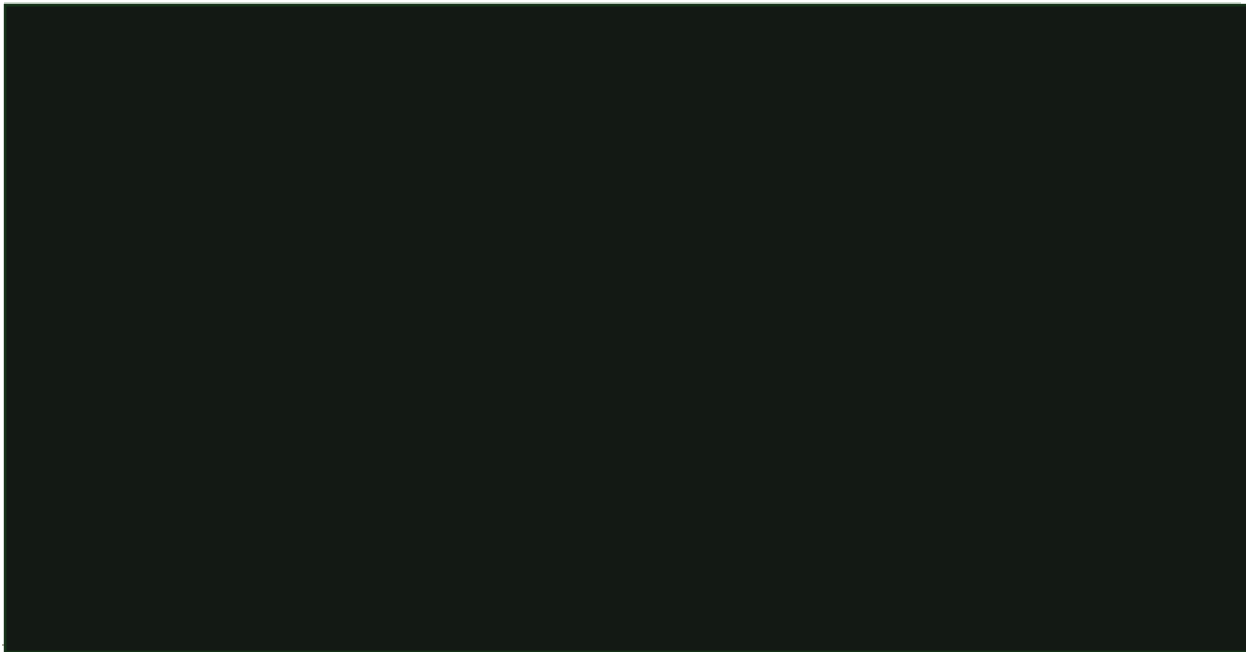
3.9.4 058-5092, MECKLENBURG COUNTY POORHOUSE CEMETERY

058-5092 is located approximately 0.9 mile to the northwest of Nebula-Raines Route 5 where the route would use a greenfield alignment and approximately 0.8 mile to the northwest of the proposed Nebula Switching Station (Attachment 5, Figure 41). The area between the resource and the route consists of dense forest and data centers. The resource itself is surrounded by dense vegetation. One simulation was prepared for the resource, KOP 112, near Herbert Drive. As shown by the simulation, the resource would have no view of the switching station or route due to the resource being surrounded by trees, along with the distance between the resource and the Project and the higher elevation of the land directly east of the resource (Attachment 5, Figure 42). Thus, ERM recommends that there would be **No Impact** on Mecklenburg County Poorhouse Cemetery from this route or the proposed Nebula Switching Station.

3.10 ARCHAEOLOGY FINDINGS

The known archaeological sites along each route are listed in Table 10 and the sites associated with each route are discussed in the sections that follow.

TABLE 10 ARCHAEOLOGICAL RESOURCES WITHIN THE RIGHT-OF-WAY FOR THE ROUTE ALTERNATIVES REDACTED



3.10.1 CLOUD-NEBULA ROUTE

No archaeological sites were identified within this route's right-of-way.

3.10.2 NEBULA-RAINES ROUTE 1

There is one previously recorded archaeological resource mapped within the Nebula-Raines Route 1 right-of-way: [REDACTED]. Site [REDACTED] is a prehistoric (Archaic and Woodland) temporary camp site that has previous ground disturbance due to cultivation activities; it is currently unevaluated for the NRHP (Gardner 1985; VCRIS 2024a). [REDACTED]

3.10.3 NEBULA-RAINES ROUTE 3

There are five previously recorded archaeological resources that overlap Nebula-Raines Route 3: [REDACTED].

Site [REDACTED] is a multi-component unknown prehistoric lithic scatter and historic (1850–1874) church site that has previous ground disturbance due to historic cultivation activities; it is currently unevaluated for the NRHP (Jones et al. 1990a; VCRIS 2024b). The site was subjected to a Phase II archaeological evaluation in 1990 performed by the William and Mary Archaeological Project Center for the Virginia Department of Transportation (VDOT), at which time the site was recommended as ineligible for the NRHP due to the sparse artifacts recovered and the lack of intact cultural features from either the prehistoric or historic components (Jones et al. 1990b).

³ The term “centerline” as used herein refers to the center of the right-of-way for the transmission line.

The site has been at least partially impacted by construction of the South Hill Bypass east of Goods Ferry Road. [REDACTED]

Site [REDACTED] is a prehistoric (Archaic and Woodland) temporary camp site that has previous ground disturbance due to cultivation activities; it is currently unevaluated for the NRHP (Gardner 1985; VCRIS 2024a). [REDACTED]

Site [REDACTED] is a multi-component unknown temporal affiliation prehistoric lithic scatter and historic (1850–1874) domestic artifact scatter that has previous ground disturbance from cultivation activities; it is currently unevaluated for the NRHP (Jones et al. 1990a; VCRIS 2024c). [REDACTED]

Site [REDACTED] is an unknown temporal affiliation prehistoric lithic scatter that has previous ground disturbance due to cultivation activities; it is currently unevaluated for the NRHP (Jones et al. 1990a; VCRIS 2024d). [REDACTED]

Site [REDACTED] is a multi-component unknown temporal affiliation prehistoric temporary camp site and historic (1900–1949) tobacco barn and associated artifact scatter that has previous ground disturbance due to the grading and development of South Hill Bypass. It is currently unevaluated for the NRHP (VCRIS 2024e). A previous Phase I survey performed by the William and Mary Archaeological Project Center for VDOT in 1996 recommended the site as ineligible for the NRHP due to the sparse recovery of artifacts from the prehistoric component and the lack of lack of cultural integrity of the historic component (Stuck and Downing 1996). [REDACTED]

3.10.4 NEBULA-RAINES ROUTE 4

There are six previously recorded archaeological resources that overlap Nebula-Raines Route 4: [REDACTED]

Site [REDACTED] is a multi-component unknown prehistoric lithic scatter and historic (1850–1874) church site that has previous ground disturbance due to historic cultivation activities; it is currently unevaluated for the NRHP (Jones et al. 1990a; VCRIS 2024b). The site was subjected to a Phase II archaeological evaluation in 1990 performed by the William and Mary Archaeological Project Center for VDOT and was recommended as ineligible for the NRHP due to the paucity of artifacts recovered and the lack of intact cultural features from either the prehistoric or historic components (Jones et al. 1990b). [REDACTED]

[REDACTED]

Site [REDACTED] is a prehistoric (Archaic) temporary camp site that has previous ground disturbance due to timbering activities; it is currently unevaluated for the NRHP (Gardner 1985; VCRIS 2024f). [REDACTED]

[REDACTED]

Site [REDACTED] is a prehistoric (Middle Archaic) temporary camp site that has previous ground disturbance due to timbering activities; it is currently unevaluated for the NRHP (Gardner 1985; VCRIS 2024g). [REDACTED]

[REDACTED]

Site [REDACTED] is a multi-component unknown temporal affiliation prehistoric lithic scatter and historic (1850–1874) domestic artifact scatter that has previous ground disturbance from cultivation activities; it is currently unevaluated for the NRHP (Jones et al. 1990a; VCRIS 2024c). [REDACTED]

[REDACTED]

Site [REDACTED] is prehistoric lithic scatter of unknown temporal affiliation that has previous ground disturbance due to cultivation activities; it is currently unevaluated for the NRHP (Jones et al. 1990a; VCRIS 2024d). [REDACTED]

[REDACTED]

Site [REDACTED] is a multi-component prehistoric temporary camp site of unknown temporal affiliation and historic (1900–1949) tobacco barn and associated artifact scatter that has previous ground disturbance due to the grading and development of South Hill Bypass; it is currently unevaluated for the NRHP (VCRIS 2024e). A previous Phase I survey performed by the William and Mary Archaeological Project Center for VDOT in 1996 recommended the site as ineligible for the NRHP due to the sparse recovery of artifacts from the prehistoric component and the lack of cultural integrity of the historic component (Stuck and Downing 1996). [REDACTED]

[REDACTED]

3.10.5 NEBULA-RAINES ROUTE 5

There are five previously recorded archaeological resources that overlap Nebula-Raines Route 5:

[REDACTED]

Site [REDACTED] is a multi-component unknown prehistoric lithic scatter and historic (1850–1874) church site that has previous ground disturbance due to historic cultivation activities; it is currently unevaluated for the NRHP (Jones et al. 1990a; VCRIS 2024b). The site was subjected to a Phase II archaeological evaluation in 1990 performed by the William and Mary Archaeological Project Center for VDOT and was recommended as ineligible for the NRHP due to the paucity of

artifacts recovered and the lack of intact cultural features from either the prehistoric or historic components (Jones et al. 1990b). [REDACTED]

Site [REDACTED] is an unknown historic site that contains structure foundation remnants. The site has been disturbed by timbering and land clearing for an existing transmission line ROW. The site is currently unevaluated for the NRHP (VCRIS 2024h). A previous Phase I archaeological survey performed by Power Engineers, Inc. in 2019 for Dominion Energy was unable to relocate the site and it was determined to be destroyed by previous ground disturbance (Haynes and Parrott 2020). [REDACTED]

[REDACTED] Based on the fact that the site was not relocated during a previous survey, it is unlikely that any intact cultural remains that would be evaluated as eligible for the NRHP are present at the site.

Site [REDACTED] is a multi-component unknown temporal affiliation prehistoric lithic scatter and historic (1850–1874) domestic artifact scatter that has previous ground disturbance from cultivation activities; it is currently unevaluated for the NRHP (Jones et al. 1990a; VCRIS 2024c). [REDACTED]

Site [REDACTED] is an unknown temporal affiliation prehistoric lithic scatter that has previous ground disturbance due to cultivation activities, it is currently unevaluated for the NRHP (Jones et al. 1990a; VCRIS 2024d). [REDACTED]

Site [REDACTED] is a multi-component unknown temporal affiliation prehistoric temporary camp site and historic (1900–1949) tobacco barn and associated artifact scatter that has previous ground disturbance due to the grading and development of South Hill Bypass; it is currently unevaluated for the NRHP (VCRIS 2024e). A previous Phase I survey performed by the William and Mary Archaeological Project Center for VDOT in 1996 recommended the site as ineligible for the NRHP due to the sparse recovery of artifacts from the prehistoric component and the lack of lack of cultural integrity of the historic component (Stuck and Downing 1996). [REDACTED]

3.11 VELA CEMETERY REDACTED

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

4. CONCLUSIONS AND RECOMMENDATIONS

The pre-application analysis gathered information on archaeological and historic architectural resources that qualify for consideration according to the VDHR Guidelines for transmission line projects.

Eight known archaeological sites are located in the right-of-way of the transmission line routes reviewed in this study. An assessment of the condition and research potential of those sites is contingent upon archaeological field investigations, which will be conducted at relevant sites once a preferred route for the Project is selected by the SCC. Potential impacts to sites along the preferred route will be assessed as part of the field survey.

Nine aboveground historic resources fall within the VDHR study tiers for the routes under consideration. A comparison of the number of resources impacted and the degree of impact of each route is presented in Table 11. The specific resources affected by each route are covered in the subsections that follow.

TABLE 11 COMPARISON OF PROJECT IMPACTS ON HISTORIC RESOURCES IN THE STUDY AREAS OF THE ROUTES

Route	Number of Considered Resources in Each Impact Category				
	None	Minimal	Moderate	Severe	Total
Cloud-Nebula Route 1	1				1
Nebula-Raines Route 1	1	2			3
Nebula-Raines Route 3	2	3			5
Nebula-Raines Route 4	4	4			8
Nebula-Raines Route 5	2	1		1	4

Final assessments of Project impacts will be dependent on the completion of identification-phase archaeological and historic structure surveys along the routes selected by the SCC followed by review of survey results by VDHR and other consulting parties. For any resources where the agencies concur in a finding of moderate or severe impact, the Company will propose treatments to avoid, minimize, or mitigate those impacts. Treatment options for archaeological sites could include selective structure placement to avoid direct impacts on sites, minor route adjustments to avoid crossing sites, or archaeological data recovery. Treatment options for aboveground historic resources could include detailed site documentation, historic research, and historic preservation studies; preparation of digital media or museum-type exhibits on sites for public interpretation; installation of historic markers or signs; installation of vegetative screening; or contributions to historic preservation organizations or specific preservation projects. Additional mitigation options could be identified through consultation with VDHR and other consulting parties.

4.1 CLOUD-NEBULA ROUTE

One previously recorded historic resource meets the criteria specified in the Guidelines within the VDHR study tiers for the Cloud-Nebula Route (Table 12). The route would have no impact on this resource.

TABLE 12 IMPACTS ON HISTORIC RESOURCES IN THE VDHR STUDY TIERS FOR CLOUD-NEBULA ROUTE

Buffer (miles)	Resource Category	Resource Number	Description	Impact
1.0 to 1.5	National Historic Landmarks	Not applicable	None identified	Not applicable
0.5 to 1.0	National Register Properties (listed)	Not applicable	None identified	Not applicable
	Locally Significant (National Register—Eligible)	058-5092 ^a	Mecklenburg County Poor House Cemetery	No Impact
0.0 to 0.5	National Register—Eligible	Not applicable	None identified	Not applicable
0.0 (within the ROW)	National Historic Landmarks, National Register Properties (listed and eligible)	Not applicable	None identified	Not applicable

Source: VDHR 2024

ROW = right-of-way

^a Resource is within the designated tiers for the proposed Nebula Switching Station

4.2 NEBULA-RAINES ROUTE 1

Three previously recorded historic resources meet the criteria specified in the Guidelines within the VDHR tiers for Nebula-Raines Route 1 (Table 13). The route would have no impact on one resource and a minimal impact on two resources.

TABLE 13 IMPACTS ON HISTORIC RESOURCES IN THE VDHR STUDY TIERS FOR NEBULA-RAINES ROUTE 1

Buffer (miles)	Resource Category	Resource Number	Description	Impact
1.0 to 1.5	National Historic Landmarks	Not applicable	None identified	Not applicable
0.5 to 1.0	National Register Properties (listed)	Not applicable	None identified	Not applicable
	Locally Significant (National Register—Eligible)	058-5092 ^a	Mecklenburg County Poor House Cemetery	No Impact
	Locally Significant	058-5412	Carey Farmhouse	Minimal Impact
0.0 to 0.5	National Register—Eligible	Not applicable	None identified	Not applicable
	Locally Significant	058-0140	M.H. Upton House	Minimal Impact
0.0 (within the ROW)	National Historic Landmarks, National Register Properties (listed and eligible)	Not applicable	None identified	Not applicable

Source: VDHR 2024

ROW = right-of-way

^a Resource is within the designated tiers for the proposed Nebula Switching Station

4.3 NEBULA-RAINES ROUTE 3

Four previously recorded and one as of yet unrecorded historic resources meet the criteria specified in the Guidelines within the VDHR study tiers for Nebula-Raines Route 3 (Table 14). This route would have no impact on two resources and a minimal impact on three resources.

TABLE 14 IMPACTS ON HISTORIC RESOURCES IN THE VDHR STUDY TIERS FOR NEBULA-RAINES ROUTE 3

Buffer (miles)	Resource Category	Resource Number	Description	Impact
1.0 to 1.5	National Historic Landmarks	Not applicable	None identified	Not applicable
0.5 to 1.0	National Register Properties (listed)	Not applicable	None identified	Not applicable
	Locally Significant (National Register—Eligible)	058-0073	Lombardy Grove Tavern	Minimal Impact
	Locally Significant (National Register—Eligible)	058-5092 ^a	Mecklenburg County Poor House Cemetery	No Impact
0.0 to 0.5	National Register—Eligible	Not applicable	None identified	Not applicable
	Locally Significant	058-0057	Sycamore Lodge	No Impact
		058-0140	M.H. Upton House	Minimal Impact
		Not applicable	East End High School	Minimal Impact
0.0 (within the ROW)	National Historic Landmarks, National Register Properties (listed and eligible)	Not applicable	None identified	Not applicable

Source: VDHR 2024

ROW = right-of-way

^a Resource is within the designated tiers for the proposed Nebula Switching Station

4.4 NEBULA-RAINES ROUTE 4

Eight previously recorded and one as of yet unrecorded historic resources meet the criteria specified in the Guidelines within the VDHR study tiers for Nebula-Raines Route 4 (Table 15). This route would have no impact on four resources and a minimal impact on four resources.

TABLE 15 IMPACTS ON HISTORIC RESOURCES IN THE VDHR STUDY TIERS FOR NEBULA-RAINES ROUTE 4

Buffer (miles)	Resource Category	Resource Number	Description	Impact
1.0 to 1.5	National Historic Landmarks	Not applicable	None identified	Not applicable
0.5 to 1.0	National Register Properties (listed)	Not applicable	None identified	Not applicable
	Locally Significant (National Register—Eligible)	058-0073	Lombardy Grove Tavern	Minimal Impact
	Locally Significant	058-0175	Tobacco barns	Minimal Impact
		058-0309	Tobacco barn	No Impact
	Locally Significant (National Register—Eligible)	058-5092 ^a	Mecklenburg County Poor House Cemetery	No Impact
0.0 to 0.5	National Register—Eligible	Not applicable	None identified	Not applicable
	Locally Significant	058-0057	Sycamore Lodge	No Impact
		058-0140	M.H. Upton House	Minimal Impact
		058-0141	Sanders Farm	No Impact
		Not applicable	East End High School	Minimal Impact
0.0 (within the ROW)	National Historic Landmarks, National Register Properties (listed and eligible)	Not applicable	None identified	Not applicable

Source: VDHR 2024

ROW = right-of-way

^a Resource is within the designated tiers for the proposed Nebula Switching Station

4.5 NEBULA-RAINES ROUTE 5

Four previously recorded historic architectural resources meet the criteria specified in the Guidelines within the VDHR study tiers for Nebula-Raines Route 5 (Table 16). This route would have no impact on three resources and a severe impact on one resource.

TABLE 16 IMPACTS ON HISTORIC RESOURCES IN THE VDHR STUDY TIERS FOR NEBULA-RAINES ROUTE 5

Buffer (miles)	Resource Category	Resource Number	Description	Impact
1.0 to 1.5	National Historic Landmarks	Not applicable	None identified	Not applicable
0.5 to 1.0	National Register Properties (listed)	Not applicable	None identified	Not applicable
	Locally Significant	058-0140	M.H. Upton House	No Impact
	Locally Significant (National Register—Eligible)	058-5092 ^a	Mecklenburg County Poor House Cemetery	No Impact
0.0 to 0.5	National Register—Eligible	Not applicable	None identified	Not applicable
	Locally Significant	058-0309	Tobacco barn	No Impact
0.0 (within the ROW)	National Historic Landmarks, National Register Properties (listed and eligible)	Not applicable	None identified	Not applicable
	Locally Significant	058-0141	Sanders Farm	Severe Impact

Source: VDHR 2024

ROW = right-of-way

^a Resource is within the designated tiers for the proposed Nebula Switching Station

4.6 FUTURE INVESTIGATIONS

The next stage of assessing impacts on historic resources will be to conduct an identification-phase field survey to identify and assess resources along the specific routes selected by the SCC that could be impacted by the Project. Survey will be conducted in accordance with the following guidelines:

- Guidelines for Assessing Impacts of Proposed Electrical Transmission Lines and Associated Facilities on Historic Resources in the Commonwealth of Virginia (VDHR 2008);
- Guidelines for Conducting Historic Resources Survey in Virginia (VDHR 2017);
- National Register Bulletin 15: How to Apply the National Register Criteria for Evaluation (National Park Service [NPS] 1995).

The survey teams will be led by individuals meeting the Secretary of the Interior's professional qualifications standards for archaeology and architectural history, respectively. Teams will traverse the length of the Project corridor, revisiting previously recorded historic architectural resources and documenting additional as-of-yet unrecorded cultural resources in the survey area defined in the Guidelines for the Project design. The archaeological survey will adhere to VDHR survey standards (VDHR 2017) and will entail systematic coverage of the approved route. All material

culture, including artifacts and features, that could be 50 years old or older will be recorded. Sites will be delineated within the proposed right-of-way and investigations will include subsurface testing sufficient to inform recommendations of potential eligibility for the NRHP under Criterion D. Each site will be fully documented with appropriate mapping, digital photography, and artifact collection/analysis. Site forms will be prepared for V-CRIS submittal along with full descriptions in the technical report. The historic architectural survey will likewise adhere to VDHR standards. While the NPS Bulletin 15 (NPS 1995) defines a historic property as a resource that is 50 years or older, for the purposes of this Project, survey will include those 45 years or older to accommodate the length of time needed to complete the permitting phase for the Project. Furthermore, the survey will also record those resources that may have reached significance prior to the 50 (45) year age in accordance with NPS guidance if they are integral parts of districts or have merit to be considered eligible for the NRHP on their own.

Digital photographs will be taken to record resources' overall appearance and details. Sketch maps will be drawn depicting the relationship of dwellings to outbuildings and associated landscape features. Additional information on the structures' appearance and integrity will be recorded to assist in making recommendations of NRHP eligibility. Historic maps, aerial photographs, and tax assessor data will be consulted to assist in dating the resources. Resources identified in the field effort will be reported to the VDHR, VCRIS numbers will be obtained, and shapefiles and database information will be provided. Sufficient information will be collected to make recommendations for each identified historic resource regarding eligibility for listing on the NRHP and to assess Project impacts.

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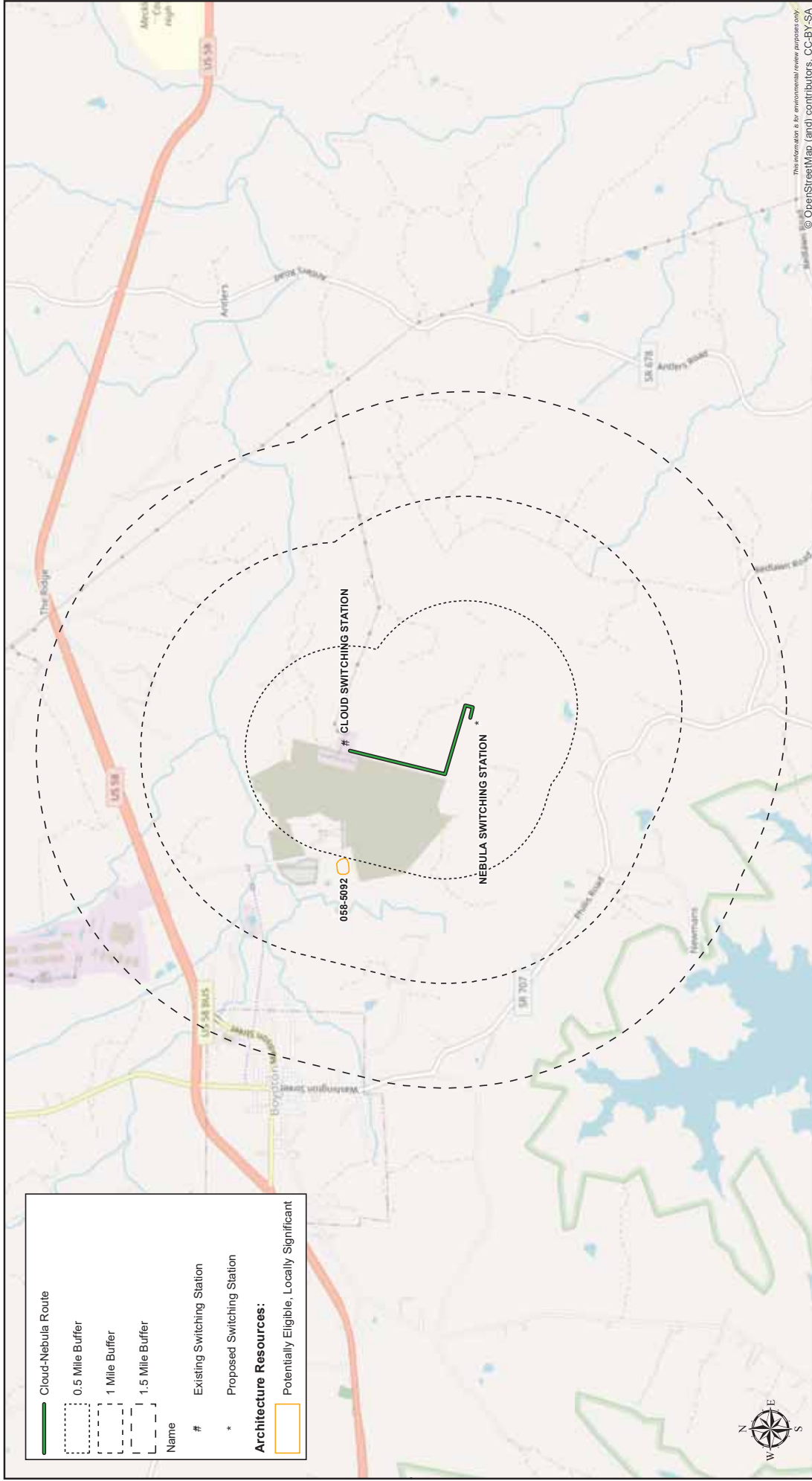
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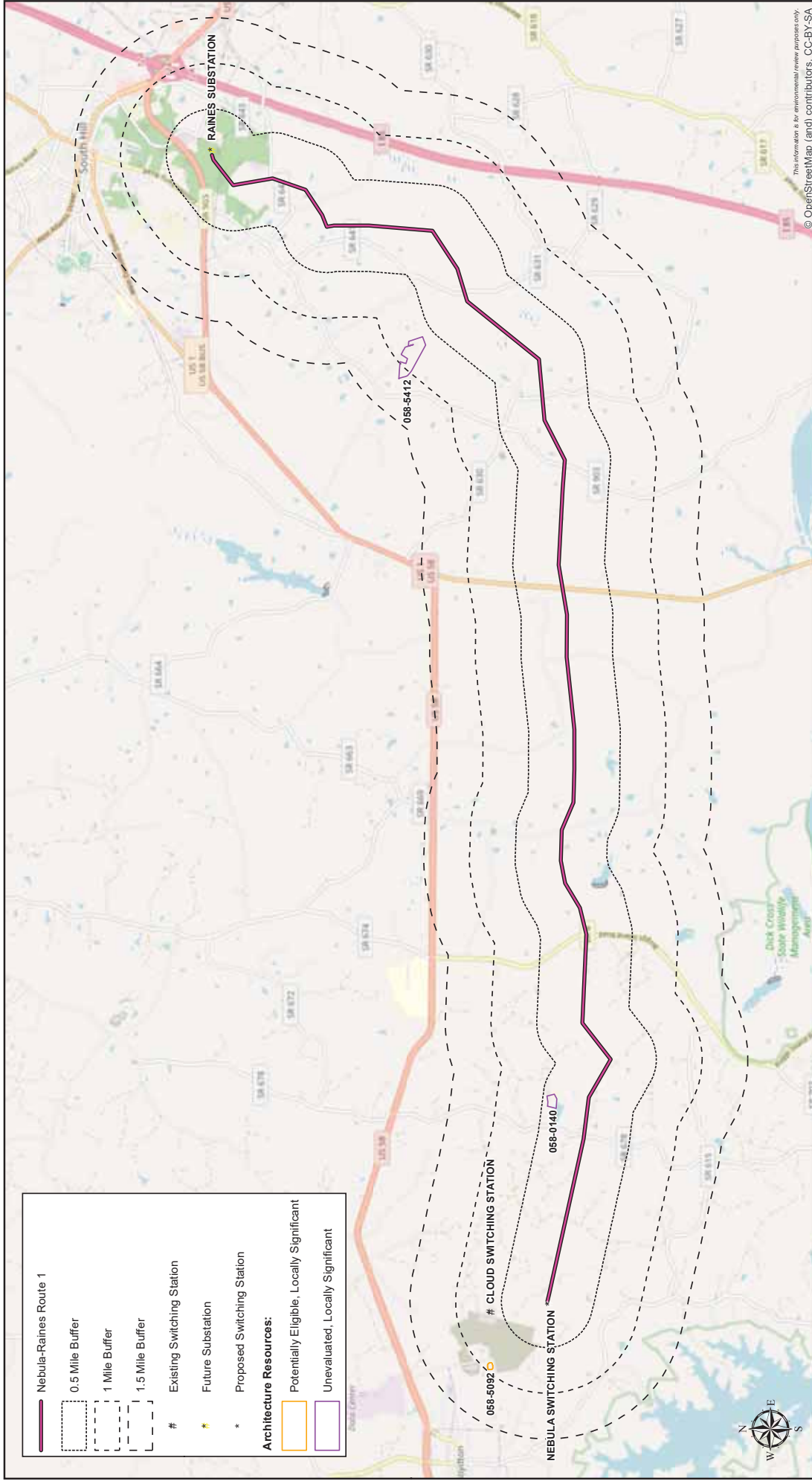
ATTACHMENT 1 LOCATIONS OF CONSIDERED HISTORIC
RESOURCES ASSOCIATED WITH
PROPOSED PROJECT ALTERNATIVES



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Attachment 1, Sheet 1
Locations of Considered Resources Associated with Proposed Project Alternatives - Cloud-Nebula Route
Cloud-Nebula-Raines 230 kV Transmission Line Project
Dominion Energy Virginia
Mecklenburg County, VA

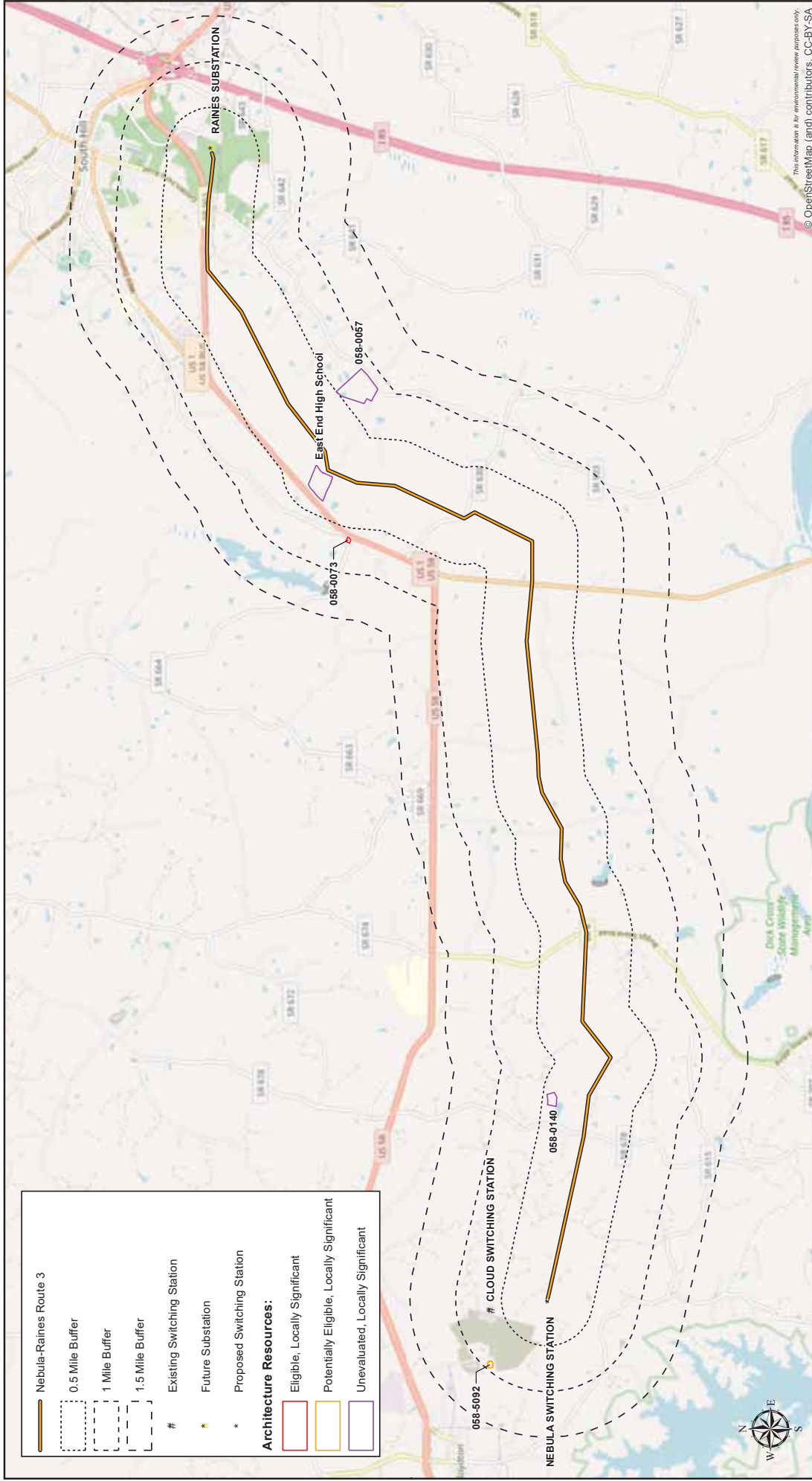




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Attachment 1, Sheet 2 **Locations of Considered Resources Associated with Proposed Project Alternatives - Nebula-Raines Route 1** **Cloud-Nebula-Raines 230 kV Transmission Line Project** **Dominion Energy Virginia** **Mecklenburg County, VA**





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Attachment 1, Sheet 3

Locations of Considered Resources Associated with Proposed Project Alternatives - Nebula-Raines Route 3

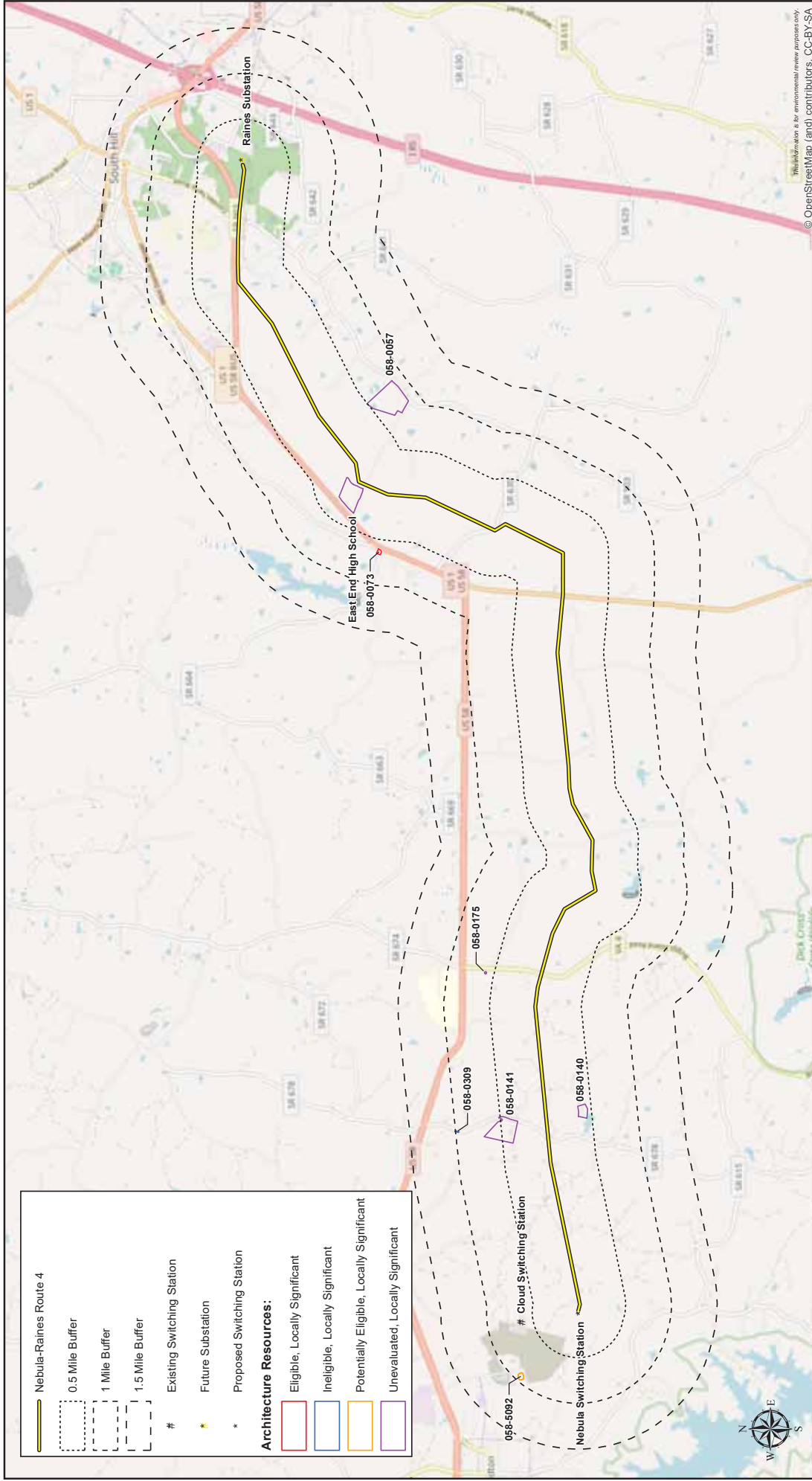
Cloud-Nebula-Raines 230 kV Transmission Line Project

Dominion Energy Virginia

Mecklenburg County, VA

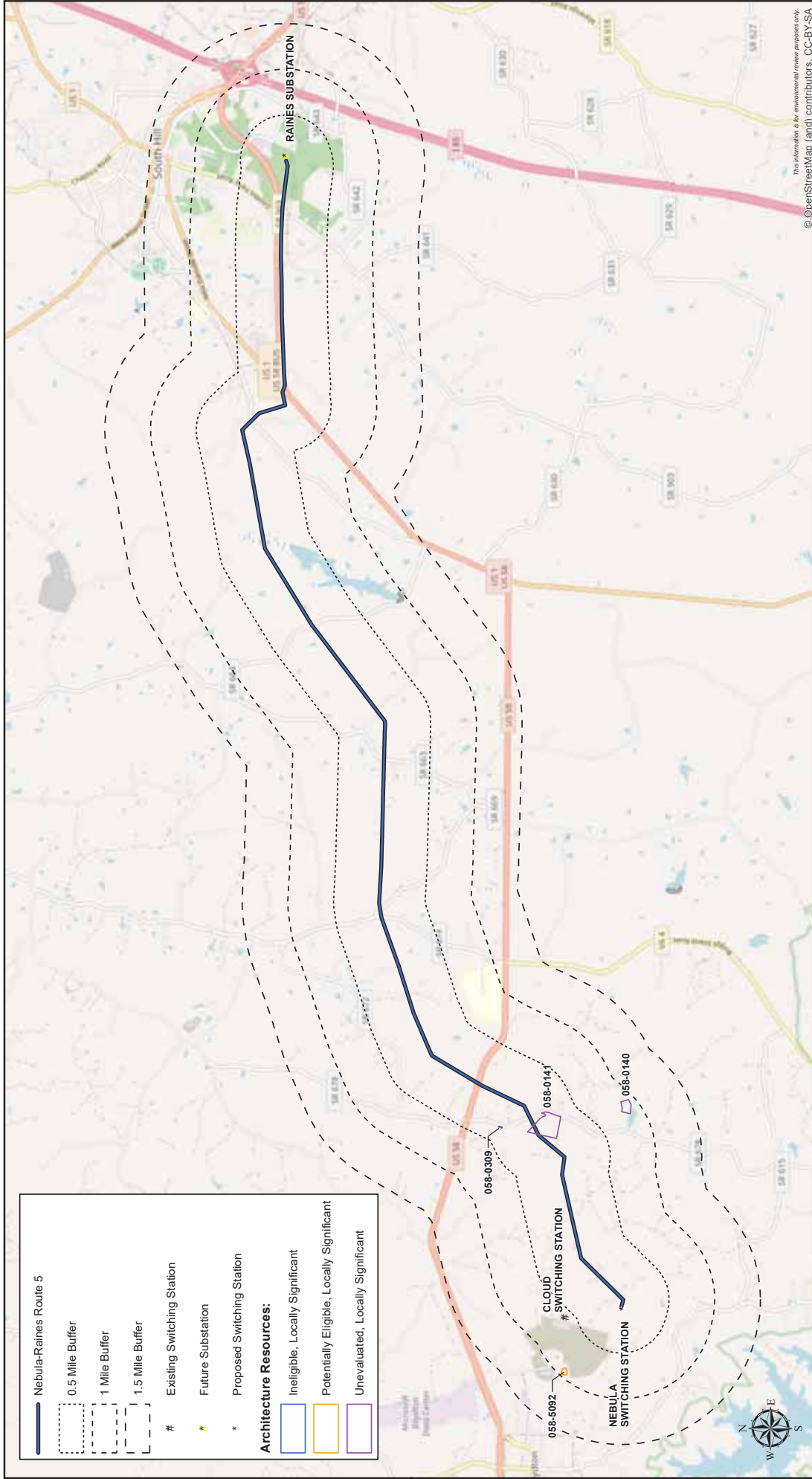


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Attachment 1, Sheet 4
Locations of Considered Resources Associated with Proposed Project Alternatives - Nebula-Raines Route 4
Cloud-Nebula-Raines 230 kV Transmission Line Project
Dominion Energy Virginia
Mecklenburg County, VA





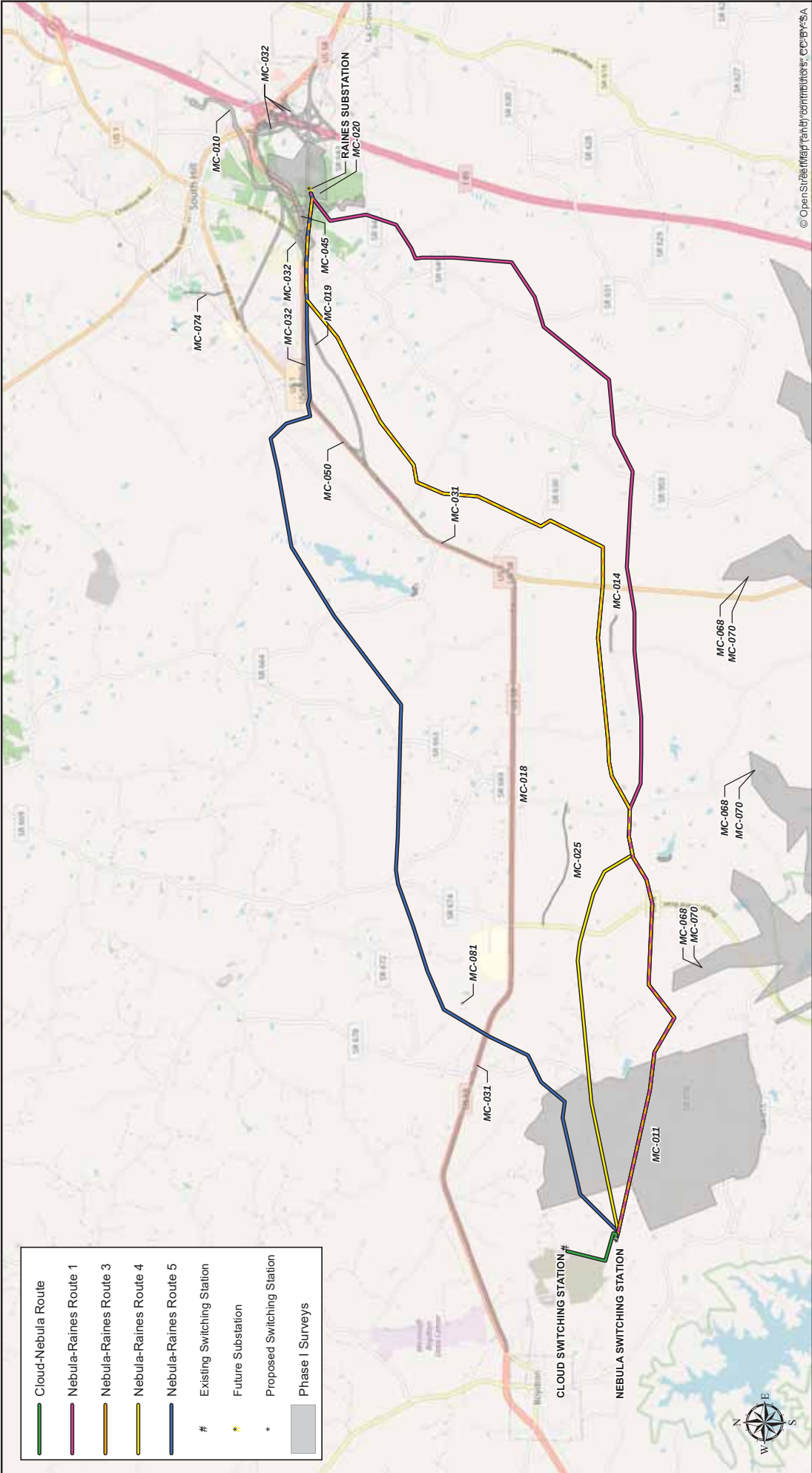
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Attachment 1, Sheet 5 Locations of Considered Resources Associated with Proposed Project Alternatives - Nebula-Raines Route 5 Cloud-Nebula-Raines 230 kV Transmission Line Project Dominion Energy Virginia Mecklenburg County, VA



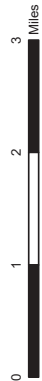


ATTACHMENT 2 CULTURAL RESOURCES SURVEYS
COVERING PORTIONS OF ROUTE
ALTERNATIVES



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Attachment 2 Cultural Resources Surveys Covering Portions of Route Alternatives Cloud-Nebula-Raines 230 kV Transmission Line Project Dominion Energy Virginia Mecklenburg County, VA

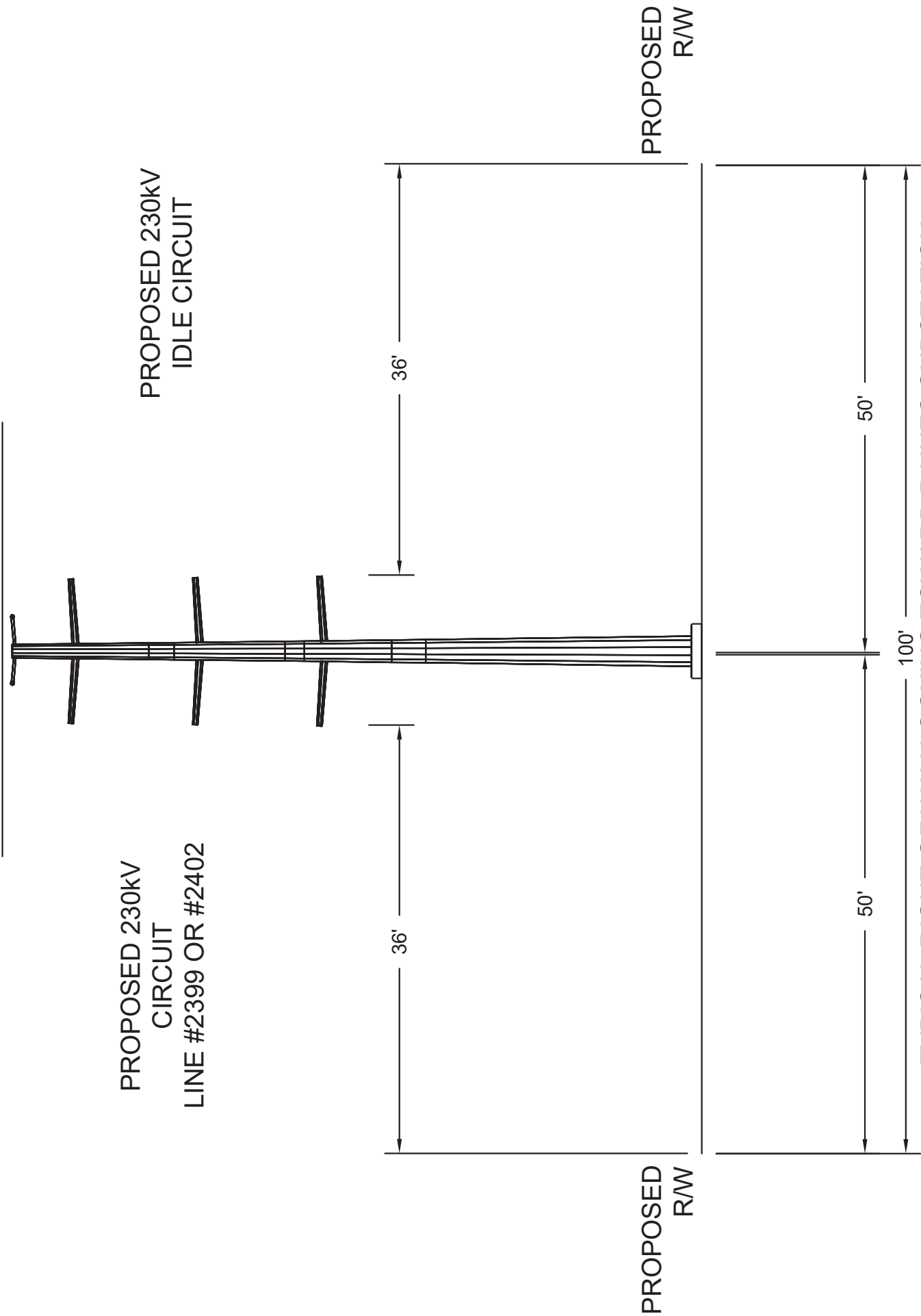


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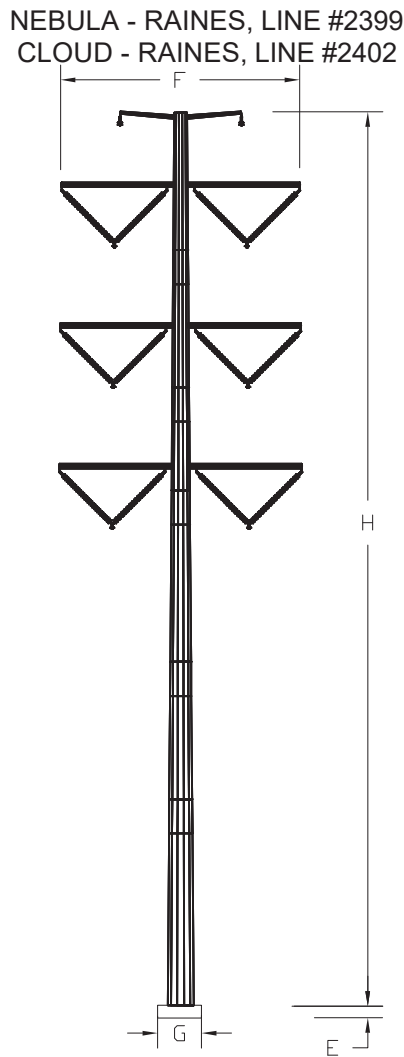
ATTACHMENT 3 TYPICAL DESIGN AND LAYOUT

NEBULA - RAINES, LINE #2399
CLOUD - NEBULA, LINE #2402
PROPOSED CONFIGURATION



TYPICAL RIGHT OF WAY LOOKING TOWARD RAINES SUBSTATION

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



230kV DC ENGINEERED MONOPOLE SUSPENSION STRUCTURE

- | | |
|-----------------------------------|--|
| A. MAPPING OF THE ROUTE: | SEE ATTACHMENT II.B.3.iv |
| B. RATIONALE FOR STRUCTURE TYPE: | TO MINIMIZE RIGHT OF WAY |
| C. LENGTH OF R/W (STRUCTURE QTY): | 15.2 MILES (81 STRUCTURES) |
| D. STRUCTURE MATERIAL: | WEATHERING STEEL |
| RATIONALE FOR MATERIAL: | WEATHERING STEEL WAS SELECTED TO MATCH OTHER LINES IN THE AREA |
| E. FOUNDATION MATERIAL: | CONCRETE |
| AVERAGE FOUNDATION REVEAL: | SEE NOTE 2 |
| F. AVERAGE WIDTH AT CROSS ARM: | 33' |
| G. AVERAGE WIDTH AT BASE: | SEE NOTE 2 |
| H. MINIMUM STRUCTURE HEIGHT: | 110' |
| MAXIMUM STRUCTURE HEIGHT: | 150' |
| AVERAGE STRUCTURE HEIGHT: | 124' |
| I. AVERAGE SPAN LENGTH (RANGE): | 740' (739'-1255') (SEE NOTE 4) |
| J. MINIMUM CONDUCTOR-TO-GROUND: | 22.5' (AT MAXIMUM OPERATING TEMPERATURE) |

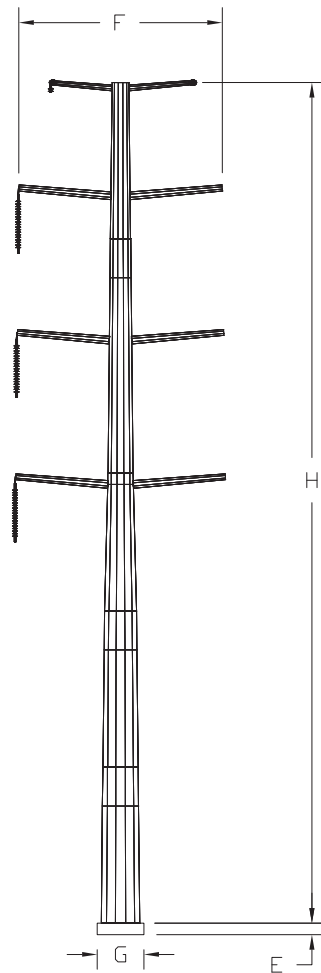
NOTES: 1. INFORMATION CONTAINED ON DRAWING IS PRELIMINARY IN NATURE AND SUBJECT TO CHANGE DURING FINAL DESIGN.

2. A MINIMUM FOUNDATION REVEAL SHALL BE 1.5 FEET. FOUNDATION DIAMETER SHALL BE BASED ON FINAL ENGINEERING.

3. STRUCTURE HEIGHTS ARE MEASURED FROM STRUCTURE CENTERLINE AND DO NOT INCLUDE FOUNDATION REVEAL.

4. THE SPAN ASSOCIATED WITH EACH STRUCTURE IS THE AHEAD SPAN.

NEBULA - RAINES, LINE #2399
CLOUD - RAINES, LINE #2402



230kV DC ENGINEERED MONOPOLE SUSPENSION STRUCTURE

- | | |
|-----------------------------------|--|
| A. MAPPING OF THE ROUTE: | SEE ATTACHMENT II.B.3.iv |
| B. RATIONALE FOR STRUCTURE TYPE: | TO MINIMIZE RIGHT OF WAY |
| C. LENGTH OF R/W (STRUCTURE QTY): | 15.2 MILES (27 STRUCTURES) |
| D. STRUCTURE MATERIAL: | WEATHERING STEEL |
| RATIONALE FOR MATERIAL: | WEATHERING STEEL WAS SELECTED TO MATCH OTHER LINES IN THE AREA |
| E. FOUNDATION MATERIAL: | CONCRETE |
| AVERAGE FOUNDATION REVEAL: | SEE NOTE 2 |
| F. AVERAGE WIDTH AT CROSS ARM: | 25' |
| G. AVERAGE WIDTH AT BASE: | SEE NOTE 2 |
| H. MINIMUM STRUCTURE HEIGHT: | 105' |
| MAXIMUM STRUCTURE HEIGHT: | 135' |
| AVERAGE STRUCTURE HEIGHT: | 119' |
| I. AVERAGE SPAN LENGTH (RANGE): | 712' (342'-1030') (SEE NOTE 4) |
| J. MINIMUM CONDUCTOR-TO-GROUND: | 22.5' (AT MAXIMUM OPERATING TEMPERATURE) |

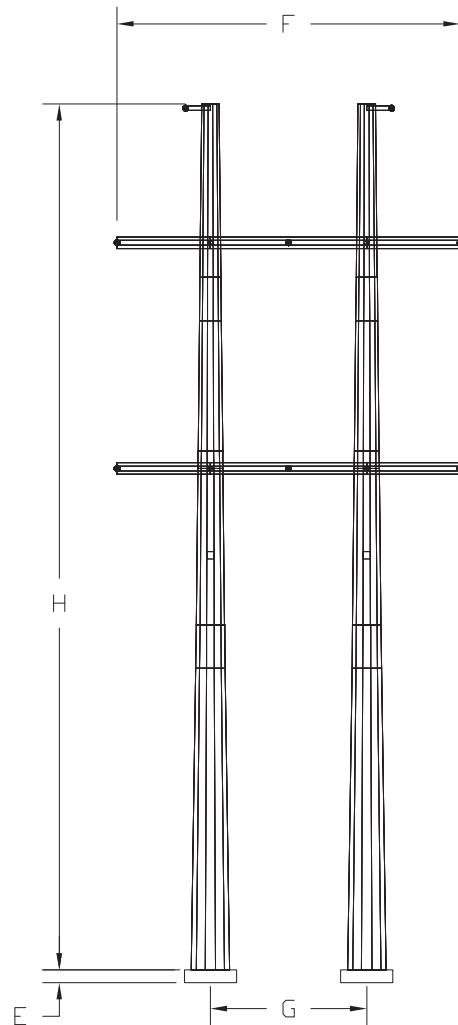
NOTES: 1. INFORMATION CONTAINED ON DRAWING IS PRELIMINARY IN NATURE AND SUBJECT TO CHANGE DURING FINAL DESIGN.

2. A MINIMUM FOUNDATION REVEAL SHALL BE 1.5 FEET. FOUNDATION DIAMETER SHALL BE BASED ON FINAL ENGINEERING.

3. STRUCTURE HEIGHTS ARE MEASURED FROM STRUCTURE CENTERLINE AND DO NOT INCLUDE FOUNDATION REVEAL.

4. THE SPAN ASSOCIATED WITH EACH STRUCTURE IS THE AHEAD SPAN.

NEBULA - RAINES, LINE #2399



230kV DC ENGINEERED H-FRAME DDE STRUCTURE

- | | |
|-----------------------------------|--|
| A. MAPPING OF THE ROUTE: | SEE ATTACHMENT II.B.3.iv |
| B. RATIONALE FOR STRUCTURE TYPE: | TO FACILITATE TRANSMISSION CROSSING |
| C. LENGTH OF R/W (STRUCTURE QTY): | 14.2 MILES (2 STRUCTURE) |
| D. STRUCTURE MATERIAL: | WEATHERING STEEL |
| RATIONALE FOR MATERIAL: | WEATHERING STEEL WAS SELECTED TO MATCH OTHER LINES IN THE AREA |
| E. FOUNDATION MATERIAL: | CONCRETE |
| AVERAGE FOUNDATION REVEAL: | SEE NOTE 2 |
| F. AVERAGE WIDTH AT CROSS ARM: | 50' |
| G. AVERAGE WIDTH AT BASE: | SEE NOTE 2 |
| H. MINIMUM STRUCTURE HEIGHT: | 165' |
| MAXIMUM STRUCTURE HEIGHT: | 175' |
| AVERAGE STRUCTURE HEIGHT: | 170' |
| I. AVERAGE SPAN LENGTH (RANGE): | 522' (503'-540') (SEE NOTE 4) |
| J. MINIMUM CONDUCTOR-TO-GROUND: | 22.5' (AT MAXIMUM OPERATING TEMPERATURE) |

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



ATTACHMENT 4 HISTORIC RESOURCE PHOTOS



Figure 1. 058-0057, Sycamore Lodge, view to the north-northwest.



Figure 2. 058-0073, Lombardy Grove Tavern, view to the east, no visibility.



Figure 3. 058-0140, M.H. Upton House, view to the southeast, no visibility.



Figure 4. 058-0141, Sanders Farm, view to the west, no visibility.



Figure 5. 058-0175, Tobacco Barn, view to the west, no visibility.



Figure 6. 058-0309, Tobacco Barns, view to the west.



Figure 7. 058-5092, Poorhouse Cemetery, sign, view to the north, no visibility.



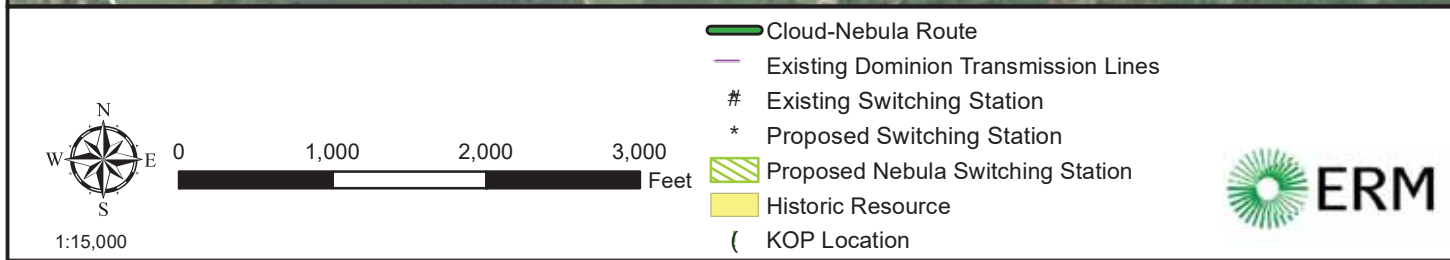
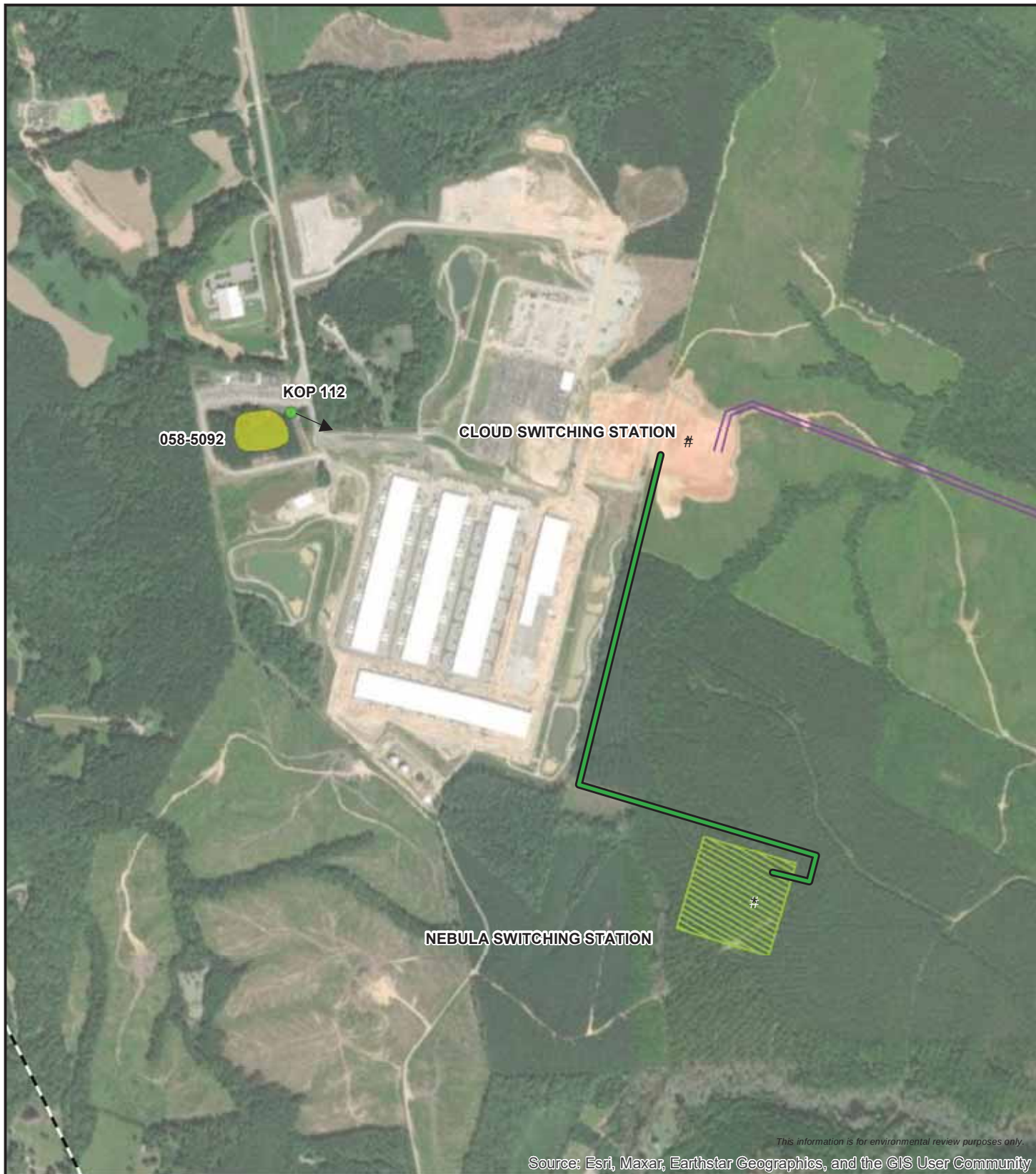
Figure 8. 058-5412, Carey Farmhouse, view to the south, no visibility.



Figure 9. East End High School, foundation, view to the northeast.



ATTACHMENT 5 PHOTO SIMULATIONS



C:\Users\Vincent.macek\OneDrive - ERM\Dominion Cloud-Nebula\Attachment 5 Maps\Fig 1 Cloud Nebula Route_058-5092.mxd | REVISED: 01/02/2025 | SCALE: 1:15,000

Figure 1. Aerial photography depicting land use and photo view for 058-5092.



EXISTING CONDITIONS



YELLOW: PARTIALLY OR FULLY HIDDEN PROJECT INFRASTRUCTURE



KOP 112
Herbert Dr

Figure 2
Route: Cloud-Nebula Route
Date: 08/13/2024
Time: 10:47 am
Viewing Direction: Southeast
Distance to closest feature: 0.5 miles



Legend
▲ Existing Switching Station
▲ Proposed Switching Station
— Existing Dominion Transmission Lines
— Cloud-Nebula Route

Note: Project components illustrated are based on proposed preliminary designs. The images contained on this page show the proposed project within a wider landscape context and are not representative of scale and distance when viewed from the actual view point.



Source: Esri, Maxar, Earthstar Geographics, and the GIS User Community
This information is for environmental review purposes only.



1:10,000



- Nebula-Raines Route 1
- Existing Dominion Transmission Lines
- Historic Resource
- KOP Location



Figure 3. Aerial photography depicting land use and photo view for 058-0140.



KOP 104

Antlers Rd

Figure 4

Route: Nebula-Raines Route 1

Date: 08/13/2024

Time: 11:15 am

Viewing Direction: South

Distance to closest feature: 0.4 miles



Legend

- Existing Dominion Transmission Lines
- KOP View Direction
- Nebula-Raines Route 1

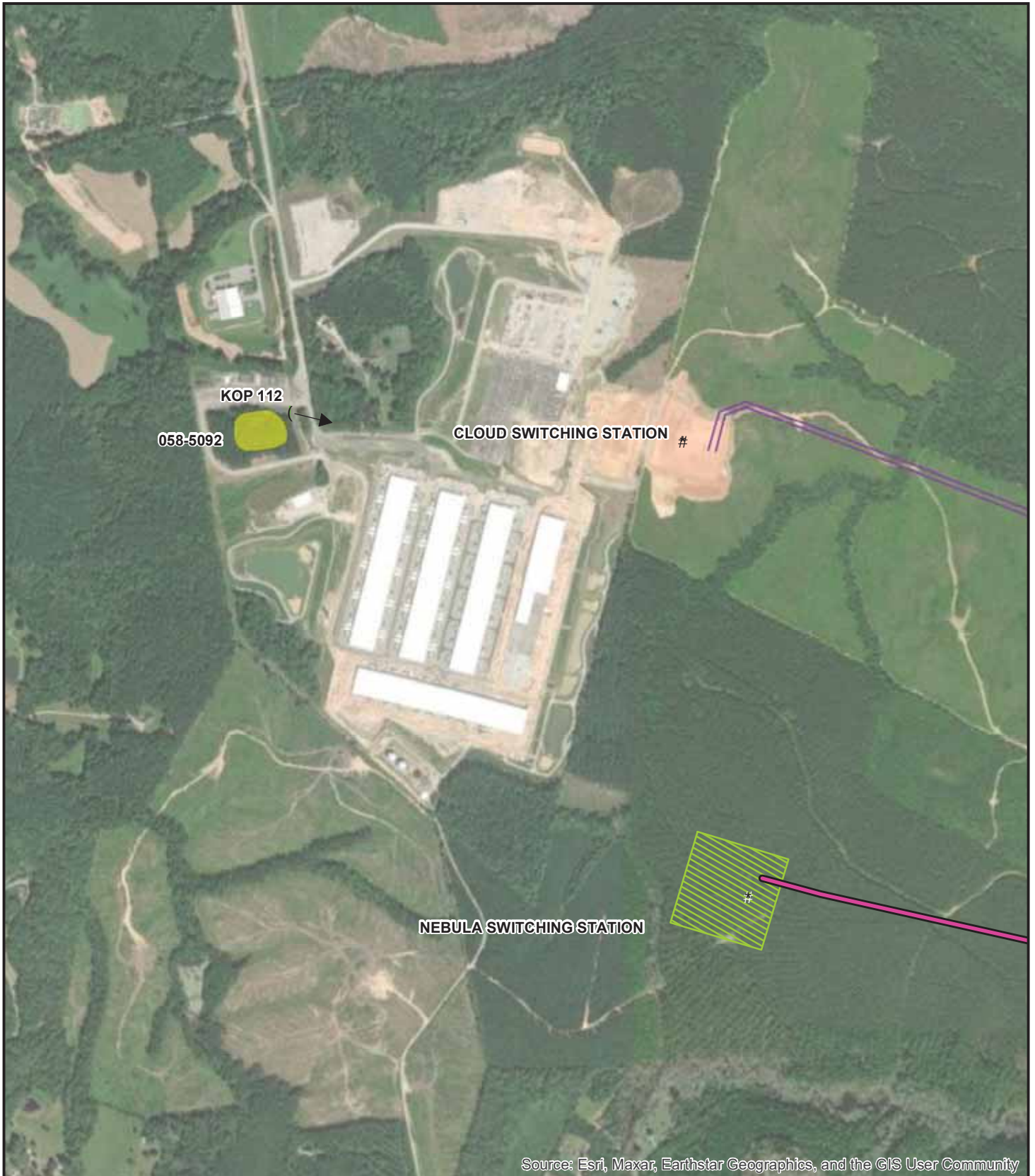
Note: Project components illustrated are based on proposed preliminary designs. The images contained on this page show the proposed project within a wider landscape context and are not representative of scale and distance when viewed from the actual view point.



EXISTING CONDITIONS



PROPOSED CONDITIONS



Source: Esri, Maxar, Earthstar Geographics, and the GIS User Community

This information is for environmental review purposes only.



1:15,000

0 1,000 2,000 3,000 Feet

- Nebula-Raines Route 1
- Existing Dominion Transmission Lines
- # Existing Switching Station
- * Proposed Switching Station
- Proposed Nebula Switching Station
- Historic Resource
- (KOP Location



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Figure 5. Aerial photography depicting land use and photo view for 058-5092.



EXISTING CONDITIONS



YELLOW: PARTIALLY OR FULLY HIDDEN PROJECT INFRASTRUCTURE



KOP 112

Herbert Dr

Figure 6

Route: Nebula-Raines Route 1

Date: 08/13/2024

Time: 10:47 am

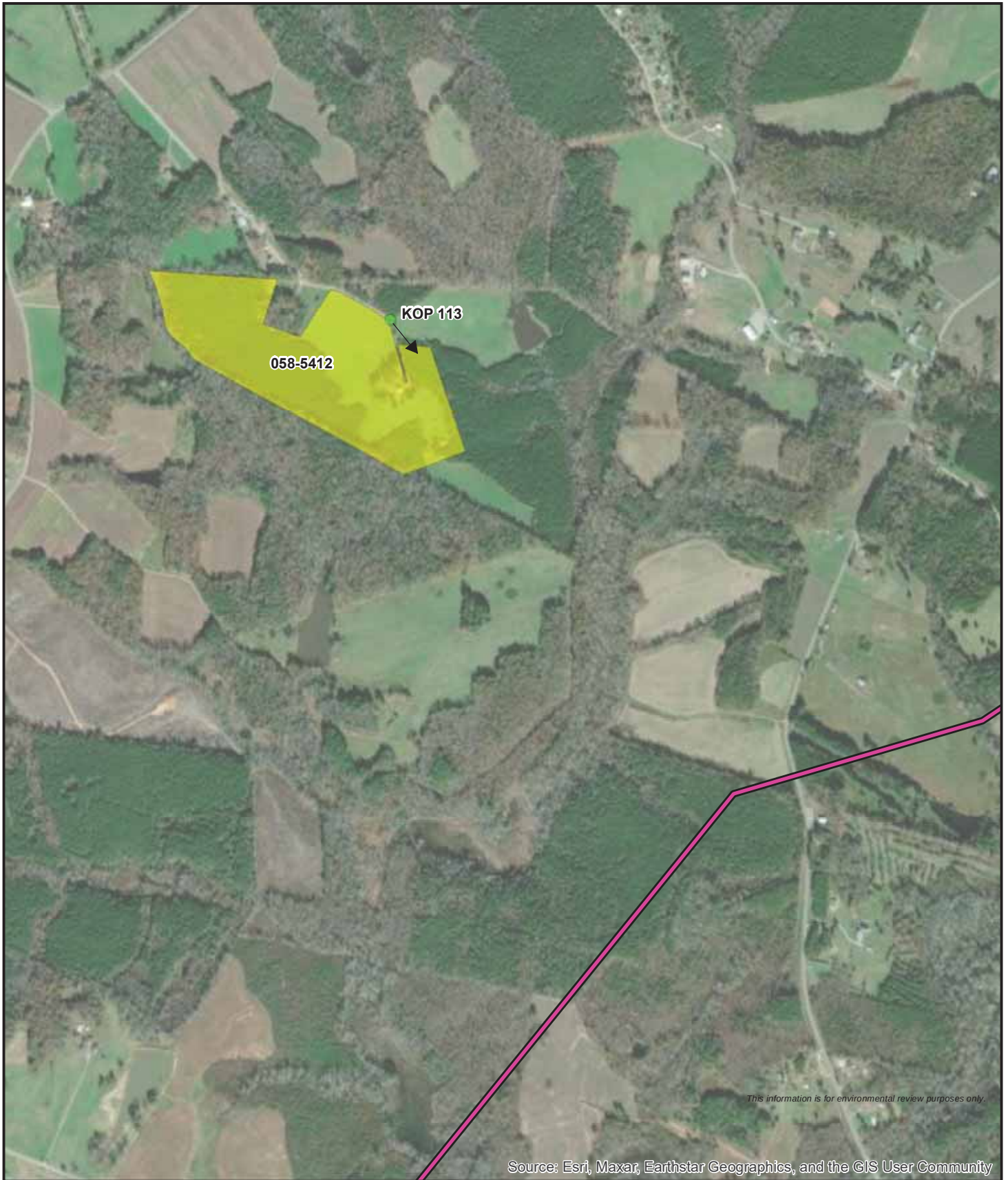
Viewing Direction: Southeast

Distance to closest feature: 1.0 miles



Legend

Note: Project components illustrated are based on proposed preliminary designs. The images contained on this page show the proposed project within a wider landscape context and are not representative of scale and distance when viewed from the actual view point.



This information is for environmental review purposes only.

Source: Esri, Maxar, Earthstar Geographics, and the GIS User Community



1:15,000

0 1,000 2,000 3,000 Feet

— Nebula-Raines Route 1
— Historic Resource
(KOP Location



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Figure 7. Aerial photography depicting land use and photo view for 058-5412.



EXISTING CONDITIONS



PROPOSED CONDITIONS



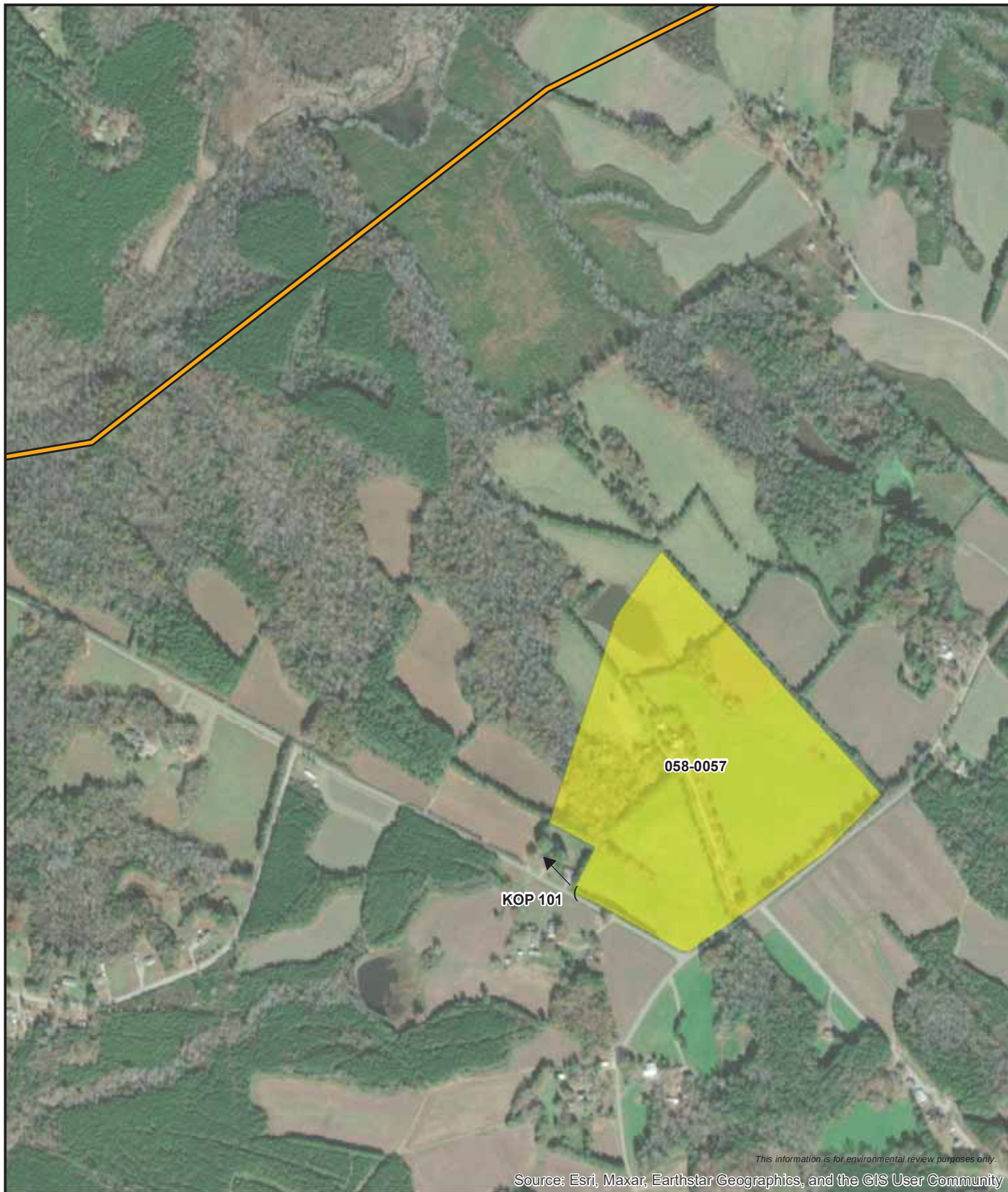
KOP 113
Spring Rd

Figure 8
Route: Nebula-Raines Route 1
Date: 08/13/2024
Time: 2:18 pm
Viewing Direction: East
Distance to closest feature: 0.8 miles



Legend
KOP View Direction
Nebula-Raines Route 1

Note: Project components illustrated are based on proposed preliminary designs. The images contained on this page show the proposed project within a wider landscape context and are not representative of scale and distance when viewed from the actual view point.



1:12,000



- Nebula-Raines Route 3
- Historic Resource
- KOP Location



Figure 9. Aerial photography depicting land use and photo view for 058-0057.



KOP 101
Dockery Rd

Figure 10
Route: Nebula-Raines Route 3
Date: 08/13/2024
Time: 2:45 pm
Viewing Direction: West
Distance to closest feature: 0.7 miles



Note: Project components illustrated are based on proposed preliminary designs. The images contained on this page show the proposed project within a wider landscape context and are not representative of scale and distance when viewed from the actual view point.



EXISTING CONDITIONS



YELLOW: PARTIALLY OR FULLY HIDDEN PROJECT INFRASTRUCTURE



1:10,000

0 500 1,000 1,500 2,000 Feet

— Nebula-Raines Route 3
 ■ Historic Resource
 (KOP Location



C:\Users\Vincent.macek\OneDrive - ERM\Dominion Cloud-Nebula\Attachment 5 Maps\Fig 11 Nebula-Raines Route 3_058-0073.mxd | REVISED: 11/05/2024 | SCALE: 1:10,000

Figure 11. Aerial photography depicting land use and photo view for 058-0073.



KOP 103

Union Level Rd

Figure 12

Route: Nebula-Raines Route 3

Date: 08/13/2024

Time: 2:58 pm

Viewing Direction: East

Distance to closest feature: 0.6 miles



Note: Project components illustrated are based on proposed preliminary designs. The images contained on this page show the proposed project within a wider landscape context and are not representative of scale and distance when viewed from the actual view point.



EXISTING CONDITIONS



PROPOSED CONDITIONS



Source: Esri, Maxar, Earthstar Geographics, and the GIS User Community

This information is for environmental review purposes only.



1:10,000



- Nebula-Raines Route 3
- Existing Dominion Transmission Lines
- Historic Resource
- KOP Location



Figure 13. Aerial photography depicting land use and photo view for 058-0140.



KOP 104
Antlers Rd

Figure 14
Route: Nebula-Raines Route 3
Date: 08/13/2024
Time: 11:15 am
Viewing Direction: South
Distance to closest feature: 0.4 miles



Legend
— Existing Dominion Transmission Lines
➔ KOP View Direction
Nebula-Raines Route 3

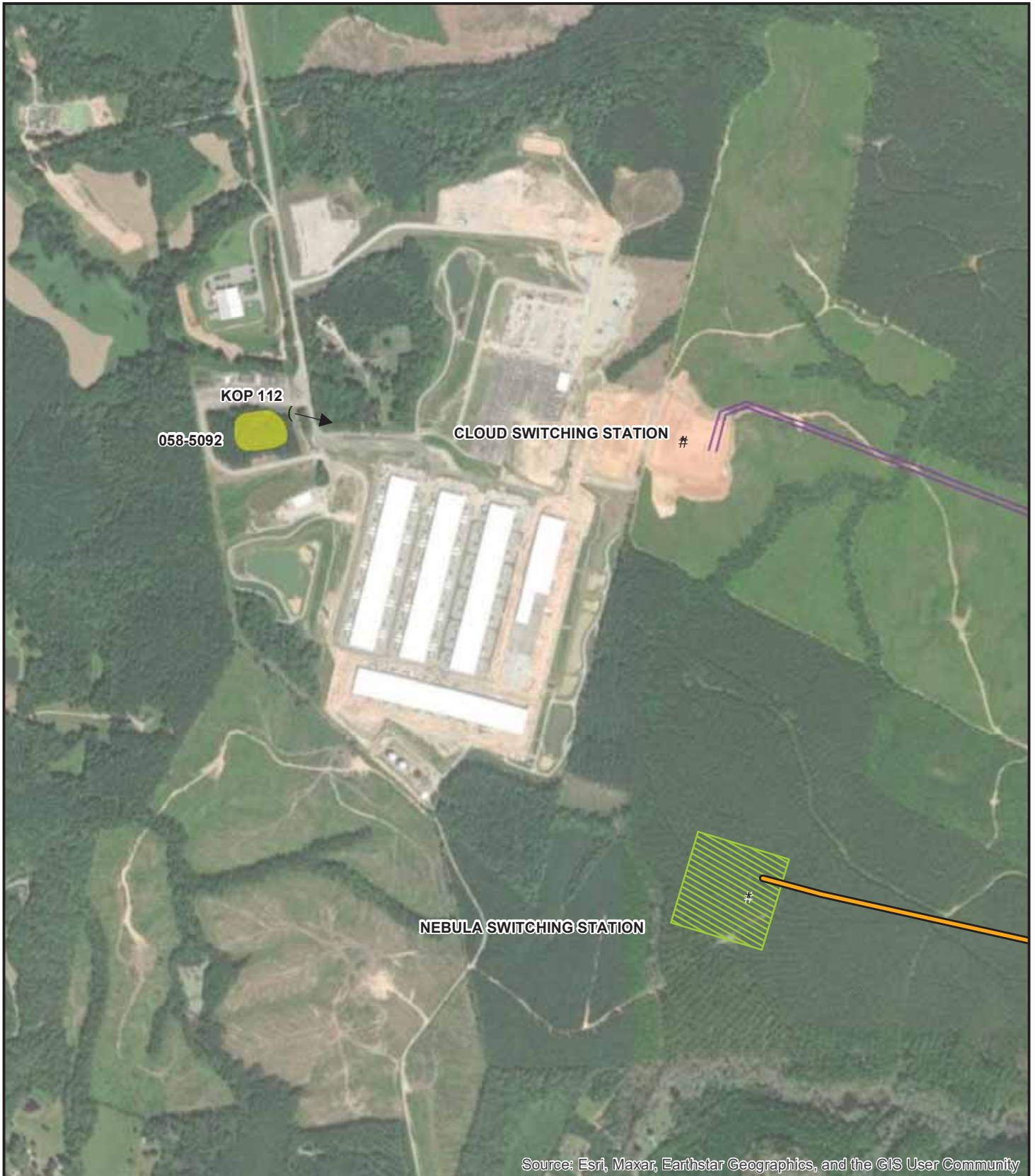
Note: Project components illustrated are based on proposed preliminary designs. The images contained on this page show the proposed project within a wider landscape context and are not representative of scale and distance when viewed from the actual view point.



EXISTING CONDITIONS



PROPOSED CONDITIONS



Source: Esri, Maxar, Earthstar Geographics, and the GIS User Community

This information is for environmental review purposes only.



1:15,000

0 1,000 2,000 3,000 Feet

-  Nebula-Raines Route 3
-  Existing Dominion Transmission Lines
-  Existing Switching Station
-  Proposed Switching Station
-  Proposed Nebula Switching Station
-  Historic Resource
-  KOP Location



Figure 15. Aerial photography depicting land use and photo view for 058-5092.



EXISTING CONDITIONS



YELLOW: PARTIALLY OR FULLY HIDDEN PROJECT INFRASTRUCTURE

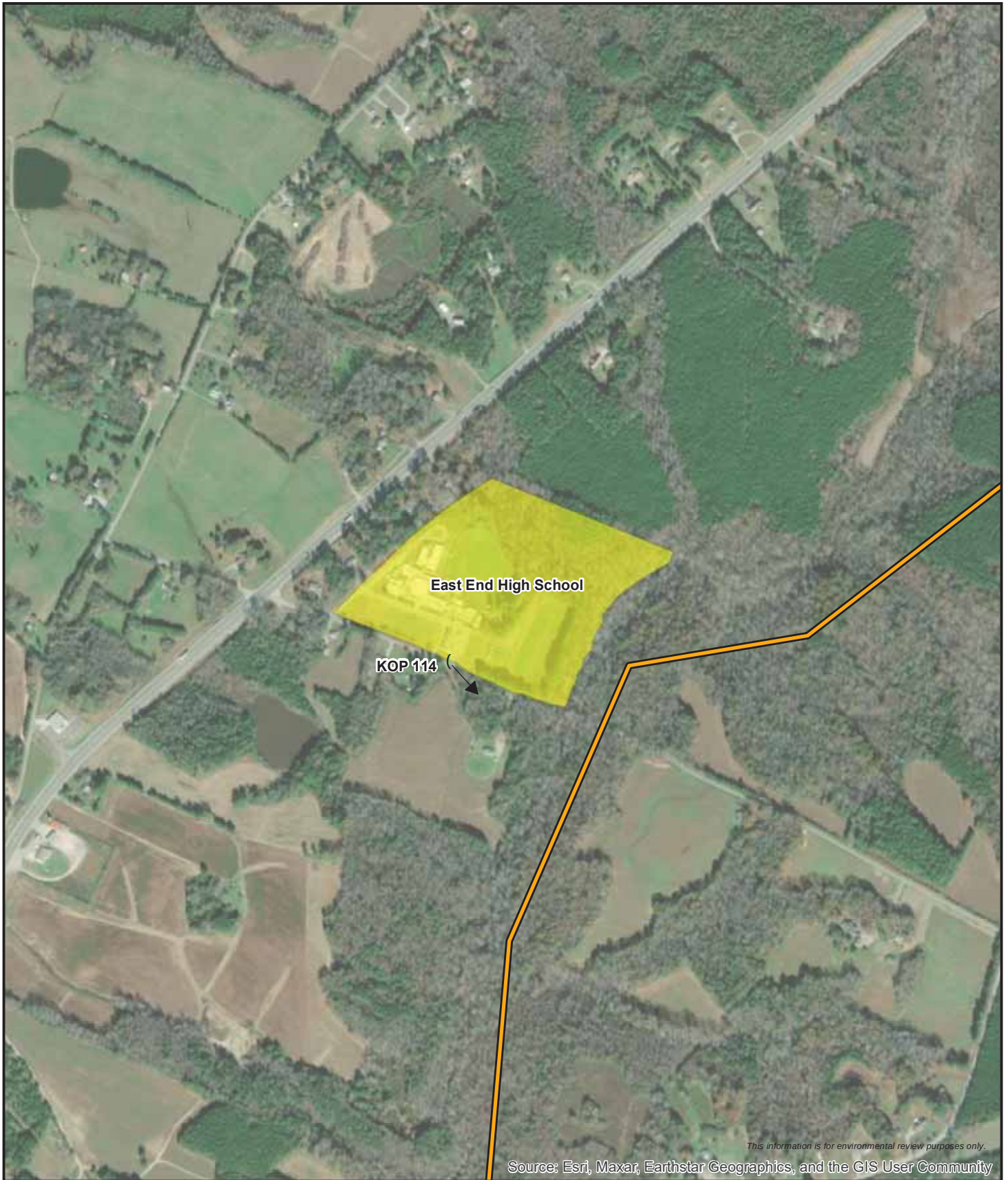


KOP 112
Herbert Dr

Figure 16
Route: Nebula-Raines Route 3
Date: 08/13/2024
Time: 10:47 am
Viewing Direction: Southeast
Distance to closest feature: 1.0 miles



Note: Project components illustrated are based on proposed preliminary designs. The images contained on this page show the proposed project within a wider landscape context and are not representative of scale and distance when viewed from the actual view point.



1:12,000



-  Nebula-Raines Route 3
-  Historic Resource
-  KOP Location

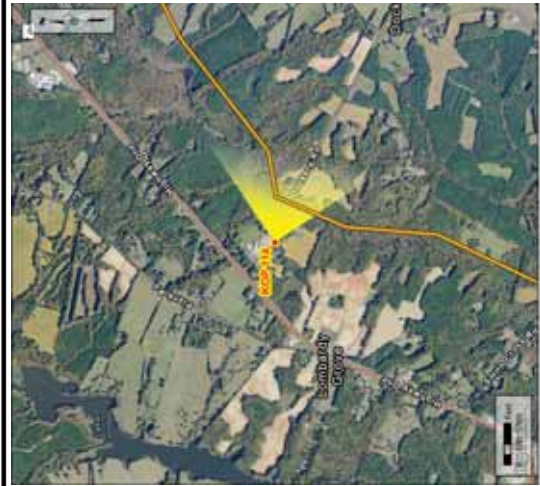


Figure 17. Aerial photography depicting land use and photo view for East End High School.



KOP 114
Dockery Rd

Figure 18
Route: Nebula-Raines Route 3
Date: 08/13/2024
Time: 1:54 pm
Viewing Direction: East
Distance to closest feature: 0.2 miles



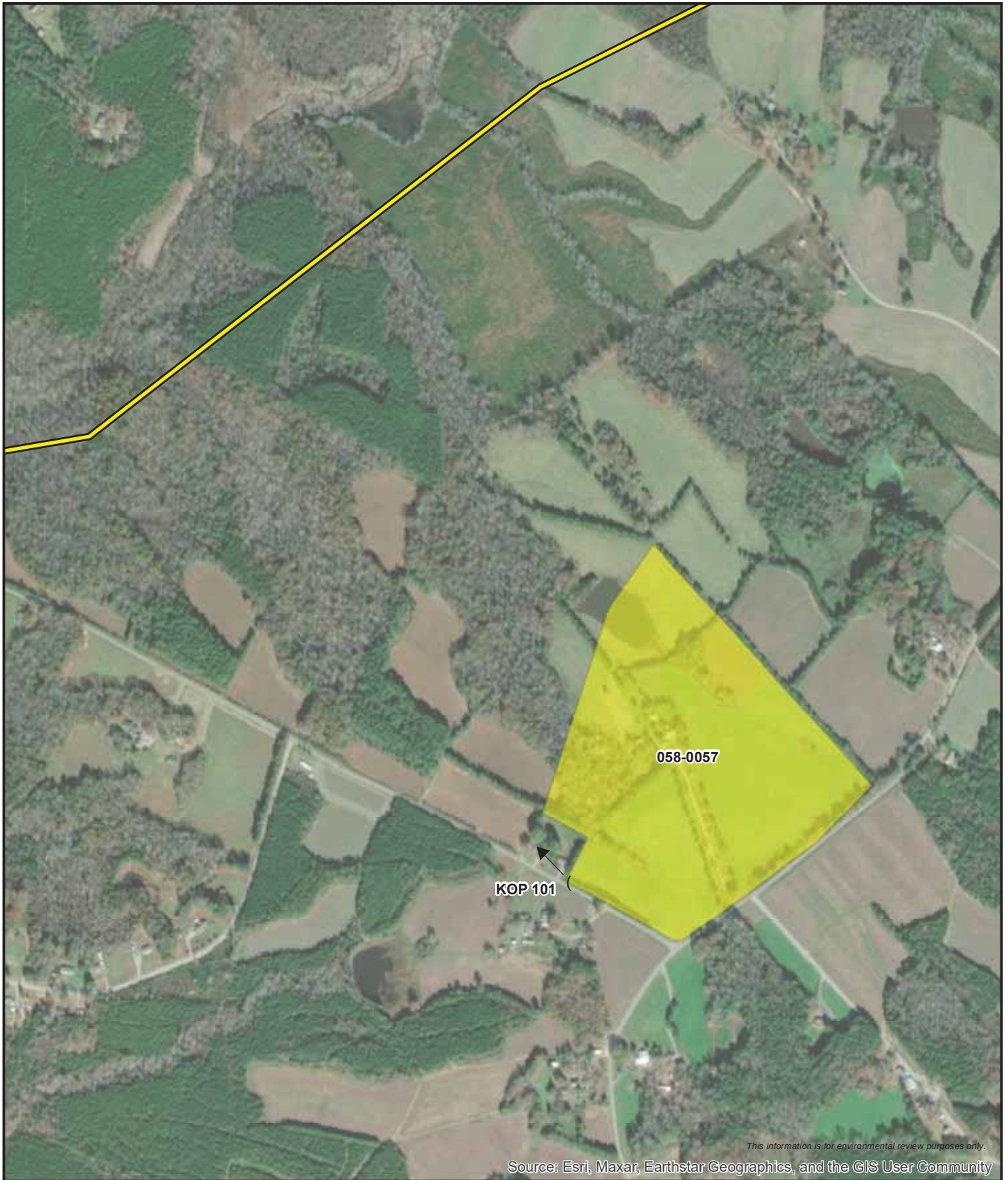
Note: Project components illustrated are based on proposed preliminary designs. The images contained on this page show the proposed project within a wider landscape context and are not representative of scale and distance when viewed from the actual view point.



EXISTING CONDITIONS



PROPOSED CONDITIONS



1:12,000



- Nebula-Raines Route 4
- Historic Resource
- KOP Location



Figure 19. Aerial photography depicting land use and photo view for 058-0057.



KOP 101
Dockery Rd

Figure 20
Route: Nebula-Raines Route 4
Date: 08/13/2024
Time: 2:45 pm
Viewing Direction: West
Distance to closest feature: 0.7 miles



Note: Project components illustrated are based on proposed preliminary designs. The images contained on this page show the proposed project within a wider landscape context and are not representative of scale and distance when viewed from the actual view point.



EXISTING CONDITIONS



YELLOW: PARTIALLY OR FULLY HIDDEN PROJECT INFRASTRUCTURE



1:10,000



- Nebula-Raines Route 4
- Historic Resource
- (KOP Location



Figure 21. Aerial photography depicting land use and photo view for 058-0073.



KOP 103

Union Level Rd

Figure 22
Route: Nebula-Raines Route 4
Date: 08/13/2024
Time: 2:58 pm
Viewing Direction: East
Distance to closest feature: 0.6 miles



Legend
KOP View Direction
Nebula-Raines Route 4

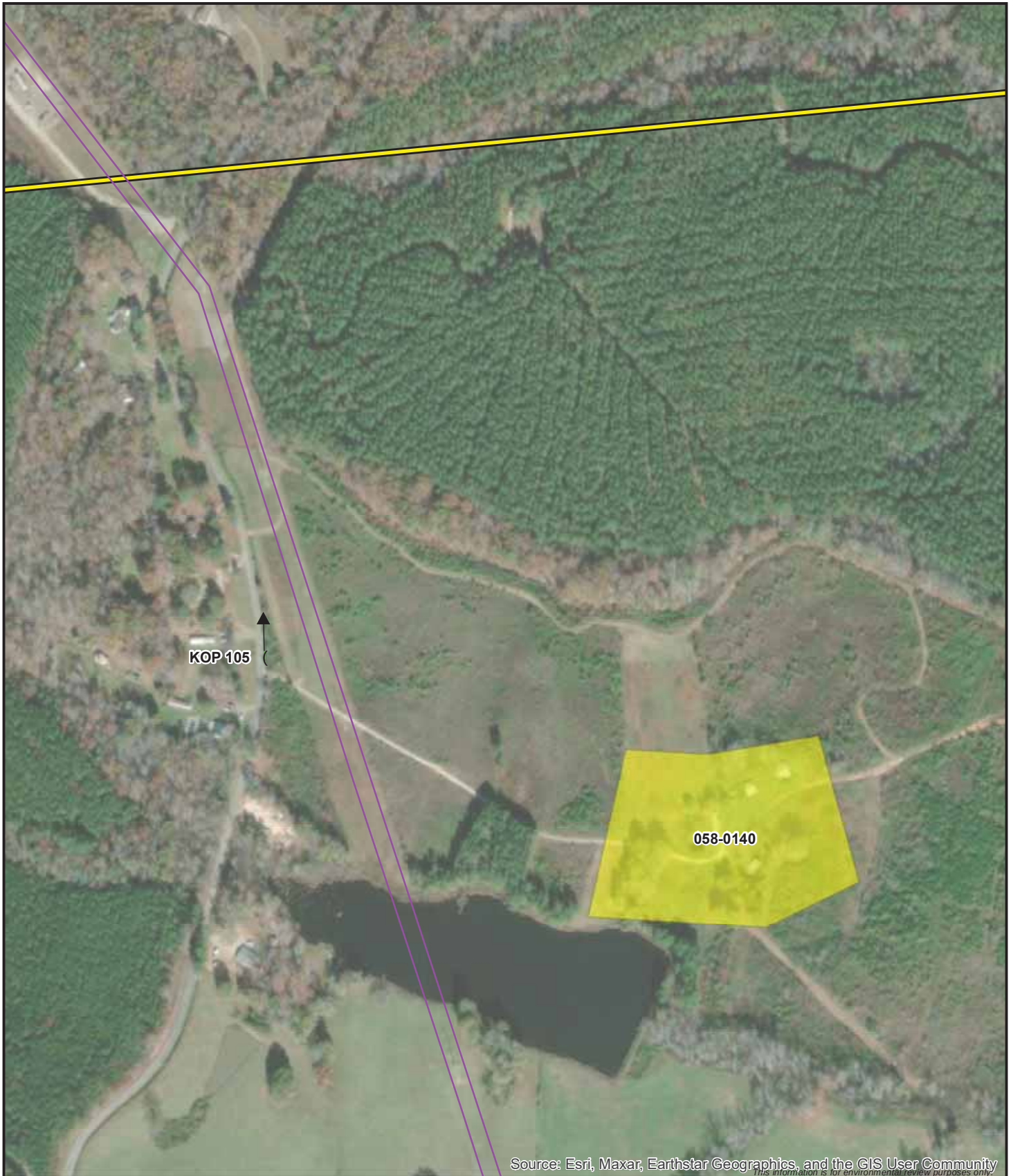
Note: Project components illustrated are based on proposed preliminary designs. The images contained on this page show the proposed project within a wider landscape context and are not representative of scale and distance when viewed from the actual view point.



EXISTING CONDITIONS

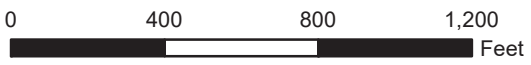


PROPOSED CONDITIONS



Source: Esri, Maxar, Earthstar Geographics, and the GIS User Community

This information is for environmental review purposes only.



1:6,000

- Nebula-Raines Route 4
- Existing Dominion Transmission Lines
- Historic Resource
- KOP Location



Figure 23. Aerial photography depicting land use and photo view for 058-0140.



EXISTING CONDITIONS

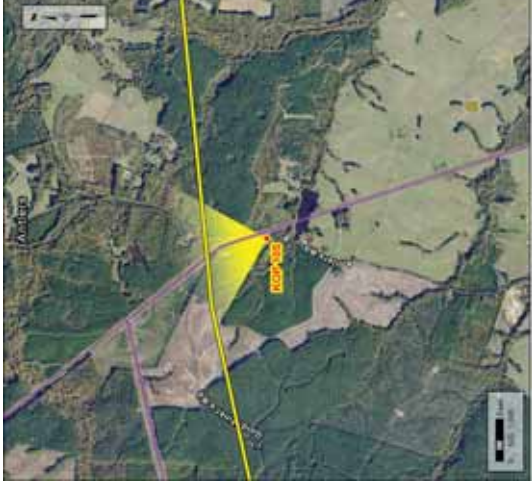


YELLOW: PARTIALLY OR FULLY HIDDEN PROJECT INFRASTRUCTURE



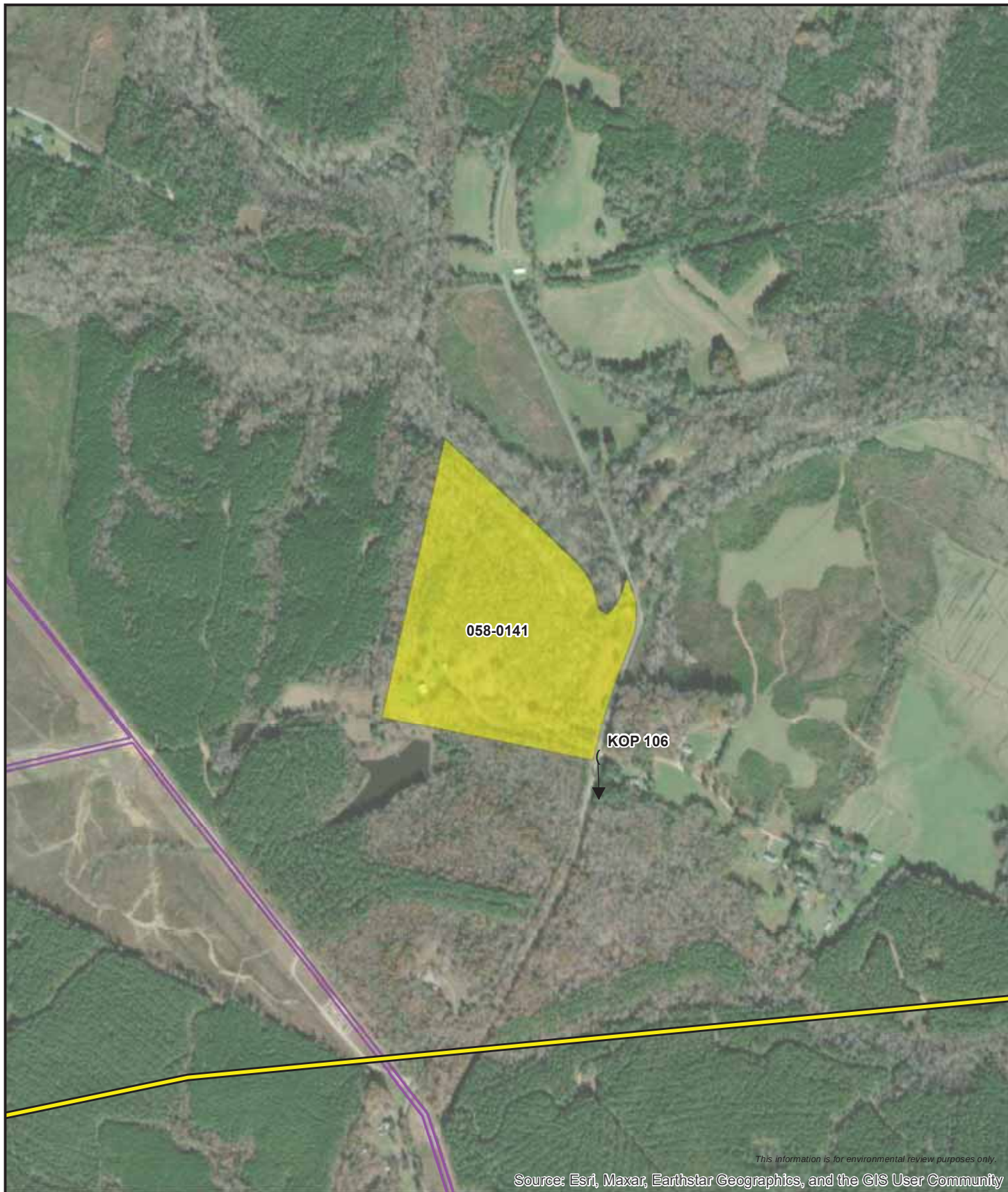
KOP 105
Antlers Rd

Figure 24
Route: Nebula-Raines Route 4
Date: 08/13/2024
Time: 11:32 am
Viewing Direction: North
Distance to closest feature: 0.3 miles



Legend
Existing Dominion Transmission Lines
KOP View Direction
Nebula-Raines Route 4

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 Source: Esri, Maxar, Earthstar Geographics, and the GIS User Community



1:12,000

0 500 1,000 1,500 2,000 2,500 Feet

- Nebula-Raines Route 4
- Existing Dominion Transmission Lines
- Historic Resource
- KOP Location

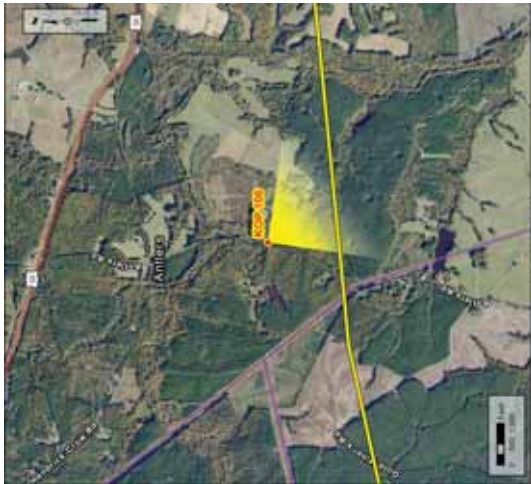


Figure 25. Aerial photography depicting land use and photo view for 058-0141.



KOP 106
Antlers Rd

Figure 26
Route: Nebula-Raines Route 4
Date: 08/13/2024
Time: 11:48 am
Viewing Direction: Southeast
Distance to closest feature: 0.3 miles



Legend
— Existing Dominion Transmission Lines
→ KOP View Direction
Nebula-Raines Route 4

Note: Project components illustrated are based on proposed preliminary designs. The images contained on this page show the proposed project within a wider landscape context and are not representative of scale and distance when viewed from the actual view point.



EXISTING CONDITIONS



YELLOW: PARTIALLY OR FULLY HIDDEN PROJECT INFRASTRUCTURE



1:10,000

0 500 1,000 1,500 2,000 Feet

— Nebula-Raines Route 4

— Historic Resource
(KOP Location



Figure 27. Aerial photography depicting land use and photo view for 058-0175.



EXISTING CONDITIONS



PROPOSED CONDITIONS



KOP 108

Buggs Island Rd

Figure 28

Route: Nebula-Raines Route 4

Date: 08/14/2024

Time: 2:31 pm

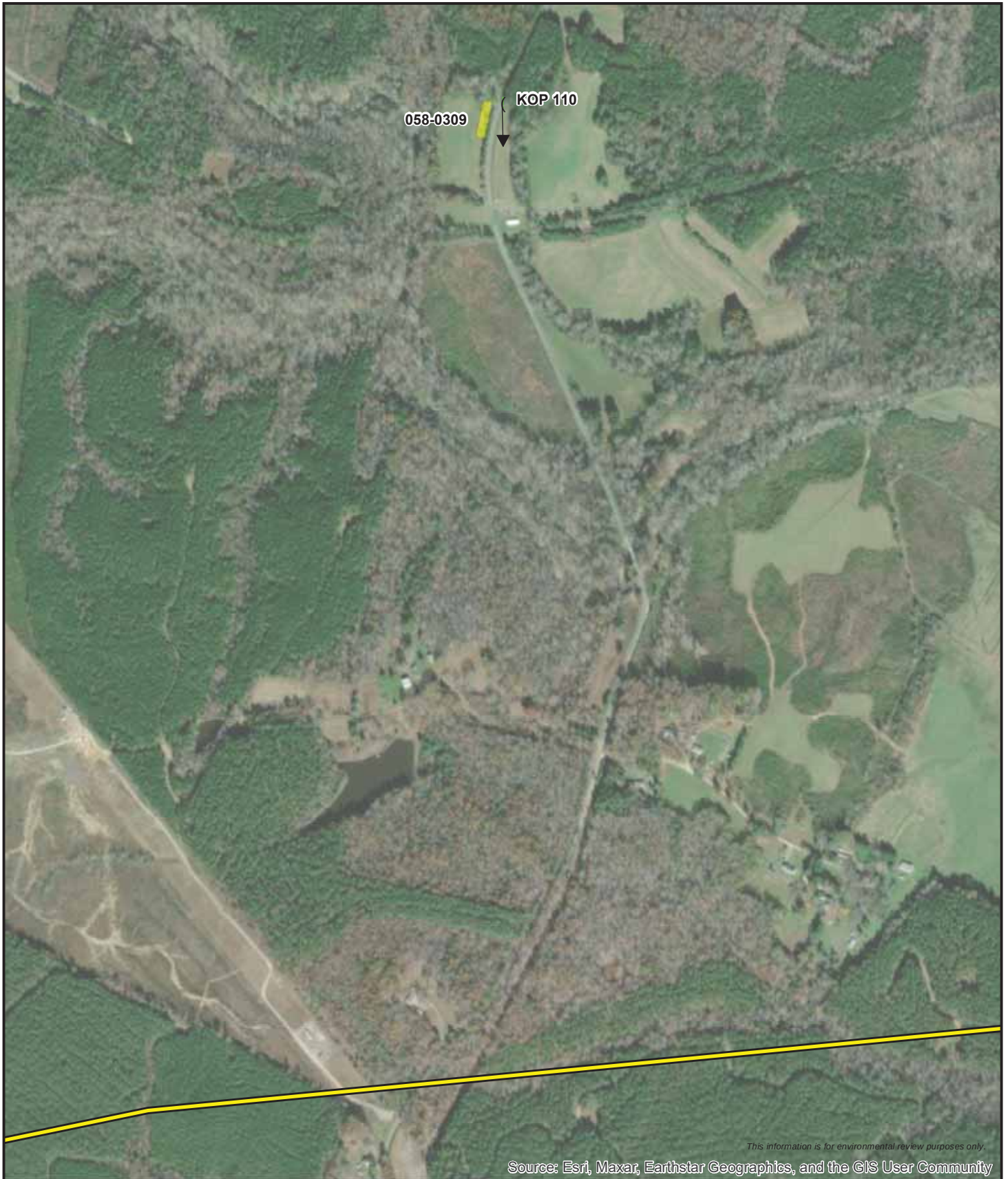
Viewing Direction: South

Distance to closest feature: 0.6 miles



Legend
KOP View Direction
Nebula-Raines Route 4

Note: Project components illustrated are based on proposed preliminary designs. The images contained on this page show the proposed project within a wider landscape context and are not representative of scale and distance when viewed from the actual view point.



This information is for environmental review purposes only.

Source: Esri, Maxar, Earthstar Geographics, and the GIS User Community



1:10,800

0 500 1,000 1,500 2,000
Feet

— Nebula-Raines Route 4
— Historic Resource
(KOP Location



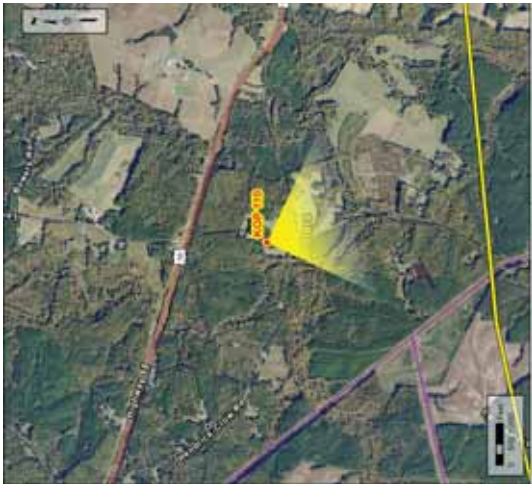
C:\Users\Vincent.macek\OneDrive - ERM\Dominion Cloud-Nebula\Attachment 5 Maps\Fig 30 Nebula-Raines Route 4_058-0309.mxd | REVISED: 11/05/2024 | SCALE: 1:10,800

Figure 29. Aerial photography depicting land use and photo view for 058-0309.



KOP 110
Antlers Rd

Figure 30
Route: Nebula-Raines Route 4
Date: 08/13/2024
Time: 12:17 pm
Viewing Direction: South
Distance to closest feature: 1.0 miles



Legend
— Existing Dominion Transmission Lines
→ KOP View Direction
— Nebula-Raines Route 4

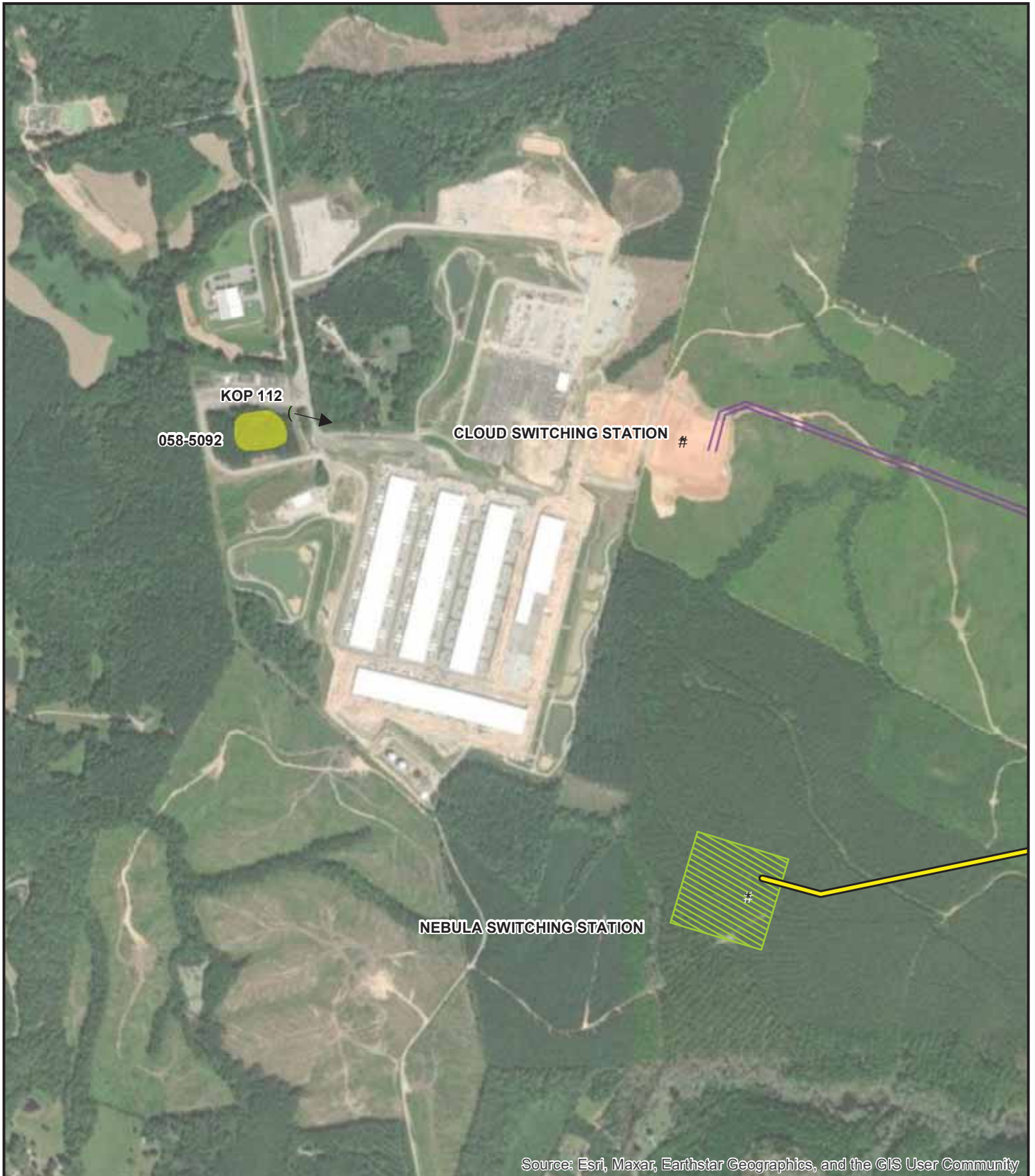
Note: Project components illustrated are based on proposed preliminary designs. The images contained on this page show the proposed project within a wider landscape context and are not representative of scale and distance when viewed from the actual view point.



EXISTING CONDITIONS



PROPOSED CONDITIONS



Source: Esri, Maxar, Earthstar Geographics, and the GIS User Community

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1:15,000

0 1,000 2,000 3,000 Feet

-  Nebula-Raines Route 4
-  Existing Dominion Transmission Lines
-  Existing Switching Station
-  Proposed Switching Station
-  Proposed Nebula Switching Station
-  Historic Resource
-  KOP Location



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Figure 31. Aerial photography depicting land use and photo view for 058-5092.



EXISTING CONDITIONS



YELLOW: PARTIALLY OR FULLY HIDDEN PROJECT INFRASTRUCTURE



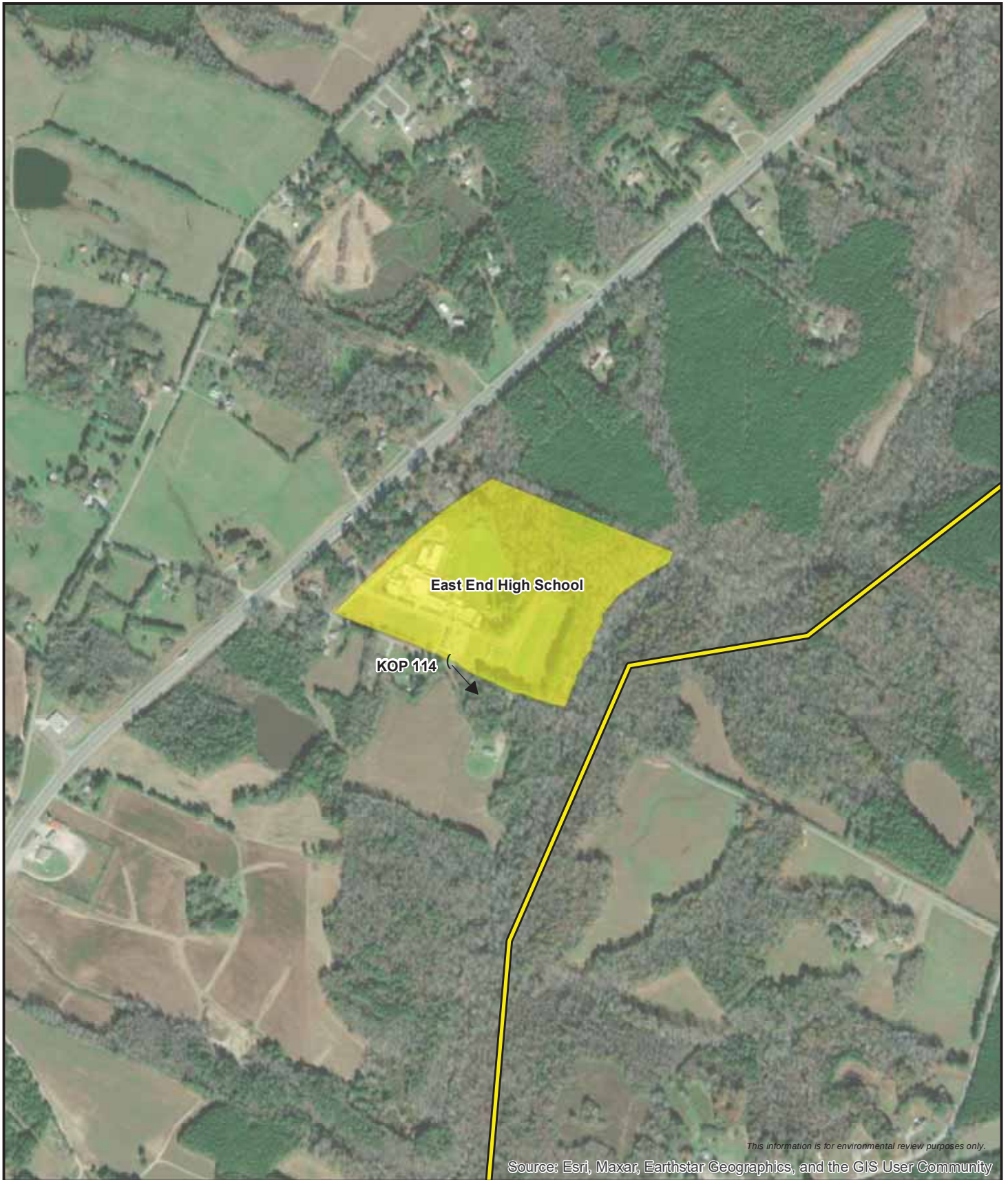
KOP 112
Herbert Dr

Figure 32
Route: Nebula-Raines Route 4
Date: 08/13/2024
Time: 10:47 am
Viewing Direction: Southeast
Distance to closest feature: 1.0 miles



Legend
▲ Existing Switching Station
▲ Proposed Switching Station
— Existing Dominion Transmission Lines
KOP View Direction
Nebula-Raines Route 4

Note: Project components illustrated are based on proposed preliminary designs. The images contained on this page show the proposed project within a wider landscape context and are not representative of scale and distance when viewed from the actual view point.



1:12,000



- Nebula-Raines Route 4
- Historic Resource
- (KOP Location

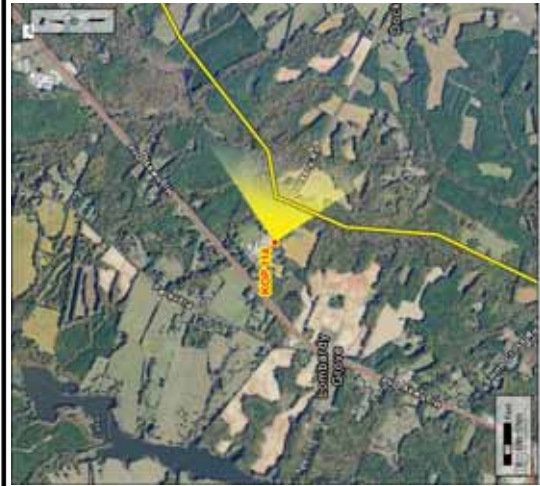


Figure 33. Aerial photography depicting land use and photo view for East End High School.



KOP 114
Dockery Rd

Figure 34
Route: Nebula-Raines Route 4
Date: 08/13/2024
Time: 1:54 pm
Viewing Direction: East
Distance to closest feature: 0.2 miles



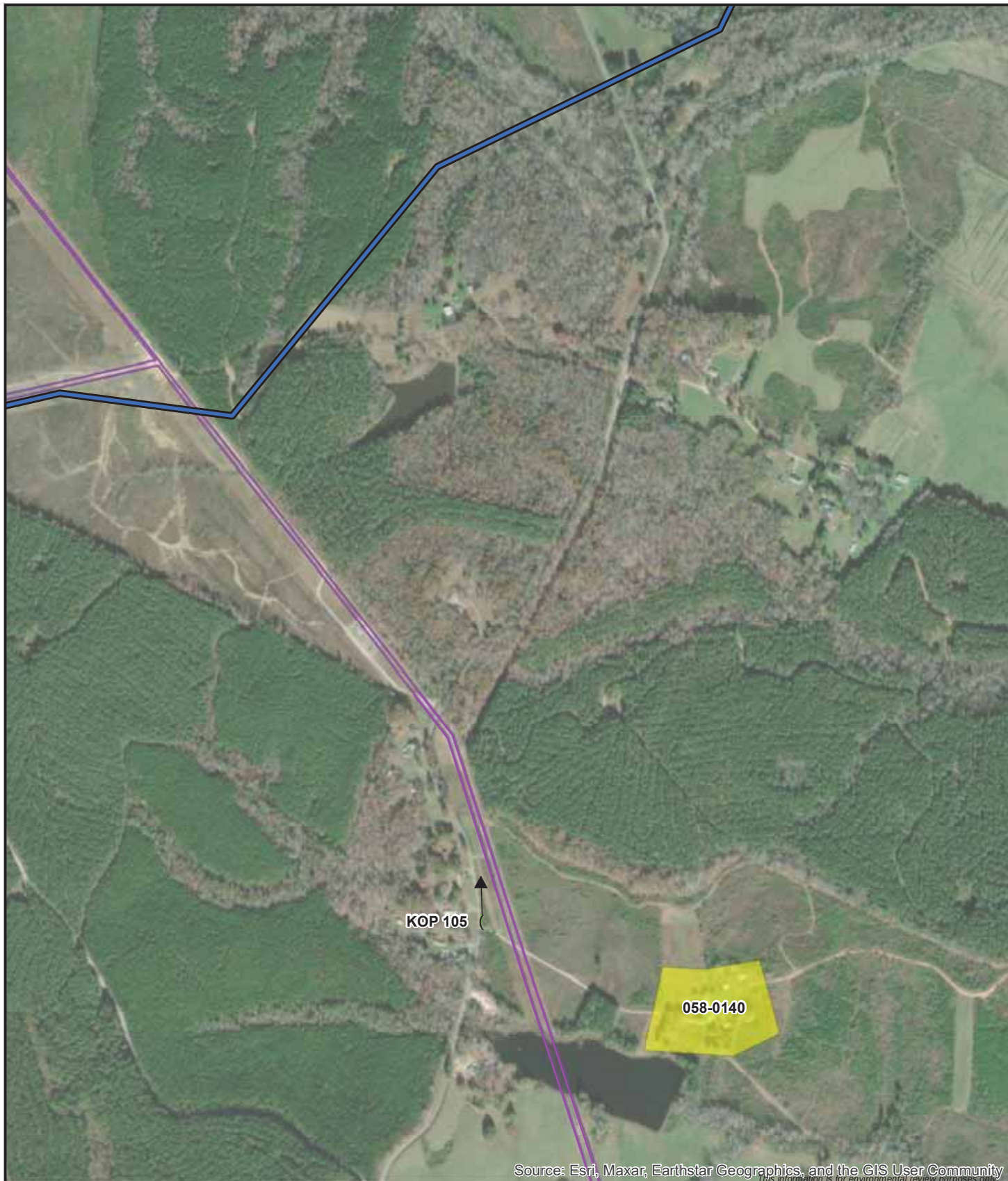
Note: Project components illustrated are based on proposed preliminary designs. The images contained on this page show the proposed project within a wider landscape context and are not representative of scale and distance when viewed from the actual view point.



EXISTING CONDITIONS



PROPOSED CONDITIONS



0 490 980 1,470 1,960 Feet

1:12,000

- Nebula-Raines Route 5
- Existing Dominion Transmission Lines
- Historic Resource
- (KOP Location



Figure 35. Aerial photography depicting land use and photo view for 058-0140.



EXISTING CONDITIONS



YELLOW: PARTIALLY OR FULLY HIDDEN PROJECT INFRASTRUCTURE

KOP 105

Antlers Rd

Figure 36

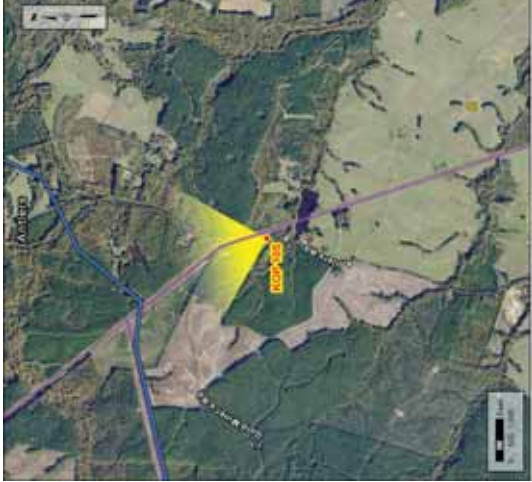
Route: Nebula-Raines Route 5

Date: 08/13/2024

Time: 11:32 am

Viewing Direction: North

Distance to closest feature: 0.6 miles



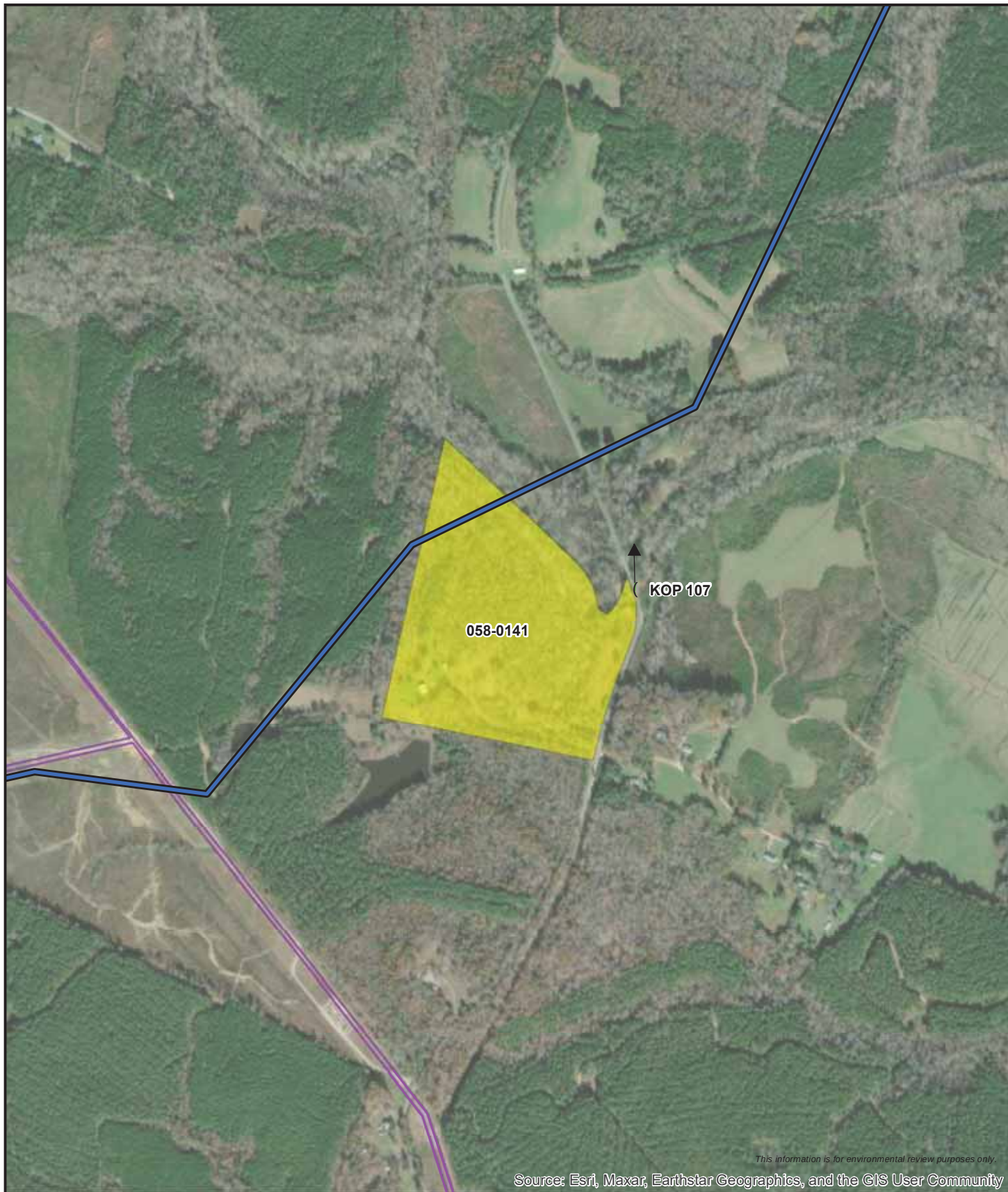
Legend

Existing Dominion Transmission Lines

KOP View Direction

Nebula-Raines Route 5

Note: Project components illustrated are based on proposed preliminary designs. The images contained on this page show the proposed project within a wider landscape context and are not representative of scale and distance when viewed from the actual view point.



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Source: Esri, Maxar, Earthstar Geographics, and the GIS User Community



1:12,000

0 500 1,000 1,500 2,000 2,500 Feet

- Nebula-Raines Route 5
- Existing Dominion Transmission Lines
- Historic Resource
- (KOP Point



Figure 37. Aerial photography depicting land use and photo view for 058-0141.



KOP 107

Antlers Rd

Figure 38
Route: Nebula-Raines Route 5
Date: 08/13/2024
Time: 12:03 pm
Viewing Direction: North
Distance to closest feature: 0.2 miles



EXISTING CONDITIONS



PROPOSED CONDITIONS



1:5,000

0 250 500 750 1,000 Feet

— Nebula-Raines Route 5
— Historic Resource
(KOP Location



Figure 39. Aerial photography depicting land use and photo view for 058-0309.



KOP 110
Antlers Rd

Figure 40
Route: Nebula-Raines Route 5
Date: 08/13/2024
Time: 12:17 pm
Viewing Direction: South
Distance to closest feature: 0.3 miles

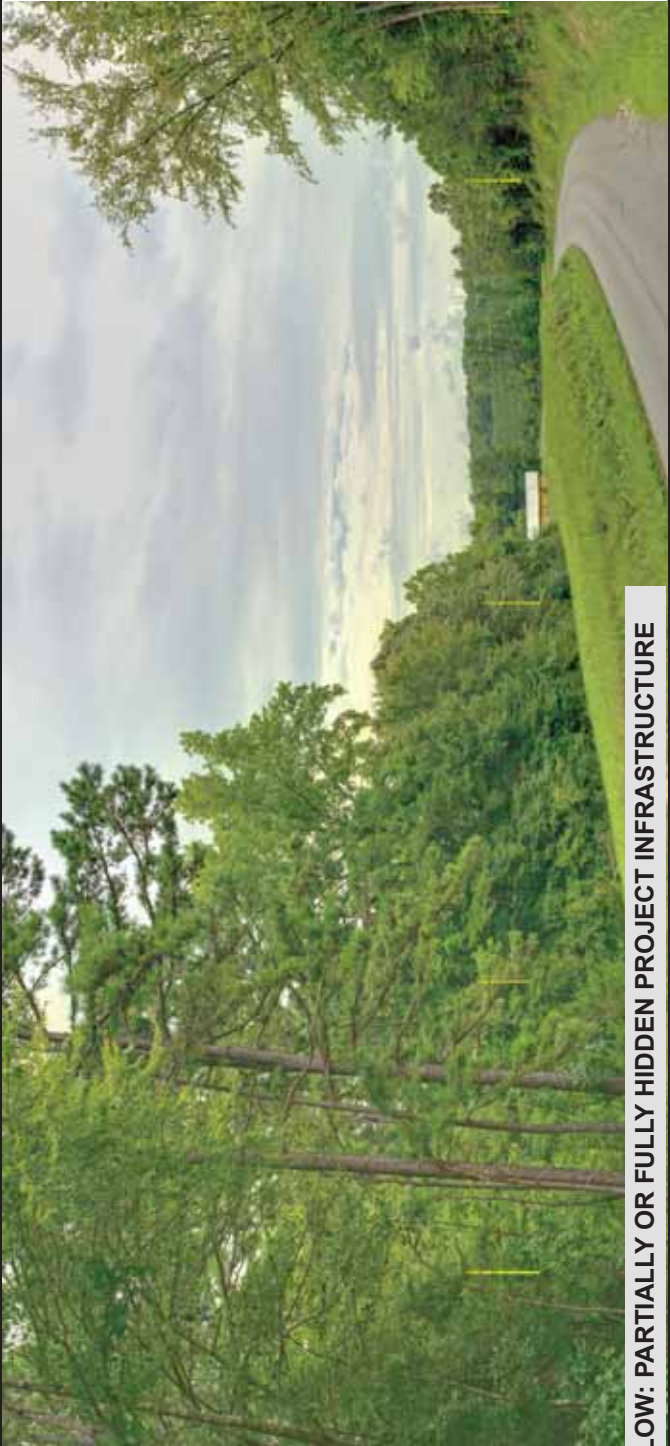


Legend
— Existing Dominion Transmission Lines
→ KOP View Direction
— Nebula-Raines Route 5

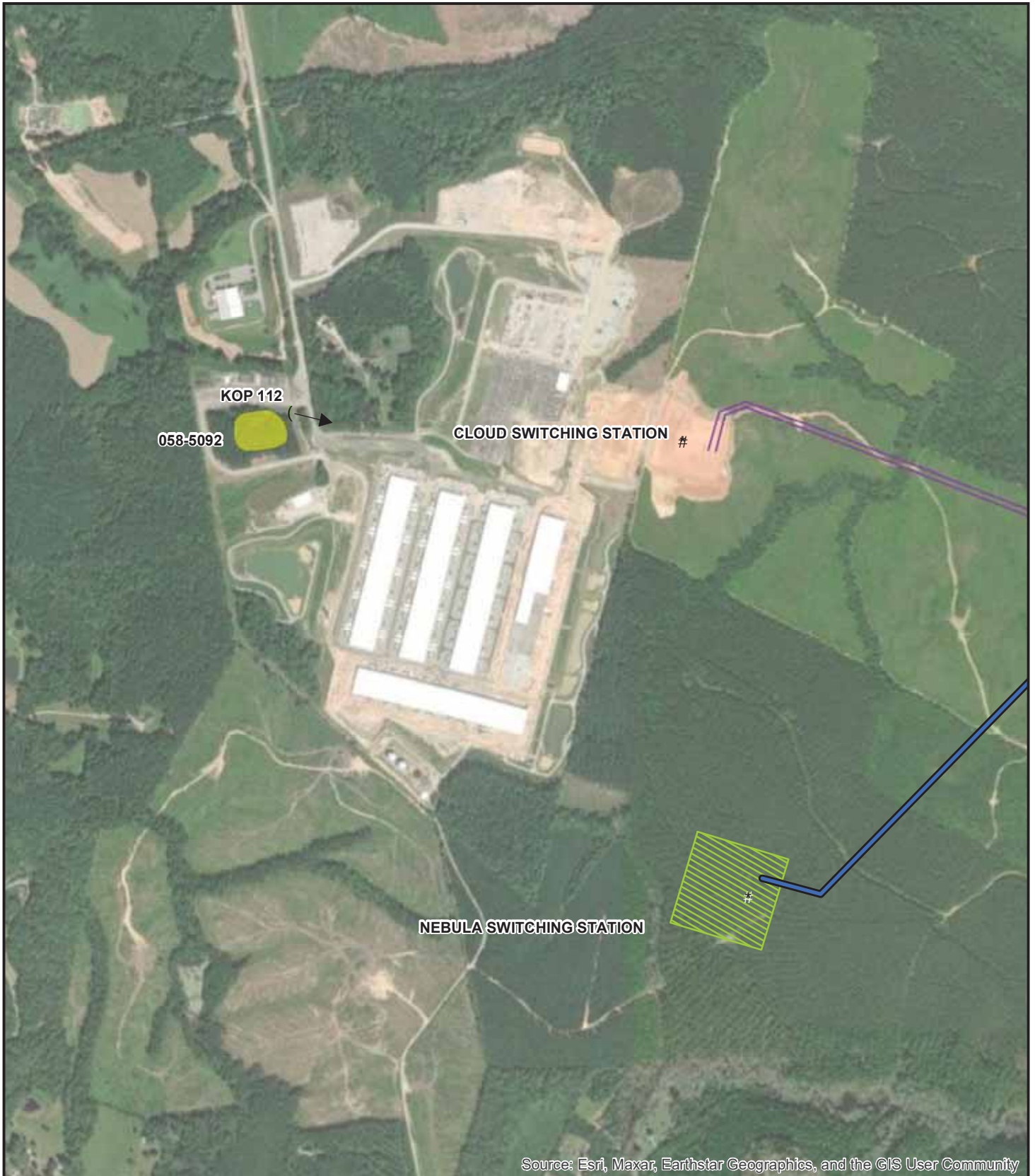
Note: Project components illustrated are based on proposed preliminary designs. The images contained on this page show the proposed project within a wider landscape context and are not representative of scale and distance when viewed from the actual view point.



EXISTING CONDITIONS



YELLOW: PARTIALLY OR FULLY HIDDEN PROJECT INFRASTRUCTURE



Source: Esri, Maxar, Earthstar Geographics, and the GIS User Community

This information is for environmental review purposes only.



1:15,000

0 1,000 2,000 3,000 Feet

- Nebula-Raines Route 5
- Existing Dominion Transmission Lines
- # Existing Switching Station
- * Proposed Switching Station
- Proposed Nebula Switching Station
- Historic Resource
- (KOP Location



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Figure 41. Aerial photography depicting land use and photo view for 058-5092.



EXISTING CONDITIONS



YELLOW: PARTIALLY OR FULLY HIDDEN PROJECT INFRASTRUCTURE



KOP 112

Herbert Dr

Figure 42

Route: Nebula-Raines Route 5

Date: 08/13/2024

Time: 10:47 am

Viewing Direction: Southeast

Distance to closest feature: 1.0 miles



Legend

Note: Project components illustrated are based on proposed preliminary designs. The images contained on this page show the proposed project within a wider landscape context and are not representative of scale and distance when viewed from the actual view point.



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Guyana	South Korea
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