

APPALACHIAN POWER COMPANY  
BEFORE THE  
VIRGINIA STATE CORPORATION COMMISSION  
CASE NO. PUR-2021-00049

APPLICATION FOR APPROVAL AND CERTIFICATION OF  
ELECTRICAL TRANSMISSION LINE

Reusens to New London  
138 kV Rebuild Project

VOLUME 2 OF 2

Siting Memo & VDEQ Supplement

April 2021

**ATTACHMENT 2.D.1:  
DESKTOP WETLAND AND STREAM DELINEATION REPORT**

April 5, 2021

## **APPALACHIAN POWER COMPANY**

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### **Reusens to New London 138 kV Rebuild Project Bedford County and City of Lynchburg, Virginia**

*Virginia Department of Environmental Quality  
Desktop Wetland and Stream Delineation Report*

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159298

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ATTACHMENT A: DESKTOP DELINEATED FEATURES, ROW ROUTE MAPPING

## ACRONYMS AND ABBREVIATIONS

CIR	Color Infrared
Company	Appalachian Power Company
CPCN	Certificate of Convenience and Public Necessity
FEMA	Federal Emergency Management Agency
GIS	Geographic Information System
kV	kilovolt
NHD	National Hydrography Dataset
NRCS	Natural Resources Conservation Service
NWI	National Wetland Inventory
PEM	Palustrine Emergent Wetland
PFO	Palustrine Forested Wetland
POWER	POWER Engineers, Inc.
Project	Reusens to New London 138-kV Rebuild Project
PSS	Palustrine Scrub-Shrub Wetland
PUB	Palustrine Unconsolidated Bottom Wetland
ROW(s)	Right(s)-of-way
SCC	State Corporation Commission
USACE	United States Army Corps of Engineers
USFWS	United States Fish and Wildlife Service
USGS	United States Geological Survey
VDEQ	Virginia Department of Environmental Quality
VGIN	Virginia Geographic Information Network

## 1.0 INTRODUCTION

Appalachian Power Company (Company) is planning to rebuild an existing transmission line due to the combination of risk, condition and performance of the infrastructure and to ensure adequate and reliable electric service in Bedford County, the City of Lynchburg, and the surrounding area. The Reusens to New London 138 kilovolt (kV) Rebuild Project (the Project) involves rebuilding an 11.6-mile portion of the Company's existing Reusens – Altavista 138 kV Transmission Line between the Reusens, Boonsboro, Forest, and New London substations. The Project has a double-circuit section (approximately 5.5 miles) between the Reusens Substation, located off Old Trents Ferry Road in the City of Lynchburg, and existing structure 5-10, and a single-circuit section (approximately 6.1 miles) between existing structure 5-10 and the New London Substation, located off Thomas Jefferson Road in Bedford County. The Project will be constructed largely within the existing 100-foot-wide right-of-way (ROW); however, the Project includes minor deviations from the existing centerline to optimize the design or avoid constraints. As part of the Project, a portion of the Company's existing Reusens – South Lynchburg 138 kV transmission line will be relocated where it crosses the Reusens – Altavista 138 kV Transmission Line, and which is also where the Project transitions from double-circuit to single-circuit. Lastly, the Company's existing Brush Tavern Substation, located in Campbell County, will be upgraded in its current location to accommodate the future electrical upgrades. The Company's application to the Virginia State Corporation Commission (SCC), describes the overall need and necessity for the Project.

The Company contracted POWER Engineers, Inc. (POWER) to prepare this Desktop Wetland and Stream Delineation Report for inclusion in the Project's Application for a Certificate of Public Convenience and Necessity (CPCN), which will be filed with the Virginia SCC, which approves or denies such applications.

The purpose of the Desktop Wetland and Stream Delineation Report is to identify potential federally regulated waters of the United States and state-regulated waters within the 100-foot-wide ROWs for portions of the Reusens – Altavista and Reusens – South Lynchburg 138 kV transmission lines to be rebuilt and relocated, respectively. The improvements at the Brush Tavern Substation will be located within the existing station fence and thus no expansion areas are required for the Project. This report includes a description of the methodologies POWER used to determine the location and size of potential regulated waters within the proposed ROW and guidance regarding probability of encountering the identified features during a field verification.

## **2.0 METHODS**

### **2.1 Data Sources and Background Information**

POWER reviewed various mapping sources and Geographic Information System (GIS) data in order to identify areas where wetlands or streams could potentially be located within the proposed ROW of the Reusens to New London 138 kV Rebuild Project. The GIS data and mapping sources are included in the following:

- United States Geological Survey (USGS), National Geographic Society, i-cubed, topographic mapping (USGS 2011).
- Virginia Geographic Information Network (VGIN) orthoimagery collected in spring 2017, 2018, and 2019 (whichever was most recent).
- Color Infrared (CIR) aerial imagery and orthophotography (Virginia Base Mapping Program 2018).
- Google Earth color aerial photography, including historical aerial data (Google Earth, imagery dates vary by location).
- National Hydrography Dataset (NHD) stream and river data (USGS 2021).
- Bedford County Streams viewed on the USGS National Map viewer (Bedford County 2018).
- City of Lynchburg Streams viewed on the USGS National Map viewer (City of Lynchburg 2018).
- United States Fish and Wildlife Service (USFWS) National Wetland Inventory (NWI) mapping (USFWS 2020).
- Natural Resources Conservation Service (NRCS) Soil Survey of Bedford County, Virginia (NRCS 1989).
- NRCS Soil Survey of Campbell County and the City of Lynchburg, Virginia (NRCS 1977).
- NRCS Web Soil Survey for Bedford County, Virginia, and Campbell County and the City of Lynchburg, Virginia (NRCS 2020).
- Federal Emergency Management Agency (FEMA) Riverine Mapping and Floodplain Boundaries Guidance (FEMA 2020).

### **2.2 Wetland Definitions**

Federal regulations define wetlands as “those areas that are inundated or saturated by surface or groundwater at a frequency and duration sufficient to support, and that under

normal circumstances do support, a prevalence of vegetation, typically adapted for life in saturated soil conditions” (United States Environmental Protection Agency 2020).

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

Using the data sources outlined above, POWER identified areas that could potentially meet the three parameters required to meet the definition of a wetland provided by the USACE.

Aerial imagery and NWI mapping for the Project was used to determine potential habitat type of the desktop delineated wetlands. NWI maps use the *Classification of Wetlands and Deepwater Habitats of the United States* to classify wetland habitat types (Cowardin et al. 1979). This classification system is hierarchical and defines five major systems – Marine, Estuarine, Riverine, Lacustrine, and Palustrine. The Palustrine system is the only type of wetland system likely to be present within the study area and is defined as including all nontidal wetlands dominated by trees, shrubs, persistent emergent herbaceous plants, emergent mosses or lichens, and all such wetlands that occur in tidal areas where salinity due to ocean driven-derived salts is below 0.5 percent (Cowardin et al. 1979). Cowardin wetland types likely to be encountered along the proposed ROW fall into the following four classifications:

- **Palustrine Emergent (PEM) Wetlands.** Emergent wetlands are typically characterized by erect, rooted, herbaceous hydrophytes, excluding mosses and lichens. This vegetation is usually present for most of the growing season in most years.
- **Palustrine Scrub-Shrub (PSS) Wetlands.** Scrub-shrub wetlands are typically characterized by woody vegetation less than 20 feet tall. The species include true shrubs, young trees, and trees or shrubs that are small or stunted because of environmental conditions.
- **Palustrine Forested (PFO) Wetlands.** Forested wetlands are usually characterized by woody vegetation that is 20 feet tall or taller. These wetlands typically possess an overstory of trees, an understory of young trees or shrubs, and an herbaceous layer.

- **Palustrine Unconsolidated Bottom (PUB) Wetlands.** Unconsolidated bottom wetlands include all wetland and deepwater habitats with at least 25 percent cover of particles smaller than stones and a vegetative cover less than 30 percent.

## 2.3 Stream Definitions

Streams are described by the United States Environmental Protection Agency as channels that are natural or artificial open areas that connect two bodies of water and may have water flowing in them continuously or periodically. They are further placed into three general stream habitat types:

- **Perennial Streams.** These channels typically have water throughout the year except during extreme drought. Most of the water comes from smaller upstream waters or groundwater while runoff from rainfall or other precipitation is supplemental.
- **Intermittent Streams.** These channels flow a considerable portion of the time but cease to flow occasionally or seasonally.
- **Ephemeral Streams.** These channels have flowing water only during and for a short duration after precipitation events in a typical year. Ephemeral streambeds are located above the ground water table year-round and are often described as headwater streams

POWER used aerial imagery, topographic mapping, NHD datasets, and local stream datasets to determine the location of potential streams. Stream habitat types were not identified during this desktop delineation.

## 2.4 Wetland and Stream Data Interpretation

In order to assess the probability for streams and wetlands to occur along the transmission line route, POWER biologists utilized available desktop data for this report.

### 2.4.1 Aerial Imagery and Topographic Mapping

The CIR aerial imagery (Virginia Base Mapping Program 2018), current and historical aerial photography (Google Earth, various dates), VGIN orthoimagery from spring 2017, 2018, and 2019 (VGIN 2021), and USGS topographic data (USGS 2011) were used to help determine the location and size of potential wetland and stream resources within the proposed ROW. The USGS topographic contour lines were used to identify potential drainage areas ranging from small headwater streams to larger perennial streams. The contour lines were also used to

determine areas of flat or depressed terrain where water is more likely to pool for sufficient duration that allows development of the three required wetland parameters.

Several years of aerial imagery were reviewed for signs of potential wetland and stream resources such as apparent drainage lines, areas with changes in vegetation, and areas with apparent water ponding. CIR aerial imagery was also reviewed, which provides a higher level of contrast compared to traditional aerial photography since it renders the scene in colors not normally seen by the human eye. Open water and saturated areas are typically depicted as black or dark blue since they do not reflect much light in the infrared spectrum (Minnesota IT Services ND). Areas with a shift in vegetation (as observed between wetland and upland boundaries) are more apparent on CIR aerial imagery as areas with dead or stressed vegetation appear in lighter shades of red and pink, and areas with actively photosynthesizing vegetation appear bright red. Aerial imagery was also used to estimate the desktop delineated wetland's Cowardin et al. (1979) classification. The CIR aerial imagery is used on the Desktop Wetland and Stream Delineation figures included in Attachment A of this report.

#### **2.4.2 National Wetland Inventory Dataset**

POWER reviewed NWI mapping to help identify potential wetland areas. NWI maps were published by the USFWS and depict probable wetland areas based on stereoscopic analysis of high-altitude aerial photographs and analysis of infrared bands from remotely sensed imagery. Therefore, NWI mapping reflects conditions during the specific year and season the data was acquired and should not be considered precise, field-verified wetlands (USFWS 2020). NWI mapping was also used to estimate the desktop delineated wetland's Cowardin classification (Cowardin et al. 1979). NWI mapping is included on the Desktop Wetland and Stream Delineation figures included in Attachment A of this report.

#### **2.4.3 National Hydrography Dataset**

The USGS NHD (USGS 2021) was used to identify potential and known streams within the Project ROW. The USGS NHD is a comprehensive set of digital spatial data representing surface waters, including common features such as lakes, ponds, streams, rivers, canals, and oceans (Simley and Carswell 2009). Although not field verified, the USGS NHD shows the locations of streams, rivers, and open waters, and provides insight into the general location of waters (USGS 2021). NHD mapping is included on the Desktop Wetland and Stream Delineation figures included in Attachment A of this report.

#### **2.4.4 Local Stream Datasets**

The Bedford County Streams dataset (Bedford County 2018) and City of Lynchburg Streams dataset (City of Lynchburg 2018) were reviewed on the USGS National Map viewer and were used to identify potential streams within the Project ROW. These datasets are a compilation of records, information and data obtained from various sources and do not represent verified surveys and are not intended to be used as such. Although not field verified, the local stream datasets used in conjunction with aerial imagery, topographic maps, and the NHD layer provides insight into the general location of waters.

#### **2.4.5 Federal Emergency Management Agency Floodplain Dataset**

The FEMA floodplain dataset was reviewed to identify floodplains within the Project ROW. The FEMA Riverine Mapping and Floodplain Boundaries Guidance (FEMA 2020) provides digital spatial data representing floodplains associated with recorded streams (see Section 2.4.3 on USGS NHD streams) as well as riverine mapping. Floodplain boundaries are divided into flood insurance rate zones that are rated between 100-year and 500-year floodplains. Both 100-year and 500-year floodplains are considered areas of moderate flood hazard. All remaining areas fall under the terms of minimal flood hazard (FEMA 2020). Floodplain mapping is included on the Desktop Wetland and Stream Delineation figures included in Attachment A of this report.

#### **2.4.6 Soil Survey Mapping**

NRCS digital soil survey data for Bedford County and the City of Lynchburg, Virginia were used to locate areas of hydric soils, which are typically found in wetlands (NRCS 1977, 1989, and 2020). Areas that contain hydric map units have a greater probability of supporting wetlands relative to those mapped as non-hydric soil units. Soil map units rated as hydric in the digital soil survey data that fall within the Project ROW are identified on the map sheets included in Attachment A of this report.

## 2.5 Wetland and Stream Data Evaluation

Potential streams and wetlands were assigned a probability of low, moderate, or high potential of being a regulated resource if a field verification were to be done. Tables 1 and 2 show the criteria POWER used to assign this probability of the identified features within the proposed Project ROW.

**TABLE 1 WETLAND EVALUATION CRITERIA**

<b>WETLAND PROBABILITY</b>	<b>ASSESSMENT CRITERIA</b>
High	<ul style="list-style-type: none"><li>• Aerial imagery (color and CIR) and/or topography combined with <b>two</b> other indicators such as NWI wetlands, NHD streams, hydric soils, or a regulated floodplain.</li></ul>
Moderate	<ul style="list-style-type: none"><li>• Aerial imagery (color and CIR) and/or topography combined with <b>one</b> other indicator such as NWI wetlands, NHD streams, hydric soils, or a regulated floodplain.</li></ul>
Low	<ul style="list-style-type: none"><li>• Areas identified as wetland with topography and aerial photography only.</li></ul>

**TABLE 2 STREAM EVALUATION CRITERIA**

<b>STREAM PROBABILITY</b>	<b>ASSESSMENT CRITERIA</b>
High	<ul style="list-style-type: none"><li>• Streams identified with NHD and aerial imagery (color and CIR).</li></ul>
Moderate	<ul style="list-style-type: none"><li>• Streams identified with aerial imagery (color and CIR) and/or topography combined with one other indicator such as NWI wetlands, county or city stream data, or hydric soils.</li></ul>
Low	<ul style="list-style-type: none"><li>• Areas identified as streams with topography and aerial photography only.</li></ul>

### 3.0 RESULTS AND DISCUSSION

The results of the Desktop Wetland and Stream Delineation Report are presented in Tables 3 and 4. Figures showing the location of desktop delineated wetlands and streams are included as Attachment A of this report. The desktop delineation assumed a 100-foot-wide ROW to assess potential acreage and linear feet of wetlands and streams, respectively. Due to limitations in aerial photography and available data, the probability and estimated number of occurrences provided below are for planning purposes and likely do not represent the full extent of potentially jurisdictional aquatic resources that may be identified during a field study. No desktop delineated wetlands were identified in the ROW of the portion of the Reusens – South Lynchburg 138 kV transmission line to be relocated where it crosses the Reusens – Altavista 138 kV transmission line; however one low probability stream totaling 175 linear feet was identified and will likely be spanned if present (Map Tile 13, Attachment A).

**TABLE 3 DESKTOP WETLAND DELINEATION RESULTS**

WETLAND PROBABILITY	POTENTIAL WETLAND CLASSIFICATION*	ESTIMATED NUMBER OF WETLAND OCCURRENCES	ESTIMATED ACREAGE WITHIN ROW
High	PEM/PSS/PFO	7	2.69
	PUB	3	1.42
Moderate	PEM/PSS/PFO	4	1.15
Low	PEM/PSS/PFO	6	1.18
<b>Wetlands Total</b>		<b>20</b>	<b>6.44</b>

\* The potential wetland classifications within the ROW are likely PEM or PSS; however, PFO conditions may have developed if the ROW has not been maintained. Field verification would be required to confirm wetland classifications.

**TABLE 4 DESKTOP STREAM DELINEATION RESULTS**

STREAM PROBABILITY	ESTIMATED NUMBER OF OCCURRENCES	ESTIMATED LINEAR FEET WITHIN ROW
High	24	3,678
Moderate	9	1,349
Low	7	1,081
<b>Streams Total</b>	<b>40</b>	<b>6,108</b>

#### 3.1 Reusens – Altavista 138 kV Transmission Line Proposed Route

The Proposed Route is 11.6 miles long and includes a double-circuit and single-circuit section that crosses the City of Lynchburg and Bedford County, respectively. The majority of the Proposed Route is on the centerline of the existing 100-foot-wide ROW. Alternative routes

were not considered for the Project given the opportunity to use existing ROW; however, the Proposed Route includes two minor deviations from the existing centerline to optimize the design or avoid constraints for the rebuilt line. The minor deviations occur where the Reusens – Altavista and Reusens – South Lynchburg 138 kV transmission lines cross (between proposed structures 4-30A and 4-32A) and between proposed structures 4-41A and 4-47A in Bedford County (Attachment A).

### **High Probability**

Ten high probability wetlands, totaling 4.11 acres, were identified within the ROW of the Proposed Route. Three of the high probability wetlands were determined to be probable PUB wetlands, totaling 1.42 acres (Map Tiles 13 and 14), and seven were determined to likely be PEM, PSS, or PFO wetlands totaling 2.69 acres (Map Tiles 3, 4, 5, 13, 14, and 19). Given the Project will be rebuilt largely in existing ROW, impacts to high probability PFO wetlands are minimal as the ROW has previously been cleared; however, field verification would be necessary to confirm that forested conditions have not developed. A total of 24 high probability streams were identified (approximately 3,678 linear feet) within the ROW of the Proposed Route. Cheese Creek and Ivy Creek were identified as high probability streams crossed by the Project ROW (Map Tiles 10, 11, 12, and 13). Ivy Creek is crossed multiple times by the Project ROW. It is likely all streams can be spanned by the transmission line and avoid impacts.

### **Moderate Probability**

Four moderate probability wetlands, totaling 1.15 acres, were identified within the ROW of the Proposed Route (Map Tiles 3, 7, 9, and 10). Given the Project will be rebuilt largely in existing ROW, impacts to moderate probability PFO wetlands are minimal as the ROW has previously been cleared; however, field verification would be necessary to confirm that forested conditions have not developed. A total of nine moderate probability streams were identified (approximately 1,349 linear feet) within the ROW of the Proposed Route.

### **Low Probability**

Six low probability wetlands, totaling 1.18 acres, were identified within the ROW of the Proposed Route (Map Tiles 1, 2, 11, 16, 17, and 20). Given the Project will be rebuilt largely in existing ROW, impacts to low probability PFO wetlands are minimal as the ROW has previously been cleared; however, field verification would be necessary to confirm that forested conditions have not developed. A total of seven low probability streams (approximately 1,081 linear feet) were identified within the ROW of the Proposed Route.

## 4.0 CONCLUSION

A summary of the desktop wetland and stream resources identified for the Reusens to New London 138 kV Rebuild Project is provided below in Table 5. A total of 20 potential wetlands (totaling 6.44 acres) and 40 potential streams (approximately 6,108 linear feet) were identified within the ROW of the Proposed Route for the section of the Reusens – Altavista 138-kV Transmission Line to be rebuilt using the resources described above. Based on the most recent aerial imagery available for the Project area (Virginia Base Mapping Program 2018), determining the Cowardin et al. (1979) classification for most of the identified wetland types would not be accurate. Three potential PUB wetlands were identified within the proposed ROW and appear to be within maintained manmade ponds and are unlikely to have a change in Cowardin et al. (1979) classification (Map Tiles 13 and 14). The remaining 17 wetlands identified within the proposed ROW appeared to be either PEM and/or PSS wetlands (Virginia Base Mapping Program 2018). No desktop delineated wetlands were identified in the ROW of the portion of the Reusens – South Lynchburg 138-kV transmission line to be relocated where it crosses the Reusens – Altavista 138-kV line; however one low probability stream totaling 175 linear feet was identified and will likely be spanned if present (Map Tile 13, Attachment A). The improvements at the Brush Tavern Substation will be located within the existing station fence and thus no expansion areas are required for the Project.

Transmission line ROWs are typically maintained, which would support one of these classifications. However, PFO wetlands may have developed in arials with surrounding forest if the ROW has not been maintained since the date the imagery was taken. The wetlands may also have a PFO component on the outer edges of the ROW. A field delineation would verify wetland habitat types. Given the Project will largely rebuild within existing ROW, impacts to potential wetlands and streams are minimal as the area has already been disturbed.

**TABLE 5 SUMMARY OF DESKTOP WETLAND AND STREAM DELINEATIONS**

<b>STREAM TYPE</b>	<b>ESTIMATED NUMBER OF OCCURRENCES</b>	<b>ESTIMATED ACREAGE/LINEAR FOOTAGE WITHIN PROPOSED ROW</b>
<b>Wetland Total</b>	20	6.44 acres
<b>Stream Total</b>	40	6,108 feet

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

impacts to wetlands and streams are generally minimal due to the relatively small footprint of transmission line structure foundations.

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

The results of this desktop wetland and stream delineation are intended solely for use as an indication of probable wetlands and streams within the proposed ROW for the portion of the Reusens – Altavista 138 kV Transmission Line to be rebuilt. This analysis is designed for planning purposes only and does not represent the results of an on-the-ground, wetland and stream field delineation. Accurate determination of regulated resource boundaries is only possible through field delineations of wetlands and streams utilizing the USACE wetland delineation manual (Environmental Laboratory 1987), the applicable regional supplement (USACE 2012), and other appropriate regulatory guidance.

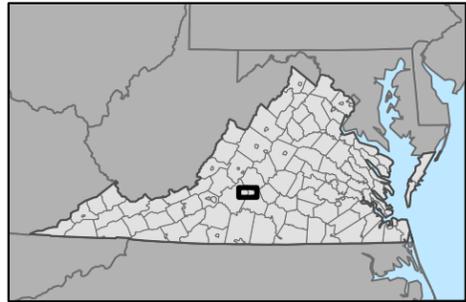
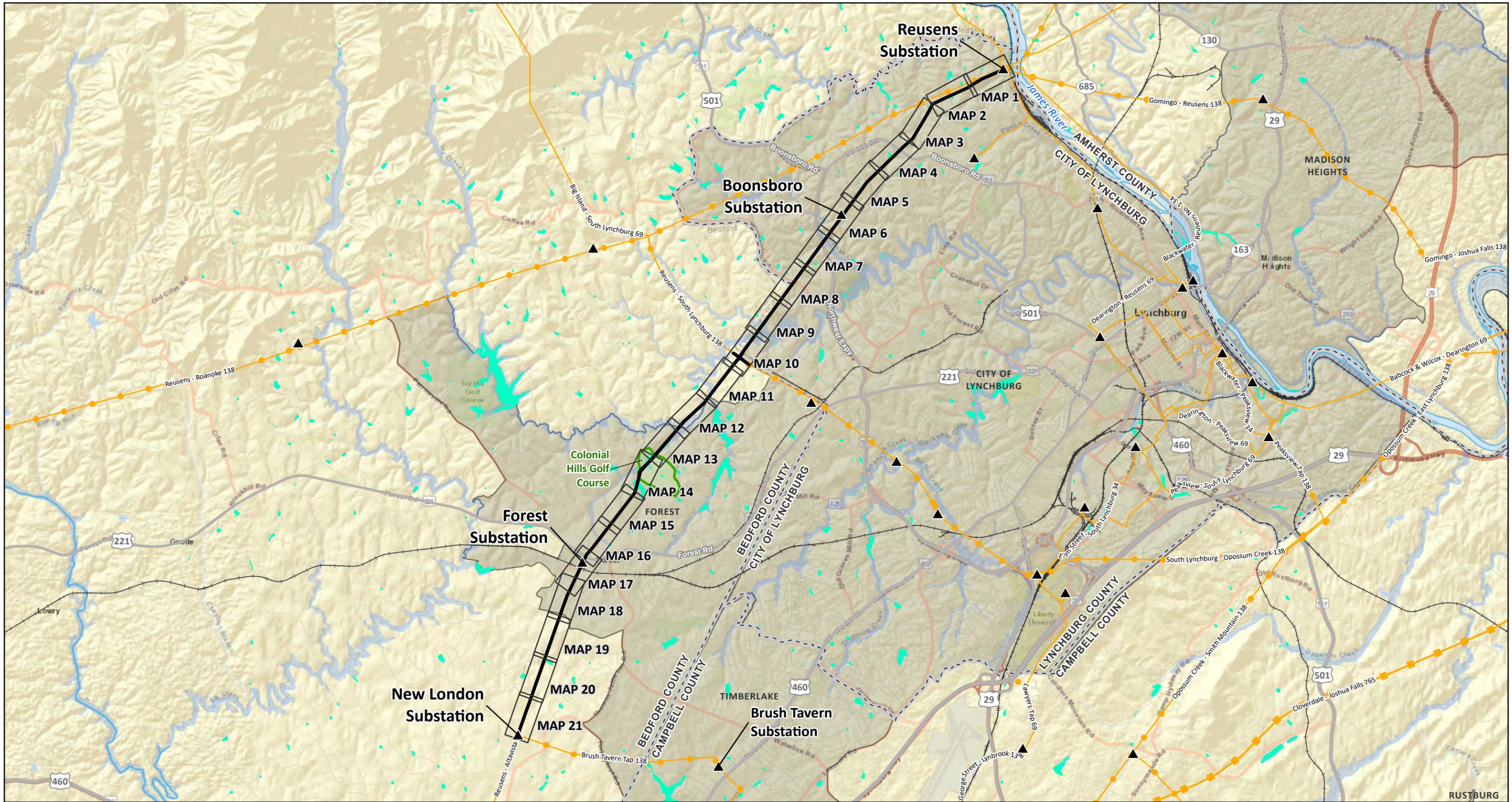
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- Virginia Geographic Information Network (VGIN). 2021. Orthoimagery collected in spring 2017, 2018, and 2019 (whichever was most recent). Available at: <https://vgin.maps.arcgis.com/apps/Viewer/index.html?appid=cbe6a0c1b2c440168e228ee33b89cb38#>. Accessed February 8, 2021.

**ATTACHMENT A: DESKTOP DELINEATED FEATURES, ROW ROUTE MAPPING**

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Map Tile	Existing AEP Transmission Line (345 kV +)	NWI Wetlands
Existing AEP Substation	Highways	100-year Floodplain
Proposed Route	Railroad	Municipality
Existing AEP Transmission Line (69 kV or lower)	City/County Boundary	Colonial Hills Golf Club
Existing AEP Transmission Line (115-230 kV)	NHD River	

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0 1.25 2.5  
Miles

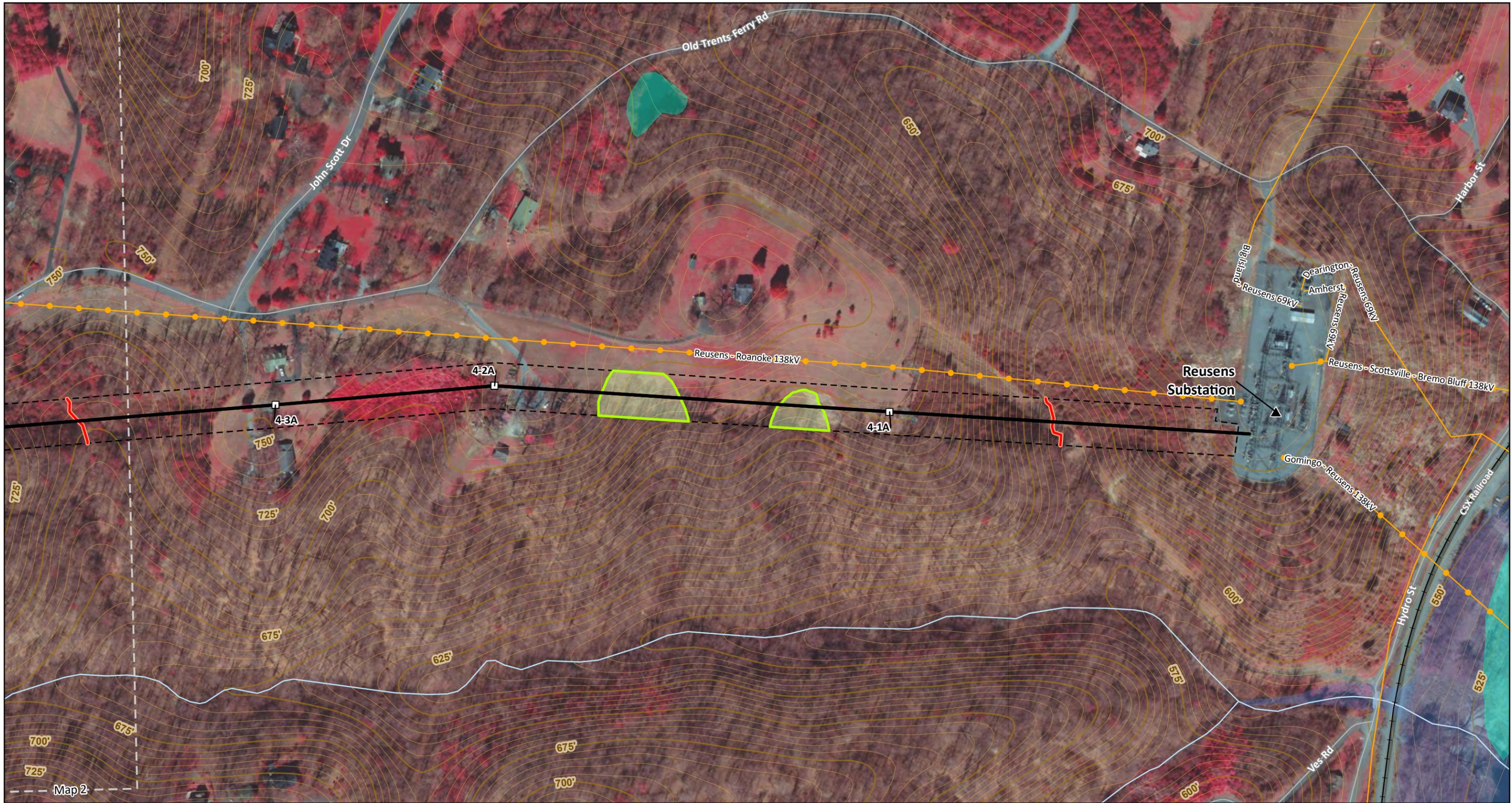
1" = 1.25 miles INDEX

**Index**

**Desktop Wetland and Stream Delineation**

Reusens to New London 138 kV Rebuild Project

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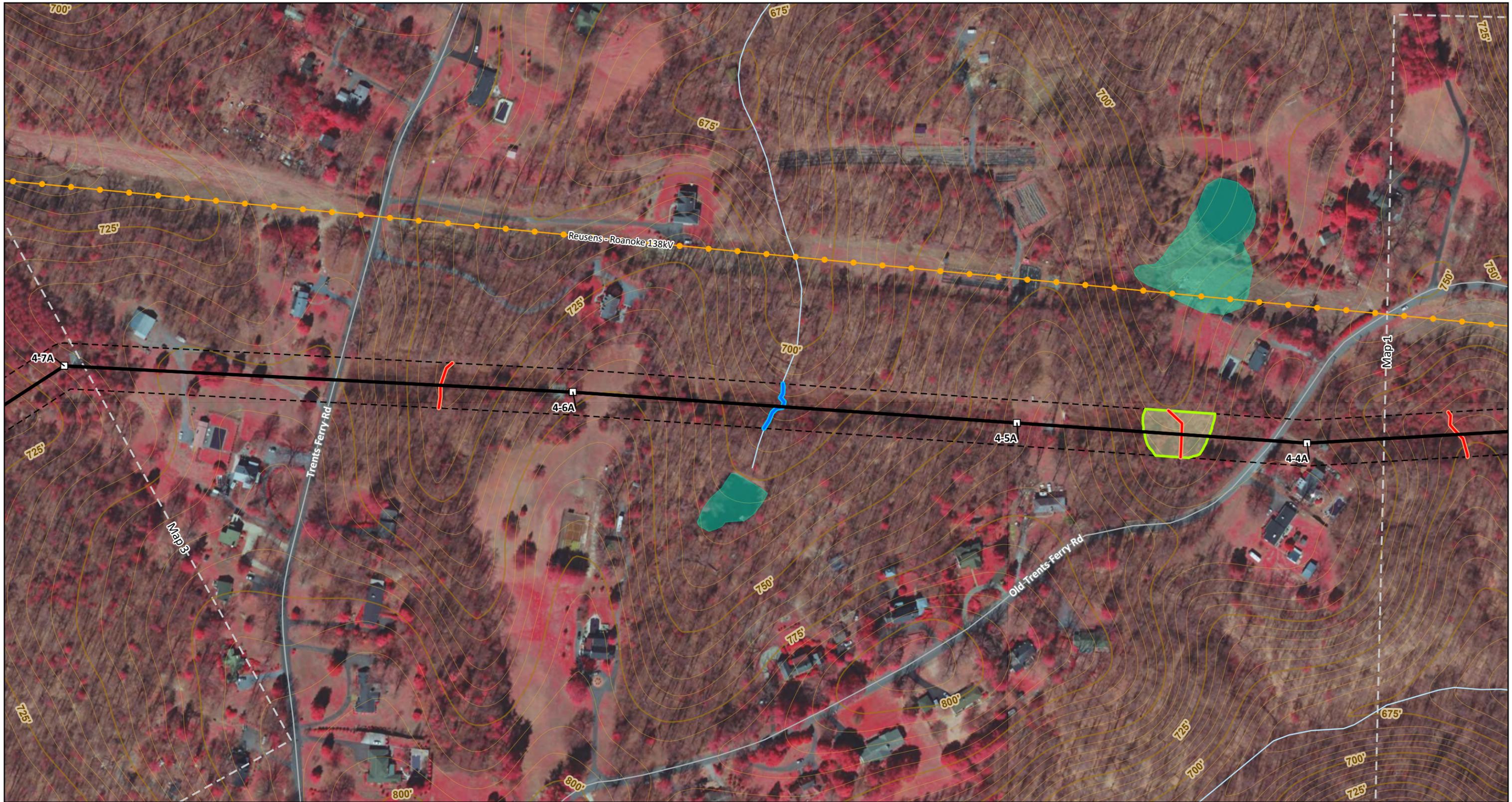
▲ Existing AEP Substation	▭ Low Probability Wetland	— Existing AEP Transmission Line (69 kV or lower)
□ Proposed 138 kV Structure	— NHD Stream	● Existing AEP Transmission Line (115-230 kV)
— Reusens - Altavista 138 kV Transmission Line Proposed Route	■ NWI Wetlands	— Index Contour (25')
- - - Right-of-Way (100')	■ 100-year Floodplain	— Intermediate Contour (5')
— Moderate Probability Stream	— Road	- - - Map Tile
	— Railroad	

Amherst County and City of Lynchburg, Virginia

1" = 200'

Date: 4/6/2021; Author: ckunde; Project: 159298

**Map 1 of 21**  
**Desktop Wetland and Stream Delineation**  
 Reusens to New London 138 kV Rebuild Project



Proposed 138 kV Structure	Moderate Probability Stream	Existing AEP Transmission Line (115-230 kV)
Reusens - Altavista 138 kV Transmission Line Proposed Route	Low Probability Wetland	Index Contour (25')
Right-of-Way (100')	NHD Stream	Intermediate Contour (5')
High Probability Stream	NWI Wetlands	Map Tile
	Road	

Amherst County and City of Lynchburg, Virginia

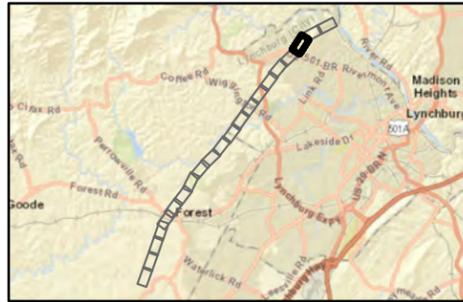
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Feet

1" = 200'

Date: 4/6/2021; Author: ckunde; Project: 159298

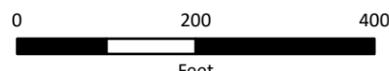
**Map 2 of 21**  
**Desktop Wetland and Stream Delineation**  
 Reusens to New London 138 kV Rebuild Project

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Proposed 138 kV Structure	High Probability Wetland	Existing AEP Transmission Line (115-230 kV)
Reusens - Altavista 138 kV Transmission Line Proposed Route	Moderate Probability Wetland	Index Contour (25')
Right-of-Way (100')	NHD Stream	Intermediate Contour (5')
High Probability Stream	NWI Wetlands	Map Tile
Moderate Probability Stream	Road	


**Amherst County and  
City of Lynchburg,  
Virginia**

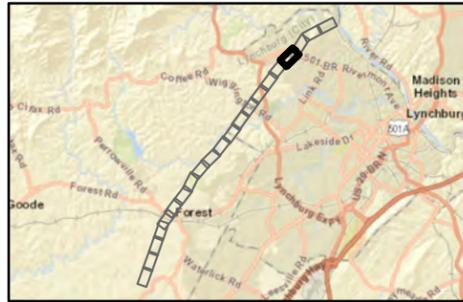
  
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 Feet

1" = 200'

Date: 4/6/2021; Author: ckunde; Project: 159298

**Map 3 of 21**  
**Desktop Wetland and Stream Delineation**  
 Reusens to New London 138 kV Rebuild Project

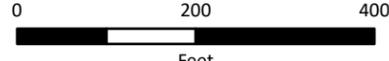
  
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<ul style="list-style-type: none"> <li> Proposed 138 kV Structure</li> <li> Reusens - Altavista 138 kV Transmission Line Proposed Route</li> <li> Right-of-Way (100')</li> <li> High Probability Stream</li> </ul>	<ul style="list-style-type: none"> <li> High Probability Wetland</li> <li> NHD Stream</li> <li> NWI Wetlands</li> <li> Road</li> </ul>	<ul style="list-style-type: none"> <li> Highway</li> <li> Index Contour (25')</li> <li> Intermediate Contour (5')</li> <li> Map Tile</li> </ul>
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0      200      400  
Feet

1" = 200'

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**Map 4 of 21**

**Desktop Wetland and Stream Delineation**

Reusens to New London 138 kV Rebuild Project



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Proposed 138 kV Structure	Moderate Probability Stream	Hydric Soils
Reusens - Altavista 138 kV Transmission Line Proposed Route	Low Probability Stream	Road
Right-of-Way (100')	High Probability Wetland	Index Contour (25')
High Probability Stream	NHD Stream	Intermediate Contour (5')
	NWI Wetlands	Map Tile

Amherst County and City of Lynchburg, Virginia

0 200 400  
Feet

1" = 200'

Date: 4/6/2021; Author: ckunde; Project: 159298

**Map 5 of 21**  
**Desktop Wetland and Stream Delineation**  
Reusens to New London 138 kV Rebuild Project

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▲ Existing AEP Substation	⌚ Right-of-Way (100')	— Road
□ Proposed 138 kV Structure	— Low Probability Stream	— Index Contour (25')
— Reusens - Altavista 138 kV Transmission Line Proposed Route	— NHD Stream	— Intermediate Contour (5')
	■ 100-year Floodplain	⌚ Map Tile

Amherst County and City of Lynchburg, Virginia

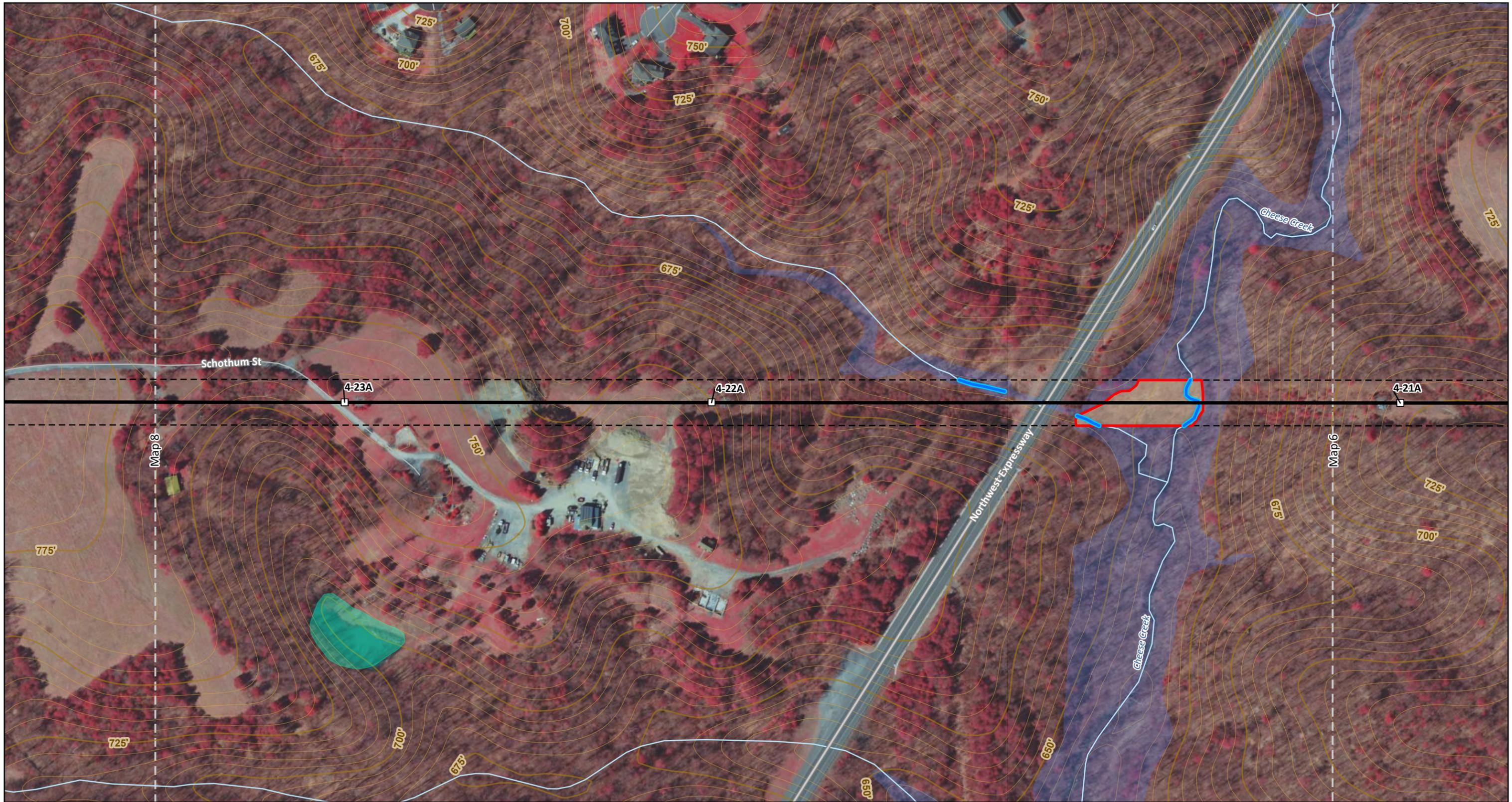
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Feet

1" = 200'

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**Map 6 of 21**  
**Desktop Wetland and Stream Delineation**  
 Reusens to New London 138 kV Rebuild Project

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<ul style="list-style-type: none"> <li> Proposed 138 kV Structure</li> <li> Reusens - Altavista 138 kV Transmission Line Proposed Route</li> <li> Right-of-Way (100')</li> <li> High Probability Stream</li> </ul>	<ul style="list-style-type: none"> <li> Moderate Probability Wetland</li> <li> NHD Stream</li> <li> NWI Wetlands</li> <li> 100-year Floodplain</li> <li> Road</li> </ul>	<ul style="list-style-type: none"> <li> Highway</li> <li> Index Contour (25')</li> <li> Intermediate Contour (5')</li> <li> Map Tile</li> </ul>
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Amherst County and City of Lynchburg, Virginia

0      200      400
   
  
 Feet

1" = 200'

Date: 4/6/2021; Author: ckunde; Project: 159298

**Map 7 of 21**
  
**Desktop Wetland and Stream Delineation**
  
 Reusens to New London 138 kV Rebuild Project

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Proposed 138 kV Structure	Low Probability Stream	Road
Reusens - Altavista 138 kV Transmission Line Proposed Route	NHD Stream	Index Contour (25')
Right-of-Way (100')	NWI Wetlands	Intermediate Contour (5')
High Probability Stream	Hydric Soils	Map Tile
	City/County Boundary	

Amherst County and City of Lynchburg, Virginia

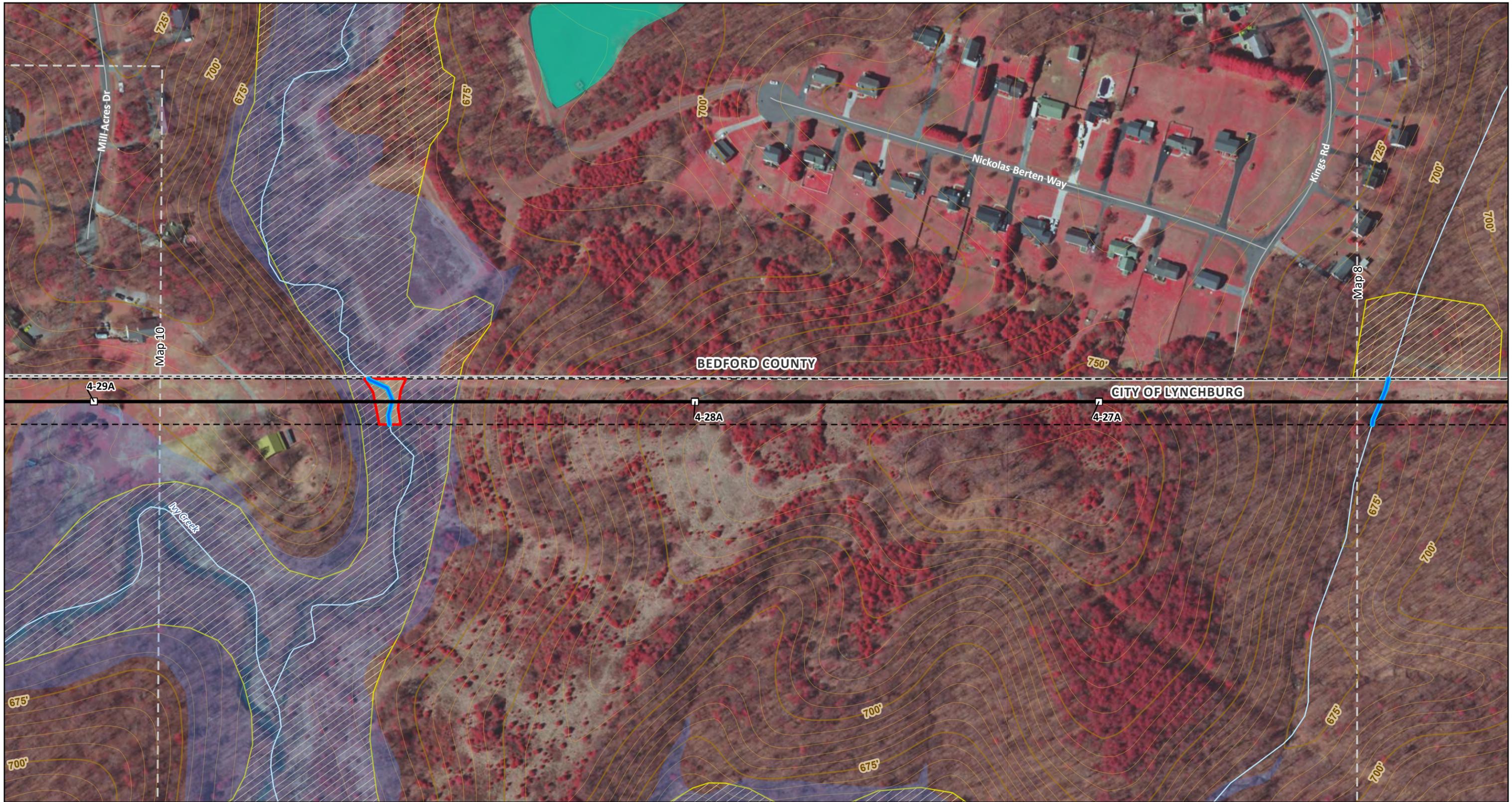
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Feet

1" = 200'

Date: 4/6/2021; Author: ckunde; Project: 159298

**Map 8 of 21**  
**Desktop Wetland and Stream Delineation**  
Reusens to New London 138 kV Rebuild Project

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Proposed 138 kV Structure	Moderate Probability Wetland	City/County Boundary
Reusens - Altavista 138 kV Transmission Line Proposed Route	NHD Stream	Road
Right-of-Way (100')	NWI Wetlands	Index Contour (25')
High Probability Stream	100-year Floodplain	Intermediate Contour (5')
	Hydric Soils	Map Tile

Amherst County and City of Lynchburg, Virginia

0 200 400  
Feet

1" = 200'

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**Map 9 of 21**  
**Desktop Wetland and Stream Delineation**  
 Reusens to New London 138 kV Rebuild Project

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□ Proposed 138 kV Structure	— Low Probability Stream	● Existing AEP Transmission Line (115-230 kV)
× Existing AEP Transmission Line (To Be Retired)	▭ Moderate Probability Wetland	○ Existing AEP Structure
— Reusens - Altavista 138 kV Transmission Line Proposed Route	— NHD Stream	— Index Contour (25')
— Reusens - South Lynchburg 138 kV Line Relocation	▭ 100-year Floodplain	— Intermediate Contour (5')
— Right-of-Way (100')	▨ Hydric Soils	▭ Map Tile
— High Probability Stream	— City/County Boundary	
	— Road	

Amherst County and City of Lynchburg, Virginia

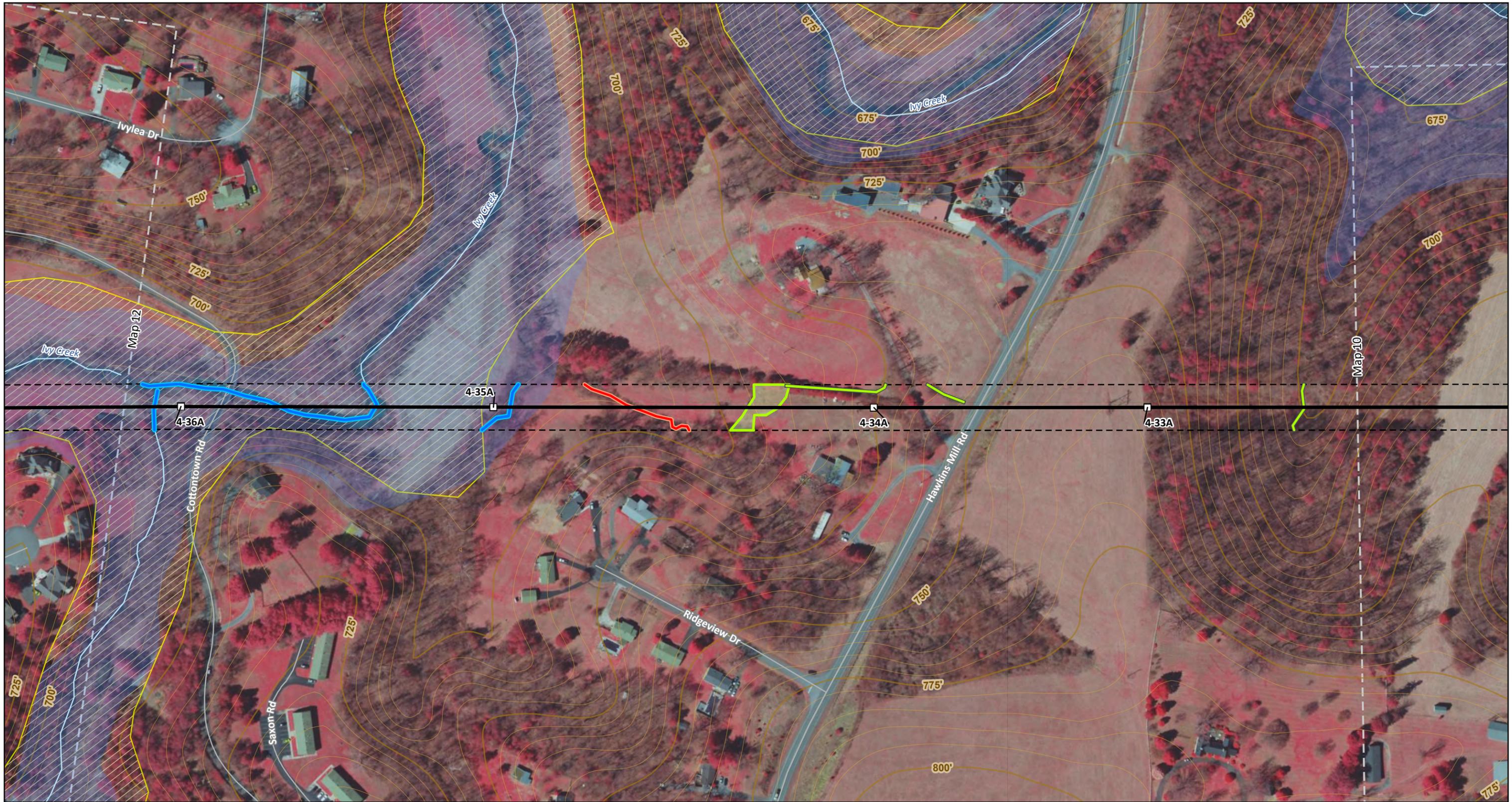
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 Feet

1" = 200'

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**Map 10 of 21**  
**Desktop Wetland and Stream Delineation**  
 Reusens to New London 138 kV Rebuild Project

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Proposed 138 kV Structure	Moderate Probability Stream	Hydric Soils
Reusens - Altavista 138 kV Transmission Line Proposed Route	Low Probability Stream	Road
Right-of-Way (100')	Low Probability Wetland	Index Contour (25')
High Probability Stream	NHD Stream	Intermediate Contour (5')
100-year Floodplain		Map Tile

**Amherst County and City of Lynchburg, Virginia**

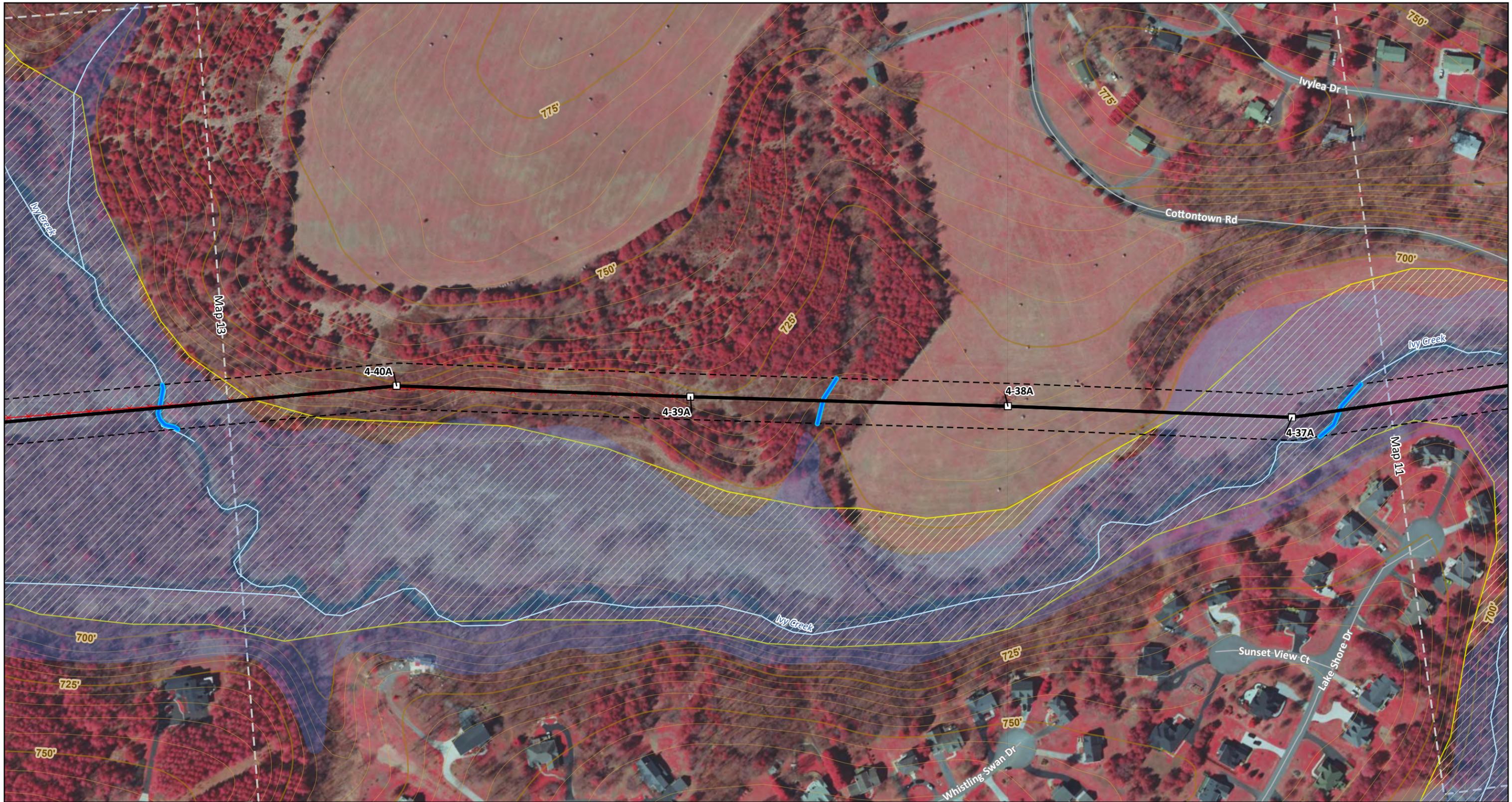
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 Feet

1" = 200'

Date: 4/6/2021; Author: ckunde; Project: 159298

**Map 11 of 21**  
**Desktop Wetland and Stream Delineation**  
 Reusens to New London 138 kV Rebuild Project

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<ul style="list-style-type: none"> <li> Proposed 138 kV Structure</li> <li> Existing AEP Transmission Line (To Be Retired)</li> <li> Reusens - Altavista 138 kV Transmission Line Proposed Route</li> <li> Right-of-Way (100')</li> </ul>	<ul style="list-style-type: none"> <li> High Probability Stream</li> <li> NHD Stream</li> <li> 100-year Floodplain</li> <li> Hydric Soils</li> </ul>	<ul style="list-style-type: none"> <li> Road</li> <li> Index Contour (25')</li> <li> Intermediate Contour (5')</li> <li> Map Tile</li> </ul>
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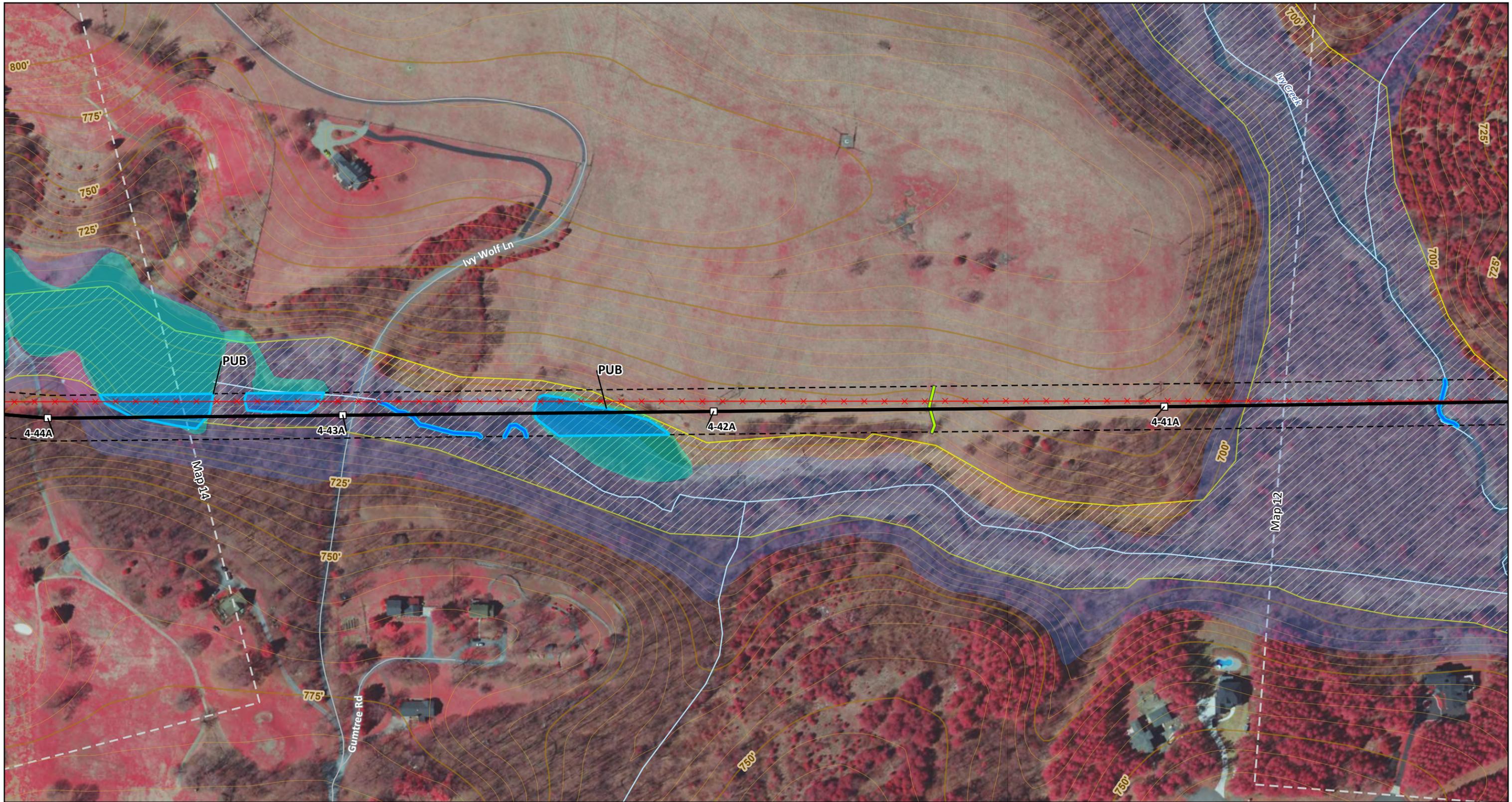
**Amherst County and City of Lynchburg, Virginia**

1" = 200'

Date: 4/6/2021; Author: ckunde; Project: 159298

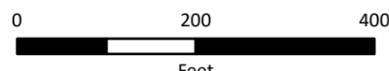
**Map 12 of 21**  
**Desktop Wetland and Stream Delineation**  
 Reusens to New London 138 kV Rebuild Project

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Proposed 138 kV Structure	Low Probability Stream	Hydric Soils
Existing AEP Transmission Line (To Be Retired)	High Probability Wetland	Road
Reusens - Altavista 138 kV Transmission Line Proposed Route	NHD Stream	Index Contour (25')
Right-of-Way (100')	NWI Wetlands	Intermediate Contour (5')
High Probability Stream	100-year Floodplain	Map Tile


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Virginia**

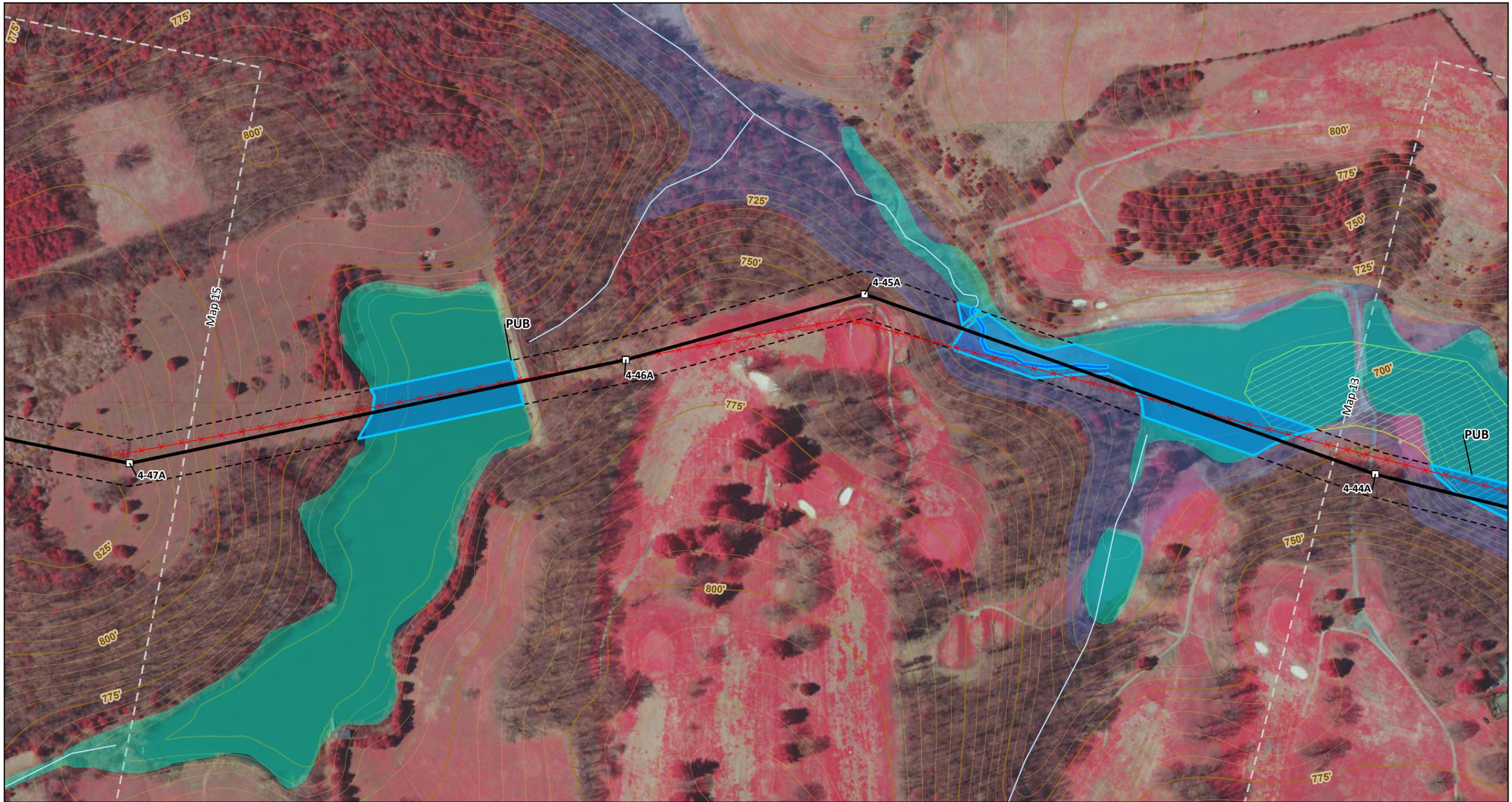
  
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 Feet

1" = 200'

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**Map 13 of 21**  
**Desktop Wetland and Stream Delineation**  
 Reusens to New London 138 kV Rebuild Project

  
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□ Proposed 138 kV Structure	High Probability Stream	100-year Floodplain
✕ Existing AEP Transmission Line (To Be Retired)	High Probability Wetland	Hydric Soils
— Reusens - Altavista 138 kV Transmission Line Proposed Route	NHD Stream	Index Contour (25')
- - - Right-of-Way (100')	NWI Wetlands	Intermediate Contour (5')
		Map Tile

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1" = 200'

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**Map 14 of 21**  
**Desktop Wetland and Stream Delineation**  
 Reusens to New London 138 kV Rebuild Project



□ Proposed 138 kV Structure	— NHD Stream
✕ Existing AEP Transmission Line (To Be Retired)	■ NWI Wetlands
— Reusens - Altavista 138 kV Transmission Line Proposed Route	— Index Contour (25')
- - - Right-of-Way (100')	— Intermediate Contour (5')
	- - - Map Tile

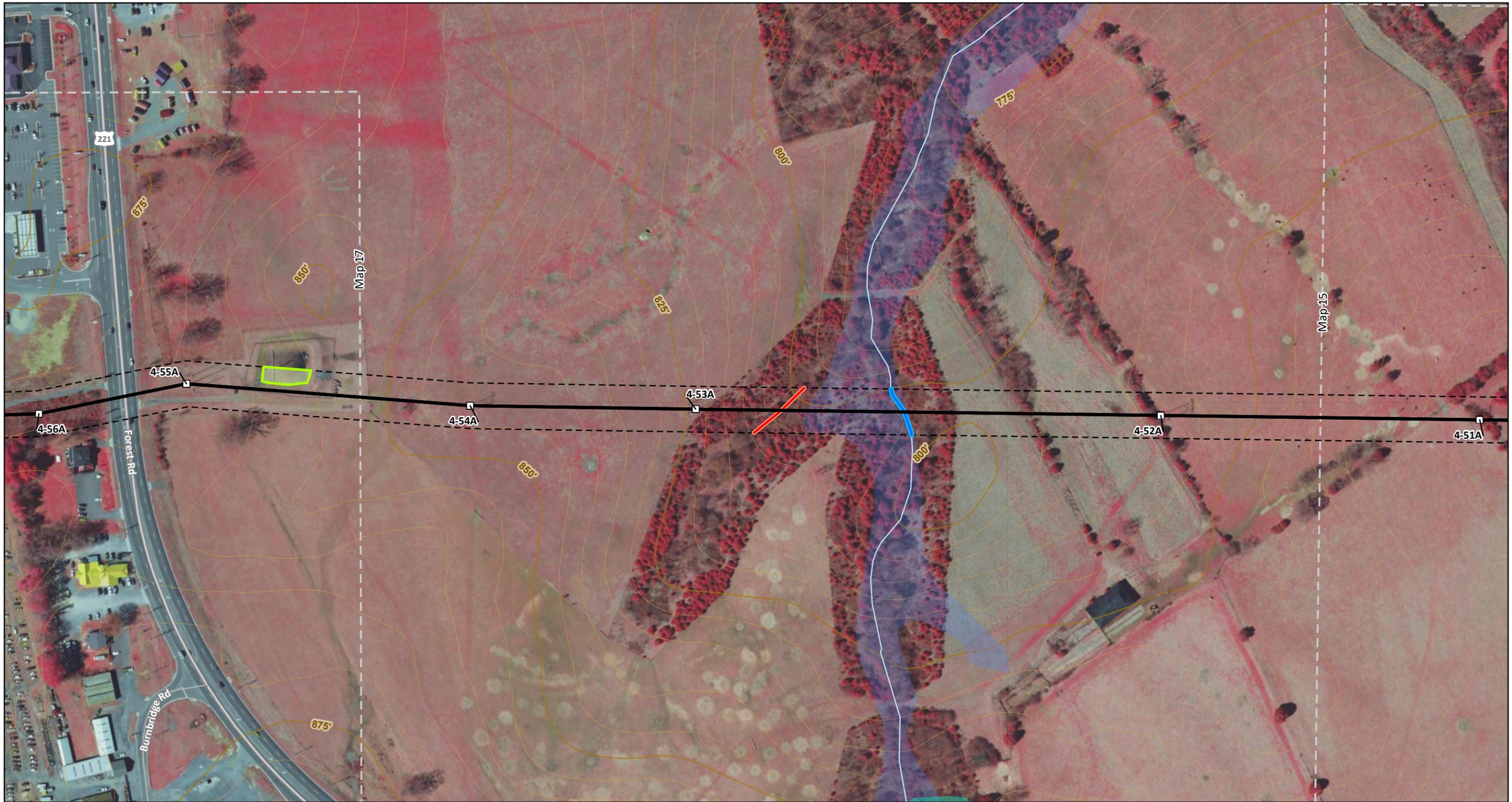
Amherst County and City of Lynchburg, Virginia

0 200 400  
Feet

1" = 200'

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**Map 15 of 21**  
**Desktop Wetland and Stream Delineation**  
 Reusens to New London 138 kV Rebuild Project



Proposed 138 kV Structure	Moderate Probability Stream	Road
Reusens - Altavista 138 kV Transmission Line Proposed Route	Low Probability Wetland	Highway
Right-of-Way (100')	NHD Stream	Index Contour (25')
High Probability Stream	NWI Wetlands	Intermediate Contour (5')
	100-year Floodplain	Map Tile

Amherst County and City of Lynchburg, Virginia

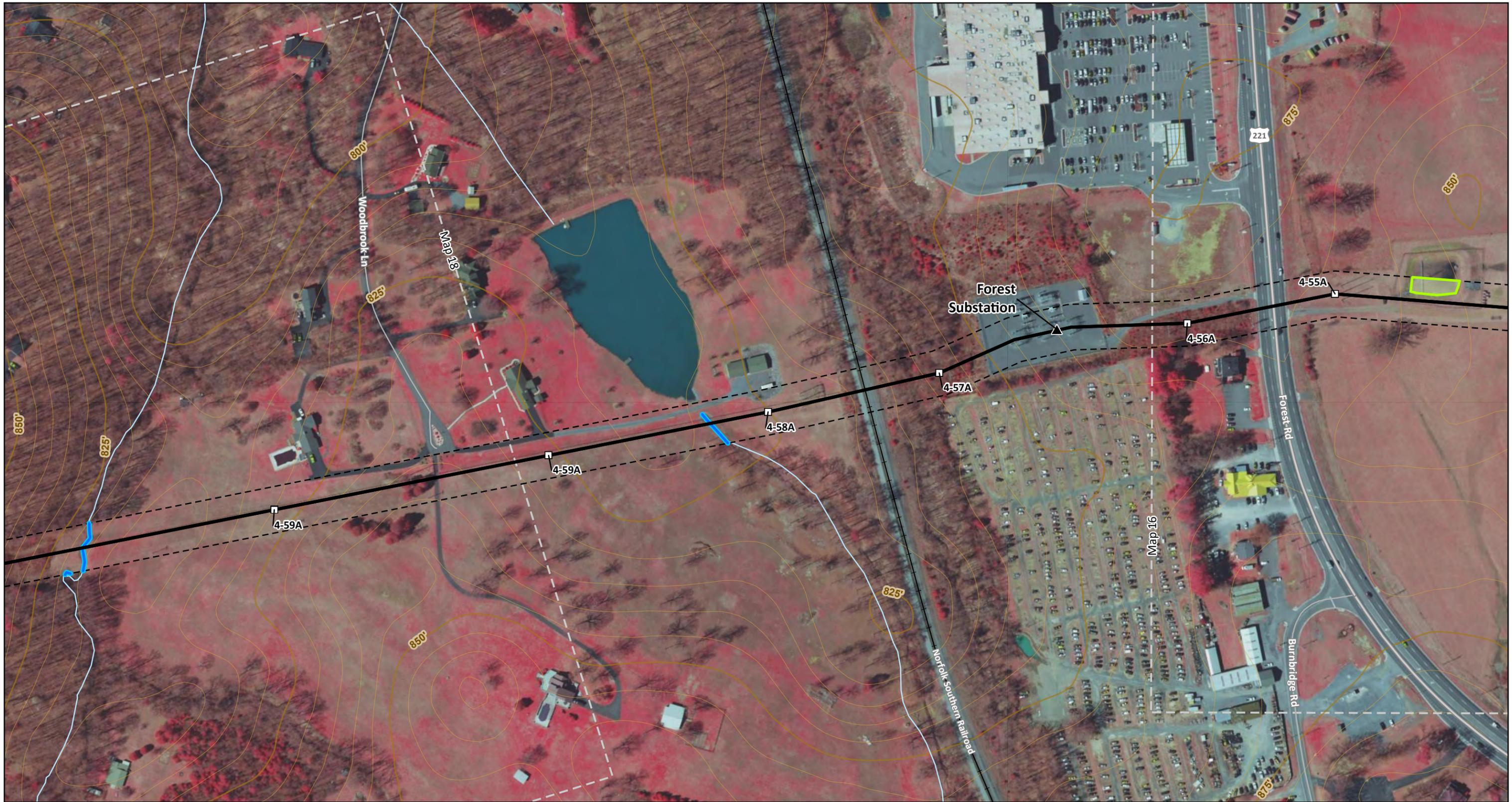
0 200 400  
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1" = 200'

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**Map 16 of 21**  
**Desktop Wetland and Stream Delineation**  
 Reusens to New London 138 kV Rebuild Project

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▲ Existing AEP Substation	High Probability Stream	Railroad
□ Proposed 138 kV Structure	Low Probability Wetland	Index Contour (25')
Reusens - Altavista 138 kV Transmission Line Proposed Route	NHD Stream	Intermediate Contour (5')
Right-of-Way (100')	Road	Map Tile
	Highway	

Amherst County and City of Lynchburg, Virginia

0 200 400  
Feet

1" = 200'

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**Map 17 of 21**  
**Desktop Wetland and Stream Delineation**  
 Reusens to New London 138 kV Rebuild Project

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<ul style="list-style-type: none"> <li> Proposed 138 kV Structure</li> <li> Reusens - Altavista 138 kV Transmission Line Proposed Route</li> <li> Right-of-Way (100')</li> <li> High Probability Stream</li> </ul>	<ul style="list-style-type: none"> <li> NHD Stream</li> <li> Road</li> <li> Index Contour (25')</li> <li> Intermediate Contour (5')</li> <li> Map Tile</li> </ul>
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Amherst County and  
 City of Lynchburg,  
 Virginia

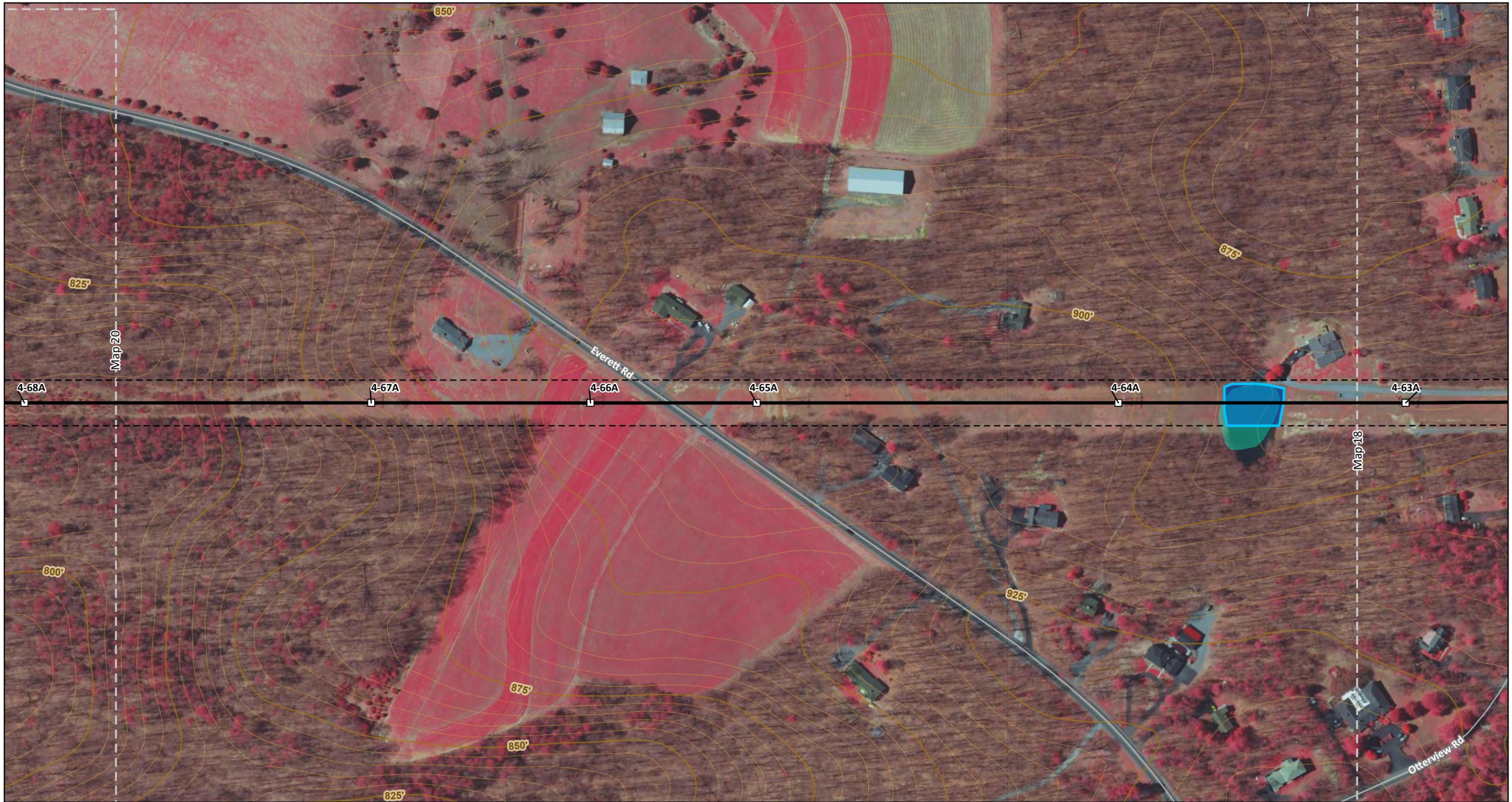
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1" = 200'

Date: 4/6/2021; Author: ckunde; Project: 159298

**Map 18 of 21**  
**Desktop Wetland and Stream Delineation**  
 Reusens to New London 138 kV Rebuild Project

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Proposed 138 kV Structure	High Probability Wetland	Index Contour (25')
Reusens - Altavista 138 kV Transmission Line Proposed Route	NHD Stream	Intermediate Contour (5')
Right-of-Way (100')	NWI Wetlands	Map Tile
	Road	

**Amherst County and  
City of Lynchburg,  
Virginia**

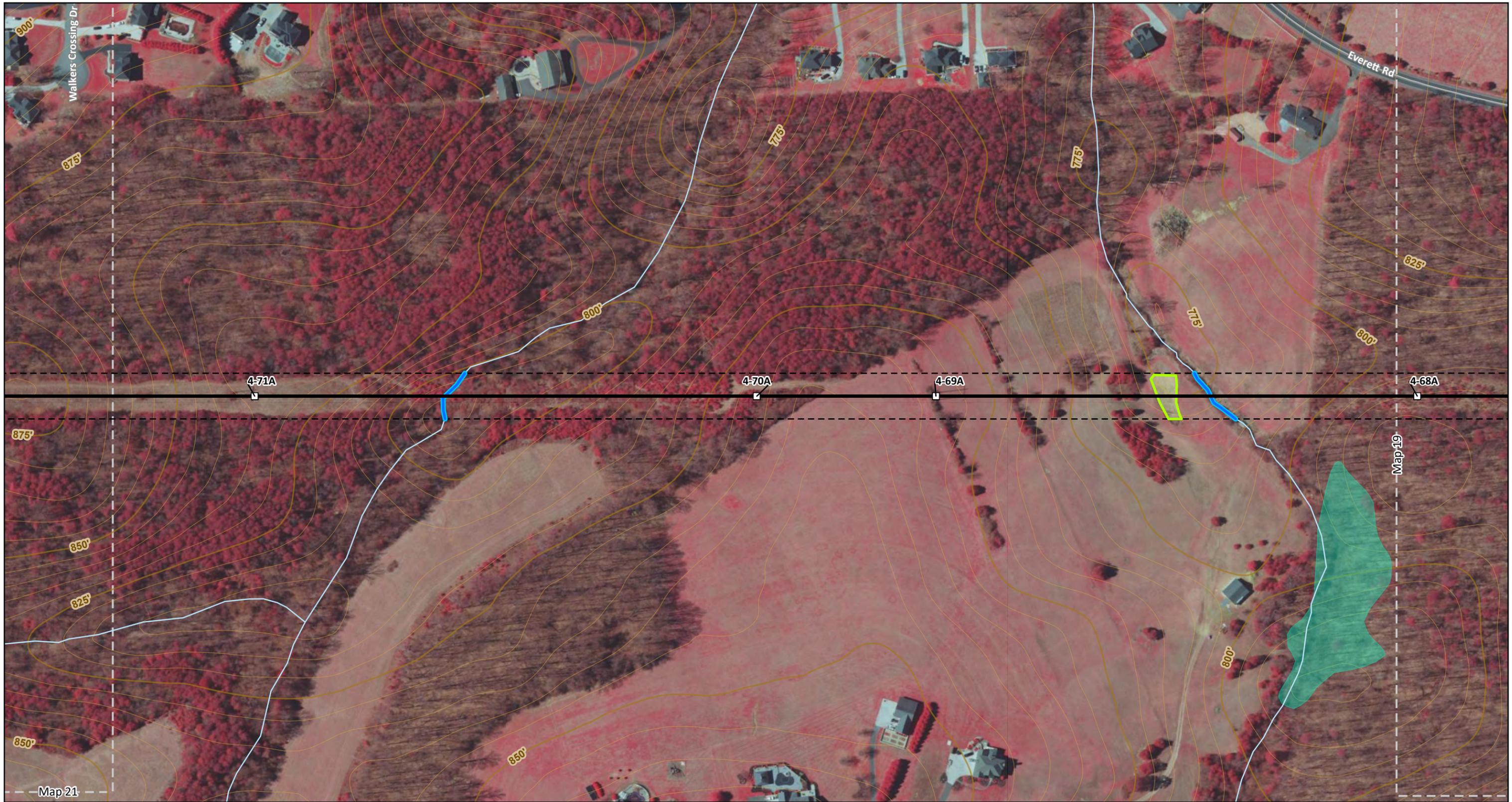
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Feet

1" = 200'

Date: 4/6/2021; Author: ckunde; Project: 159298

**Map 19 of 21**  
**Desktop Wetland and Stream Delineation**  
 Reusens to New London 138 kV Rebuild Project

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Proposed 138 kV Structure	High Probability Stream	Road
Reusens - Altavista 138 kV Transmission Line Proposed Route	Low Probability Wetland	Index Contour (25')
Right-of-Way (100')	NHD Stream	Intermediate Contour (5')
	NWI Wetlands	Map Tile

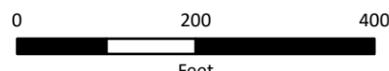
Amherst County and City of Lynchburg, Virginia  
 0 200 400 Feet  
 1" = 200'  
 Date: 4/6/2021; Author: ckunde; Project: 159298

**Map 20 of 21**  
**Desktop Wetland and Stream Delineation**  
 Reusens to New London 138 kV Rebuild Project



▲ Existing AEP Substation	— NHD Stream	— Intermediate Contour (5')
□ Proposed 138 kV Structure	— Road	--- Map Tile
— Reusens - Altavista 138 kV Transmission Line Proposed Route	● Existing AEP Transmission Line (115-230 kV)	
- - - Right-of-Way (100')	— Index Contour (25')	


**Amherst County and  
City of Lynchburg,  
Virginia**


  
0      200      400  
Feet

1" = 200'

Date: 4/6/2021; Author: ckunde; Project: 159298

**Map 21 of 21**  
**Desktop Wetland and Stream Delineation**  
 Reusens to New London 138 kV Rebuild Project

  
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