Exhibit 18

Wetland and Waterbody Delineation Report

Knox-Washington 138 kV Transmission Line Rebuild Project

Carroll and Columbiana Counties, Ohio

Prepared for

ATSI®

American Transmission Systems, Inc.
a subsidiary of FirstEnergy Corp.

May 2020

Jacobs

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Contents

Acronyms and Abbreviations

ATSI	American Transmission Systems Inc.
CWA	Clean Water Act
ESC	Environmental Survey Corridor
°F	Fahrenheit
FAC	Facultative
FACU	Facultative Upland
FACW	Facultative Wetland
GPS	Global Positioning System
HHEI	Headwater Habitat Evaluation Index
HUC	Hydrologic Unit Code
Jacobs	Jacobs Engineering Group, Inc.
kV	Kilovolt
NHD	National Hydrography Dataset
NRCS	Natural Resource Conservation Service
NWI	National Wetland Inventory
OAC	Ohio Administrative Code
OBL	Obligate wetland
OEPA	Ohio Environmental Protection Agency
OHWM	Ordinary High-Water Mark
ORAM	Ohio Rapid Assessment Method
PEM	Palustrine emergent
PFO	Palustrine forested
PHWH	Primary Headwater Habitat
Project	Knox-Washington 138 kV Transmission Line Rebuild Project
PSS	Palustrine scrub-shrub
QHEI	Qualitative Habitat Evaluation Index
ROW	Right-of-way
TNW	Traditionally navigable water
UPL	Upland
USACE	United States Army Corps of Engineers
USDA	United States Department of Agriculture
USEPA	United States Environmental Protection Agency
USFWS	United States Fish and Wildlife Service

USGS	United States Geological Survey

1 Introduction

This wetland and waterbody delineation report (Report) summarizes the results of the wetland and waterbody delineation surveys conducted in Carroll and Columbiana Counties, Ohio by Jacobs Engineering Group, Inc. (Jacobs), for American Transmission Systems Inc. (ATSI), a subsidiary of FirstEnergy Corporation (FirstEnergy). ATSI is proposing to replace existing wood H-Frame structures with new direct embedded steel and drilled shaft H-frame wood pole structures as part of the Knox-Washington 138 kilovolt (kV) Transmission Line Rebuild Project (Project). The Project (approximately 13 miles long) is the northern most segment of a larger 64-mile project originating at the Knox Substation in Columbiana County, near the intersection of Township Line Road and Knox School Road, north of the City of Chambersburg, and extending south to the Holloway Substation terminus in Belmont County, southeast of the City of St. Clairsville. The larger 64-mile project is broken down into five phases, of which this Project is Phase 1.

The Project starts in Columbiana County at the Knox Substation and extends south, ending just north of Cobbler Road NE in Carroll County, as shown on Overview Figure (Figure 1). Jacobs conducted environmental surveys May 1-4, 2018 and June 5, 2018. The environmental survey corridor (ESC) included the existing 100-foot right-of-way (ROW), potential access routes, and pull pads.

This wetland and waterbody delineation report contains the following components:

- Figure 1 provides an overview map of the ESC overlain on ArcGIS Online USA topographic maps.
- Figures 2-A through 2-AU show U.S. Department of Agriculture (USDA) Natural Resource Conservation Service (NRCS) mapped soil units, the location of National Wetland Inventory (NWI) polygons, national hydrography dataset (NHD) streams, and Federal Emergency Management Agency (FEMA) 100-year floodplain and floodway information. Table 3-1 lists the soils types identified within the ESC and Table 3-2 list the NWI wetland types identified within the ESC.
- Figures 3-A through 3-AU provide the location of all features mapped during the delineation by Jacobs biologists within the ESC. This includes all wetlands, data points, waterbodies, and ponds. Tables 4-1 (wetlands), 4-2 (streams), 4-3 (ponds) follow the text, and provide detailed information for all delineated features within the ESC. Tables 4-4 (wetlands), 4-5 (streams), and 4-6 (ponds) within the text, provide summary information for all delineated features within the ESC.
- U.S. Army Corps of Engineers (USACE) wetland determination field data forms are in Appendix A.
- Ohio Rapid Assessment Method for Wetlands (ORAM) two-page forms are in Appendix B.
- Primary Headwater Habitat Evaluation Index (HHEI) stream data forms for each stream identified with a drainage area less than 1 square mile are in Appendix C.
- Qualitative Habitat Evaluation Index (QHEI) stream data forms for each stream identified with a drainage area of 1 square mile or greater are in Appendix D.
- Jacobs Open Water/Pond data forms for each open water feature identified within the ESC are in Appendix E.
- Representative photographs for all delineated features within the ESC are in Appendix F.

2 Background Information

This section describes the ESC and methodology used during the wetland and waterbody delineation field surveys.

2.1 Project Area

The Project is located within Carroll and Columbiana Counties, Ohio. The ESC begins at Knox Substation, west of Knox School Road (40.807613, -81.037256) and extends generally south terminating at the north end of the Washington-Polo Road (Kilgore) 138 kilovolt (kV) Transmission Line (i.e., Phase 2), which is just north of Cobbler Road NE (40.622370, -81.042573) as shown in Figure 1. The ESC is approximately 13-miles long and is 100 feet wide within the Project ROW, and it also contains multiple proposed off-ROW access routes and pull pads.

Review of the USGS 7.5-minute topographic maps indicates the ESC crosses three USGS 7.5-minute topographic quadrangles and includes: Homeworth, Minerva, and Carrollton. Additional review of the USGS 7.5-minute topographic maps of the area indicates that multiple ditches, streams, and rivers drain the ESC, including Conser Run, Muddy Fork, Pipes Fork, Reed's Run, Sandy Creek, Still Fork and multiple unnamed tributaries of these waterways. Topographic relief is comprised of a landscape of rolling hills, with elevations ranging between 1,040 feet and 1,320 feet above sea level throughout the ESC (Figure 1).

Land use and natural communities observed within the ESC includes agricultural land, existing roadway, existing ROW, industrial/substation, residential, old field, upland scrub shrub, palustrine emergent (PEM) wetland, palustrine scrub-shrub (PSS) wetland, and palustrine forested (PFO) wetland, in addition to the previously identified waterbodies.

2.1.1 Annual Precipitation

Recent rainfall data for Steubenville, Ohio was reviewed prior to completing the environmental survey to determine if climatic conditions were normal at the time of the survey. Steubenville, Ohio was the nearest weather station with both historical and recent precipitation records. Rainfall recorded in Steubenville, Ohio was above normal for two out of three months prior to survey conducted in the month of May (Table 2-1; USDA, 2018). This data suggests climatic conditions were generally wetter than normal for 2018 leading up to the ecological survey of May. This was taken into consideration during the delineation.

TABLE 2-1: Recent Precipitation Data

Knox-Washington 138 kV Transmission Line Rebuild Project

2018 Precipitation Data	Feb	Mar	Apr	May	Total
Steubenville Monthly Sum [1, 3]	5.76	1.63	5.61	1.81	14.81
Steubenville Normal Precip. [2, 3]	1.69-2.93	2.56-3.80	2.33-3.77	2.95-4.85	9.53-15.35
Monthly climatic condition	Above Normal	Below Normal	Above Normal	Below Normal	Normal

[1]Monthly weather summary from weather station Steubenville, OH (2018)

[2]USDA WETS Station Climate Data 1971-2000 (Steubenville, OH (USDA 2000))

[3]Displayed in inches

2.1.2 Drainage Basins

The ESC is within the Mahoning (05030103) and Tuscarawas (05040001), 8-digit Hydrologic Unit Codes (HUC). The ESC crosses ten 12-digit HUCs, as outlined in Table 2-2 (USGS, 2018):

TABLE 2-2: 12-Digit HUCs Crossed by the Project
Knox-Washington 138 kV Transmission Line Rebuild Project

HUC 12-Digit Code	HUC 12-Digit Name
050301030101	Beaver Run-Mahoning River
050400010401	Conser Run
050400010402	Middle Branch Sandy Creek
050400010403	Pipes Fork-Still Fork
050400010404	Muddy Fork
050400010405	Reeds Run-Still Fork
050400010406	Headwaters Sandy Creek

Source: USGS 2018

2.1.3 Traditional Navigable Waters

The U.S. Environmental Protection Agency (EPA) and USACE assert jurisdiction over "all waters which are currently used, or were used in the past, or may be susceptible to use in interstate or foreign commerce including all waters which are subject to the ebb and flow of the tide" (USACE and EPA, 2008). These waters are considered traditionally navigable waters (TNW). The ESC does not directly cross a TNW, yet many of the streams will be considered tributaries to the Mahoning or Tuscarawas Rivers (USACE, 2009).

3 Wetland and Waterbody Delineation

3.1 Desktop Review

Prior to conducting the field investigations, Jacobs reviewed the following resources to identify the potential for wetlands within the ESC:

- Aerial photo-based maps (ArcGIS Online, World Imagery Map, 2018)
- Topographic maps (ArcGIS Online, USA Topo Maps, 2018)
- NRCS Web Soil Survey (NRCS, 2018)
- NWI shapefile (USFWS, 2018)
- National Hydrography Dataset (NHD) (USGS, 2018)

According to the NRCS soil survey of Carroll and Columbiana Counties (NRCS, 2018), 48 soil map units are crossed by the ESC. Of the 48 soil map units, one is listed as hydric, two predominantly hydric, eight predominantly non-hydric, and the remaining 37 units are listed as not hydric (Figures 2-A to 2-AU; Table 3-1). NRCS data indicates that hydric soils comprise approximately 0.63 acres, which is approximately 0.4 percent of the ESC; approximately 21 acres of land cover in the ESC is comprised of predominately hydric soils, which is approximately 13 percent of the ESC; approximately 19 acres of land cover in the ESC is comprised of predominantly non-hydric, which is approximately 11 percent of the ESC; and approximately 126 acres of land cover in the ESC is comprised of non-hydric soils, which is approximately 76 percent of the ESC.

Generally, hydric soils are those soils that indicate through their color and structure that they have experienced dominantly reducing (i.e. oxygen poor) conditions. Oxygen-poor conditions result from inundation and/or saturation by water. Partially hydric soils have both hydric and non-hydric soil components identified in the mapped soil unit.

NWI data was obtained from the USFWS for review of potential wetlands that may occur within the ESC. The NWI data (USFWS, 2018) identifies the type of wetland or open water present at a location using the USFWS classification system (Cowardin et al., 1979). The NWI data indicated that 32 NWI features (approximately 16.5 acres) are within the ESC (Figure 2-A to 2-AU), three PEM wetland features (PEM1A, PEM1C), three palustrine scrub-shrub (PSS1/EM1A, PSS1/EM1C), three palustrine forested (PFO1C) features, five palustrine unconsolidated bottom (PUBG, PUBGx) features, and 18 riverine unconsolidated bottom (R2UBG, R5UBH) features (USFWS, 2018). The presence of an NWI feature is not a definitive indicator that a wetland or waterbody is present. The information on NWI maps is obtained largely from aerial interpretation, may be outdated, and is only sporadically field-checked. Additional detail regarding the mapped NWI wetlands within the ESC is provided in Table 3-2.

TABLE 3-2: Mapped National Wetland Inventory Features

Knox-Washington 138 kV Transmission Line Rebuild Project

Wetland Type[1]	Mapped NWI Features	Acreage within ESA
PEM1A	1	0.90
PEM1C	2	5.83
PFO1C	3	0.86
PSS1/EM1A	1	0.69
PSS1/EM1C	2	5.22
PUBG	4	1.48
PUBGx	1	0.02

R2UBG	1	0.43
R5UBH	17	1.10
Overall Total	**32**	**16.53**

[1]Cowardin et al. 1979.

As shown on the FEMA floodplain panels (Figures 2-A to 2-AU), the ESC crosses the FEMA-mapped 100-year floodplains of eight streams (FEMA, 2018):

- Unnamed tributary to Conser Run (Stream KW-11)
- Conser Run (Stream KW-14)
- Sandy Creek (Stream KW-15)
- Muddy Fork (Stream KW-17)
- Reed's Run (Stream KW-20)
- Still Fork (Stream KW-21)
- Unnamed tributary to Pipe Run (Stream KW-24)
- Pipe Run (Stream KW-27 and Stream KW-28)

3.2 Field Survey Methodology

Jacobs biologists surveyed the ESC May 1-4, 2018 and June 5, 2018, by walking the corridor and evaluating for wetlands and other waters of the U.S. The boundaries of each wetland and waterbody within the ESC were delineated and recorded using handheld global positioning system (GPS) units. For waterbodies identified within the Project area, the ordinary high-water mark (OHWM) was used as the jurisdictional boundary.

Wetland, stream, and pond data was recorded on USACE Regional Supplement wetland determination data forms, Headwater Habitat Evaluation Index (HHEI) forms and Qualitative Habitat Evaluation Index (QHEI) forms, and Jacobs standard open water/pond data forms, respectively. All other land use, habitat, and other supplemental data was collected in a field notebook during the environmental survey.

3.2.1 Wetland Delineation

Wetland boundaries were field-delineated according to Section 404 of the Clean Water Act (CWA) and the routine onsite methodology described in the Technical Report Y-87-1 *Corps of Engineers' Wetlands Delineation Manual* and subsequent guidance documents (USACE, 1987) and according to the *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Eastern Mountains and Piedmont Region (Version 2.0)* (USACE, 2012). Wetland delineation data was recorded on the USACE Regional Supplement wetland determination data forms. Representative wetland and upland data points were recorded during the wetland delineation to determine the presence/absence of wetlands and/or document upland conditions within the Project area. Upland data points were determined not to be within wetlands because they did not have positive indicators of one or more of the three wetland criteria: hydrophytic vegetation, wetland hydrology, and hydric soils.

3.2.1.1 Soils

Jacobs biologists examined soils using a shovel to extract soil cores, which were examined for hydric soil characteristics. A *Munsell Soil Color Chart* (Kollmorgen Corporation, 1988) was used to identify the hue, value, and chroma of the matrix and mottles of the soils. Generally, mottled soils with a matrix chroma of two or less, or unmottled soils with a matrix chroma of one or less are considered to exhibit hydric soil characteristics (USACE, 1987). In sandy soils, mottled soils with a matrix chroma of three or less, or unmottled soils with a matrix chroma of two or less are considered to be hydric soils.

3.2.1.2 Hydrology

The *1987 Manual* requires that an area be inundated or saturated to the surface for an absolute minimum of five percent of the growing season. Areas saturated between five percent and 12.5 percent of the growing season may or may not be wetlands, while areas saturated over 12.5 percent of the growing season fulfill the hydrology requirements for wetlands. The *Regional Supplement* states that the growing season dates are determined through onsite observations of the following indicators of biological activity in a given year; (1) above-ground growth and development of vascular plants, and/or (2) soil temperature (12-in. depth is 41 degree Fahrenheit (°F) or higher) as an indicator of soil microbial activity. Therefore, the beginning of the growing season in a given year is indicated by whichever condition occurs earlier, and the end of the growing season by whichever persists later.

The soils and ground surface were examined by Jacobs biologists for evidence of wetland hydrology in lieu of detailed hydrological data. This is an acceptable approach according to the *1987 Manual* and the *Regional Supplement*. Evidence indicating wetland hydrology typically includes primary indicators such as surface water, saturation, water marks, drift deposits, water-stained leaves, sediment deposits and oxidized rhizospheres on living roots; and secondary indicators such as, drainage patterns, geomorphic position, micro-topographic relief, and a positive Facultative (FAC)-neutral test (USACE, 2011).

3.2.1.3 Vegetation

Dominant vegetation was visually assessed for each stratum (tree, sapling/shrub, herb and woody vine) and an indicator status of obligate wetland (OBL), facultative wetland (FACW), facultative (FAC), facultative upland (FACU), and/or upland (UPL) was assigned to each plant species based on the 2016 National List of Plant Species that Occur in Wetlands: Region 1 (Region 1 encompasses the state of Ohio). An area is determined to have hydrophytic vegetation when, under normal circumstances, 50 percent or more of the composition of the dominant species are OBL, FACW and/or FAC species. Vegetation of an area was determined to be non-hydrophytic when more than 50 percent of the composition of the dominant species was FACU and/or UPL species. In addition to the dominance test, the FAC-Neutral test and prevalence tests are used to determine if a wetland has a predominance of hydrophytic vegetation.

Wetland quality was evaluated using the Ohio Environmental Protection Agency (OEPA) Ohio Rapid Assessment Method (ORAM) for Wetlands Version 5.0 (Mack 2001). Categorization was conducted in accordance with the latest quantitative score calibration (OEPA, 2000). Wetlands are scored on the basis of hydrology, upland buffer, habitat alteration, special wetland communities, and vegetation communities. Each of these subject areas is further divided into subcategories under ORAM v5.0 resulting in a score that describes the wetland using a range from 0 (low quality and high disturbance) to 100 (high quality and low disturbance). Wetlands scored from 0 to 29.9 are grouped into "Category 1", 30 to 59.9 are "Category 2" and 60 to 100 are "Category 3". Transitional zones exist between “Categories 1 and 2” from 30 to 34.9 and between “Categories 2 and 3” from 60 to 64.9. However, according to the OEPA, if the wetland score falls into the transitional range, it must be given the higher Category unless scientific data can prove it should be in a lower category (Mack, 2001).

According to recent guidance from the USEPA and USACE, wetlands that are adjacent to or have a significant nexus to TNWs are regulated under Sections 401 and 404 of the CWA (USEPA and USACE, 2008). A significant nexus must meet criteria that indicate the wetland provides biological, physical, or chemical benefits to the TNW. A significant nexus includes consideration of both hydrologic and ecologic factors. All of the streams in the ESC are tributaries to the Mahoning or Tuscarawas Rivers.

3.2.2 Stream Assessment

Jurisdictional streams were identified as those waters that possessed a continuously defined bed and bank, OHWM indicators, and lacked a dominance of upland vegetation in the channel. Per USACE guidance, the OHWM is defined as the "line on the shore established by the fluctuations of water and indicated by physical characteristics such as a clear, natural line impressed on the bank, shelving, changes in the character of soil, destruction of terrestrial vegetation, the presence of litter and debris, or other appropriate means that consider the characteristics of the surrounding areas" (USACE, 2005). Channels that parallel a roadway or railroad were identified as upland drainage features and were not considered to be jurisdictional unless they had an identifiable OHWM, were identified on the USGS topographic map, or represented a presumed relocation of a natural channel.

During the field survey, functional stream assessments were conducted using the methods described in the OEPA's Methods for Assessing Habitat in Flowing Waters: Using OEPA's *Qualitative Habitat Evaluation Index* (OEPA, 2006) and in the OEPA's Field Evaluation Manual for Ohio's Primary Headwater Habitat Streams (OEPA, 2002). The Qualitative Habitat Evaluation Index (QHEI), is used to characterize larger streams (drainage areas greater than 1 square mile), while the Primary Headwater Habitat Evaluation Index (HHEI) is appropriate for first-order and second-order headwater streams (drainage areas less than 1 square mile).

4 Field Survey Results

Jacobs biologists surveyed the ESC on May 1-4, 2018 and June 5, 2018 by walking the 100-foot wide ESC and evaluating for wetlands and other waters of the U.S. A total of 22 wetlands, 28 streams, and seven ponds were delineated within the Project ESC (Figures 3A to 3-AU). The features identified within the Project ESC are displayed and identified on the Wetlands and Waterbodies Delineation Map (Figures 3-A to 3-AH). Detailed information for wetland and waterbody features within the Project ESC is provided in Tables 4-1 (wetlands), 4 2 (streams), and 4-3 (ponds).

4.1 Wetlands

Twenty-two wetlands totaling 21.03 acres, ranging in size from 0.03 to 5.30 acres, were delineated within the ESC and are depicted in Figure 3-A to 3-AU. Of the 22 wetlands, 20 were identified as PEM wetlands, one was identified as a PEM/PSS wetland complex, and one was identified as a PEM/PSS/PFO complex.

Detailed information for each delineated wetland within the ESC is provided in Table 4-1 (follows text) and a summary of the delineated wetlands is provided in Table 4-4. The reported wetland acreage only corresponds to areas delineated within the ESC as some wetlands extended beyond the survey boundary. Completed USACE wetland and upland determination forms are provided in Appendix A. Representative photographs were taken of each wetland during the field survey and are provided in Appendix F.

TABLE 4-4: Wetland Summary Table

Knox-Washington 138 kV Transmission Line Rebuild Project

Wetland Type	ORAM Category			Number of Wetlands	Acreage within ESC
	Category 1	Category 2	Category 3		
PEM	8	12	0	20	17.15
PEM/PSS	0	1	0	1	1.09
PEM/PSS/PFO	0	1	0	1	2.79
Totals	**8**	**14**	**0**	**22**	**21.03**

4.1.1 Wetland ORAM Results

A total of eight Category 1 wetlands and 14 Category 2 wetlands were identified within the ESC. No Category 3 wetlands were identified within the ESC. Table 4-4 provides additional summary information regarding wetlands identified within the ESC. Completed ORAM forms are included in Appendix B.

Eight wetlands were classified as Category 1 wetlands based on ORAM scores ranging from 15 to 29. Generally, these wetlands scored low due to a variety of factors such as small size, intensity of surrounding land use, narrow buffer areas, disturbance to soils and hydrology, the lack of second growth vegetation, and the presence of invasive species.

Fourteen wetlands were classified as Category 2 wetlands based on ORAM scores ranging from 30 to 55. Generally, Category 2 wetlands exhibit medium upland buffers, very low to moderately high intensity surrounding land use (e.g. second growth forest, residential, fenced pasture), sparse to moderate coverage of invasive species, and have recovered or are recovering from previous manipulations such as clearcutting, shrub/sapling removal, or other disturbances.

4.2 Streams

A total of 28 streams, totaling 6,421 linear feet, were identified within the ESC as shown in Figures 3-A to 3-AU. Of the 28 streams, eight streams were identified as ephemeral streams, three were intermittent streams, and 17 were perennial streams. Twenty-one streams were assessed using the HHEI methodology (drainage area less than 1 mi^2) and seven streams were assessed using the QHEI methodology (drainage area greater than 1 mi^2). Detailed information for each delineated stream within the ESC is provided in Table 4-2 (follows text).

4.2.1 QHEI Results

Seven streams, totaling 1,243 linear feet, within the ESC were evaluated using the QHEI methodology. Of the seven QHEI streams, three were classified as Poor Warmwater, three as Fair Warmwater, and one as Good Warmwater. A summary of the QHEI results for the identified stream is provided in Table 4-5. Completed QHEI forms are included in Appendix C.

TABLE 4-5: QHEI Summary Table

Knox-Washington 138 kV Transmission Line Rebuild Project

Flow Regime	QHEI Narrative Category					Number of Streams	Length (feet) within ESA
	Very Poor Warmwater	Poor Warmwater	Fair Warmwater	Good Warmwater	Excellent Warmwater		
Perennial	0	3	3	1	0	7	1,243
Total	**0**	**3**	**3**	**1**	**0**	**7**	**1,243**

4.2.2 HHEI Results

Twenty-one headwater streams totaling 5,178 linear feet within the ESC were evaluated using the HHEI methodology. A summary of the HHEI results for streams identified within the ESC is provided in Table 4-6. Completed HHEI forms are included in Appendix D.

TABLE 4-6: HHEI Summary Table

Knox-Washington 138 kV Transmission Line Rebuild Project

Flow Regime	HHEI Class					Number of Streams	Length (feet) within ESA
	Ephemeral	Modified Ephemeral	Small Drainage Warmwater	Modified Small Drainage Warmwater	Spring Water		
Ephemeral	4	3	1	0	0	8	2,059
Intermittent	0	0	2	1	0	3	1,515
Perennial	0	0	8	1	1	10	1,604
Total	**4**	**3**	**11**	**2**	**1**	**21**	**5,178**

4.3 Ponds/Open Water

Seven ponds, totaling 1.09 acres, were identified within the ESC. Detailed information for each delineated pond within the ESC is provided in Table 4-3 (follows text). More detailed information on pond conditions can be found in Appendix E. Representative photographs of ponds can be found in Appendix F.

5 Conclusion

Jacobs conducted an environmental survey of the Knox-Washington 138 kV Transmission Line Rebuild Project on May 1-4, 2018 and June 5, 2018. A total of 22 wetlands, 28 streams, and seven ponds were delineated within the Project ESC. The 22 wetlands totaling 21.03 acres within the ESC were identified as three different wetland habitat types which included 20 PEM wetlands, one PEM/PSS wetland complex, and one PEM/PSS/PFO wetland complex. Of the 22 wetlands, eight wetlands were identified as Category 1 wetlands and fourteen wetlands were identified as Category 2 wetlands. No Category 3 wetlands were identified within the ESC.

The 28 streams, totaling 6,421 linear feet within the ESC, included eight ephemeral streams, three intermittent streams, and 17 perennial streams. Twenty-one streams were assessed using the HHEI methodology (drainage area less than 1 mi^2) and seven streams were assessed using the QHEI methodology (drainage area greater than 1 mi^2). Additionally, seven ponds were identified within the ESC that totaled 1.09 acres.

The jurisdiction of all assessed features will be determined by the USACE based on hydrologic connectivity. Further coordination with the USACE is recommended prior to the submittal of any permit or construction activities.

The results of the environmental resource survey described in this report conducted by Jacobs are limited to what was identified within the ESC and depicted in Figure 3A to 3-AU. The information contained in this wetland delineation report is for a study area that may be much larger than the actual Project limits-of-disturbance for construction; therefore, lengths and acreages listed in this report may likely not constitute the actual impacts of the Project at the time of construction. If permits are determined to be necessary, actual impacted lengths and/or acreages will be submitted in subsequent permit applications.

The aquatic resources field survey results presented within this report apply to the site conditions at the time of our assessment. Changes within the environmental survey corridor that may occur with time due to natural processes or human impacts at the project site or on adjacent properties, could invalidate the findings of this report, especially if Jacobs is unaware and has not had the opportunity to revisit the Project survey area. Additionally, changes in applicable standards and regulations may also occur as a result of legislation or the expansion of knowledge over time. Therefore, the findings of this aquatic resources report may be invalidated, wholly or in part, by changes that are beyond the control of Jacobs.

6 References

Cowardin, L. M., V. Carter, F. C. Golet, E. T. LaRoe. 1979. Classification of wetlands and deepwater habitats of the United States. U.S. Department of the Interior, Fish and Wildlife Service, Washington, D.C.

Federal Emergency Management Agency (FEMA). 2018. Flood Map Service Center. Accessed January 2018. https://msc.fema.gov/portal/search#searchresultsanchor

Kollmorgen Corporation. 1988. Munsell Soil Color Charts. Baltimore, Maryland.

Mack, John J. 2001. Ohio Rapid Assessment Method for Wetlands, Manual for Using Version 5.0. Ohio EPA Technical Bulletin Wetland/2001-1-1. Ohio Environmental Protection Agency, Division of Surface Water, 401 Wetland Ecology Unit, Columbus, Ohio.

Ohio Environmental Protection Agency (OEPA). 2000. *ORAM v. 5.0 Quantitative Score Calibration*. Columbus, Ohio.

Ohio Environmental Protection Agency (OEPA). 2002. Field Evaluation Manual for Ohio's Primary Headwater Habitat Streams. Final Version 1.0. September.

Ohio Environmental Protection Agency (OEPA). 2006. Methods for Assessing Habitat in Flowing Waters: Using the Qualitative Habitat Evaluation Index (QHEI). OHIO EPA Technical Bulletin EAS/2006-06-1.

U.S. Army Corps of Engineers (USACE). 1987. Technical Report Y-87-1, *Corps of Engineers' Wetlands Delineation Manual.*

U.S. Army Corps of Engineers (USACE). 2005. Regulatory Guidance Letter No. 05-05: Ordinary High Water Mark Identification. http://www.nap.usace.army.mil/Portals/39/docs/regulatory/rgls/rgl05-05.pdf.

U.S. Army Corps of Engineers (USACE). 2012. *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Eastern Mountain Piedmont Region (Version 2.0)*, ed. J.S. Wakeley, R.W. Lichvar, and C.V. Noble. ERDC/ED TR-10-16. Vicksburg, MS: U.S. Army Engineer Research and Development Center.

U.S. Department of Agriculture (USDA). 2018. USDA Field Office Climate Data: STEUBENVILLE, OH WETS Station, 1971-2000. Accessed April 2020. http://agacis.rcc-acis.org/?fips=39113

U.S. Department of Agriculture (USDA), Natural Resources Conservation Service (NRCS). 2018. Soil Survey Geographic (SSURGO) database for Carroll and Columbiana Counties, Ohio. http://SoilDataMart.nrcs.usda.gov/. Accessed April 2020.

U.S. Fish and Wildlife Service (USFWS). 2018. National Wetlands Inventory. http://www.fws.gov/wetlands/Wetlands-Mapper.html. Accessed April 2020.

U.S. Geological Survey (USGS). 2018. National Hydrography Dataset, Ohio. http://nhd.usgs.gov/data.html. Accessed April 2018.

Tables

TABLE 3-1: Mapped Soil Units

Knox-Washington 138 kV Transmission Line Rebuild Project

Symbol	Description	Hydric Classification	Acres
BkE	Berks channery silt loam, 25 to 35 percent slopes	Non-Hydric	0.16
BtA	Bogart silt loam, 0 to 2 percent slopes	Non-Hydric	0.77
BtB	Bogart silt loam, 2 to 6 percent slopes	Non-Hydric	0.21
CcB	Canfield silt loam, 2 to 6 percent slopes	Non-Hydric	11.38
CcC	Canfield silt loam, 6 to 12 percent slopes	Non-Hydric	2.56
CcD	Canfield silt loam, 12 to 20 percent slopes	Non-Hydric	1.71
CcE	Canfield silt loam, 20 to 35 percent slopes	Non-Hydric	2.79
ChB	Chili silt loam, 2 to 6 percent slopes	Non-Hydric	0.04
CoB	Coshocton-Keene silt loams, 3 to 8 percent slopes	Non-Hydric	11.38
CuB	Culleoka silt loam, 3 to 8 percent slopes	Non-Hydric	4.99
FcA	Fitchville silt loam, 0 to 3 percent slopes	Predominantly Non-Hydric	1.35
FcB	Fitchville silt loam, 3 to 8 percent slopes	Predominantly Non-Hydric	0.56
FdA	Fitchville silt loam, 0 to 2 percent slopes	Predominantly Non-Hydric	3.77
FeA	Fluvaquents, silty, 0 to 1 percent slopes, frequently flooded	Hydric	0.63
FnC2	Fredericktown gravelly loam, 6 to 15 percent slopes, eroded	Non-Hydric	3.40
FoB	Fredericktown silt loam, 2 to 6 percent slopes	Non-Hydric	2.90
GeB	Glenford silt loam, 2 to 6 percent slopes	Predominantly Non-Hydric	1.20
GfB	Glenford silt loam, 3 to 8 percent slopes	Predominantly Non-Hydric	6.11
GnD	Gilpin silt loam, 15 to 25 percent slopes	Non-Hydric	0.61
GuC2	Guernsey silty clay loam, 8 to 15 percent slopes, eroded	Non-Hydric	0.59
HaD	Hazleton channery loam, 15 to 25 percent slopes	Non-Hydric	6.18
HaE	Hazleton channery loam, 25 to 35 percent slopes	Non-Hydric	1.60
HeB	Hazleton channery loam, 3 to 8 percent slopes	Non-Hydric	0.72
HeB	Hazleton loam, 3 to 8 percent slopes	Non-Hydric	2.97
HeC	Hazleton loam, 8 to 15 percent slopes	Non-Hydric	7.27
HeD	Hazleton loam, 15 to 25 percent slopes	Non-Hydric	4.25
HeE	Hazleton loam, 25 to 40 percent slopes	Non-Hydric	7.44
HgF	Hazleton-Westmoreland channery loams, 40 to 70 percent slopes	Non-Hydric	2.12
HlB	Homewood silt loam, 2 to 6 percent slopes	Non-Hydric	0.58
HzC	Hazleton channery loam, 6 to 15 percent slopes	Non-Hydric	0.13
JwB	Jimtown silt loam, 2 to 6 percent slopes	Predominantly Non-Hydric	0.36
KnC	Kensington silt loam, 6 to 15 percent slopes	Non-Hydric	6.80
KnD	Kensington silt loam, 15 to 25 percent slopes	Non-Hydric	5.56
ReB	Ravenna silt loam, 2 to 6 percent slopes	Predominantly Non-Hydric	0.78
RsB	Rittman silt loam, 2 to 6 percent slopes	Non-Hydric	0.39
RsC	Rittman silt loam, 6 to 12 percent slopes	Non-Hydric	1.07
RsD2	Rittman silt loam, 12 to 20 percent slopes, eroded	Non-Hydric	1.94
Sb	Sebring silt loam	Predominantly Hydric	16.76
TeC2	Teegarden silt loam, 6 to 15 percent slopes, eroded	Non-Hydric	2.42
Uc	Udorthents-Pits complex, 0 to 70 percent slopes	Non-Hydric	0.01
WhB	Wellston silt loam, 3 to 8 percent slopes	Non-Hydric	0.06
WkC	Westmoreland silt loam, 8 to 15 percent slopes	Non-Hydric	4.02
WkD	Westmoreland silt loam, 15 to 25 percent slopes	Non-Hydric	10.05
WkE	Westmoreland silt loam, 25 to 35 percent slopes	Non-Hydric	2.20
WmC	Westmoreland-Coshocton silt loams, 8 to 15 percent slopes	Non-Hydric	9.98
WmD	Westmoreland-Coshocton silt loams, 15 to 25 percent slopes	Non-Hydric	4.60
WoA	Wick silt loam, 0 to 2 percent slopes, frequently flooded	Predominantly Hydric	4.31
ZeA	Zepernick silt loam, 0 to 2 percent slopes, occasionally flooded	Predominantly Non-Hydric	5.05

Table 4-1: Detailed Delineated Wetland Table
Knox-Washington 138 kV Transmission Line Rebuild Project

Wetland ID	Location		Wetland Type[1]	Area (ac)[2]	ORAM Score, Category
	Latitude	Longitude			
Wetland KW-01	40.80809	-81.04120	PEM	0.88	46, Category 2
Wetland KW-02	40.80416	-81.04160	PEM	0.18	38, Category 2
Wetland KW-03	40.80043	-81.04156	PEM	0.04	30, Category 2
Wetland KW-04	40.78208	-81.04159	PEM	0.30	41, Category 2
Wetland KW-05	40.77915	-81.04161	PEM	0.05	37, Category 2
Wetland KW-06E	40.77609	-81.04160	PEM	1.02	44.5, Category 2
Wetland KW-06S	40.77521	-81.04145	PSS	0.07	44.5, Category 2
Wetland KW-07	40.77182	-81.04159	PEM	3.78	41, Category 2
Wetland KW-08	40.76780	-81.04161	PEM	0.48	29, Category 1
Wetland KW-09	40.75137	-81.04214	PEM	0.68	23, Category 1
Wetland KW-10	40.74943	-81.04226	PEM	0.13	15, Category 1
Wetland KW-11	40.74736	-81.04229	PEM	0.08	21.5, Category 1
Wetland KW-12	40.70451	-81.03875	PEM	1.08	39, Category 2
Wetland KW-13	40.70326	-81.03879	PEM	0.74	41, Category 2
Wetland KW-14	40.67272	-81.04048	PEM	1.00	33, Category 2
Wetland KW-15E	40.66545	-81.03870	PEM	2.63	40, Category 2
Wetland KW-15F	40.66541	-81.04065	PFO	0.08	40, Category 2
Wetland KW-15S	40.66597	-81.03994	PSS	0.08	40, Category 2
Wetland KW-16	40.65254	-81.04136	PEM	0.41	21, Category 1
Wetland KW-17	40.64881	-81.04131	PEM	0.31	33, Category 2
Wetland KW-18	40.64760	-81.04122	PEM	0.03	24, Category 1
Wetland KW-19	40.64526	-81.04149	PEM	0.45	29, Category 1
Wetland KW-20	40.64392	-81.04156	PEM	0.56	34, Category 2
Wetland KW-21	40.63211	-81.04215	PEM	0.69	29, Category 1
Wetland KW-22	40.62900	-81.04232	PEM	5.30	55, Category 2
TOTAL: 22		**WETLAND ACREAGE SUBTOTAL**		**21.03**	

[1]Cowardin et al. 1979.

[2]This acreage only corresponds to the area delineated within the environmental survey corridor.

TABLE 4-2: Detailed Delineated Stream Table

Knox-Washington 138 kV Transmission Line Rebuild Project

Stream ID	Location		Flow Regime[1]	Linear Feet[2]	Average OHWM Width (Feet)	Average TOB Width (Feet)	HHEI/QHEI Score	Class/Designation
	Latitude	Longitude						
Stream KW-01	40.80777	-81.03765	Ephemeral	563	1	2	26	Ephemeral
Stream KW-02	40.80779	-81.03860	Perennial	203	3	5	51	Spring Water
Stream KW-03	40.80836	-81.04138	Perennial	155	2	6	36	Small Drainage Warmwater
Stream KW-04	40.79230	-81.04164	Ephemeral	532	3	4	26	Ephemeral
Stream KW-05	40.79163	-81.04155	Ephemeral	139	3	5	35	Small Drainage Warmwater
Stream KW-06	40.78750	-81.04148	Perennial	168	3	5	54	Small Drainage Warmwater
Stream KW-07	40.78721	-81.04156	Ephemeral	109	1.5	3	21	Modified Ephemeral
Stream KW-08	40.78690	-81.04157	Ephemeral	96	2	3	21	Modified Ephemeral
Stream KW-09	40.78171	-81.04158	Perennial	167	2.5	4	41	Small Drainage Warmwater
Stream KW-10	40.77898	-81.04160	Perennial	138	1.5	2	17	Small Drainage Warmwater
Stream KW-11	40.77469	-81.04160	Intermittent	104	1.5	2	45	Modified Small Drainage Warmwater
Stream KW-12	40.76922	-81.04166	Perennial	233	1.5	2	49	Small Drainage Warmwater
Stream KW-13	40.75235	-81.04188	Intermittent	880	6	8	41	Modified Small Drainage Warmwater
Stream KW-14	40.74954	-81.04226	Perennial	128	15	20	47.25	Fair Warmwater
Stream KW-15	40.74762	-81.04232	Perennial	110	10	15	46.75	Fair Warmwater
Stream KW-16	40.72501	-81.04160	Perennial	130	3	4	56	Modified Small Drainage Warmwater
Stream KW-17	40.70370	-81.03879	Perennial	151	15	25	41.5	Poor Warmwater
Stream KW-18	40.69156	-81.03910	Perennial	106	3.5	6	66	Small Drainage Warmwater
Stream KW-19	40.68734	-81.03945	Perennial	171	2	5	42	Small Drainage Warmwater
Stream KW-20	40.67248	-81.04050	Perennial	103	15	18	41.5	Poor Warmwater
Stream KW-21	40.66482	-81.04108	Perennial	333	15	20	49	Fair Warmwater
Stream KW-22	40.65326	-81.04135	Ephemeral	161	2	5	25	Modified Ephemeral
Stream KW-23	40.64797	-81.04123	Ephemeral	361	1	2	22	Ephemeral
Stream KW-24	40.64553	-81.04142	Perennial	131	2.5	4	47	Small Drainage Warmwater
Stream KW-25	40.64467	-81.04139	Intermittent	532	2	3	42	Small Drainage Warmwater
Stream KW-26	40.63736	-81.04189	Ephemeral	99	2	4.5	43	Small Drainage Warmwater
Stream KW-27	40.62852	-81.04220	Perennial	186	15	15	62.25	Good Warmwater
Stream KW-28	40.62541	-81.04245	Perennial	232	15	15	39.25	Poor Warmwater
TOTAL: 28		**CUMULATIVE STREAM LENGTH**		**6,421**				

[1] Flow regime is defined as perennial, intermittent, or ephemeral. This determination was interpreted using field observations and USGS topographic maps as appropriate.

[2]Stream length within the environmental survey area.

TABLE 4-3: Detailed Delineated Pond Table
Knox-Washington 138 kV Transmission Line Rebuild Project

Pond ID	Location		Area (ac)[1]
	Latitude	Longitude	
Pond KW-01	40.76341	-81.04168	0.17
Pond KW-02	40.75327	-81.04195	0.01
Pond KW-03	40.72582	-81.04170	0.09
Pond KW-04	40.72524	-81.04177	0.22
Pond KW-05	40.72478	-81.04171	0.06
Pond KW-06	40.68107	-81.03969	0.01
Pond KW-07	40.63139	-81.04219	0.53
TOTAL: 7		**CUMULATIVE POND AREA**	**1.09**

[1]This acreage only corresponds to the area delineated within the environmental survey corridor.

Figures

LEGEND:

- Substation
- Phase 1: Knox - Washington (13.1 miles)
- County Boundary

Locator Map

BASE MAP SOURCE:
ESRI USA Topo Map
Carrolton, Homeworth and,
Minerva Quadrangles

0 3,100 6,200 12,400

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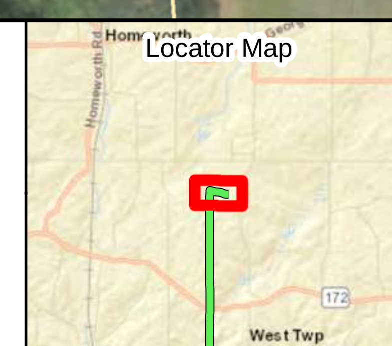
FIGURE 1
OVERVIEW MAP

PN: 699212	Date: 5/14/2020
CREATED BY: RED	Jacobs
REVIEWED BY: BAO	

LEGEND:

- Proposed Structure
- Substation
- Phase 1: Knox - Washington (13.1 miles)
- Environmental Survey Corridor
- Stream (NHD)
- Soil Unit
- Wetland (NWI)
- Floodplain

Locator Map



BASE MAP SOURCE:
ESRI World Imagery

SOIL UNIT - US Department of Agriculture, Natural Resources Conservation Service

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0 100 200 400

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FIGURE 2-A
SOILS, NHD, NWI, FEMA MAP

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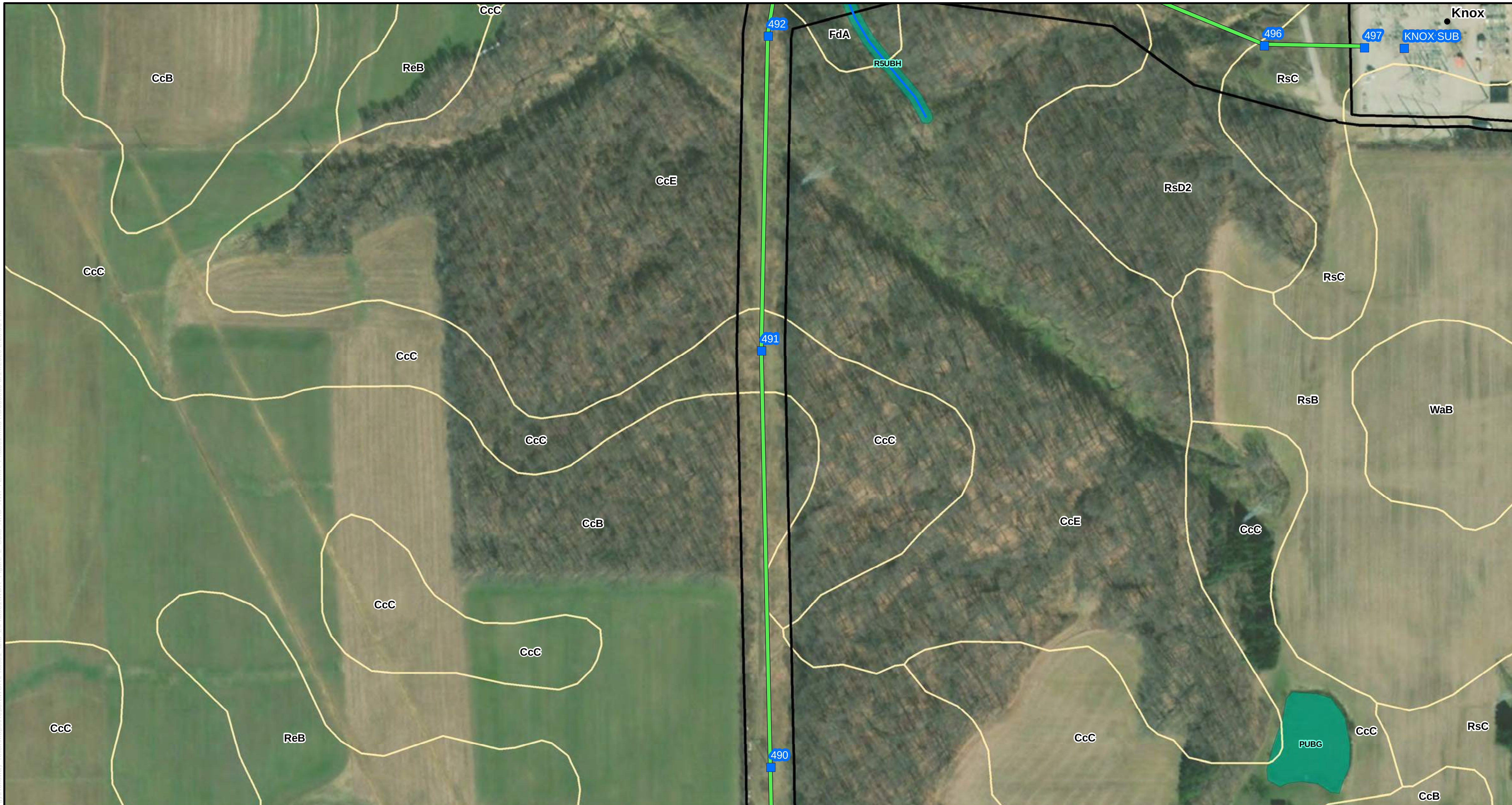

LEGEND:

- Proposed Structure
- Substation
- Phase 1: Knox - Washington (13.1 miles)
- Environmental Survey Corridor
- Stream (NHD)
- Soil Unit
- Wetland (NWI)
- Floodplain

BASE MAP SOURCE:
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FIGURE 2-B
SOILS, NHD, NWI, FEMA MAP

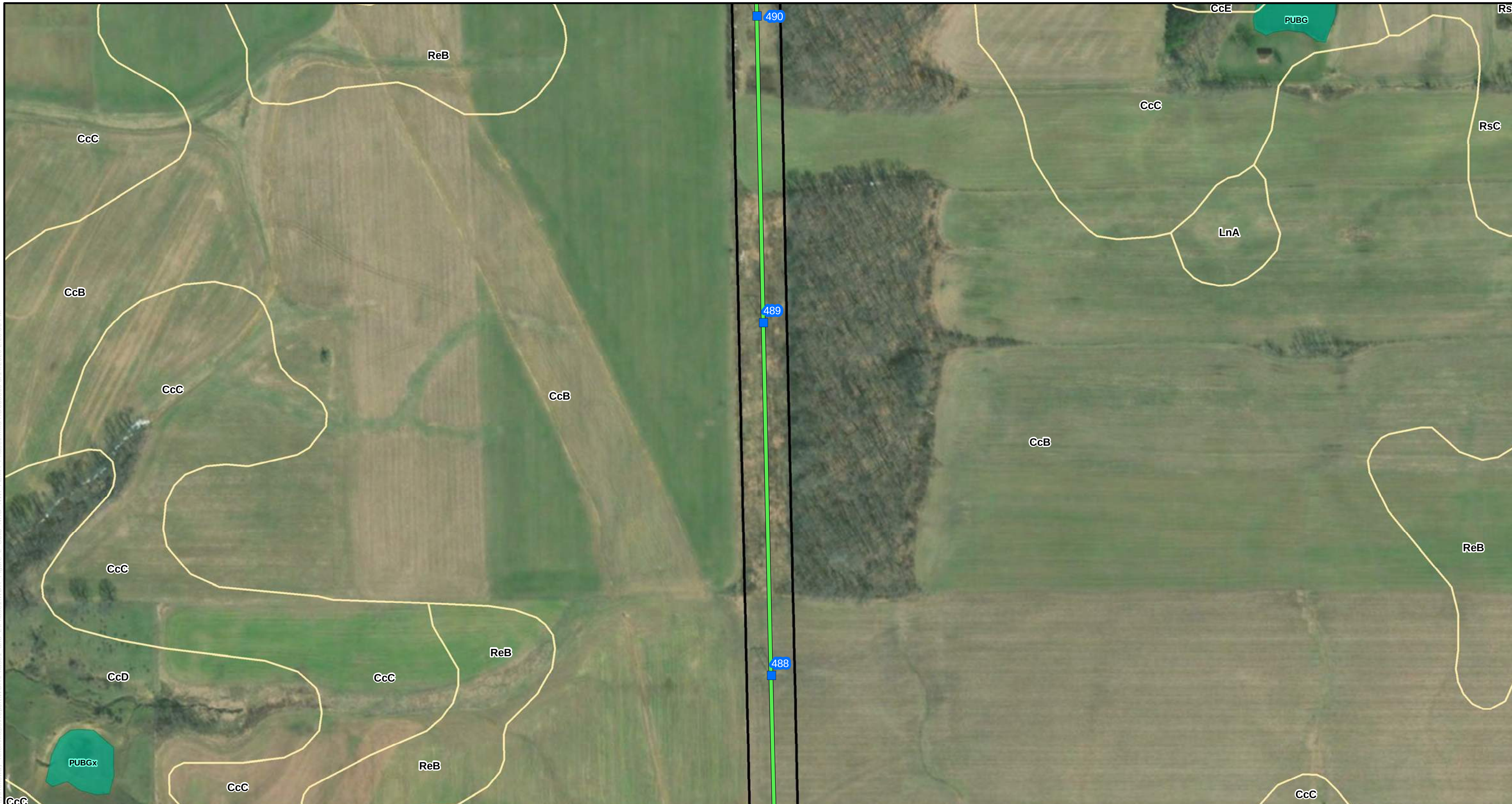
PN: 699212

Date: 5/14/2020

CREATED BY: RED

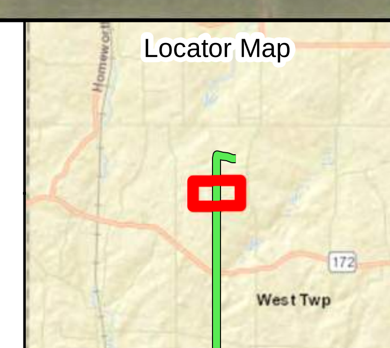
REVIEWED BY: BAO

Jacobs



LEGEND:

- Proposed Structure
- Substation
- Phase 1: Knox - Washington (13.1 miles)
- Environmental Survey Corridor
- Stream (NHD)
- Soil Unit
- Wetland (NWI)
- Floodplain



BASE MAP SOURCE:
ESRI World Imagery

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FIGURE 2-C
SOILS, NHD, NWI, FEMA MAP

PN: 699212 | Date: 5/14/2020
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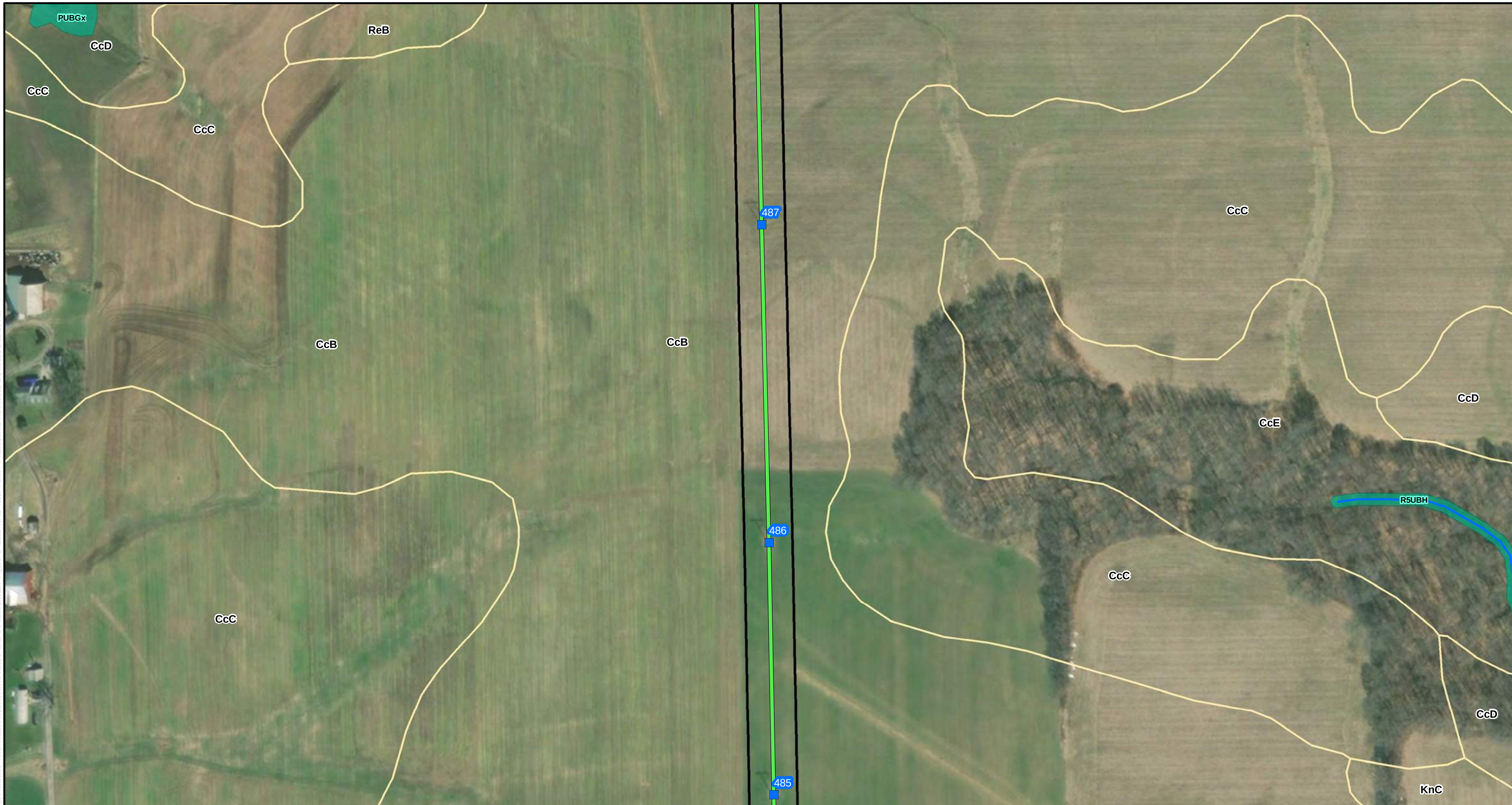
REVIEWED BY: BAO

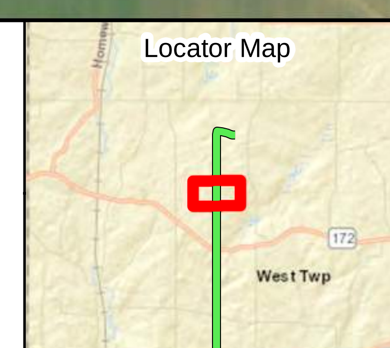
Jacobs



LEGEND:

- Proposed Structure
- Substation
- Phase 1: Knox - Washington (13.1 miles)
- Environmental Survey Corridor
- Stream (NHD)
- Soil Unit
- Wetland (NWI)
- Floodplain

Locator Map



BASE MAP SOURCE:
ESRI World Imagery

SOIL UNIT - US Department of Agriculture, Natural Resources Conservation Service

0 100 200 400
FEET

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FIGURE 2-D
SOILS, NHD, NWI, FEMA MAP

PN: 699212
Date: 5/14/2020
CREATED BY: RED
REVIEWED BY: BAO

Jacobs

LEGEND:

- Proposed Structure
- Substation
- Phase 1: Knox - Washington (13.1 miles)
- Environmental Survey Corridor
- Stream (NHD)
- Soil Unit
- Wetland (NWI)
- Floodplain

Locator Map

BASE MAP SOURCE:
ESRI World Imagery

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FIGURE 2-E
SOILS, NHD, NWI, FEMA MAP

PN: 699212	Date: 5/14/2020
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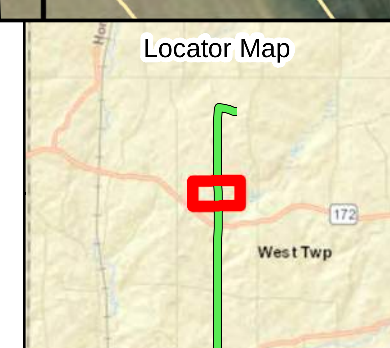
REVIEWED BY: BAO	

LEGEND:

- Proposed Structure
- Substation
- Phase 1: Knox - Washington (13.1 miles)
- Environmental Survey Corridor
- Stream (NHD)
- Soil Unit
- Wetland (NWI)
- Floodplain

Locator Map



BASE MAP SOURCE:
ESRI World Imagery

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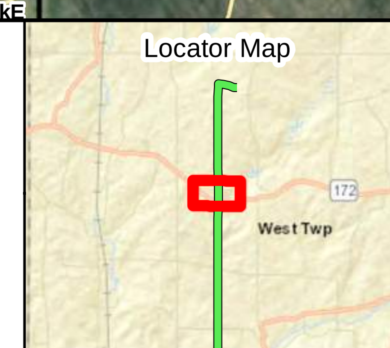
FIGURE 2-F
SOILS, NHD, NWI, FEMA MAP

PN: 699212
Date: 5/14/2020
CREATED BY: RED
REVIEWED BY: BAO

Jacobs

LEGEND:

- Proposed Structure
- Substation
- Phase 1: Knox - Washington (13.1 miles)
- Environmental Survey Corridor
- Stream (NHD)
- Soil Unit
- Wetland (NWI)
- Floodplain



BASE MAP SOURCE:
ESRI World Imagery

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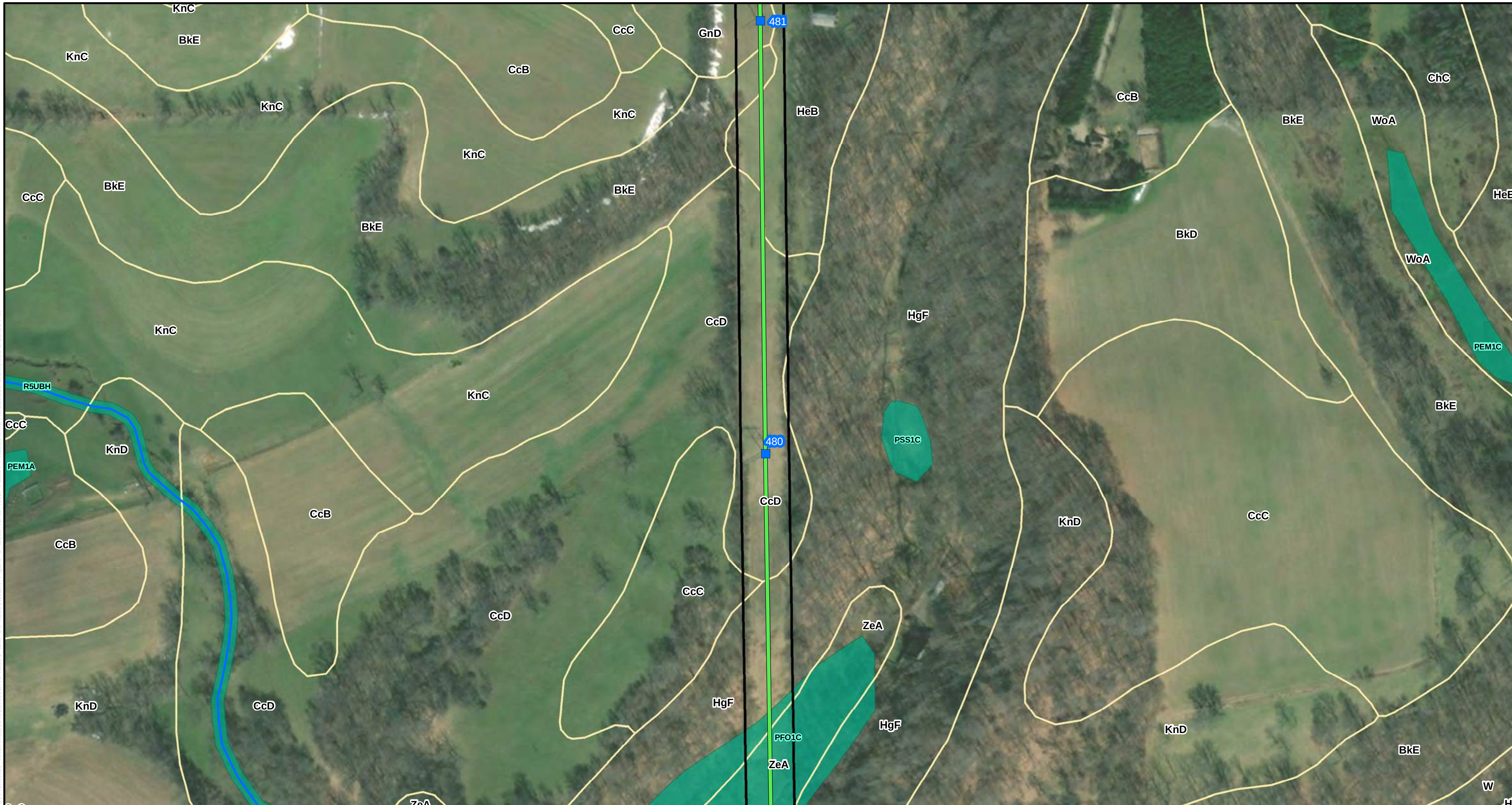
FIGURE 2-G
SOILS, NHD, NWI, FEMA MAP

PN: 699212	Date: 5/14/2020
CREATED BY: RED	Jacobs
REVIEWED BY: BAO	



LEGEND:

- Proposed Structure
- Substation
- Phase 1: Knox - Washington (13.1 miles)
- Environmental Survey Corridor
- Stream (NHD)
- Soil Unit
- Wetland (NWI)
- Floodplain

Locator Map

BASE MAP SOURCE:
ESRI World Imagery

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FIGURE 2-H
SOILS, NHD, NWI, FEMA MAP

PN: 699212	Date: 5/14/2020
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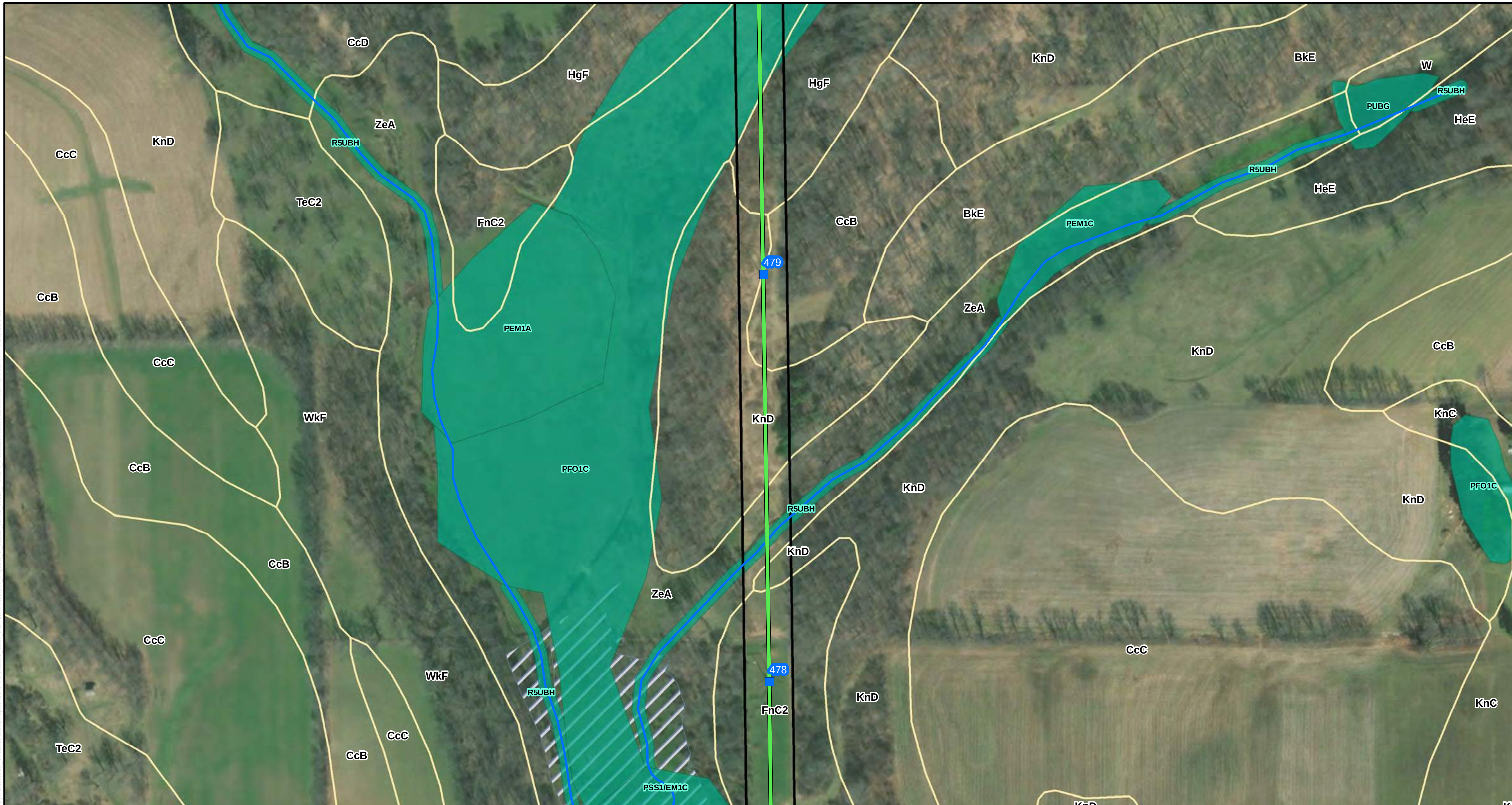
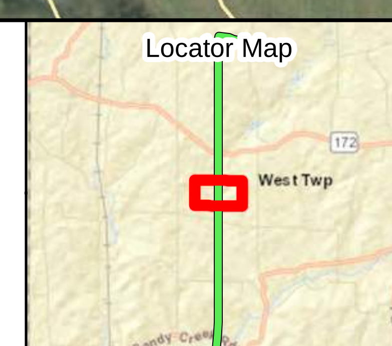
REVIEWED BY: BAO	



LEGEND:

- Proposed Structure
- Substation
- Phase 1: Knox - Washington (13.1 miles)
- Environmental Survey Corridor
- Stream (NHD)
- Soil Unit
- Wetland (NWI)
- Floodplain

Locator Map



BASE MAP SOURCE:
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Knox-Washington 138 kV Transmission Line Rebuild Project

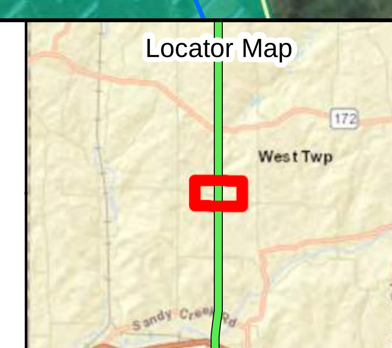
FIGURE 2-I
SOILS, NHD, NWI, FEMA MAP

PN: 699212	Date: 5/14/2020
CREATED BY: RED	Jacobs
REVIEWED BY: BAO	

LEGEND:

- Proposed Structure
- Substation
- Phase 1: Knox - Washington (13.1 miles)
- Environmental Survey Corridor
- Stream (NHD)
- Soil Unit
- Wetland (NWI)
- Floodplain

Locator Map



BASE MAP SOURCE:
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0 100 200 400

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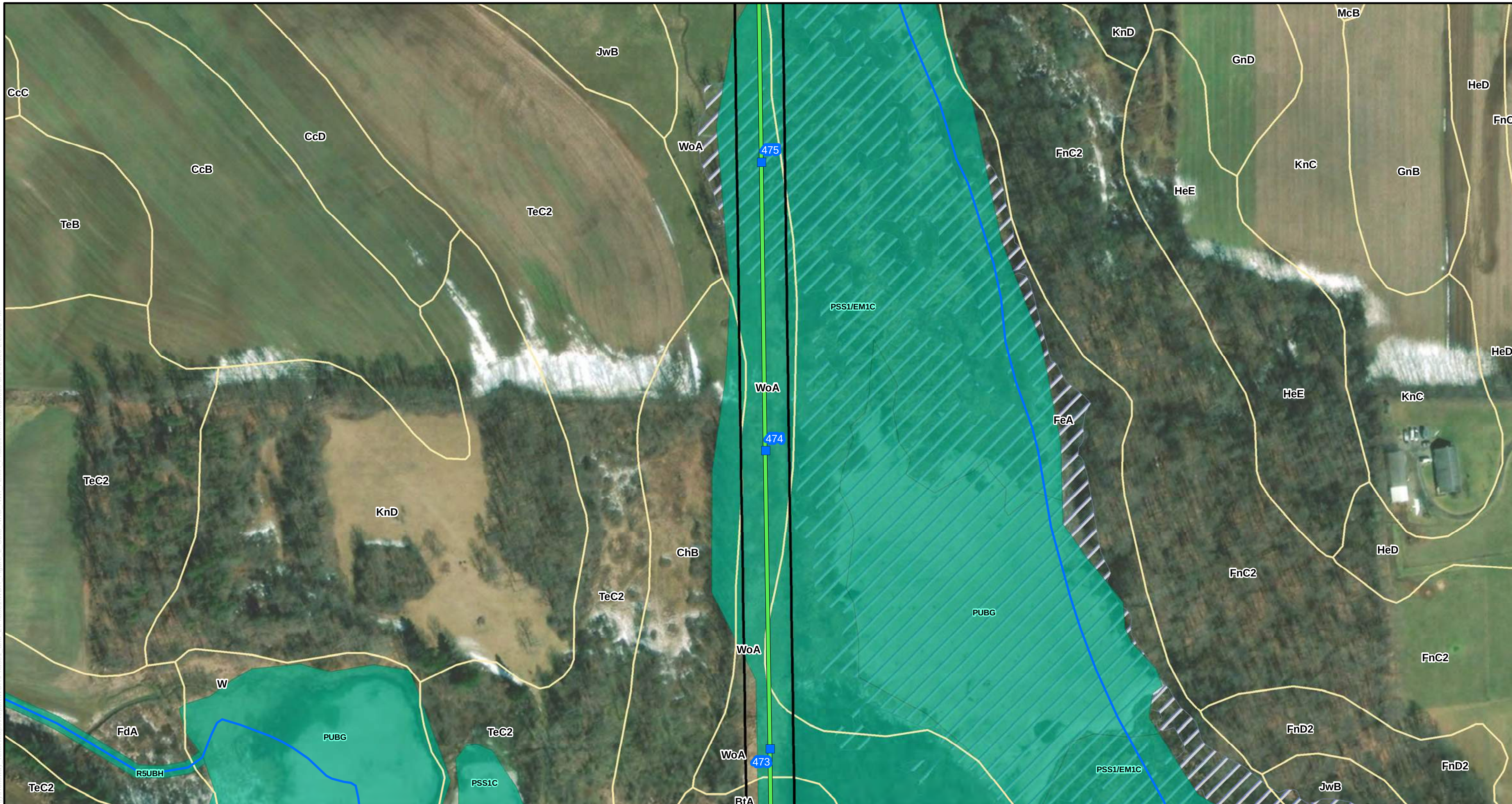
Knox-Washington 138 kV Transmission Line Rebuild Project

FIGURE 2-J
SOILS, NHD, NWI, FEMA MAP

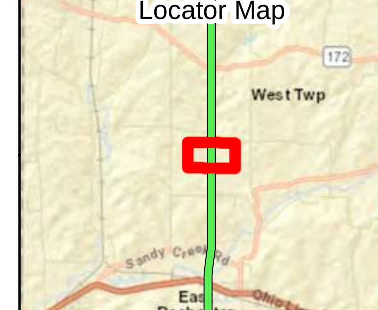
PN: 699212	Date: 5/14/2020
CREATED BY: RED	Jacobs
REVIEWED BY: BAO	



LEGEND:

- Proposed Structure
- Substation
- Phase 1: Knox - Washington (13.1 miles)
- Environmental Survey Corridor
- Stream (NHD)
- Soil Unit
- Wetland (NWI)
- Floodplain

Locator Map



BASE MAP SOURCE:
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N

0 100 200 400
FEET

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Knox-Washington 138 kV Transmission Line Rebuild Project

FIGURE 2-K
SOILS, NHD, NWI, FEMA MAP

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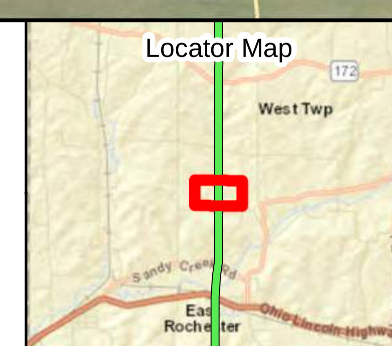
LEGEND:

- Proposed Structure
- Substation
- Phase 1: Knox - Washington (13.1 miles)
- Environmental Survey Corridor
- Stream (NHD)
- Soil Unit
- Wetland (NWI)
- Floodplain



BASE MAP SOURCE:
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FEET

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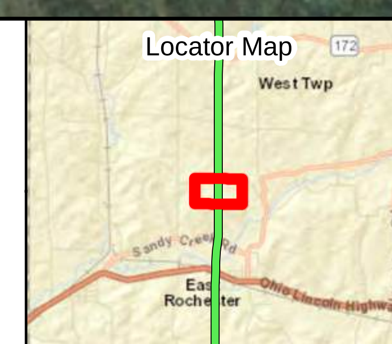
FIGURE 2-L
SOILS, NHD, NWI, FEMA MAP

PN: 699212	Date: 5/14/2020
CREATED BY: RED	Jacobs
REVIEWED BY: BAO	

LEGEND:

- Proposed Structure
- Substation
- Phase 1: Knox - Washington (13.1 miles)
- Environmental Survey Corridor
- Stream (NHD)
- Soil Unit
- Wetland (NWI)
- Floodplain



BASE MAP SOURCE:
ESRI World Imagery

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N

0 100 200 400
FEET

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Knox-Washington 138 kV Transmission Line Rebuild Project

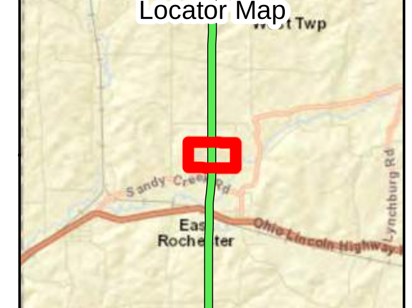
FIGURE 2-M
SOILS, NHD, NWI, FEMA MAP

PN: 699212	Date: 5/14/2020
CREATED BY: RED	Jacobs
REVIEWED BY: BAO	

LEGEND:

- Proposed Structure
- Substation
- Phase 1: Knox - Washington (13.1 miles)
- Environmental Survey Corridor
- Stream (NHD)
- Soil Unit
- Wetland (NWI)
- Floodplain

Locator Map



BASE MAP SOURCE:
ESRI World Imagery

SOIL UNIT - US Department of Agriculture, Natural Resources Conservation Service

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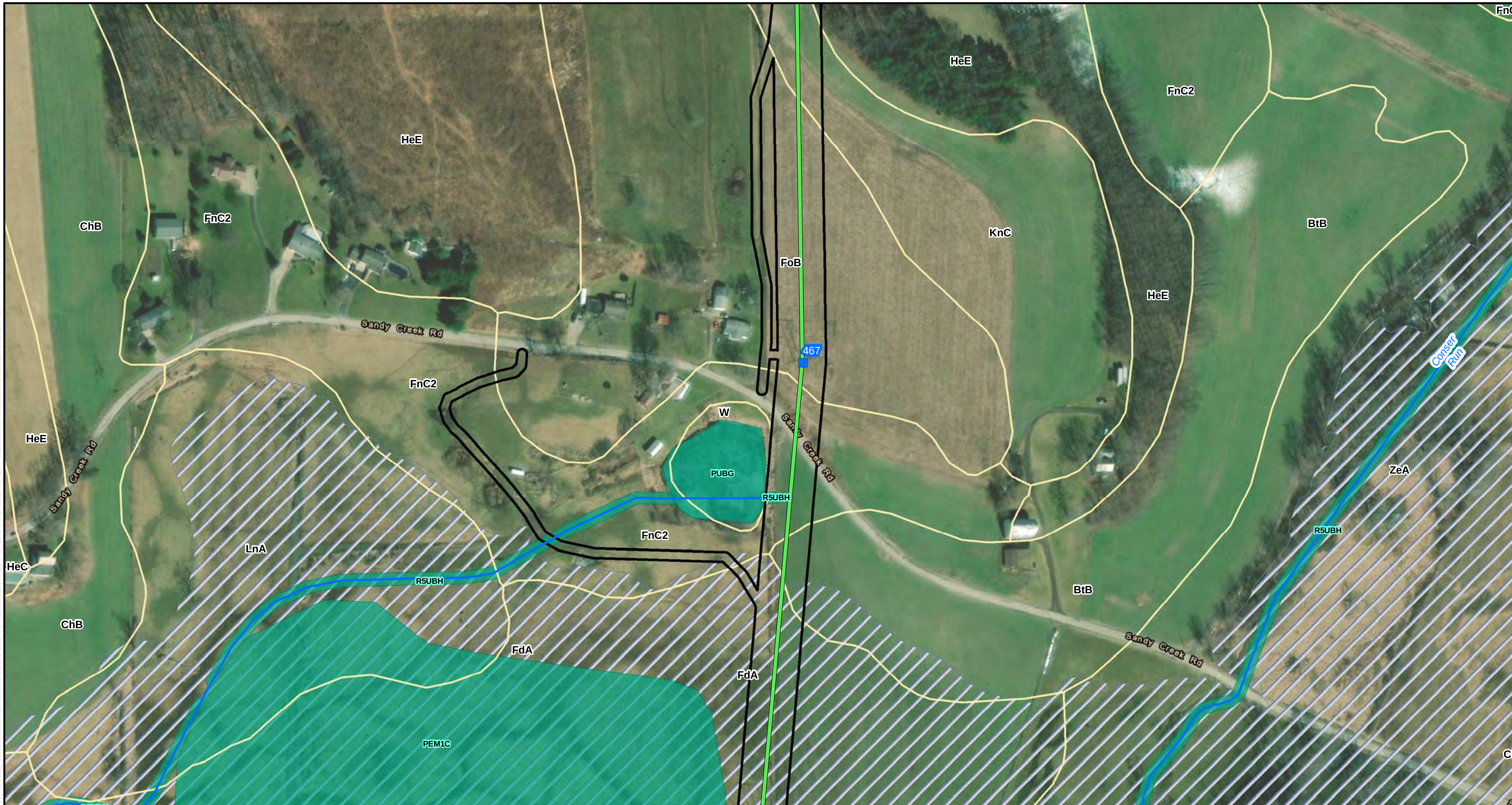
FEET

ATSI American Transmission Systems, Inc

Knox-Washington 138 kV Transmission Line Rebuild Project

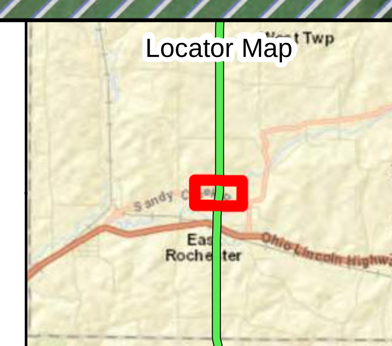
FIGURE 2-N
SOILS, NHD, NWI, FEMA MAP

PN: 699212	Date: 5/14/2020
CREATED BY: RED	Jacobs
REVIEWED BY: BAO	



LEGEND:

- Proposed Structure
- Substation
- Phase 1: Knox - Washington (13.1 miles)
- Environmental Survey Corridor
- Stream (NHD)
- Soil Unit
- Wetland (NWI)
- Floodplain



BASE MAP SOURCE:
ESRI World Imagery

SOIL UNIT - US Department of Agriculture, Natural Resources Conservation Service

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Knox-Washington 138 kV Transmission Line Rebuild Project

FIGURE 2-O
SOILS, NHD, NWI, FEMA MAP

PN: 699212	Date: 5/14/2020
CREATED BY: RED	Jacobs
REVIEWED BY: BAO	

LEGEND:

- Proposed Structure
- Substation
- Phase 1: Knox - Washington (13.1 miles)
- Environmental Survey Corridor
- Stream (NHD)
- Soil Unit
- Wetland (NWI)
- Floodplain

Locator Map

BASE MAP SOURCE:
ESRI World Imagery

SOIL UNIT - US Department of Agriculture, Natural Resources Conservation Service

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Knox-Washington 138 kV Transmission Line Rebuild Project

FIGURE 2-P
SOILS, NHD, NWI, FEMA MAP

PN: 699212	Date: 5/14/2020
CREATED BY: RED	Jacobs
REVIEWED BY: BAO	

LEGEND:

- Proposed Structure
- Substation
- Phase 1: Knox - Washington (13.1 miles)
- Environmental Survey Corridor
- Stream (NHD)
- Soil Unit
- Wetland (NWI)
- Floodplain

Locator Map

BASE MAP SOURCE:
ESRI World Imagery

SOIL UNIT - US Department of Agriculture, Natural Resources Conservation Service

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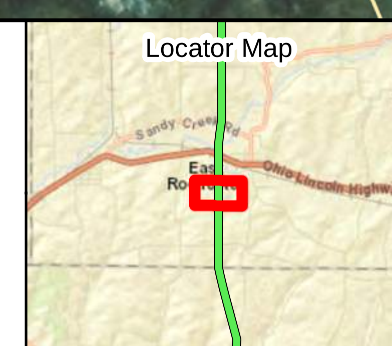
Knox-Washington 138 kV Transmission Line Rebuild Project

FIGURE 2-Q
SOILS, NHD, NWI, FEMA MAP

PN: 699212	Date: 5/14/2020
CREATED BY: RED	Jacobs
REVIEWED BY: BAO	



LEGEND:

- Proposed Structure
- Substation
- Phase 1: Knox - Washington (13.1 miles)
- Environmental Survey Corridor
- Stream (NHD)
- Soil Unit
- Wetland (NWI)
- Floodplain

BASE MAP SOURCE:
ESRI World Imagery

SOIL UNIT - US Department of Agriculture, Natural Resources Conservation Service

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Knox-Washington 138 kV Transmission Line Rebuild Project

FIGURE 2-R
SOILS, NHD, NWI, FEMA MAP

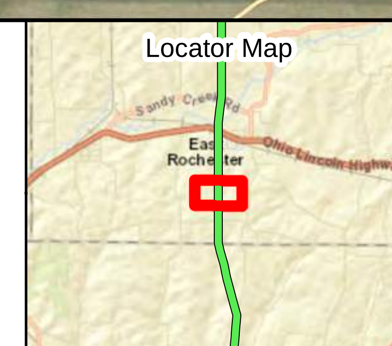
PN: 699212
Date: 5/14/2020
CREATED BY: RED
REVIEWED BY: BAO

Jacobs

LEGEND:

- Proposed Structure
- Substation
- Phase 1: Knox - Washington (13.1 miles)
- Environmental Survey Corridor
- Stream (NHD)
- Soil Unit
- Wetland (NWI)
- Floodplain

Locator Map



BASE MAP SOURCE:
ESRI World Imagery

SOIL UNIT - US Department of Agriculture, Natural Resources Conservation Service

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FEET

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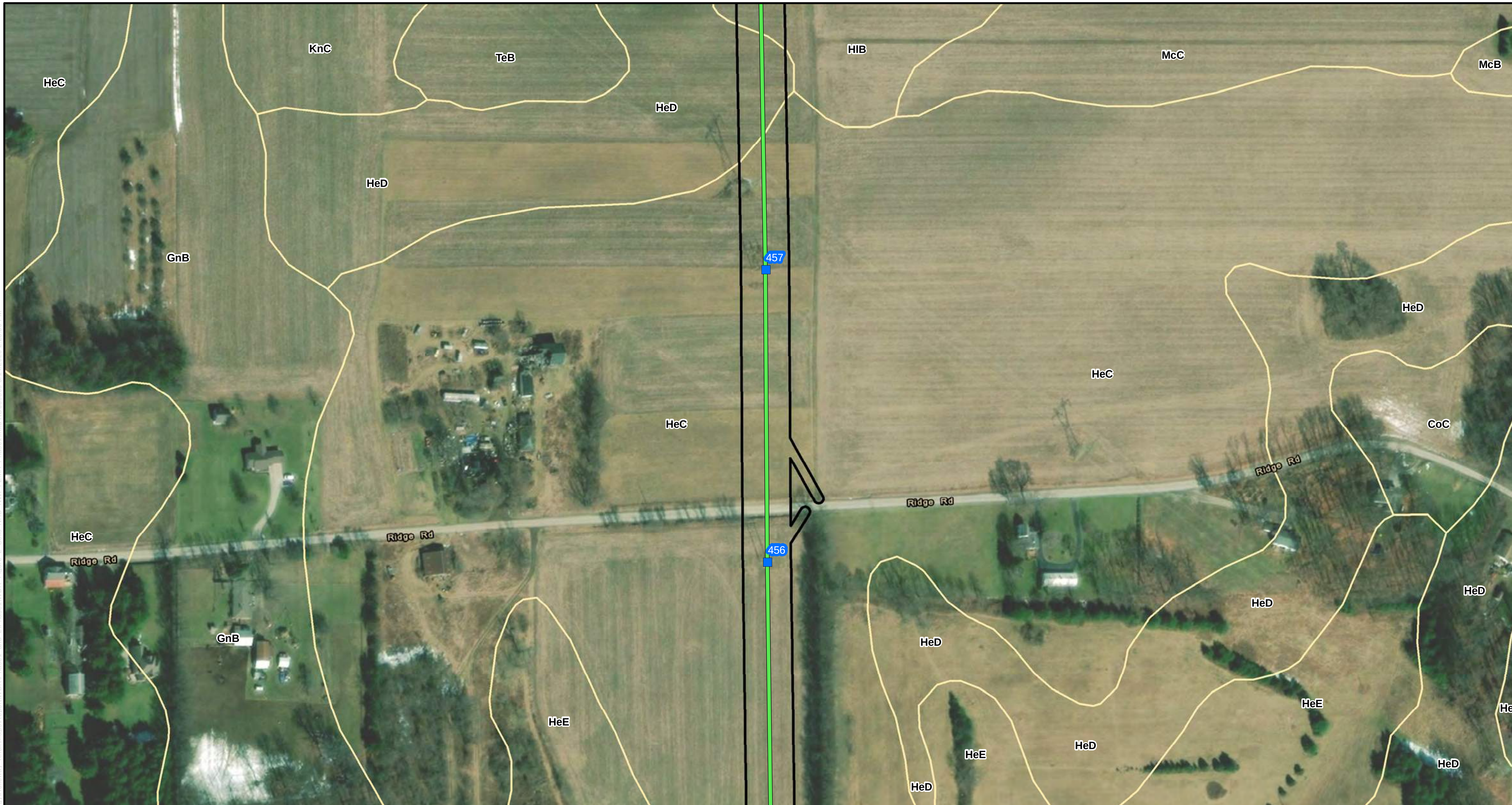
Knox-Washington 138 kV Transmission Line Rebuild Project

FIGURE 2-S
SOILS, NHD, NWI, FEMA MAP

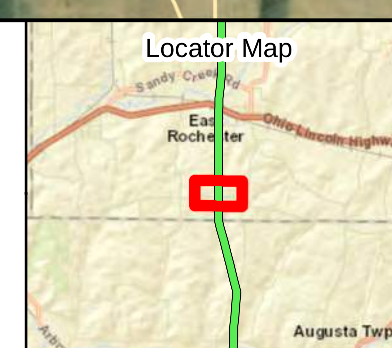
PN: 699212	Date: 5/14/2020
CREATED BY: RED	Jacobs
REVIEWED BY: BAO	



LEGEND:

- Proposed Structure
- Substation
- Phase 1: Knox - Washington (13.1 miles)
- Environmental Survey Corridor
- Stream (NHD)
- Soil Unit
- Wetland (NWI)
- Floodplain

Locator Map



BASE MAP SOURCE:
ESRI World Imagery

SOIL UNIT - US Department of Agriculture, Natural Resources Conservation Service

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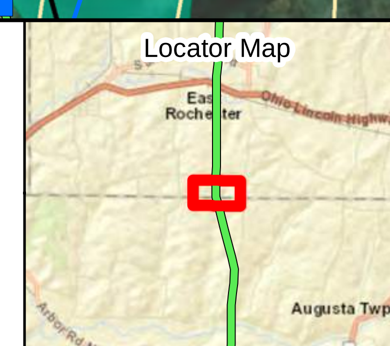
Knox-Washington 138 kV Transmission Line Rebuild Project

FIGURE 2-T
SOILS, NHD, NWI, FEMA MAP

PN: 699212	Date: 5/14/2020
CREATED BY: RED	Jacobs
REVIEWED BY: BAO	

LEGEND:

- Proposed Structure
- Substation
- Phase 1: Knox - Washington (13.1 miles)
- Environmental Survey Corridor
- Stream (NHD)
- Soil Unit
- Wetland (NWI)
- Floodplain



BASE MAP SOURCE:
ESRI World Imagery

SOIL UNIT - US Department of Agriculture, Natural Resources Conservation Service

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FEET

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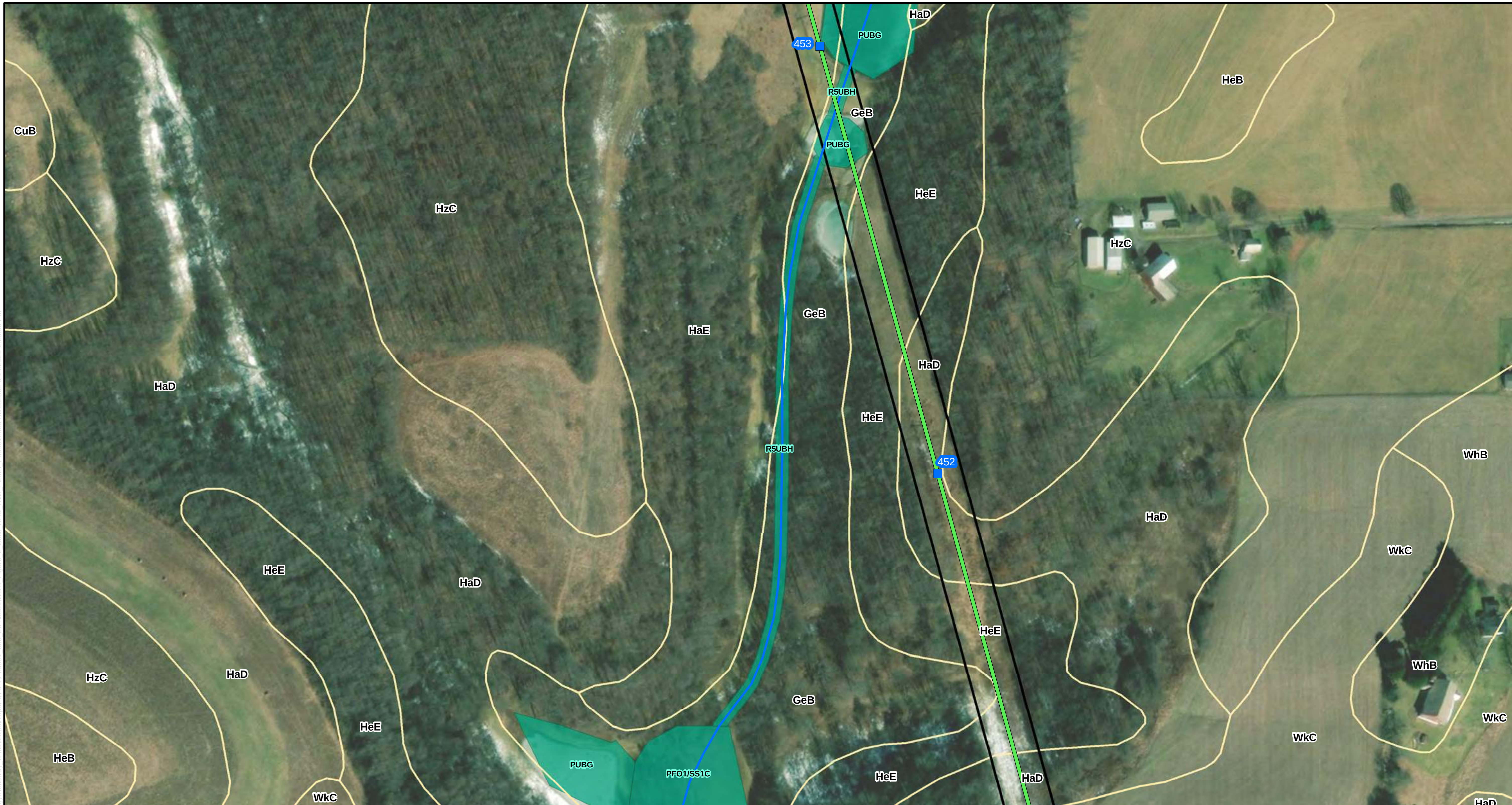
ATSI American Transmission Systems, Inc.

Knox-Washington 138 kV Transmission Line Rebuild Project

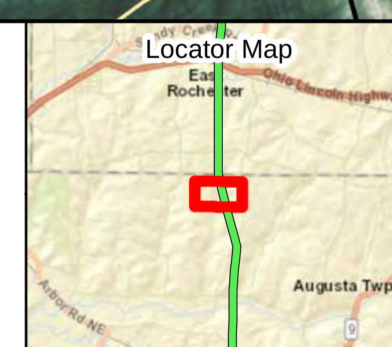
FIGURE 2-U
SOILS, NHD, NWI, FEMA MAP

PN: 699212	Date: 5/14/2020
CREATED BY: RED	Jacobs
REVIEWED BY: BAO	



LEGEND:

- Proposed Structure
- Substation
- Phase 1: Knox - Washington (13.1 miles)
- Environmental Survey Corridor
- Stream (NHD)
- Soil Unit
- Wetland (NWI)
- Floodplain



BASE MAP SOURCE:
ESRI World Imagery

SOIL UNIT - US Department of Agriculture, Natural Resources Conservation Service

N

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Knox-Washington 138 kV Transmission Line Rebuild Project

FIGURE 2-V
SOILS, NHD, NWI, FEMA MAP

PN: 699212	Date: 5/14/2020
CREATED BY: RED	Jacobs
REVIEWED BY: BAO	

LEGEND:

- Proposed Structure
- Substation
- Phase 1: Knox - Washington (13.1 miles)
- Environmental Survey Corridor
- Stream (NHD)
- Soil Unit
- Wetland (NWI)
- Floodplain

Locator Map

BASE MAP SOURCE:
ESRI World Imagery

SOIL UNIT - US Department of Agriculture, Natural Resources Conservation Service

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Knox-Washington 138 kV Transmission Line Rebuild Project

FIGURE 2-W
SOILS, NHD, NWI, FEMA MAP

PN: 699212	Date: 5/14/2020
CREATED BY: RED	Jacobs
REVIEWED BY: BAO	

LEGEND:

Proposed Structure	Stream (NHD)
Substation	Soil Unit
Phase 1: Knox - Washington (13.1 miles)	Wetland (NWI)
Environmental Survey Corridor	Floodplain

Locator Map

BASE MAP SOURCE:
ESRI World Imagery

SOIL UNIT - US Department of Agriculture, Natural Resources Conservation Service

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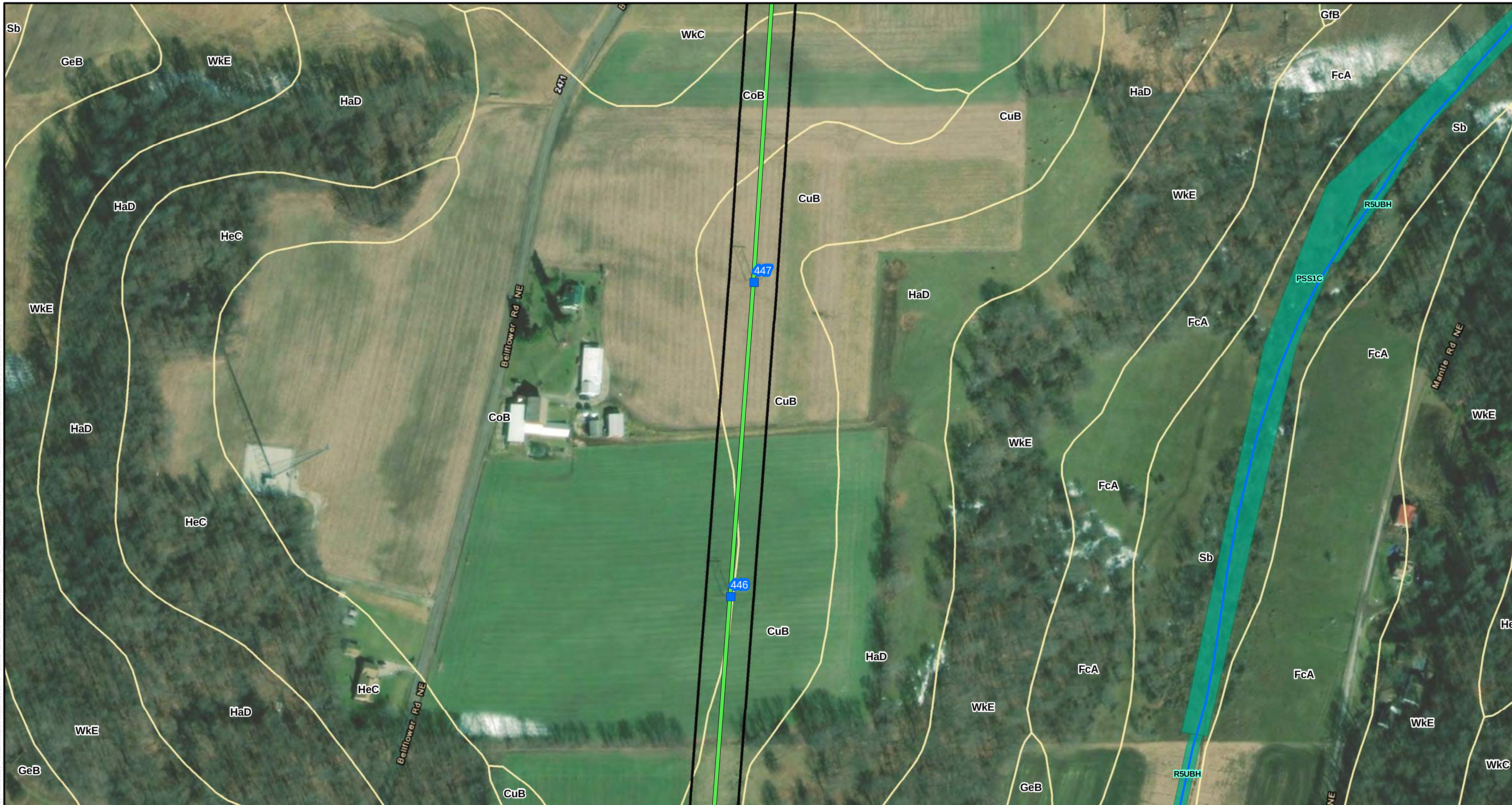
Knox-Washington 138 kV Transmission Line Rebuild Project

FIGURE 2-X
SOILS, NHD, NWI, FEMA MAP

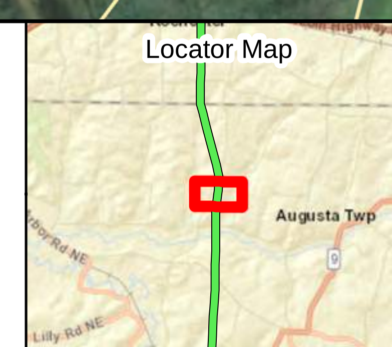
PN: 699212
Date: 5/14/2020
CREATED BY: RED
REVIEWED BY: BAO

Jacobs



LEGEND:

- ■ Proposed Structure
- ● Substation
- Phase 1: Knox - Washington (13.1 miles)
- Environmental Survey Corridor
- Stream (NHD)
- Soil Unit
- Wetland (NWI)
- Floodplain



BASE MAP SOURCE:
ESRI World Imagery

SOIL UNIT - US Department of Agriculture, Natural Resources Conservation Service

N

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FEET

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Knox-Washington 138 kV Transmission Line Rebuild Project

FIGURE 2-Y
SOILS, NHD, NWI, FEMA MAP

PN: 699212

Date: 5/14/2020

CREATED BY: RED

REVIEWED BY: BAO

Jacobs

LEGEND:

- Proposed Structure
- Substation
- Phase 1: Knox - Washington (13.1 miles)
- Environmental Survey Corridor
- Stream (NHD)
- Soil Unit
- Wetland (NWI)
- Floodplain

Locator Map

BASE MAP SOURCE:
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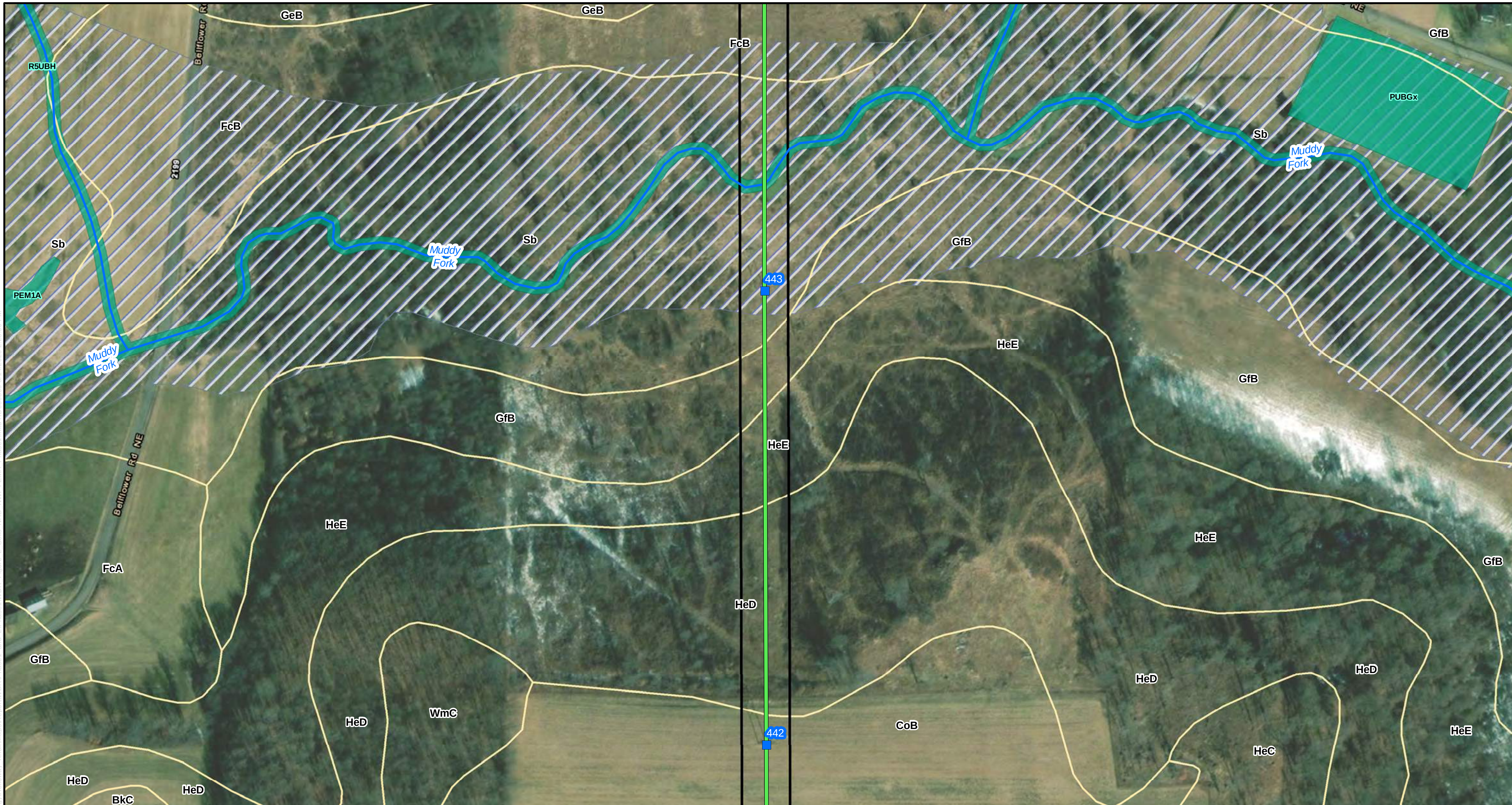
Knox-Washington 138 kV Transmission Line Rebuild Project

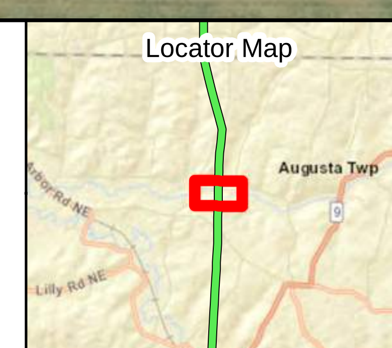
FIGURE 2-Z
SOILS, NHD, NWI, FEMA MAP

PN: 699212	Date: 5/14/2020
CREATED BY: RED	Jacobs
REVIEWED BY: BAO	



LEGEND:

- Proposed Structure
- Substation
- Phase 1: Knox - Washington (13.1 miles)
- Environmental Survey Corridor
- Stream (NHD)
- Soil Unit
- Wetland (NWI)
- Floodplain



BASE MAP SOURCE:
ESRI World Imagery

SOIL UNIT - US Department of Agriculture, Natural Resources Conservation Service

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FEET

N

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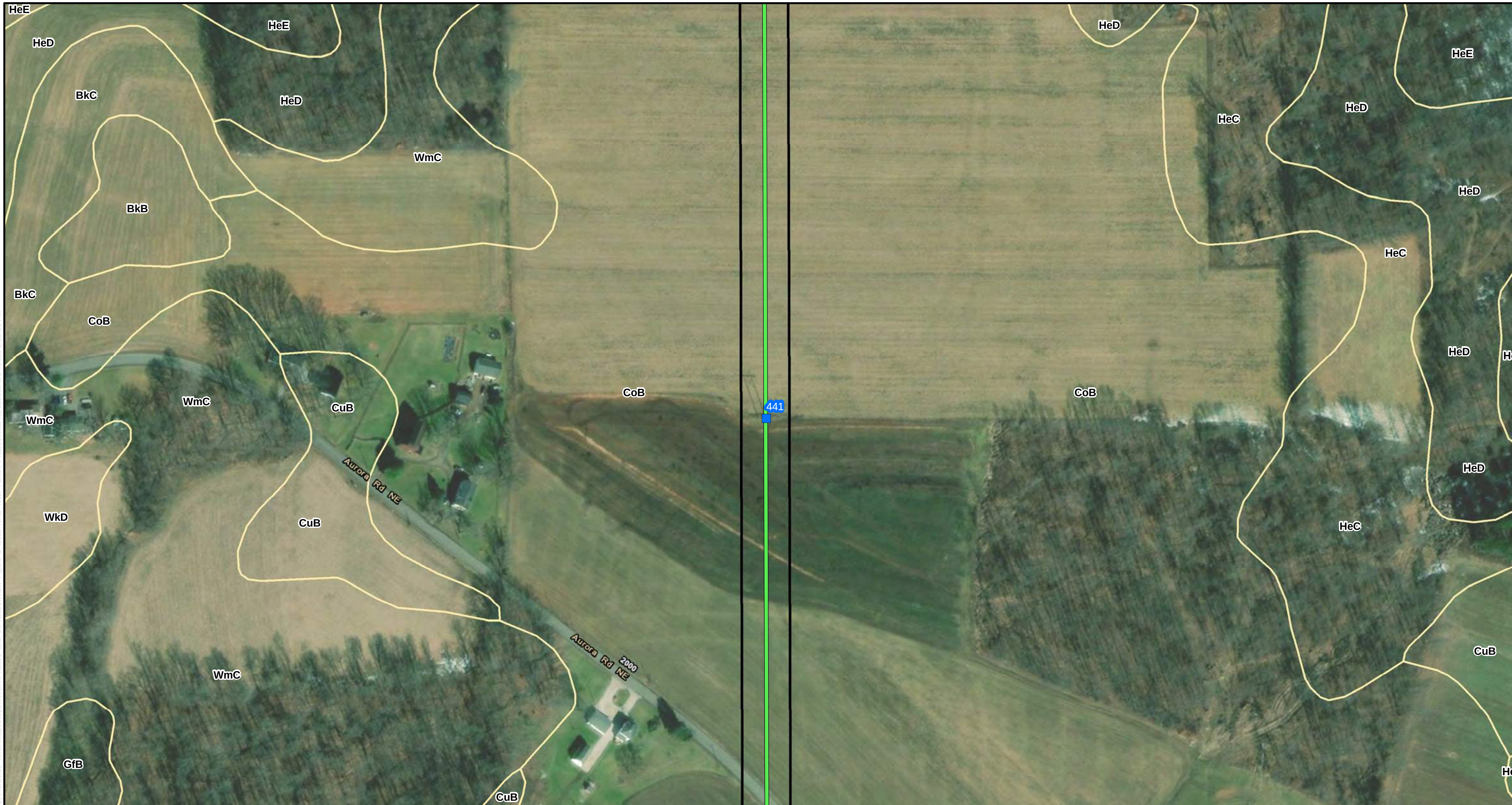
Knox-Washington 138 kV Transmission Line Rebuild Project

FIGURE 2-AA
SOILS, NHD, NWI, FEMA MAP

PN: 699212
Date: 5/14/2020
CREATED BY: RED
REVIEWED BY: BAO

Jacobs



LEGEND:

- Proposed Structure
- Substation
- Phase 1: Knox - Washington (13.1 miles)
- Environmental Survey Corridor
- Stream (NHD)
- Soil Unit
- Wetland (NWI)
- Floodplain

Locator Map

BASE MAP SOURCE:
ESRI World Imagery

SOIL UNIT - US Department of Agriculture,
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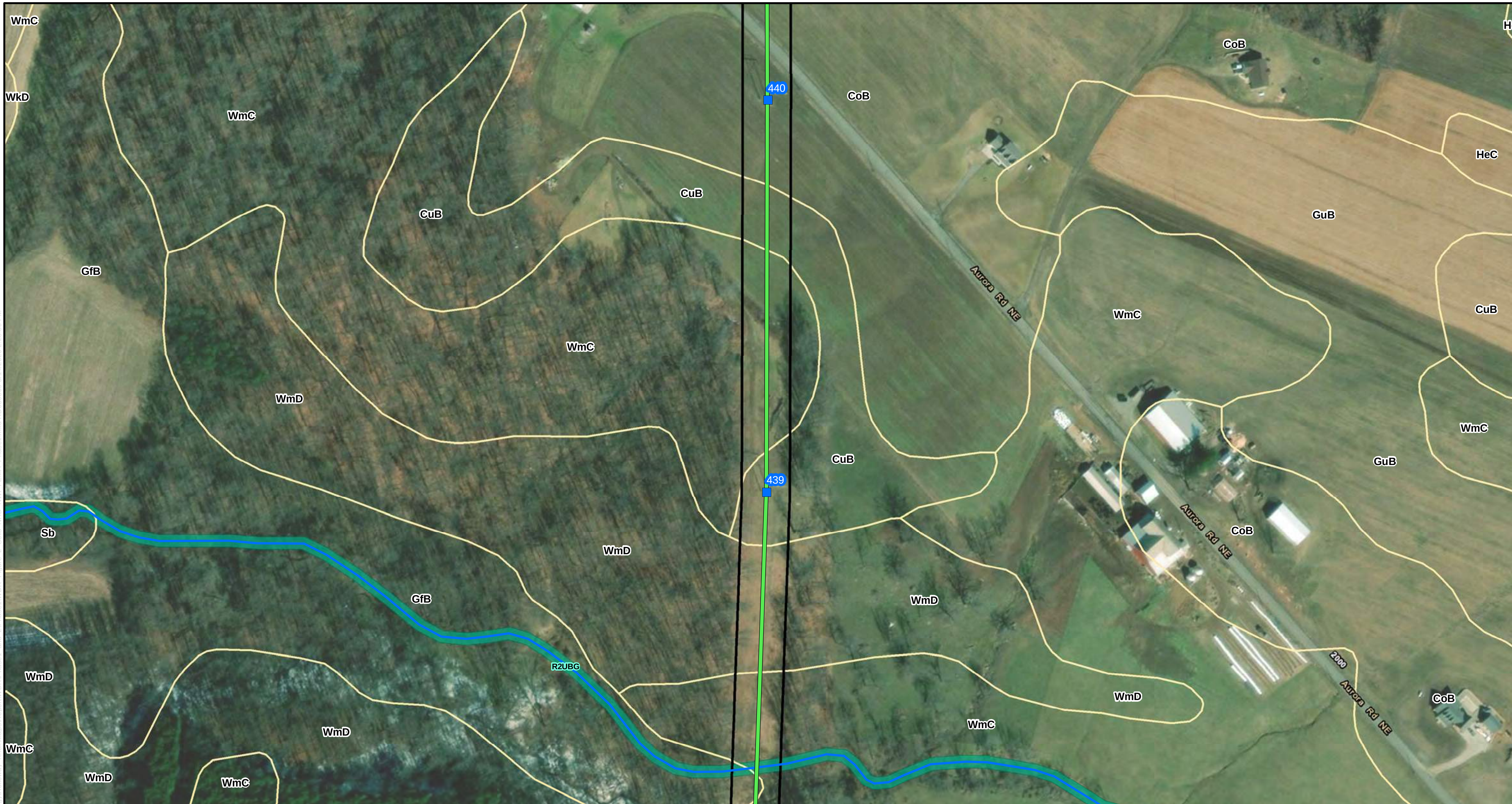
Knox-Washington 138 kV Transmission Line Rebuild Project

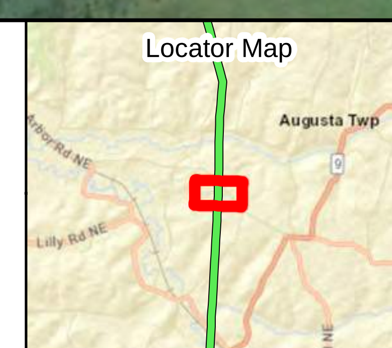
FIGURE 2-AB
SOILS, NHD, NWI, FEMA MAP

PN: 699212	Date: 5/14/2020
CREATED BY: RED	Jacobs
REVIEWED BY: BAO	



LEGEND:

- Proposed Structure
- Substation
- Phase 1: Knox - Washington (13.1 miles)
- Environmental Survey Corridor
- Stream (NHD)
- Soil Unit
- Wetland (NWI)
- Floodplain



BASE MAP SOURCE:
ESRI World Imagery

SOIL UNIT - US Department of Agriculture, Natural Resources Conservation Service

N

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FEET

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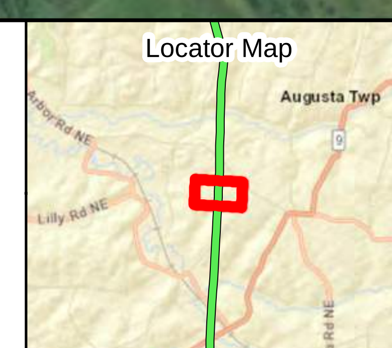
Knox-Washington 138 kV Transmission Line Rebuild Project

FIGURE 2-AC
SOILS, NHD, NWI, FEMA MAP

PN: 699212	Date: 5/14/2020
CREATED BY: RED	Jacobs
REVIEWED BY: BAO	

LEGEND:

- Proposed Structure
- Substation
- Phase 1: Knox - Washington (13.1 miles)
- Environmental Survey Corridor
- Stream (NHD)
- Soil Unit
- Wetland (NWI)
- Floodplain



BASE MAP SOURCE:
ESRI World Imagery

SOIL UNIT - US Department of Agriculture,
Natural Resources Conservation Service

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FEET

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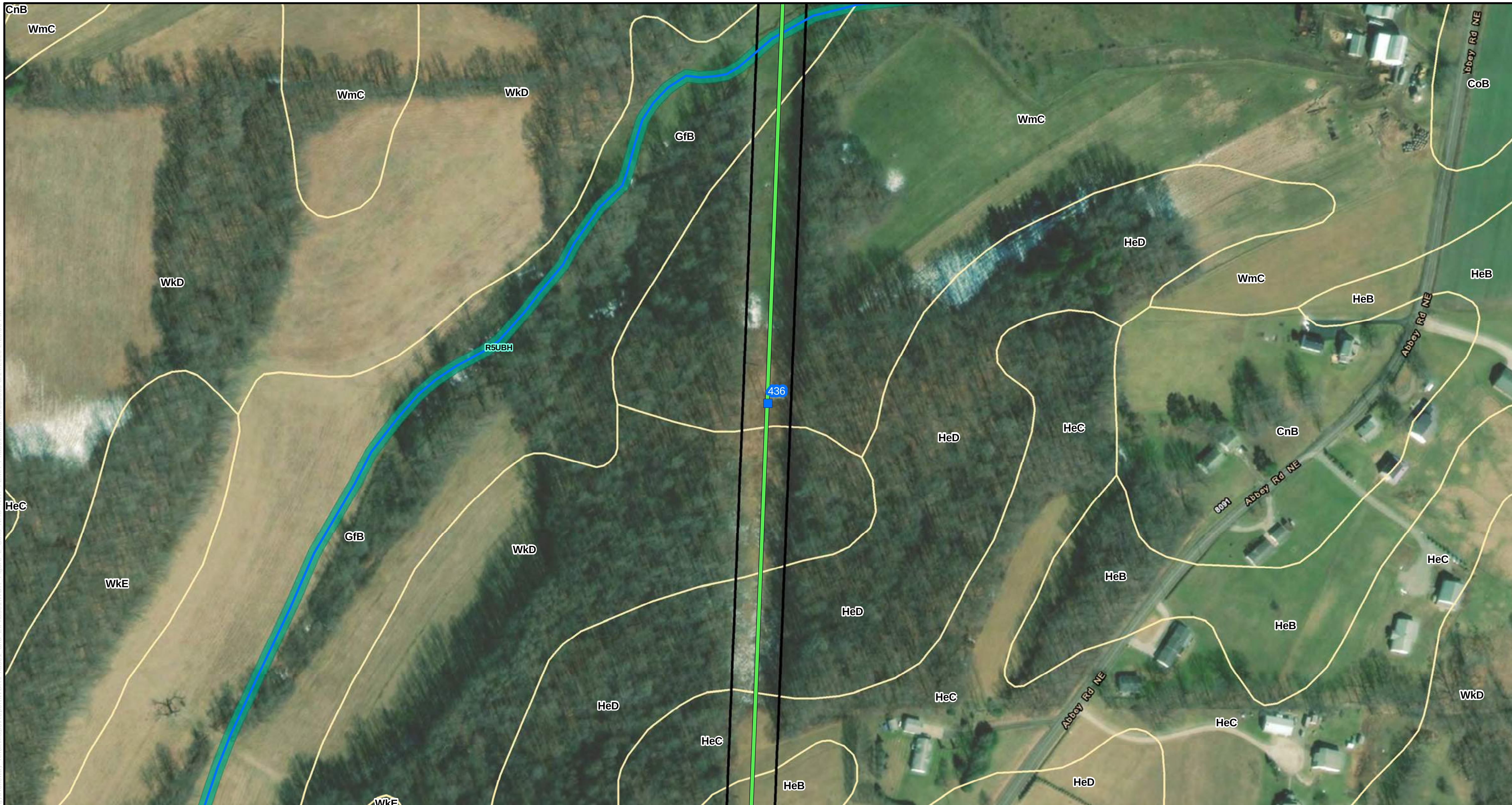
Knox-Washington 138 kV Transmission Line Rebuild Project

FIGURE 2-AD
SOILS, NHD, NWI, FEMA MAP

PN: 699212
Date: 5/14/2020
CREATED BY: RED
REVIEWED BY: BAO

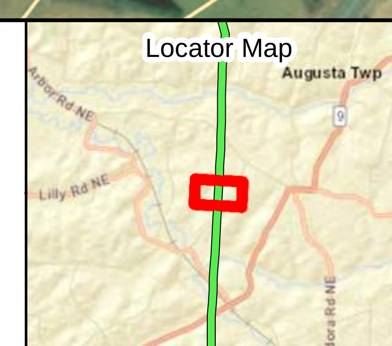
Jacobs



LEGEND:

- Proposed Structure
- Substation
- Phase 1: Knox - Washington (13.1 miles)
- Environmental Survey Corridor
- Stream (NHD)
- Soil Unit
- Wetland (NWI)
- Floodplain

Locator Map



BASE MAP SOURCE:
ESRI World Imagery

SOIL UNIT - US Department of Agriculture, Natural Resources Conservation Service

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FEET

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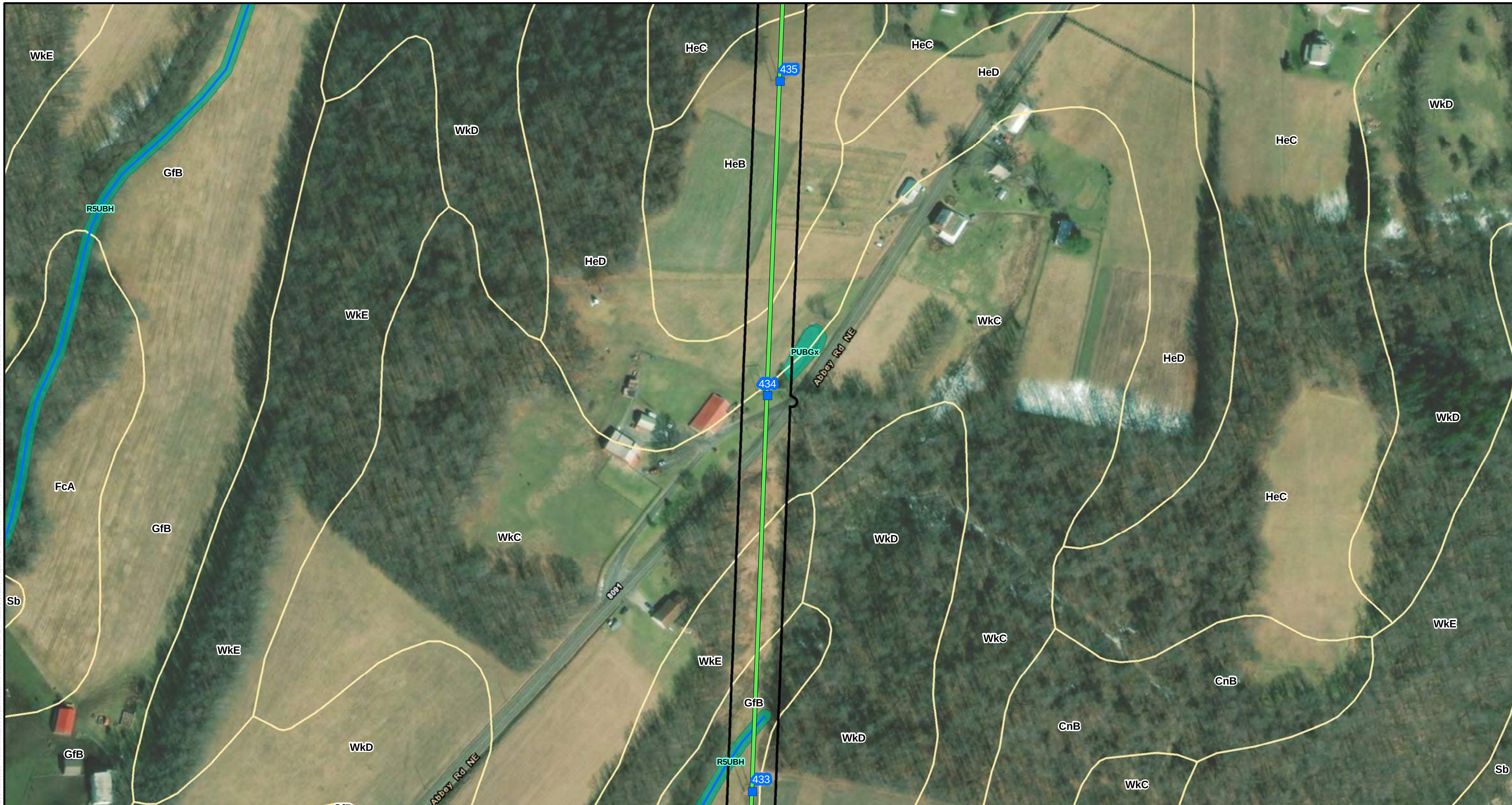
ATSI
American Transmission Systems, Inc

Knox-Washington 138 kV Transmission Line Rebuild Project

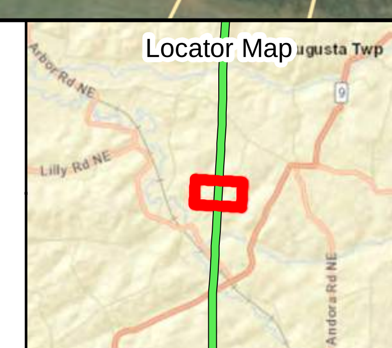
FIGURE 2-AE
SOILS, NHD, NWI, FEMA MAP

PN: 699212	Date: 5/14/2020
CREATED BY: RED	Jacobs
REVIEWED BY: BAO	



LEGEND:

- Proposed Structure
- Substation
- Phase 1: Knox - Washington (13.1 miles)
- Environmental Survey Corridor
- Stream (NHD)
- Soil Unit
- Wetland (NWI)
- Floodplain



BASE MAP SOURCE:
ESRI World Imagery

SOIL UNIT - US Department of Agriculture, Natural Resources Conservation Service

N

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FEET

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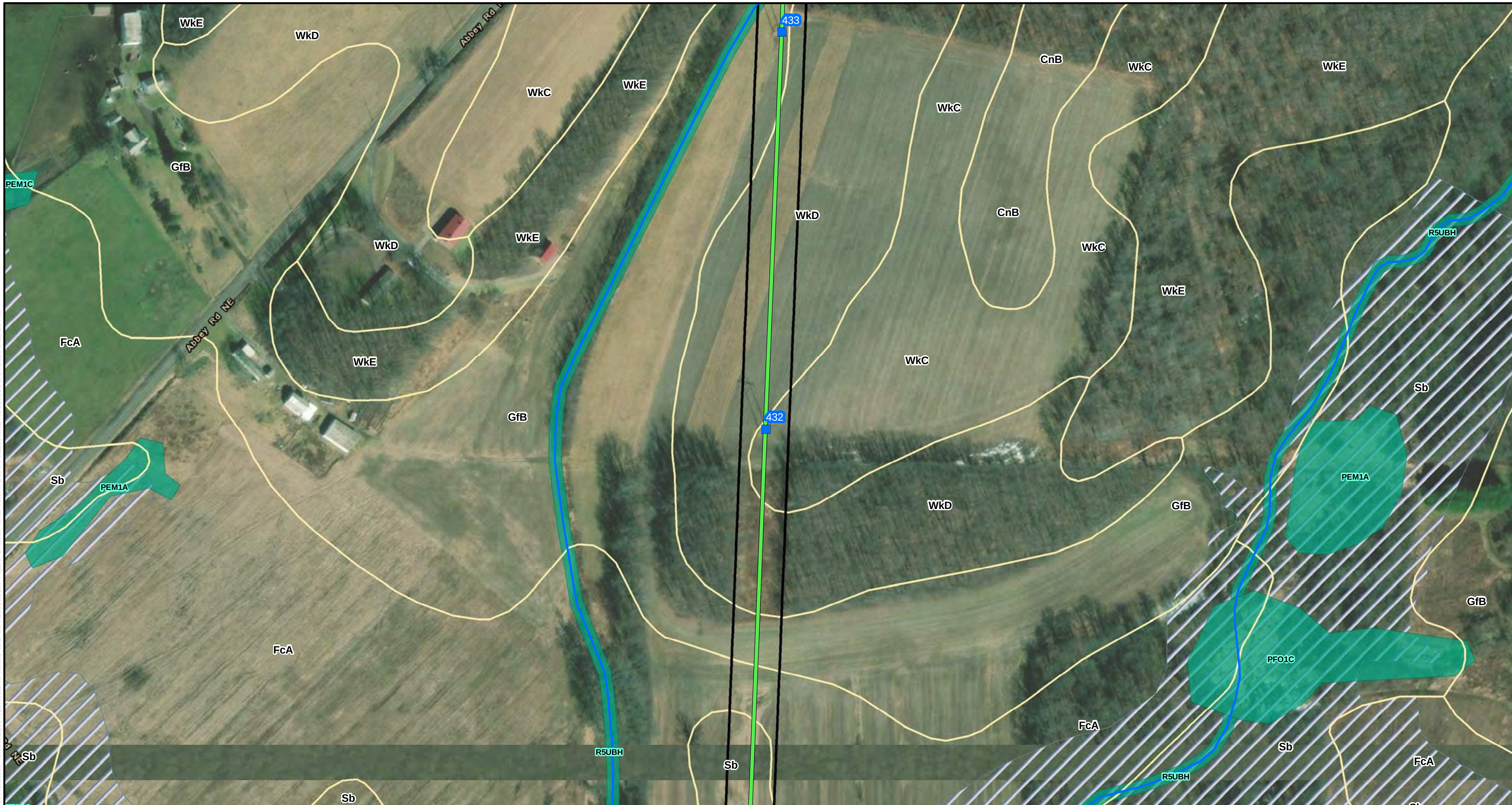
Knox-Washington 138 kV Transmission Line Rebuild Project

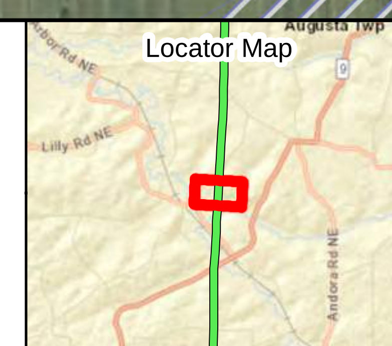
FIGURE 2-AF
SOILS, NHD, NWI, FEMA MAP

PN: 699212	Date: 5/14/2020
CREATED BY: RED	Jacobs
REVIEWED BY: BAO	



LEGEND:

- Proposed Structure
- Substation
- Phase 1: Knox - Washington (13.1 miles)
- Environmental Survey Corridor
- Stream (NHD)
- Soil Unit
- Wetland (NWI)
- Floodplain



BASE MAP SOURCE:
ESRI World Imagery

SOIL UNIT - US Department of Agriculture, Natural Resources Conservation Service

N

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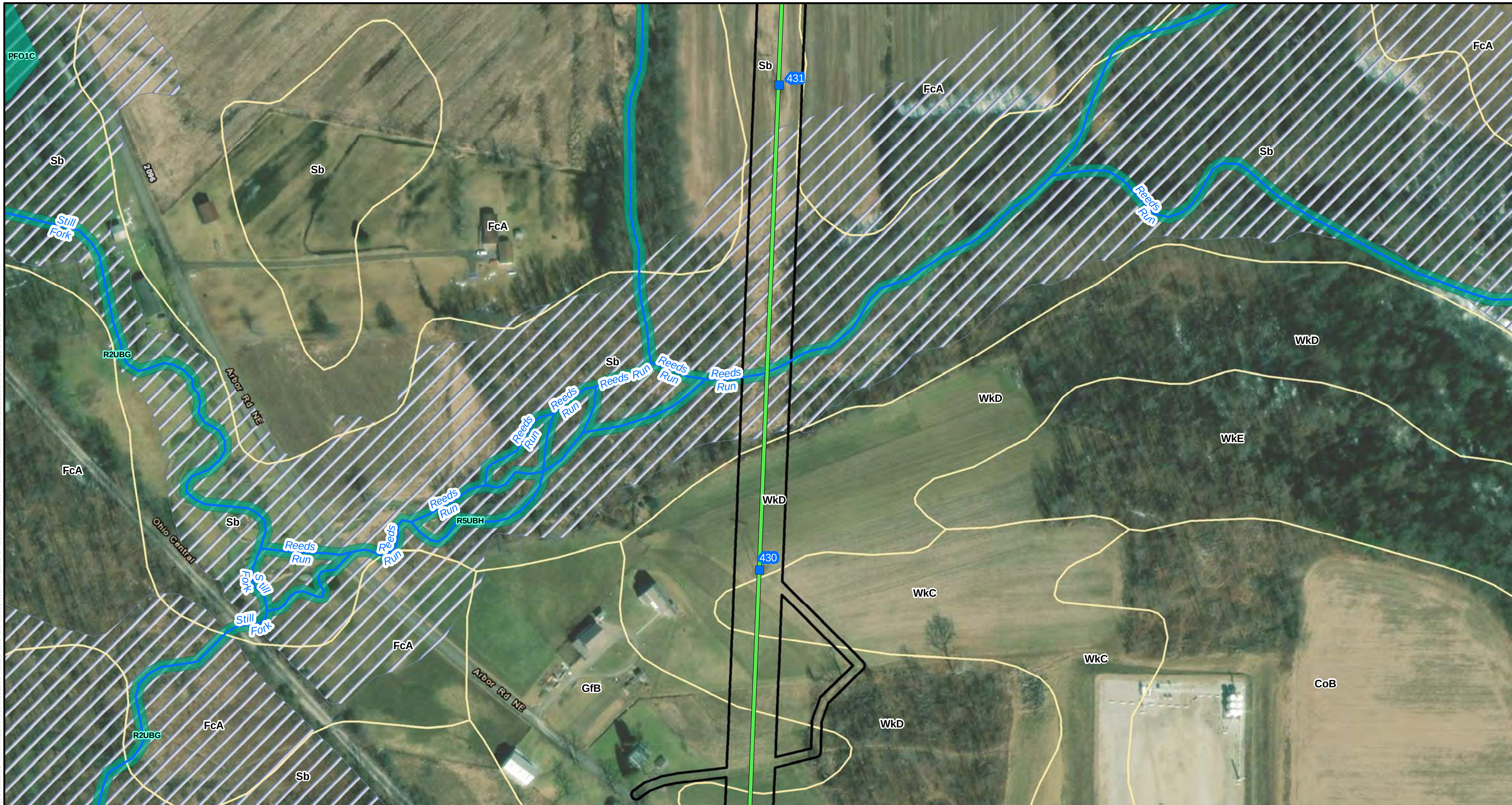
FEET

ATSI American Transmission Systems, Inc. a subsidiary of FirstEnergy Corp.

Knox-Washington 138 kV Transmission Line Rebuild Project

FIGURE 2-AG
SOILS, NHD, NWI, FEMA MAP

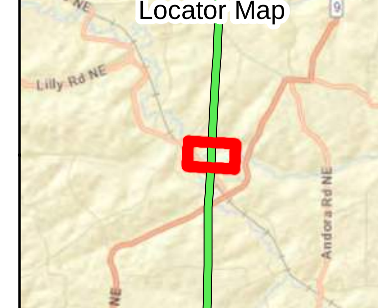
PN: 699212	Date: 5/14/2020
CREATED BY: RED	Jacobs
REVIEWED BY: BAO	



LEGEND:

- Proposed Structure
- Substation
- Phase 1: Knox - Washington (13.1 miles)
- Environmental Survey Corridor
- Stream (NHD)
- Soil Unit
- Wetland (NWI)
- Floodplain

Locator Map



BASE MAP SOURCE:
ESRI World Imagery

SOIL UNIT - US Department of Agriculture, Natural Resources Conservation Service

N

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FEET

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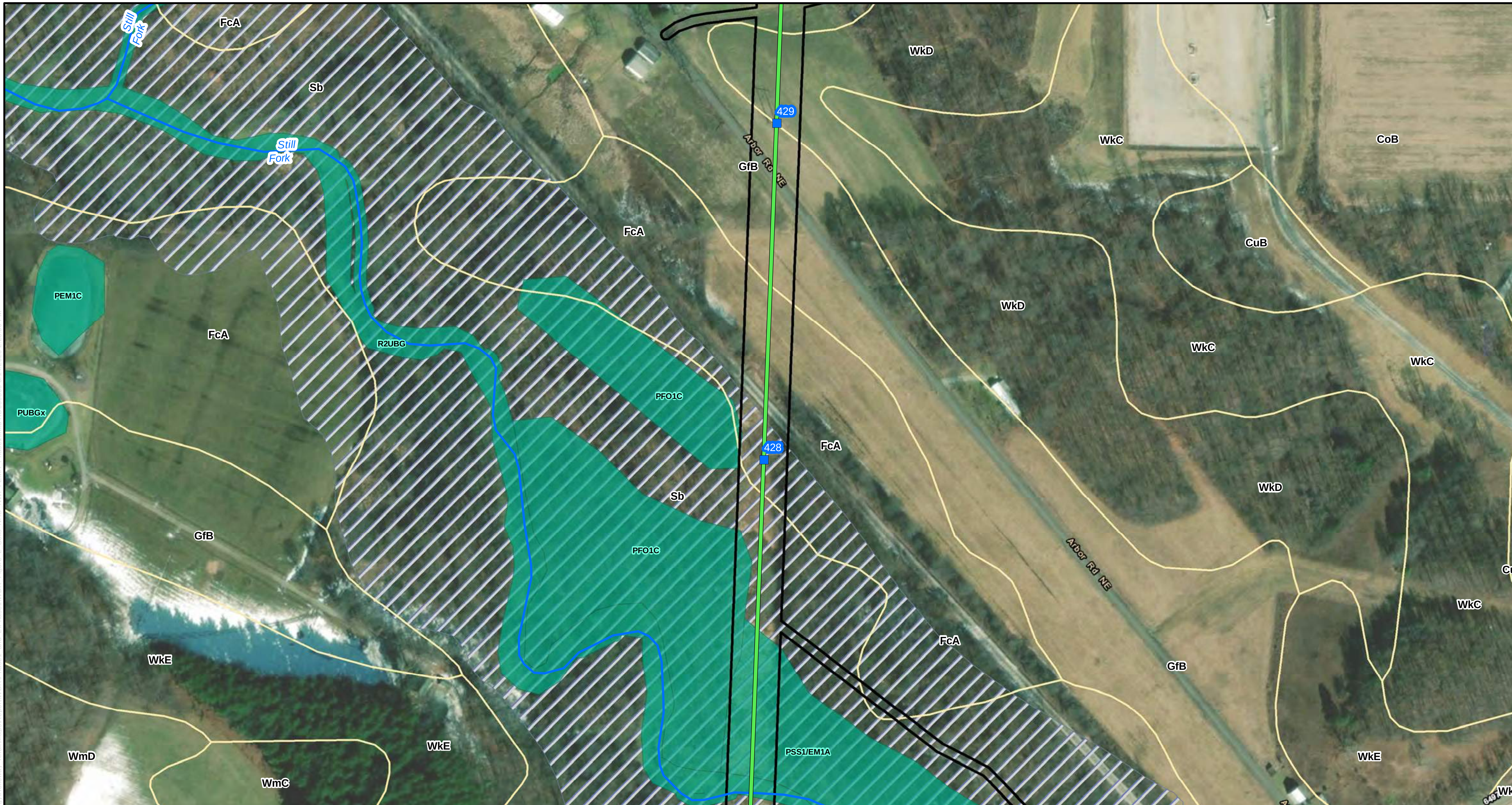
Knox-Washington 138 kV Transmission Line Rebuild Project

FIGURE 2-AH
SOILS, NHD, NWI, FEMA MAP

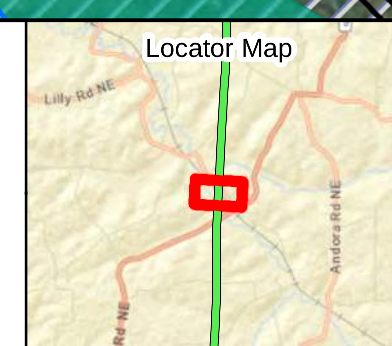
PN: 699212	Date: 5/14/2020
CREATED BY: RED	Jacobs
REVIEWED BY: BAO	



LEGEND:

- Proposed Structure
- Substation
- Phase 1: Knox - Washington (13.1 miles)
- Environmental Survey Corridor
- Stream (NHD)
- Soil Unit
- Wetland (NWI)
- Floodplain

Locator Map



BASE MAP SOURCE:
ESRI World Imagery

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FEET

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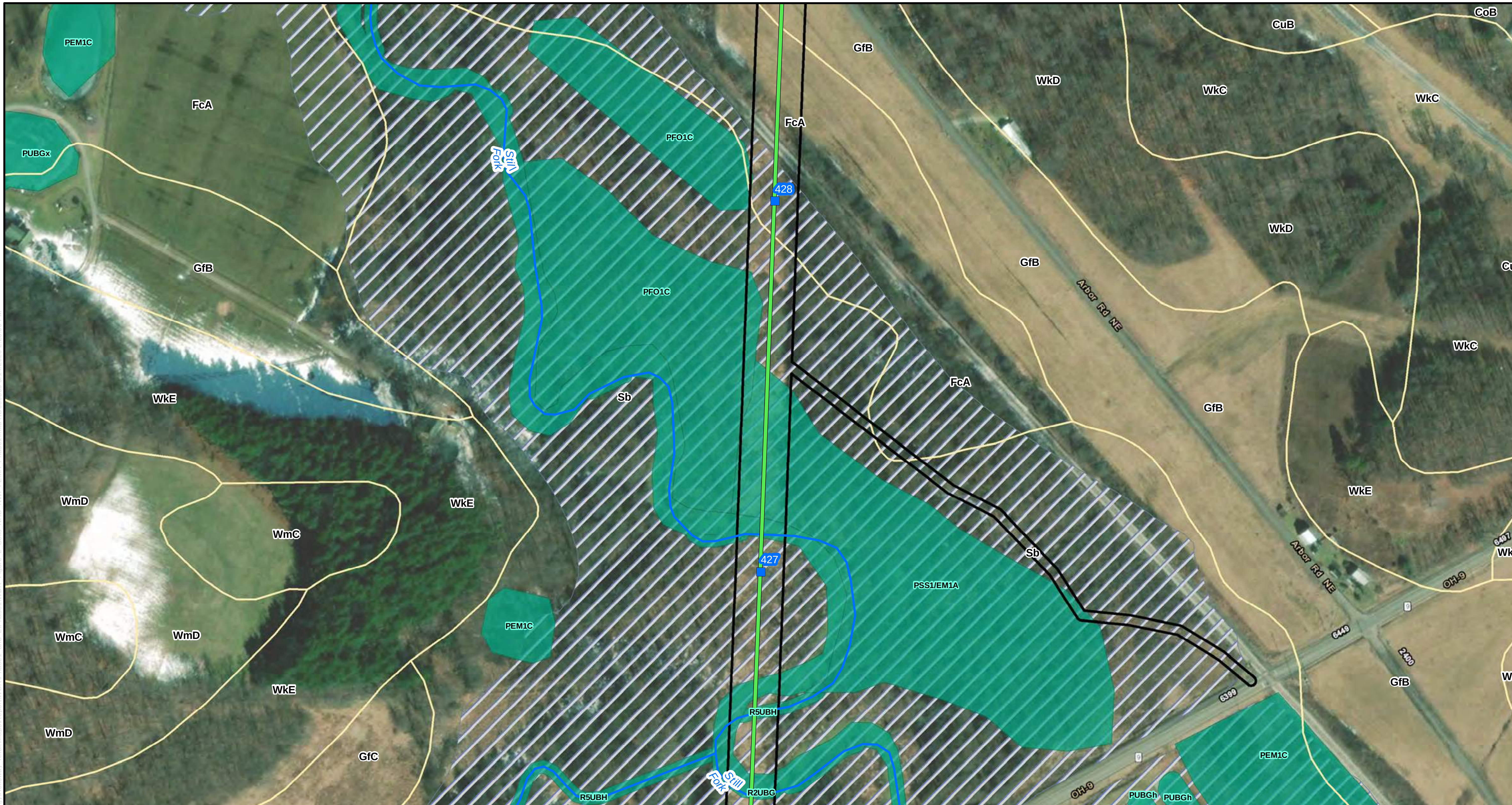
Knox-Washington 138 kV Transmission Line Rebuild Project

FIGURE 2-AI
SOILS, NHD, NWI, FEMA MAP

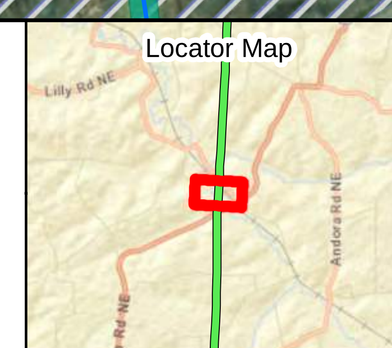
PN: 699212	Date: 5/14/2020
CREATED BY: RED	Jacobs
REVIEWED BY: BAO	



LEGEND:

Proposed Structure	Stream (NHD)
Substation	Soil Unit
Phase 1: Knox - Washington (13.1 miles)	Wetland (NWI)
Environmental Survey Corridor	Floodplain

Locator Map



BASE MAP SOURCE:
ESRI World Imagery

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N

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Knox-Washington 138 kV Transmission Line Rebuild Project

FIGURE 2-AJ
SOILS, NHD, NWI, FEMA MAP

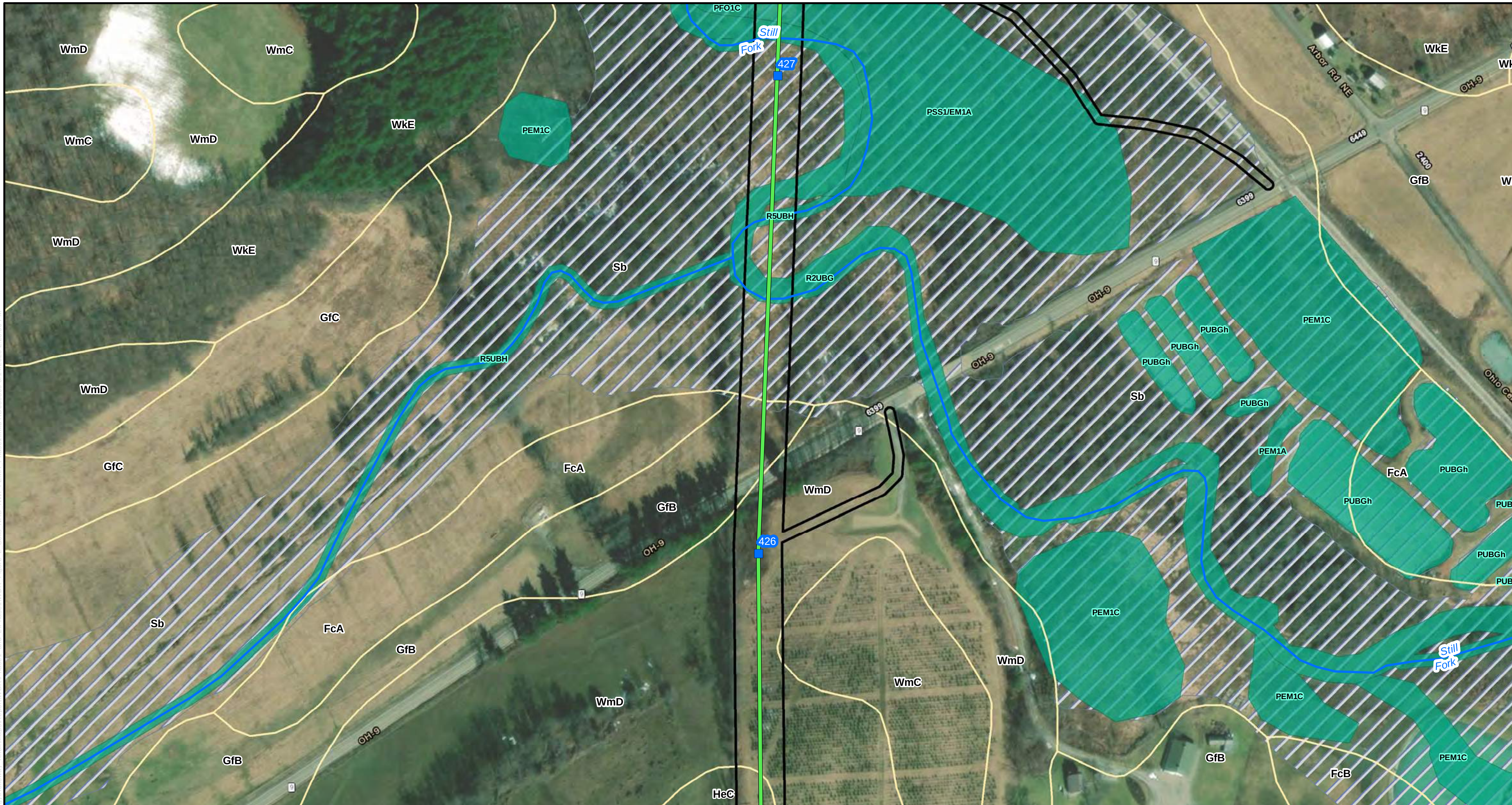
PN: 699212

Date: 5/14/2020

CREATED BY: RED

REVIEWED BY: BAO

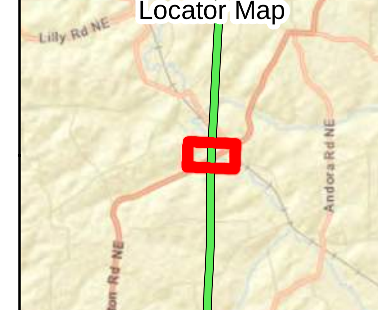
Jacobs



LEGEND:

- Proposed Structure
- Substation
- Phase 1: Knox - Washington (13.1 miles)
- Environmental Survey Corridor
- Stream (NHD)
- Soil Unit
- Wetland (NWI)
- Floodplain

Locator Map



BASE MAP SOURCE:
ESRI World Imagery

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FEET

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Knox-Washington 138 kV Transmission Line Rebuild Project

FIGURE 2-AK
SOILS, NHD, NWI, FEMA MAP

PN: 699212

Date: 5/14/2020

CREATED BY: RED

REVIEWED BY: BAO

Jacobs