

Wetland and Waterbody Delineation Report

Beaver-Henrietta 138 kV Transmission Line Project

Lorain County, Ohio

Prepared for



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Acronyms and Abbreviations

| | |
|---------|---|
| ATSI | American Transmission Systems, Incorporated |
| 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 |
| OBL | Obligate Wetland |
| OEPA | Ohio Environmental Protection Agency |
| OHWM | Ordinary High-Water Mark |
| ORAM | Ohio Rapid Assessment Method |
| PEM | Palustrine emergent |
| PFO | Palustrine forested |
| Project | Beaver-Henrietta 138 kV Transmission Line 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 Lorain County, Ohio by Jacobs Engineering Group Inc. (Jacobs), for American Transmission Systems, Incorporated (ATSI), a wholly-owned subsidiary of FirstEnergy Corporation. ATSI is proposing the construction and reconfiguration of approximately one mile of transmission line as part of the Beaver-Henrietta 138 kV Transmission Line Project (Project). The Project, including survey of both the Preferred and Alternate routes, is located southeast of Vermilion, Ohio as shown on the attached Overview Map (Figure 1). Jacobs conducted environmental surveys on November 18-19, 2019, January 27-28, 2020, and July 1, 2020. The 265-foot wide environmental survey corridor (ESC) included the proposed 65-foot right-of-way (ROW) and a 100-foot buffer on each side. 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 to 2-F 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 2-1 summarizes recent precipitation data and Table 2-2 lists the 12-digit hydrologic unit codes crossed by the Project. Table 3-1 lists the soils types identified within the ESC and Table 3-2 lists the NWI wetland types identified within the ESC.
- Figures 3-A to 3-F provide the location of all features mapped during the delineation by Jacobs biologists. This includes all wetlands, data points, and waterbodies. Tables 4-1 (wetlands) and 4-2 (streams) follow the text, providing detailed information for all delineated features within the ESC. Tables 4-3 (wetlands), 4-4 (QHEI streams), and 4-5 (HHEI streams) are within the text, providing a summary of 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.
- Qualitative Habitat Evaluation Index (QHEI) stream data forms for each stream identified with a drainage area of one square mile or greater are in Appendix C.
- Primary Headwater Habitat Evaluation Index (HHEI) stream data forms for each stream identified with a drainage area less than one square mile are in Appendix D.
- Representative photographs for all delineated features within the ESC are in Appendix E.

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 in Lorain County, Ohio. It begins just south of North Ridge Road (41.3907 latitude, -82.2685 longitude). The preferred route extends south and then turns east, and the alternate route extends east and then turns south, both ending just south of Rice Road (41.3870 latitude, -82.2648 longitude) as shown in Figure 1. The ESC includes both routes and is approximately 265 feet wide and 2.2 miles in length.

Review of the USGS 7.5-minute topographic maps indicates that the ESC is within the Vermilion East USGS 7.5-minute topographic quadrangle; Quarry Creek drains the ESC. Topographic relief is generally flat, ranging between 730 and 780 feet above sea level throughout the ESC (Figure 1).

Land use and natural communities observed within the ESC include agricultural land, old field, upland scrub shrub, upland woodlot, residential, existing roadway, and wetland, in addition to Quarry Creek.

2.1.1 Annual Precipitation

Recent rainfall data for Oberlin, Ohio were reviewed prior to completing the environmental survey to determine if climatic conditions were normal at the time of the survey. Oberlin, Ohio was the nearest weather station with both historical and recent precipitation records. Rainfall recorded in Oberlin, Ohio was normal prior to and during the survey conducted in November 2019 and January 2020 (Table 2-1; USDA, 2019), suggesting that climatic conditions were approximately normal. This was taken into consideration during the delineation.

TABLE 2-1: Recent Precipitation Data
Beaver-Henrietta 138kV Transmission Line Project

| 2019-2020 Precipitation Data | Aug | Sep | Oct | Nov | Dec | Jan | Total |
|--|-----------|---------------|-----------|-----------|-----------|---------------|-------------|
| Oberlin Monthly Sum ^{1, 3} | 3.16 | 1.16 | 2.27 | 2.33 | 2.18 | 3.45 | 14.55 |
| Oberlin Normal Precip. ^{2, 3} | 2.36-4.17 | 2.10-3.88 | 1.77-2.86 | 2.00-3.67 | 2.11-3.17 | 1.48-2.69 | 11.82-20.44 |
| Monthly climatic condition | Average | Below average | Average | Average | Average | Above average | Average |

¹Monthly weather summary from weather station OBEO1, 2019-2020 (Oberlin, OH)

²USDA WETS Station Climate Data 1971-2000 (Fort Wayne, IN (USDA 2000)

³Displayed in inches

2.1.2 Drainage Basins

The Project is within the Black-Rocky (04110001) 8-digit Hydrologic Unit Code (HUC), and the ESC is within one 12-digit HUC, as outlined in Table 2-2 (USGS, 2020).

TABLE 2-2: 12-Digit Hydrologic Unit Codes Crossed by the Project
Beaver-Henrietta 138 kV Transmission Line Project

| HUC 12-Digit Code | HUC 12-Digit Name |
|-------------------|--------------------------------|
| 04110001-07-03 | Quarry Creek-Frontal Lake Erie |

Source: USGS 2020

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). No TNW directly crosses the ESC, yet many of the streams will be considered tributaries to Lake Erie (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, 2019)
- NRCS Web Soil Survey (NRCS, 2019)
- NWI shapefile (USFWS, 2019)
- National Hydrography Dataset (NHD) (USGS, 2019)

According to the NRCS soil survey of Lorain County (NRCS, 2019), the ESC consists of 14 soil map units (Figures 2-A to 2-F). Of these, ten units are listed as not hydric, one is listed as predominately non-hydric, two are predominately hydric, and one is listed as all hydric (Table 3-1, follows text).

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 were obtained from the USFWS for review of potential wetlands that may occur within the ESC. The NWI data (USFWS, 2019) identify 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 one NWI feature is within the ESC (Figure 2-A to 2-F; USFWS, 2019). 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.

TABLE 3-2: Mapped National Wetland Inventory Features
Beaver-Henrietta 138 kV Transmission Line Project

| Wetland Type ¹ | Mapped NWI Features | Acreage within ESC |
|---------------------------|---------------------|--------------------|
| R4SBC | 1 | 0.80 |

¹Cowardin et al. 1979.

As shown on the FEMA floodplain panels (Figures 2-A to 2-F), the floodplain of one waterway, Quarry Creek, is within the ESC (FEMA, 2019).

3.2 Field Survey Methodology

On November 18-19, 2019, January 27-28, 2020, and July 1, 2020, Jacobs biologists surveyed the ESC by walking the area 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 data were recorded on USACE Northcentral and Northeast Regional Supplement wetland determination data forms; stream data were recorded on QHEI forms and HHEI forms. All other land use, habitat, and other supplemental data were collected in a field notebook during the environmental survey.

3.2.1 Wetland Delineation

Wetland boundaries were field-delineated according to using 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: Northcentral and Northeast Region (Version 2.0)* (USACE, 2011). Wetland delineation data were 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 concentrations/depletions 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 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 degrees 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 (obligate wetland [OBL], facultative wetland [FACW], facultative [FAC], facultative upland [FACU], 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 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 were used to determine if a wetland had 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 based on 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 the streams in the ESC are tributaries to Lake Erie.

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 Methods for Evaluating Primary Headwater Streams in Ohio* (OEPA, 2018). The QHEI is used to characterize larger streams (drainage areas greater than one square mile), while the HHEI is appropriate for first-order and second-order headwater streams (drainage areas less than one square mile).

4 Field Survey Results

Jacobs biologists surveyed the Project on November 18-19, 2019, January 27-28, 2020, and July 1, 2020 by walking the 265-foot wide ESC and evaluating for wetlands and other waters of the United States. The preferred route crossed a total of five wetlands and one stream and the alternate route crossed a total of two wetlands and two streams; these features are displayed and identified on the Delineated Features Map (Figures 3-A to 3-F).

4.1 Wetlands

Six wetlands, totaling 4.15 acres and ranging in size from 0.02 to 2.26 acres, were delineated within the ESC. Three of the wetlands were identified as palustrine emergent (PEM) wetlands, two were identified as PEM/palustrine scrub-shrub (PSS) complexes, and one was identified as a PEM/palustrine forested (PFO) wetland complex.

These wetlands are depicted in Figures 3-A to 3-F. 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 E. 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 4-3.

TABLE 4-3: Wetland Summary Table
Beaver-Henrietta 138 kV Transmission Line Project

| Wetland Type | ORAM Category | | | Number of Wetlands | Acreage ¹ within ESC |
|--------------|---------------|------------|------------|--------------------|---------------------------------|
| | Category 1 | Category 2 | Category 3 | | |
| PEM | 3 | 0 | 0 | 3 | 0.10 |
| PEM/PSS | 0 | 2 | 0 | 2 | 1.79 |
| PEM/PFO | 0 | 1 | 0 | 1 | 2.26 |
| Totals | 3 | 3 | 0 | 6 | 4.15 |

4.1.1 Wetland ORAM Results

All three PEM wetlands were identified as Category 1 wetlands based on ORAM scores ranging from 18.5 to 25. The PEM/PSS and PEM/PFO wetland complexes were identified as Category 2 wetlands based on ORAM scores of 34 and 46.5. No Category 3 wetlands were observed within the ESC.

Generally, the Category 1 wetlands scored low due to factors such as small size, intensity of surrounding land use, hydrology, substrate and habitat disturbance, poor habitat development, lack of horizontal interspersions, and lack of microtopography. The Category 2 wetlands exhibited much of the same characteristics described above, yet with larger size, better habitat development, higher horizontal interspersions, and greater presence of microtopography than the Category 1 counterparts. Completed ORAM forms for each wetland are included in Appendix B.

4.2 Streams

Two streams were identified within the ESC with a total distance of 3,194 linear feet. Stream BH-01 is an intermittent stream measuring 3,167 linear feet within the ESC and was assessed using the QHEI methodology (drainage area greater than 1 mi²). Stream BH-02 was an ephemeral stream measuring

27 linear feet within the ESC and was assessed using the HHEI methodology (drainage area less than 1 mi²).

These streams are shown in Figures 3-A to 3-F. Completed QHEI and HHEI forms are provided in Appendix C and D, respectively. Representative photographs were taken of each stream during the field survey and are provided in Appendix E. Detailed information for each delineated stream within the ESC is provided in Table 4-2 (follows text).

4.2.1 QHEI Results

Stream BH-01, with a total length of 3,167 linear feet within the ESC, was evaluated using the QHEI methodology and was classified as a Good Warmwater stream. The completed QHEI form is included in Appendix C and Table 4-4 provides QHEI summary results for the stream.

TABLE 4-4: QHEI Stream Summary Table
Beaver-Henrietta 138 kV Transmission Line Project

| Flow Regime | QHEI Narrative Category | | | | | Number of Streams | Length (feet) within ESC |
|--------------|-------------------------|----------------|----------------|----------------|---------------------|-------------------|--------------------------|
| | Very Poor Warmwater | Poor Warmwater | Fair Warmwater | Good Warmwater | Excellent Warmwater | | |
| Ephemeral | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Intermittent | 0 | 0 | 0 | 1 | 0 | 1 | 3,167 |
| Perennial | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total | 0 | 0 | 0 | 1 | 0 | 1 | 3,167 |

4.2.2 HHEI Results

Stream BH-02 was evaluated using the HHEI methodology and was categorized as ephemeral aquatic stream (modified channel). The completed HHEI form is provided in Appendix D and Table 4-5 provides a summary of the HHEI results for the stream identified within the ESC.

TABLE 4-5: HHEI Stream Summary Table
Beaver-Henrietta 138 kV Transmission Line Project

| Flow Regime ¹ | HHEI Class | | | | | | Number of Streams | Length (feet) within ESC |
|--------------------------|------------|-------------------|----------------------------|--------------------------|-----------------------------------|--------------|-------------------|--------------------------|
| | Rheocrene | Ephemeral Aquatic | Modified Ephemeral Aquatic | Small Drainage Warmwater | Modified Small Drainage Warmwater | Spring Water | | |
| Ephemeral | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 27 |
| Intermittent | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Perennial | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 27 |

¹Flow regime estimated based on analysis of drainage area, gradient, and observations at the time of survey

4.3 Ponds/Open Water

No ponds were identified within the ESC.

5 Conclusion

Jacobs conducted an environmental survey of the Beaver-Henrietta 138 kV Transmission Line Project on November 18-19, 2019, January 27-28, 2020, and July 1, 2020.

Six wetlands and two streams were identified within the ESC. The six wetlands, totaling 4.15 acres within the ESC, were identified as three Category 1 PEM wetlands, two Category 2 PEM/PSS wetlands, and one Category 2 PEM/PFO wetland. The two streams totaled 3,194 linear feet; of which one was intermittent and was assessed using the QHEI methodology (drainage area greater than one square mile) and the other was ephemeral and was assessed using the HHEI methodology (drainage area less than one square mile).

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 the what was identified within the ESC, and depicted in Figure 3-A to 3-F. 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 wetland and waterbodies 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 corridor. Additionally, changes in applicable standards and regulations may also occur due to legislation or the expansion of knowledge over time. Therefore, the findings of this wetland and waterbodies delineation report may be invalidated, wholly or in part, by changes that are beyond the control of Jacobs.

6 References

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Tables

TABLE 3-1: Mapped Soil Units

Beaver-Henrietta 138 kV Transmission Line Project

| Soil type | Soil type description | Hydric status | Acres within ESC |
|------------------|--|--------------------------|-------------------------|
| BtA | Bogart loam, 0 to 2 percent slopes | Not Hydric | 1.24 |
| CoB | Conotton gravelly loam, 2 to 6 percent slopes | Not Hydric | 4.73 |
| CoC | Conotton gravelly loam, 6 to 12 percent slopes | Not Hydric | 7.09 |
| DkB | Dekalb very channery loam, 1 to 6 percent slopes | Not Hydric | 6.73 |
| HsA | Haskins loam, 0 to 2 percent slopes | Predominately Non-Hydric | 9.41 |
| Hy | Holly silt loam | Predominately Hydric | 3.19 |
| JsA | Jimtown sandy loam, 0 to 2 percent slopes | Not Hydric | 4.63 |
| JtA | Jimtown loam, 0 to 2 percent slopes | Not Hydric | 13.50 |
| Mo | Mermill loam | Predominately Hydric | 2.28 |
| MtA | Mitiwanga silt loam, 0 to 2 percent slopes | Not Hydric | 10.70 |
| MtB | Mitiwanga silt loam, 2 to 6 percent slopes | Not Hydric | 4.24 |
| Om | Olmsted fine sandy loam | All Hydric | 5.55 |
| OtB | Oshtemo sandy loam, 2 to 6 percent slopes | Not Hydric | 0.62 |
| Qu | Quarries | Not Hydric | 0.16 |

Table 4-1: Detailed Delineated Wetland Table
Beaver-Henrietta 138 kV Transmission Line Project

| Wetland ID | Location | | Wetland Type ¹ | Area (ac) within ESC | ORAM Score, Category |
|--------------------------------|----------|-----------|---------------------------|----------------------|----------------------|
| | Latitude | Longitude | | | |
| Wetland BH-01E | 41.39087 | -82.26846 | PEM | 0.56 | 34, Category 2 |
| Wetland BH-01S | 41.39108 | -82.26889 | PSS | 0.08 | 34, Category 2 |
| Wetland BH-02 | 41.38866 | -82.26838 | PEM | 0.02 | 18.5, Category 1 |
| Wetland BH-03E | 41.38676 | -82.26899 | PEM | 0.45 | 46.5, Category 2 |
| Wetland BH-03S | 41.38671 | -82.26945 | PSS | 0.70 | 46.5, Category 2 |
| Wetland BH-04 | 41.38387 | -82.26940 | PEM | 0.06 | 25, Category 1 |
| Wetland BH-05 | 41.38365 | -82.26941 | PEM | 0.02 | 24, Category 1 |
| Wetland BH-06E | 41.38837 | -82.26487 | PEM | 1.74 | 37.5, Category 2 |
| Wetland BH-06F | 41.38821 | -82.26436 | PFO | 0.52 | 37.5, Category 2 |
| Total Wetland Area (ac) | | | | 4.15 | |

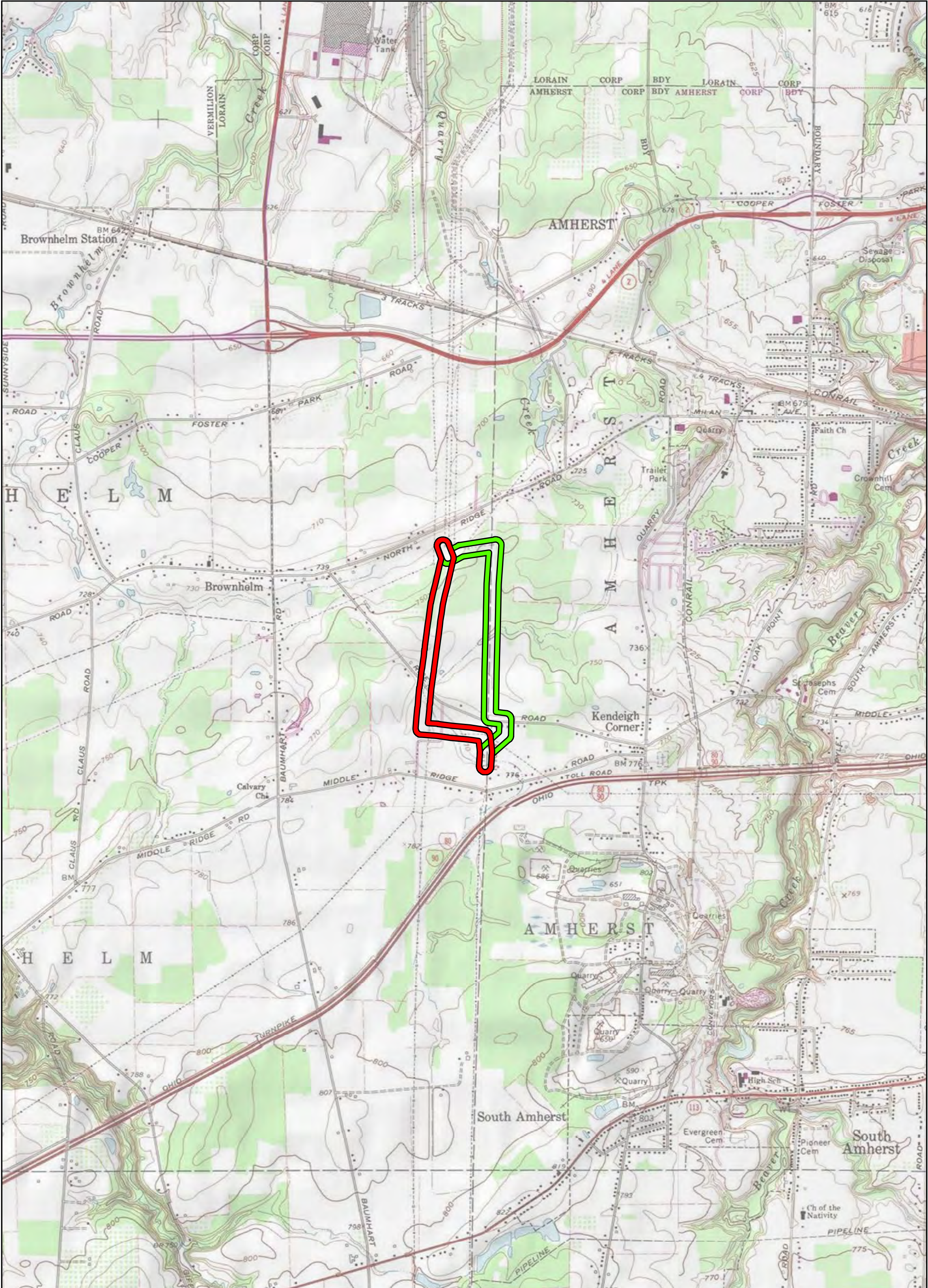
¹Cowardin et al. 1979.

TABLE 4-2: Detailed Delineated Stream Table
Beaver-Henrietta 138 kV Transmission Line Project

| Stream ID | Location | | Flow Regime ¹ | Length (ft) within ESC | Average OHWM Width (ft) | Average TOB Width (ft) | HHEI/ QHEI Score | Category/ Designation |
|---------------------------------|----------|-----------|--------------------------|---------------------------|----------------------------|---------------------------|---------------------|----------------------------|
| | Latitude | Longitude | | | | | | |
| Stream BH-01 | 41.38128 | -82.26988 | Intermittent | 3,167 | 7 | 8.5 | 66.5 | Good Warmwater |
| Stream BH-02 | 41.38552 | -82.26485 | Ephemeral | 27 | 1 | 1 | 15 | Modified Ephemeral Aquatic |
| Total Stream Length (ft) | | | | 3,194 | | | | |

¹Flow regime estimated based on analysis of drainage area, gradient, and observations at the time of survey

Figures



LEGEND:

Preferred Environmental Survey Corridor


Alternative Environmental Survey Corridor

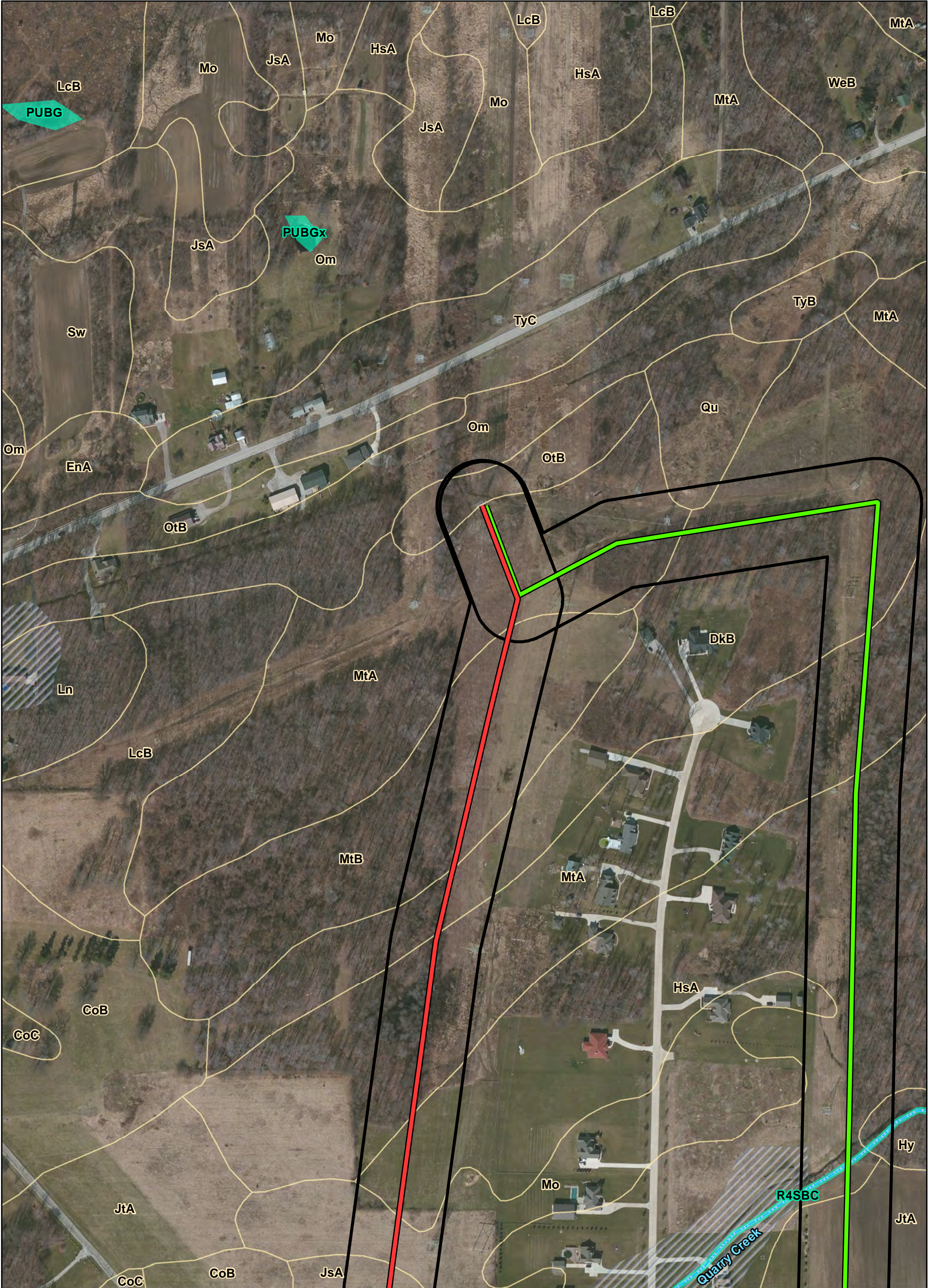


N

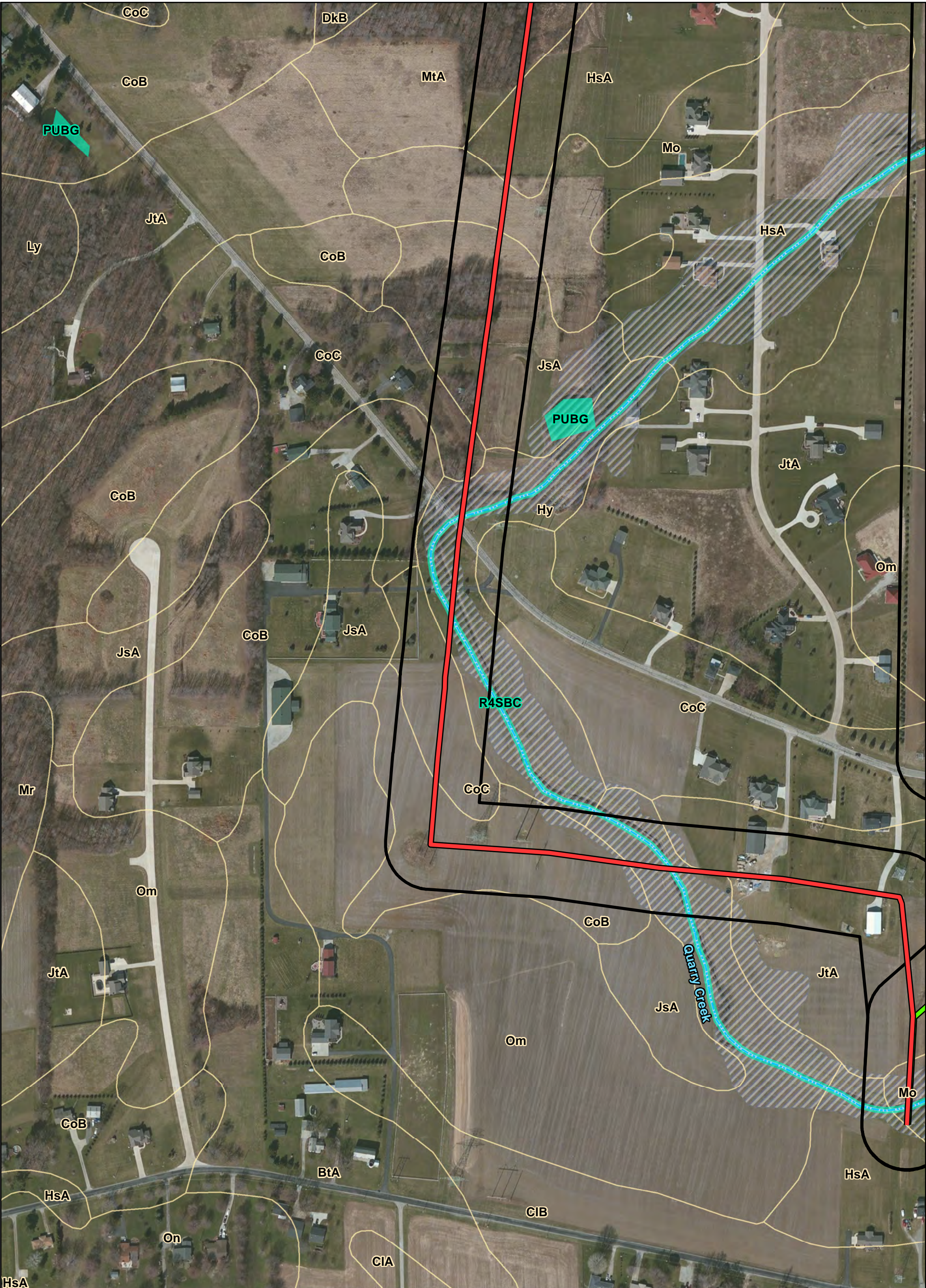
BASE MAP SOURCE:
Esri USA Topo Map

0 1,000 2,000
FEET

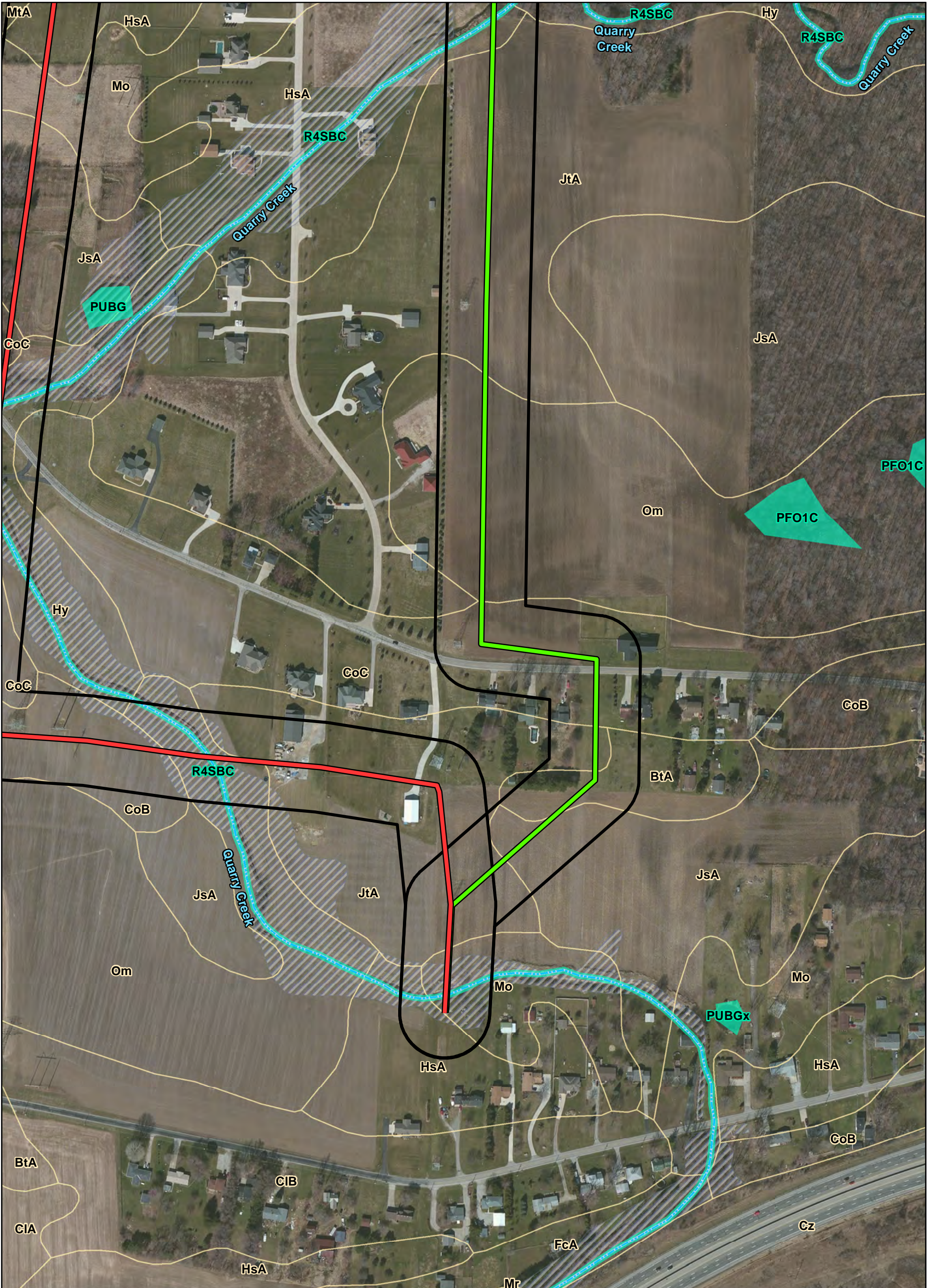
| | |
|---|---|
|  <small>American Transmission Systems, Inc. a subsidiary of FirstEnergy Corp.</small> | Beaver-Wellington 138 kV Transmission Line Project (Brownhelm Section) |
| FIGURE 1 OVERVIEW MAP | |
| 7/20/2020 | Jacobs |



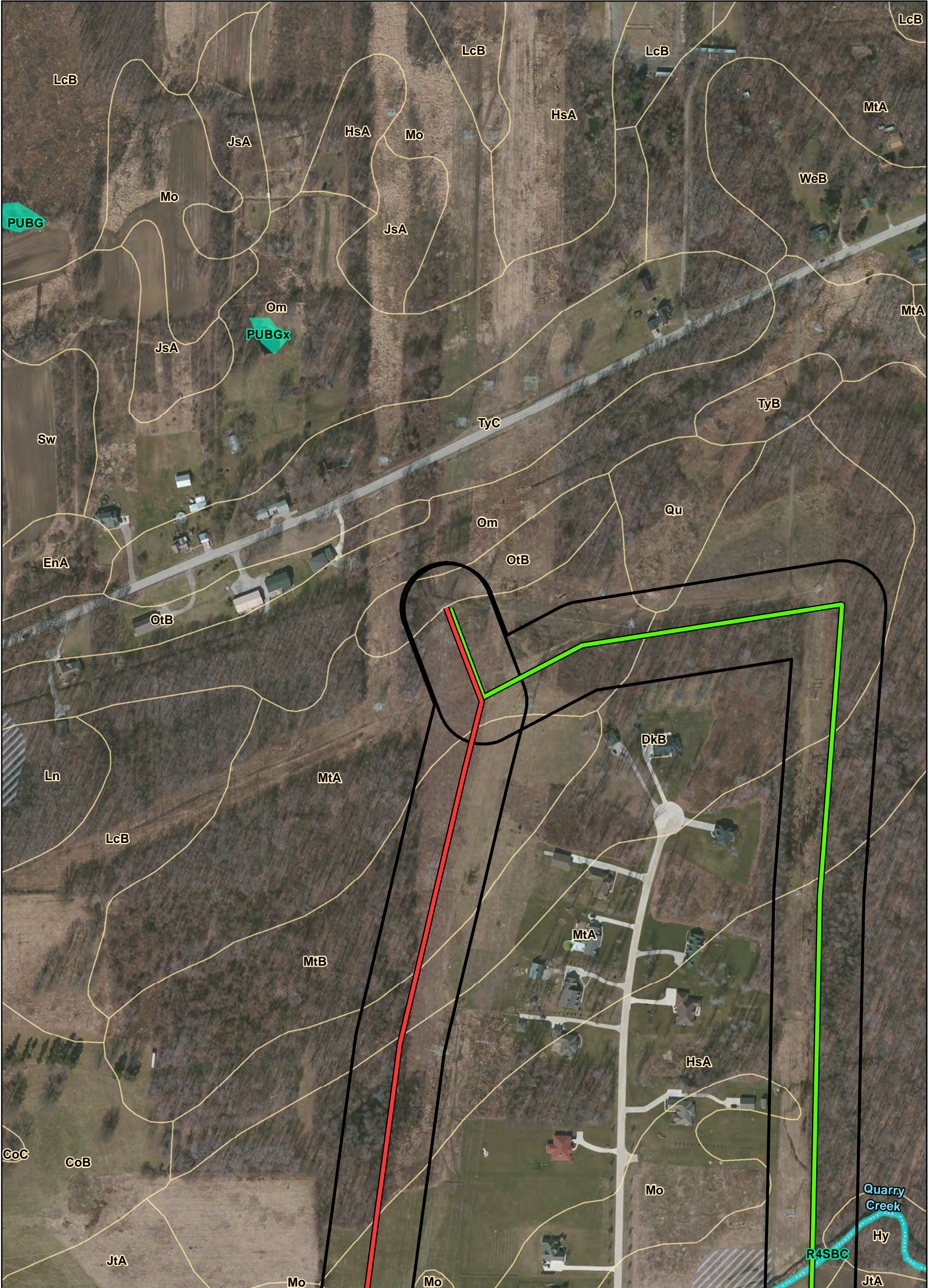
| | | | | | |
|-------------------------------|-----------------|------------------------|--|---|--|
| LEGEND: | | LOCATOR MAP | BASE MAP SOURCE: Esri World Imagery | Beaver-Wellington 138 kV Transmission Line Project (Brownhelm Section) | |
| Preferred Route | Soil Unit | | | FIGURE 2-A SOILS, NHD, NWI, FEMA MAP | |
| Alternate Route | FEMA Floodplain | | | | |
| Environmental Survey Corridor | Stream (NHD) | 7/20/2020 | | | |
| Wetland (NWI) | | | | | |



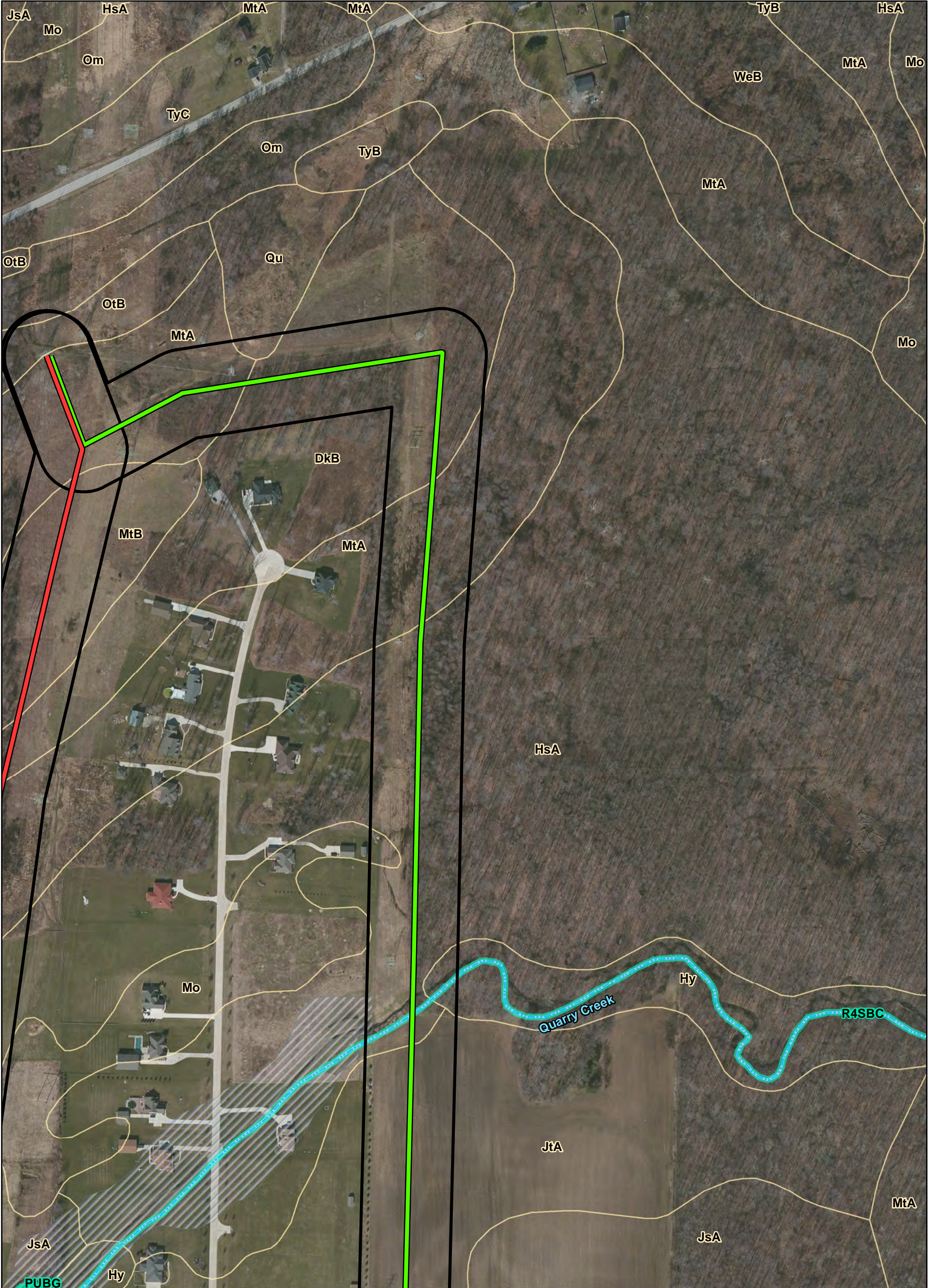
| | | | | | |
|--|--|------------------------|--|--|--|
| LEGEND: <div><div>Preferred Route</div><div>Alternate Route</div><div>Environmental Survey Corridor</div><div>Stream (NHD)</div><div>Wetland (NWI)</div></div> <div><div>Soil Unit</div><div>FEMA Floodplain</div></div> | | LOCATOR MAP | <div><div>N</div><div>BASE MAP SOURCE: Esri World Imagery</div><div>0 100 200</div><div>FEET</div></div> | <div><div>ATSI</div><div>American Transmission Systems, Inc. a subsidiary of FirstEnergy Corp.</div></div> <div><div>Beaver-Wellington 138 kV Transmission Line Project (Brownhelm Section)</div></div> | <div><div>FIGURE 2-B SOILS, NHD, NWI, FEMA MAP</div></div> <div><div>7/20/2020</div><div>Jacobs</div></div> |
|--|--|------------------------|--|--|--|



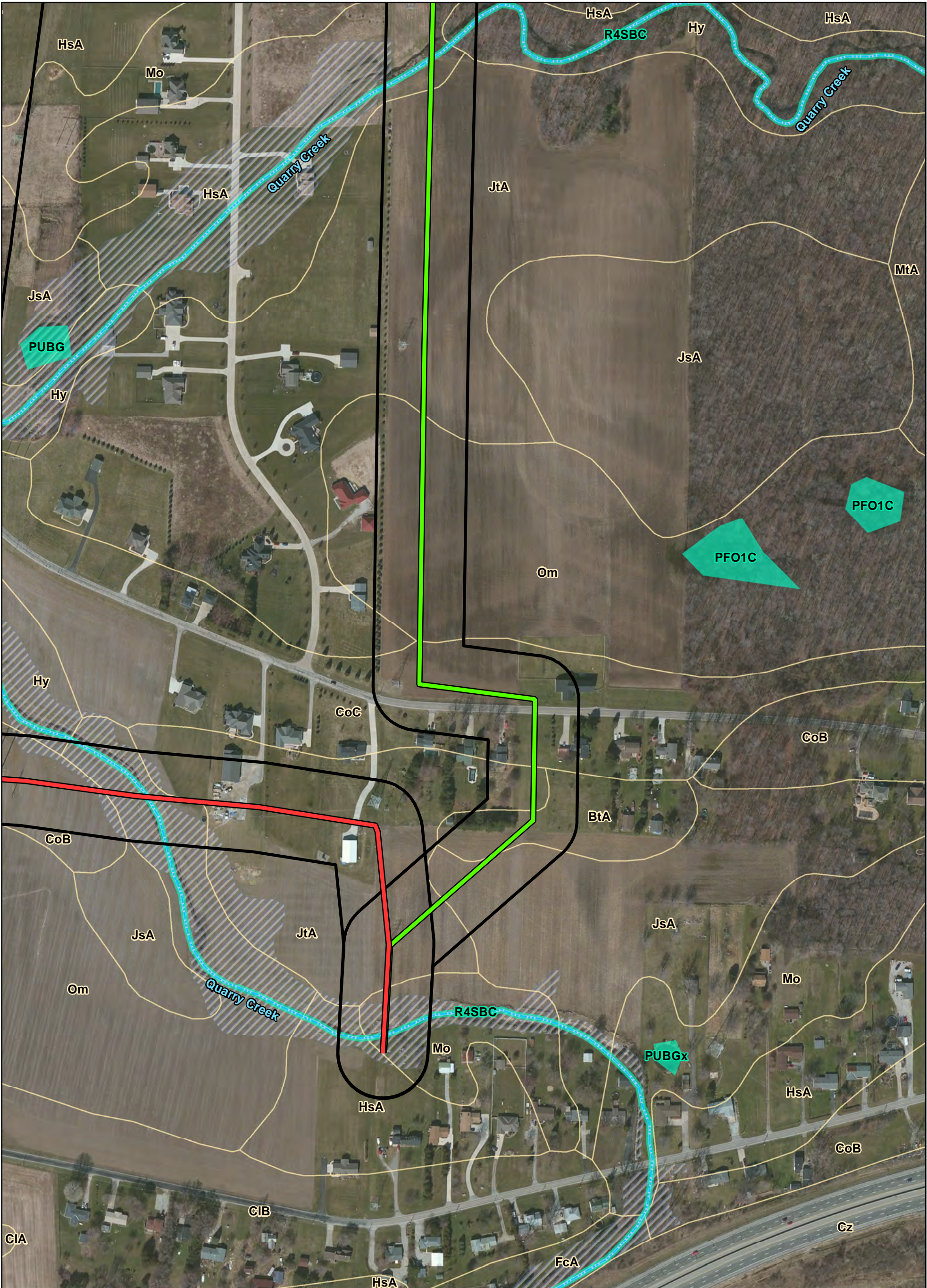
| | | | | |
|---|------------------------|--|--|---------------|
| LEGEND: <div><div></div> Preferred Route</div> <div><div></div> Alternate Route</div> <div><div></div> Environmental Survey Corridor</div> <div><div></div> Stream (NHD)</div> <div><div></div> Wetland (NWI)</div> <div><div></div> Soil Unit</div> <div><div></div> FEMA Floodplain</div> | LOCATOR MAP | <div><div>N</div><div></div></div> <div>BASE MAP SOURCE: Esri World Imagery</div> <div>0 100 200</div> <div>FEET</div> | <div><div>ATSI</div><div>American Transmission Systems, Inc. <small>a subsidiary of FirstEnergy Corp.</small></div></div> <div>Beaver-Wellington 138 kV Transmission Line Project (Brownhelm Section)</div> | |
| | | | FIGURE 2-C SOILS, NHD, NWI, FEMA MAP | |
| | | | 7/20/2020 | Jacobs |



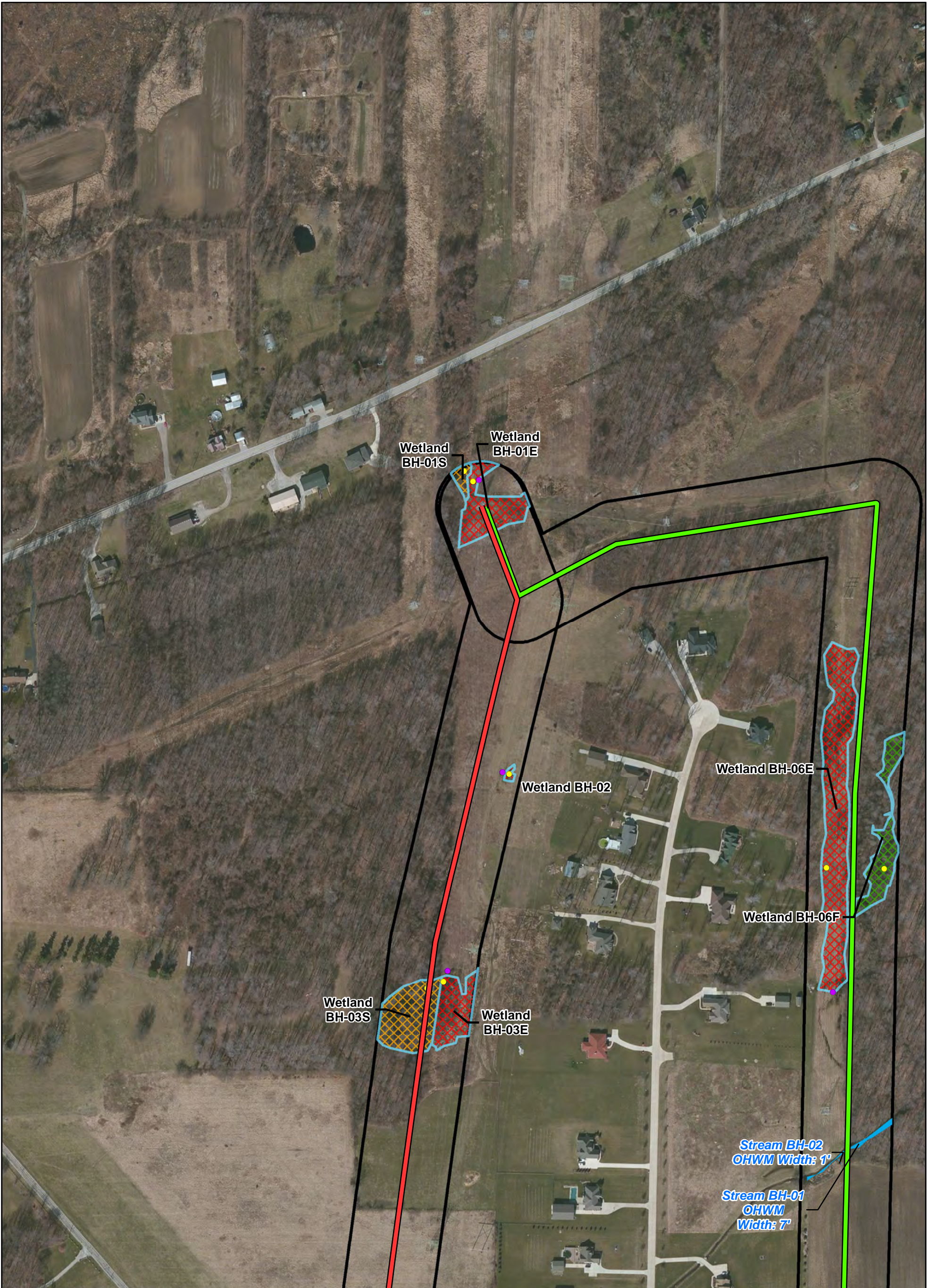
| | | | | | |
|--|--|------------------------|--|--|---|
| LEGEND: <div><div><div><div></div><div>Preferred Route</div></div><div><div></div><div>Alternate Route</div></div><div><div></div><div>Environmental Survey Corridor</div></div><div><div></div><div>Stream (NHD)</div></div><div><div></div><div>Wetland (NWI)</div></div></div><div><div><div></div><div>Soil Unit</div></div><div><div></div><div>FEMA Floodplain</div></div></div></div> | | LOCATOR MAP | <div><div>N</div><div></div><div>BASE MAP SOURCE: Esri World Imagery</div><div><div>0</div><div>100</div><div>200</div></div><div>FEET</div></div> | <div><div>ATSI American Transmission Systems, Inc. <small>a subsidiary of FirstEnergy Corp.</small></div><div>Beaver-Wellington 138 kV Transmission Line Project (Brownhelm Section)</div></div> | <div><div>FIGURE 2-D SOILS, NHD, NWI, FEMA MAP</div><div>7/20/2020</div></div> <div><div>Jacobs</div></div> |
|--|--|------------------------|--|--|---|



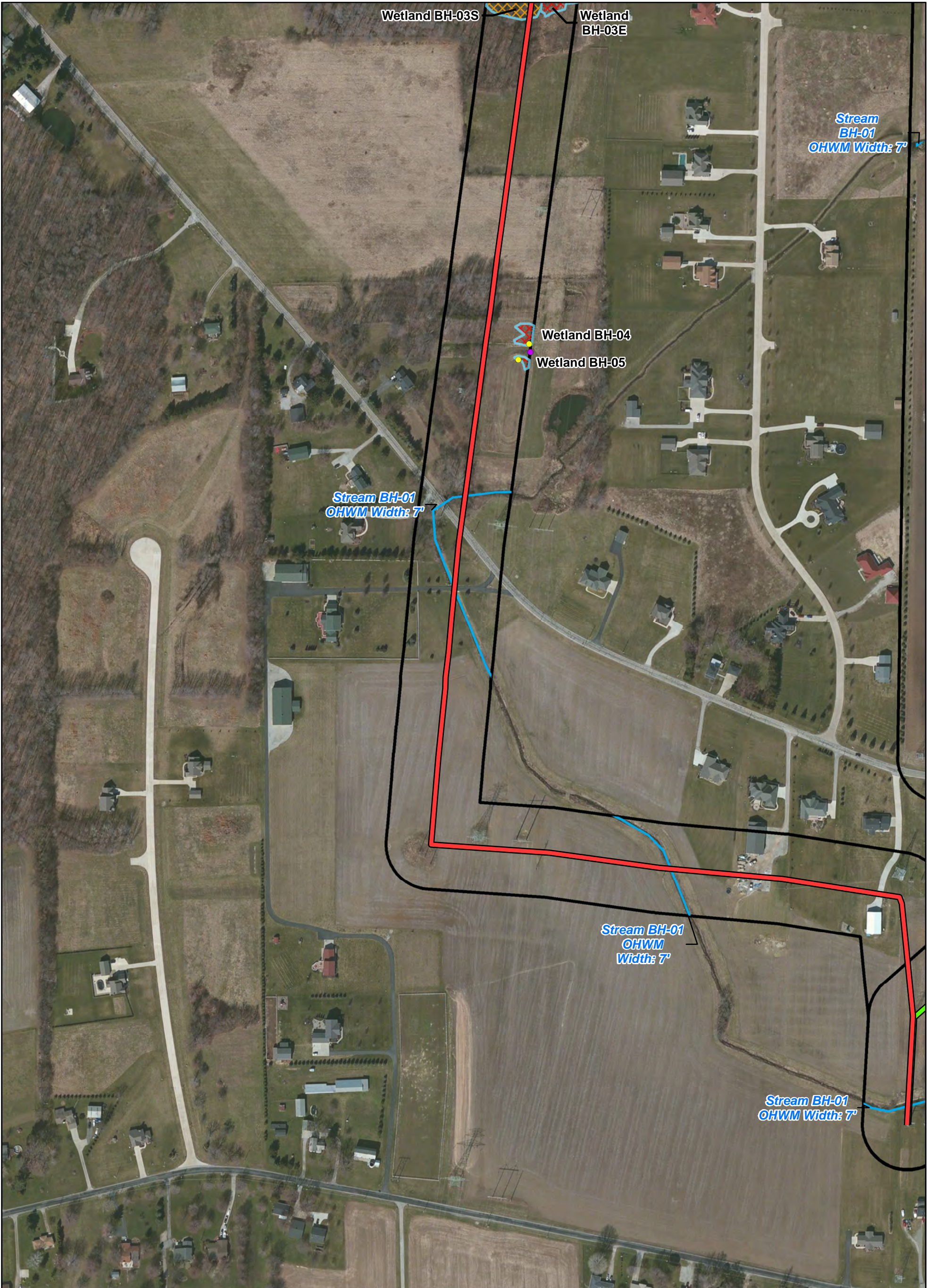
| | | | | |
|--|--|------------------------|--|---|
| LEGEND: <div><div>Preferred Route</div><div>Alternate Route</div><div>Environmental Survey Corridor</div><div>Stream (NHD)</div><div>Wetland (NWI)</div></div> <div><div>Soil Unit</div><div>FEMA Floodplain</div></div> | | LOCATOR MAP | <div><div>N</div><div>BASE MAP SOURCE: Esri World Imagery</div><div>0 100 200</div><div>FEET</div></div> | <div><div>ATSI American Transmission Systems, Inc. <small>a subsidiary of FirstEnergy Corp.</small></div><div>Beaver-Wellington 138 kV Transmission Line Project (Brownhelm Section)</div></div> <div><div>FIGURE 2-E SOILS, NHD, NWI, FEMA MAP</div><div>7/20/2020</div><div>Jacobs</div></div> |
|--|--|------------------------|--|---|



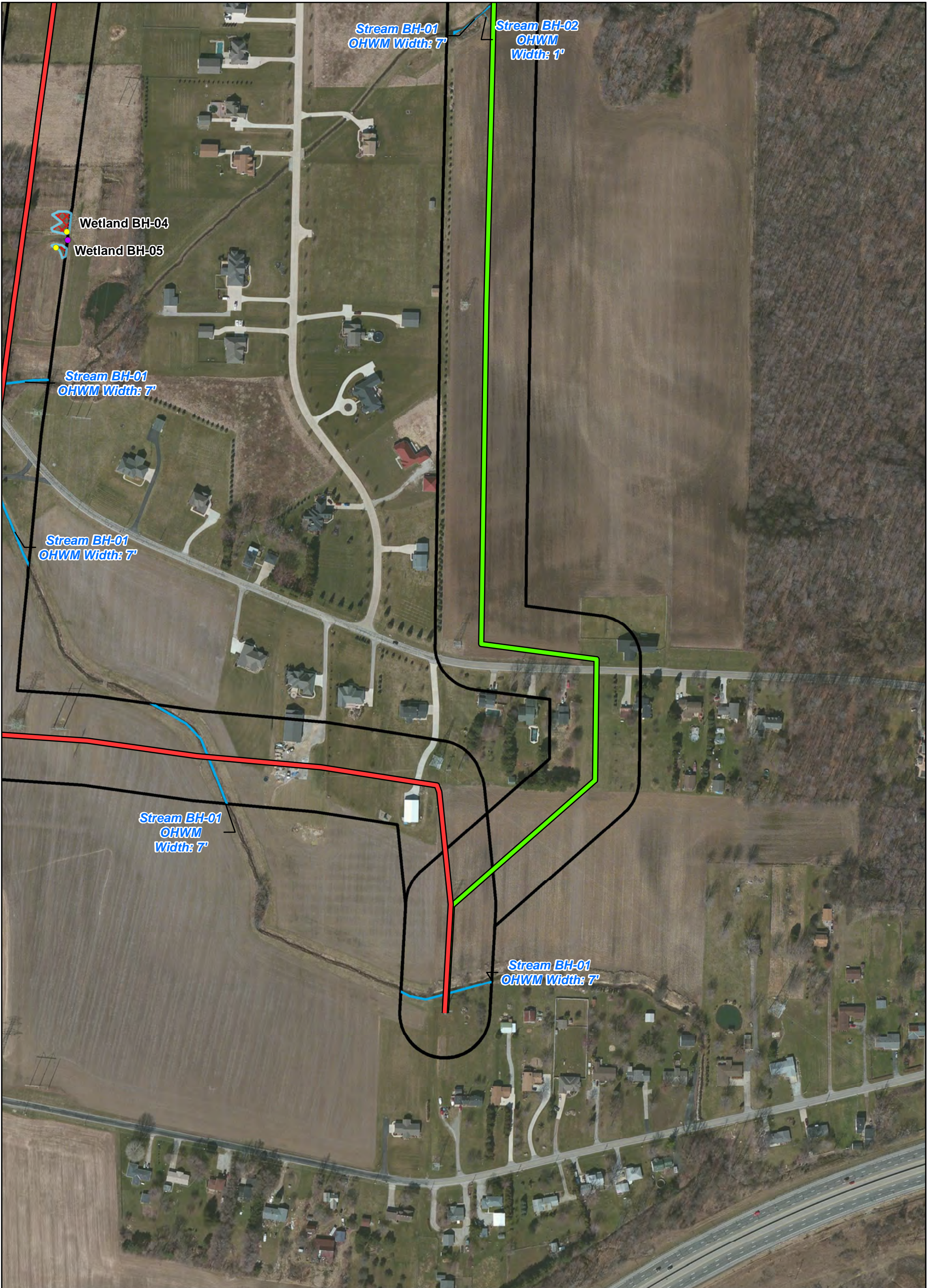
| | | | | |
|---|------------------------|--|--|---------------|
| LEGEND: <div><div></div> Preferred Route</div> <div><div></div> Alternate Route</div> <div><div></div> Environmental Survey Corridor</div> <div><div></div> Stream (NHD)</div> <div><div></div> Wetland (NWI)</div> <div><div></div> Soil Unit</div> <div><div></div> FEMA Floodplain</div> | LOCATOR MAP | <div><div>N</div><div></div></div> <div>BASE MAP SOURCE: Esri World Imagery</div> <div>0 100 200</div> <div>FEET</div> | <div><div>ATSI</div><div>American Transmission Systems, Inc. <small>a subsidiary of FirstEnergy Corp.</small></div></div> <div>Beaver-Wellington 138 kV Transmission Line Project (Brownhelm Section)</div> | |
| | | | FIGURE 2-F SOILS, NHD, NWI, FEMA MAP | |
| | | | 7/20/2020 | Jacobs |



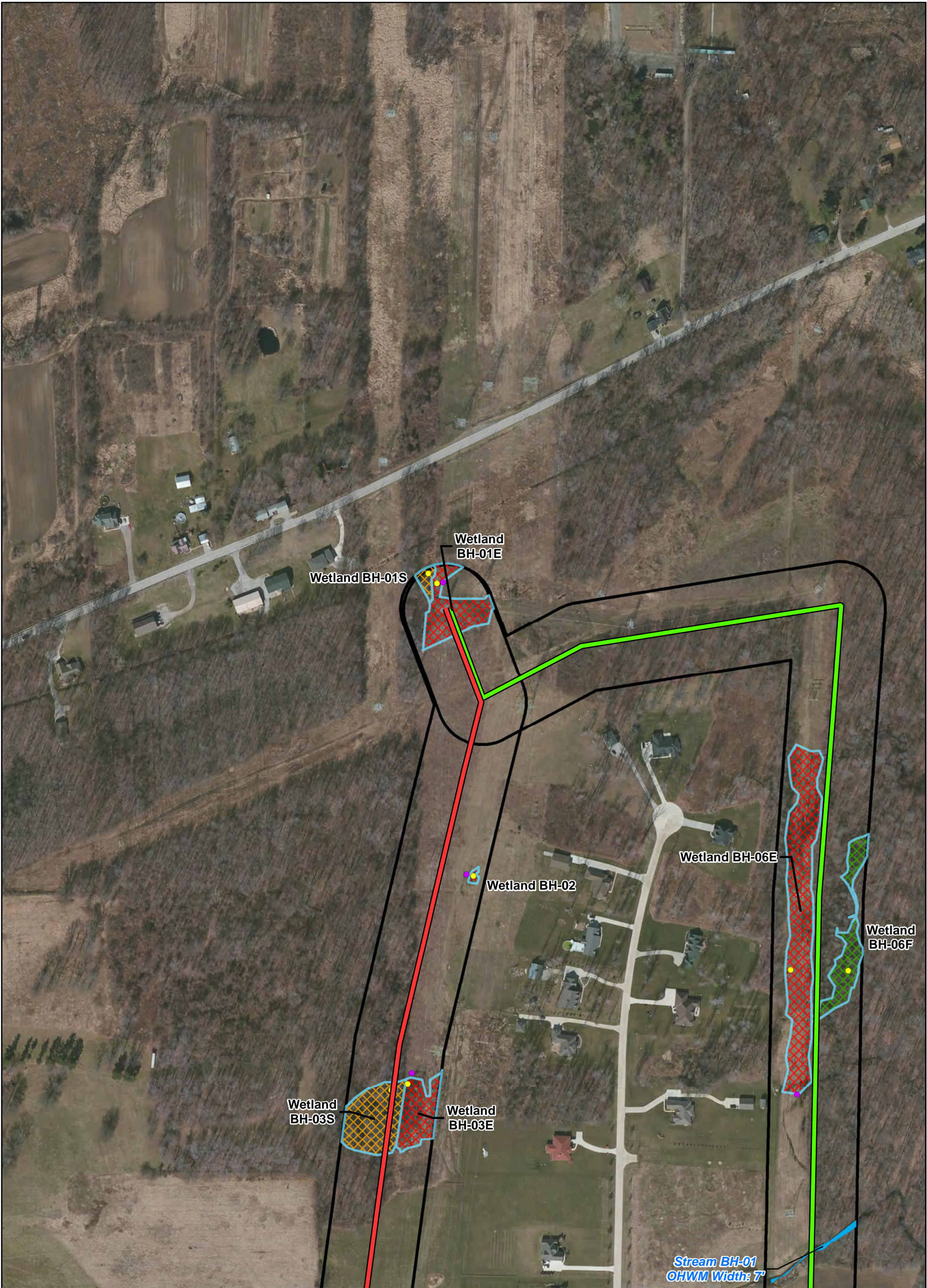
| | | | | |
|---|------------------------|---|--|-------------------|
| LEGEND: <div><div>Preferred Route</div><div>Alternative Route</div><div>Environmental Survey Corridor</div><div>Upland Data Point</div><div>Wetland Data Point</div></div> <div><div>Delineated Stream</div><div>Delineated PEM Wetland</div><div>Delineated PFO Wetland</div><div>Delineated PSS Wetland</div></div> | LOCATOR MAP | <div><div>N</div><div>BASE MAP SOURCE: Esri World Imagery</div><div><div>0100200</div><div>FEET</div></div></div> | <div><div>ATSI</div><div>American Transmission Systems, Inc. <small>a subsidiary of FirstEnergy Corp.</small></div></div> <div>Beaver-Wellington 138 kV Transmission Line Project (Brownhelm Section)</div> | |
| | | | <div>FIGURE 3-A DELINEATED FEATURES MAP</div> | |
| | | | <div>7/20/2020</div> | <div>Jacobs</div> |



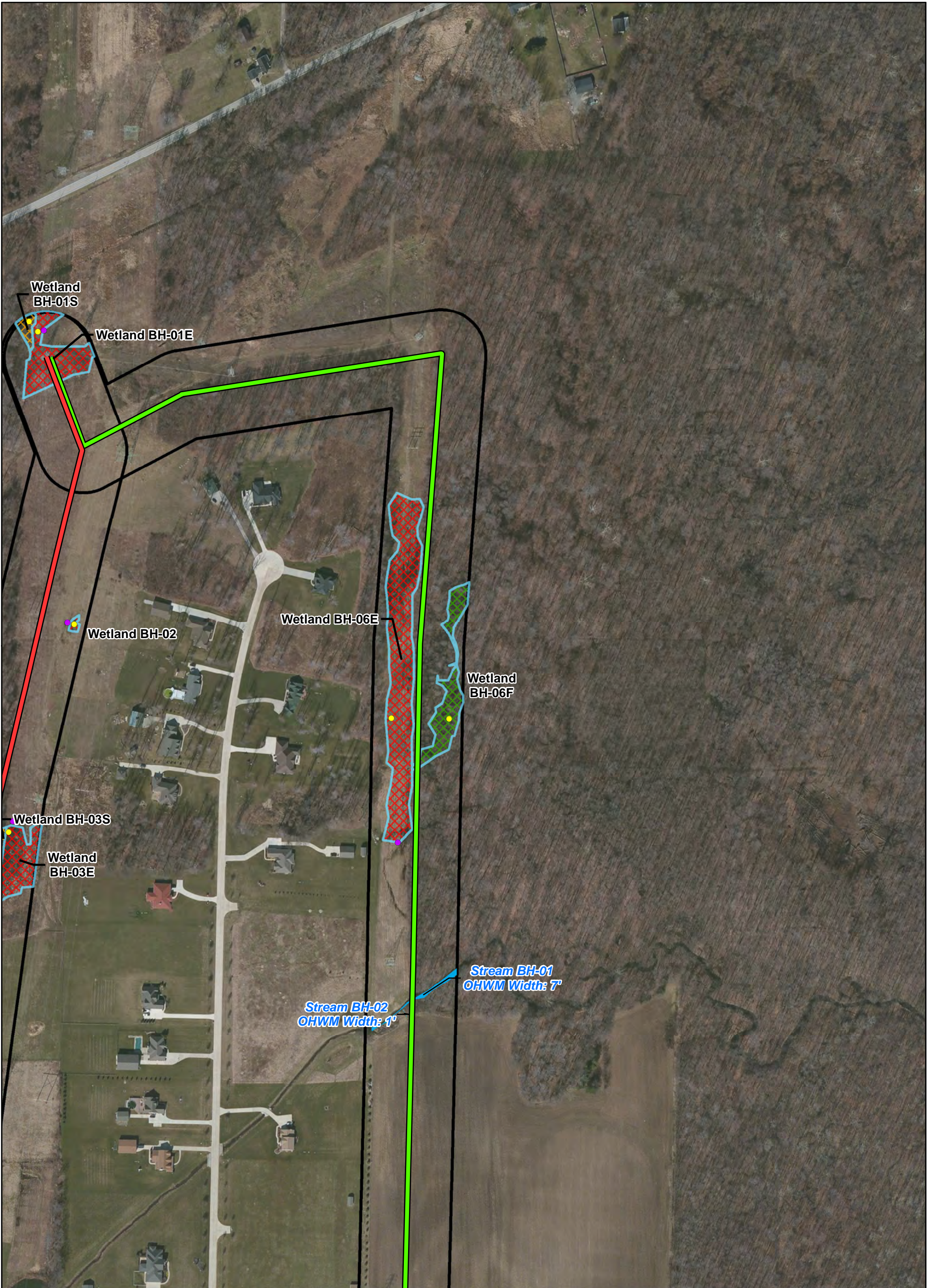
| | | | | | | |
|-------------------------------|------------------------|------------------------|------------------------|-----------|---|--|
| LEGEND: | | LOCATOR MAP | | | | Beaver-Wellington 138 kV Transmission Line Project (Brownhelm Section) |
| Preferred Route | Delineated Stream | Alternative Route | Delineated PEM Wetland | | FIGURE 3-B DELINEATED FEATURES MAP | |
| Environmental Survey Corridor | Delineated PFO Wetland | Delineated PSS Wetland | Upland Data Point | | | |
| Wetland Data Point | | | | 7/20/2020 | | |



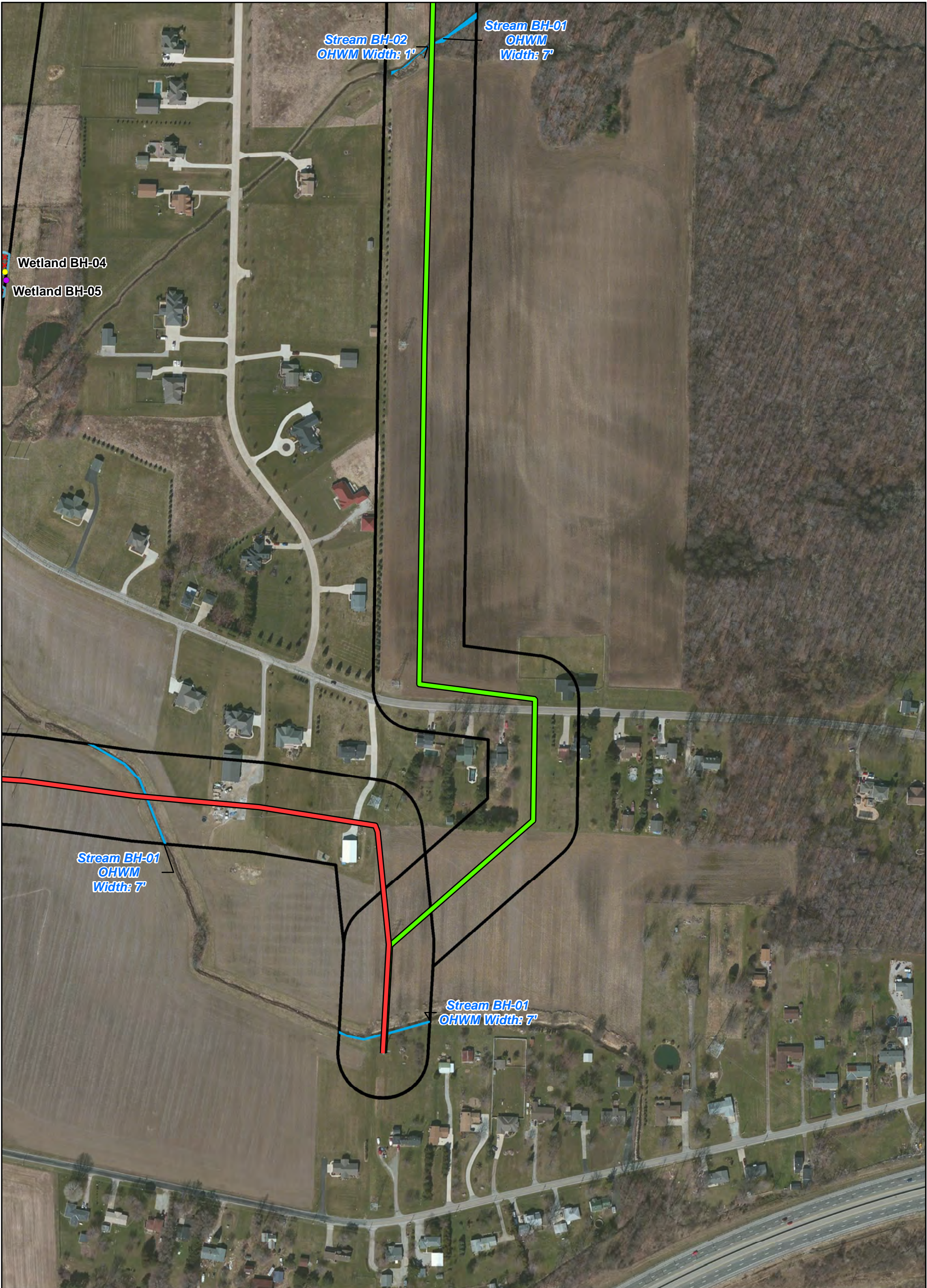
| | | | | |
|---|------------------------|---|--|-------------------|
| LEGEND: <div><div>Preferred Route</div><div>Alternative Route</div><div>Environmental Survey Corridor</div><div>Upland Data Point</div><div>Wetland Data Point</div></div> <div><div>Delineated Stream</div><div>Delineated PEM Wetland</div><div>Delineated PFO Wetland</div><div>Delineated PSS Wetland</div></div> | LOCATOR MAP | <div><div>N</div><div>BASE MAP SOURCE: Esri World Imagery</div><div><div>0100200</div><div>FEET</div></div></div> | <div><div>ATSI</div><div>American Transmission Systems, Inc. <small>a subsidiary of FirstEnergy Corp.</small></div></div> <div>Beaver-Wellington 138 kV Transmission Line Project (Brownhelm Section)</div> | |
| | | | <div>FIGURE 3-C DELINEATED FEATURES MAP</div> | |
| | | | <div>7/20/2020</div> | <div>Jacobs</div> |



| | | | | | |
|-------------------------------|------------------------|------------------------|--|---|--|
| LEGEND: | | LOCATOR MAP | | | Beaver-Wellington 138 kV Transmission Line Project (Brownhelm Section) |
| Preferred Route | Delineated Stream | | | FIGURE 3-D DELINEATED FEATURES MAP | |
| Alternative Route | Delineated PEM Wetland | | | | |
| Environmental Survey Corridor | Delineated PFO Wetland | 7/20/2020 | | | |
| Upland Data Point | Delineated PSS Wetland | | | | |
| Wetland Data Point | | | | | |



| | | | | |
|-------------------------------|------------------------|------------------------|---|---|
| LEGEND: | | LOCATOR MAP | BASE MAP SOURCE: Esri World Imagery 0 100 200 FEET | Beaver-Wellington 138 kV Transmission Line Project (Brownhelm Section) |
| Preferred Route | Delineated Stream | | | FIGURE 3-E DELINEATED FEATURES MAP |
| Alternative Route | Delineated PEM Wetland | | | 7/20/2020 |
| Environmental Survey Corridor | Delineated PFO Wetland | | | |
| Upland Data Point | Delineated PSS Wetland | | | |
| Wetland Data Point | | | | |



| | | | | |
|---|------------------------|---|--|-------------------|
| LEGEND: <div><div>Preferred Route</div><div>Alternative Route</div><div>Environmental Survey Corridor</div><div>Upland Data Point</div><div>Wetland Data Point</div></div> <div><div>Delineated Stream</div><div>Delineated PEM Wetland</div><div>Delineated PFO Wetland</div><div>Delineated PSS Wetland</div></div> | LOCATOR MAP | <div><div>N</div><div>BASE MAP SOURCE: Esri World Imagery</div><div><div>0100200</div><div>FEET</div></div></div> | <div><div>ATSI</div><div>American Transmission Systems, Inc. <small>a subsidiary of FirstEnergy Corp.</small></div></div> <div>Beaver-Wellington 138 kV Transmission Line Project (Brownhelm Section)</div> | |
| | | | <div>FIGURE 3-F DELINEATED FEATURES MAP</div> | |
| | | | <div>7/20/2020</div> | <div>Jacobs</div> |

Appendix A
USACE Wetland Determination Field Datasheets

WETLAND DETERMINATION DATA FORM – Northcentral and Northeast Region

Project/Site: Beaver-Henrietta 138 kV Transmission Line City/County: Amherst Township, Lorain County Sampling Date: 11/19/2019
 Applicant/Owner: FirstEnergy State: OH Sampling Point: W-BCR-111919-02E
 Investigator(s): JFW, BCR Section, Township, Range: N/A
 Landform (hillslope, terrace, etc.): Flat Local relief (concave, convex, none): Flat Slope (%): 0
 Subregion (LRR or MLRA): LRR R Lat: 41.39105 Long: -82.26879 Datum: WGS 84
 Soil Map Unit Name: OtB - Oshtemo sandy loam, 2 to 6 percent slopes NWI classification: none

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No _____ (If no, explain in Remarks.)
 Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes X No _____
 Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

| | |
|---|---|
| Hydrophytic Vegetation Present? Yes <u>X</u> No _____ | Is the Sampled Area within a Wetland? Yes <u>X</u> No _____ If yes, optional Wetland Site ID: _____ |
| Hydric Soil Present? Yes <u>X</u> No _____ | |
| Wetland Hydrology Present? Yes <u>X</u> No _____ | |
| Remarks: (Explain alternative procedures here or in a separate report.) PEM in an existing T-line ROW, extends beyond ESA to the north. Wetland extends west outside of ROW and transitions to PSS (W-BCR-111919-02S). Just south of N Ridge Rd. | |

HYDROLOGY

| | | |
|---|---|---|
| Wetland Hydrology Indicators: Primary Indicators (minimum of one is required; check all that apply) | | Secondary Indicators (minimum of two required) |
| <input type="checkbox"/> Surface Water (A1) <input checked="" type="checkbox"/> High Water Table (A2) <input type="checkbox"/> Saturation (A3) <input type="checkbox"/> Water Marks (B1) <input type="checkbox"/> Sediment Deposits (B2) <input type="checkbox"/> Drift Deposits (B3) <input type="checkbox"/> Algal Mat or Crust (B4) <input type="checkbox"/> Iron Deposits (B5) <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) <input type="checkbox"/> Sparsely Vegetated Concave Surface (B8) | <input type="checkbox"/> Water-Stained Leaves (B9) <input type="checkbox"/> Aquatic Fauna (B13) <input type="checkbox"/> Marl Deposits (B15) <input type="checkbox"/> Hydrogen Sulfide Odor (C1) <input type="checkbox"/> Oxidized Rhizospheres on Living Roots (C3) <input type="checkbox"/> Presence of Reduced Iron (C4) <input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6) <input type="checkbox"/> Thin Muck Surface (C7) <input type="checkbox"/> Other (Explain in Remarks) | <input type="checkbox"/> Surface Soil Cracks (B6) <input type="checkbox"/> Drainage Patterns (B10) <input type="checkbox"/> Moss Trim Lines (B16) <input type="checkbox"/> Dry-Season Water Table (C2) <input type="checkbox"/> Crayfish Burrows (C8) <input type="checkbox"/> Saturation Visible on Aerial Imagery (C9) <input type="checkbox"/> Stunted or Stressed Plants (D1) <input checked="" type="checkbox"/> Geomorphic Position (D2) <input type="checkbox"/> Shallow Aquitard (D3) <input type="checkbox"/> Microtopographic Relief (D4) <input checked="" type="checkbox"/> FAC-Neutral Test (D5) |
| Field Observations: Surface Water Present? Yes _____ No <u>X</u> Depth (inches): _____ Water Table Present? Yes <u>X</u> No _____ Depth (inches): <u>17.00</u> Saturation Present? Yes _____ No <u>X</u> Depth (inches): _____ (includes capillary fringe) | | Wetland Hydrology Present? Yes <u>X</u> No _____ |
| Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available: | | |
| Remarks: surface water present outside of ESA | | |

VEGETATION – Use scientific names of plants.

Sampling Point: W-BCR-111919-02E

| Tree Stratum (Plot size: 30) | Absolute % Cover | Dominant Species? | Indicator Status | | | | | | | | | | | | | | | |
|---|------------------|-------------------|------------------|--|-------------------|--------------|-----------------------|-----------------|------------------------|------------------|----------------------|----------------|-----------------------|-----------------|----------------------|----------------|-------------------------------|----------------|
| 1. _____ | _____ | _____ | _____ | Dominance Test worksheet: Number of Dominant Species That Are OBL, FACW, or FAC: <u>1</u> (A) Total Number of Dominant Species Across All Strata: <u>1</u> (B) Percent of Dominant Species That Are OBL, FACW, or FAC: <u>100.00</u> (A/B) | | | | | | | | | | | | | | |
| 2. _____ | _____ | _____ | _____ | | | | | | | | | | | | | | | |
| 3. _____ | _____ | _____ | _____ | | | | | | | | | | | | | | | |
| 4. _____ | _____ | _____ | _____ | | | | | | | | | | | | | | | |
| 5. _____ | _____ | _____ | _____ | | | | | | | | | | | | | | | |
| 6. _____ | _____ | _____ | _____ | | | | | | | | | | | | | | | |
| 7. _____ | _____ | _____ | _____ | | | | | | | | | | | | | | | |
| <u>0</u> = Total Cover | | | | Prevalence Index worksheet: <table style="width: 100%;"> <tr> <th style="text-align: left;">Total % Cover of:</th> <th style="text-align: left;">Multiply by:</th> </tr> <tr> <td>OBL species <u>20</u></td> <td>x 1 = <u>20</u></td> </tr> <tr> <td>FACW species <u>80</u></td> <td>x 2 = <u>160</u></td> </tr> <tr> <td>FAC species <u>0</u></td> <td>x 3 = <u>0</u></td> </tr> <tr> <td>FACU species <u>3</u></td> <td>x 4 = <u>12</u></td> </tr> <tr> <td>UPL species <u>0</u></td> <td>x 5 = <u>0</u></td> </tr> <tr> <td>Column Totals: <u>103</u> (A)</td> <td><u>192</u> (B)</td> </tr> </table> Prevalence Index = B/A = <u>1.86</u> | Total % Cover of: | Multiply by: | OBL species <u>20</u> | x 1 = <u>20</u> | FACW species <u>80</u> | x 2 = <u>160</u> | FAC species <u>0</u> | x 3 = <u>0</u> | FACU species <u>3</u> | x 4 = <u>12</u> | UPL species <u>0</u> | x 5 = <u>0</u> | Column Totals: <u>103</u> (A) | <u>192</u> (B) |
| Total % Cover of: | Multiply by: | | | | | | | | | | | | | | | | | |
| OBL species <u>20</u> | x 1 = <u>20</u> | | | | | | | | | | | | | | | | | |
| FACW species <u>80</u> | x 2 = <u>160</u> | | | | | | | | | | | | | | | | | |
| FAC species <u>0</u> | x 3 = <u>0</u> | | | | | | | | | | | | | | | | | |
| FACU species <u>3</u> | x 4 = <u>12</u> | | | | | | | | | | | | | | | | | |
| UPL species <u>0</u> | x 5 = <u>0</u> | | | | | | | | | | | | | | | | | |
| Column Totals: <u>103</u> (A) | <u>192</u> (B) | | | | | | | | | | | | | | | | | |
| <u>0</u> = Total Cover | | | | | | | | | | | | | | | | | | |
| Sapling/Shrub Stratum (Plot size: 15) | | | | | | | | | | | | | | | | | | |
| 1. _____ | _____ | _____ | _____ | | | | | | | | | | | | | | | |
| 2. _____ | _____ | _____ | _____ | | | | | | | | | | | | | | | |
| 3. _____ | _____ | _____ | _____ | | | | | | | | | | | | | | | |
| 4. _____ | _____ | _____ | _____ | | | | | | | | | | | | | | | |
| 5. _____ | _____ | _____ | _____ | | | | | | | | | | | | | | | |
| 6. _____ | _____ | _____ | _____ | | | | | | | | | | | | | | | |
| 7. _____ | _____ | _____ | _____ | | | | | | | | | | | | | | | |
| <u>0</u> = Total Cover | | | | | | | | | | | | | | | | | | |
| Herb Stratum (Plot size: 5) | | | | | | | | | | | | | | | | | | |
| 1. <u>Juncus effusus</u> | <u>10</u> | <u>N</u> | <u>OBL</u> | Hydrophytic Vegetation Indicators: <input checked="" type="checkbox"/> 1 - Rapid Test for Hydrophytic Vegetation <input checked="" type="checkbox"/> 2 - Dominance Test is >50% <input checked="" type="checkbox"/> 3 - Prevalence Index is ≤3.0 ¹ ___ 4 - Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet) ___ Problematic Hydrophytic Vegetation ¹ (Explain) ¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic. | | | | | | | | | | | | | | |
| 2. <u>Typha angustifolia</u> | <u>10</u> | <u>N</u> | <u>OBL</u> | | | | | | | | | | | | | | | |
| 3. <u>Phalaris arundinacea</u> | <u>70</u> | <u>Y</u> | <u>FACW</u> | | | | | | | | | | | | | | | |
| 4. <u>Dichanthelium clandestinum</u> | <u>10</u> | <u>N</u> | <u>FACW</u> | | | | | | | | | | | | | | | |
| 5. <u>Rubus allegheniensis</u> | <u>3</u> | <u>N</u> | <u>FACU</u> | | | | | | | | | | | | | | | |
| 6. _____ | _____ | _____ | _____ | | | | | | | | | | | | | | | |
| 7. _____ | _____ | _____ | _____ | | | | | | | | | | | | | | | |
| 8. _____ | _____ | _____ | _____ | | | | | | | | | | | | | | | |
| 9. _____ | _____ | _____ | _____ | | | | | | | | | | | | | | | |
| 10. _____ | _____ | _____ | _____ | | | | | | | | | | | | | | | |
| 11. _____ | _____ | _____ | _____ | | | | | | | | | | | | | | | |
| 12. _____ | _____ | _____ | _____ | | | | | | | | | | | | | | | |
| <u>103</u> = Total Cover | | | | | | | | | | | | | | | | | | |
| Woody Vine Stratum (Plot size: 30) | | | | | | | | | | | | | | | | | | |
| 1. _____ | _____ | _____ | _____ | | | | | | | | | | | | | | | |
| 2. _____ | _____ | _____ | _____ | | | | | | | | | | | | | | | |
| 3. _____ | _____ | _____ | _____ | | | | | | | | | | | | | | | |
| 4. _____ | _____ | _____ | _____ | | | | | | | | | | | | | | | |
| <u>0</u> = Total Cover | | | | | | | | | | | | | | | | | | |
| Remarks: (Include photo numbers here or on a separate sheet.) | | | | | | | | | | | | | | | | | | |

SOIL

Sampling Point: W-BCR-111919-02E

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

[illegible]

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains.

²Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- | | |
|--|---|
| <input type="checkbox"/> Histosol (A1) | <input type="checkbox"/> Polyvalue Below Surface (S8) (LRR R, MLRA 149B) |
| <input type="checkbox"/> Histic Epipedon (A2) | <input type="checkbox"/> Thin Dark Surface (S9) (LRR R, MLRA 149B) |
| <input type="checkbox"/> Black Histic (A3) | <input type="checkbox"/> Loamy Mucky Mineral (F1) (LRR K, L) |
| <input type="checkbox"/> Hydrogen Sulfide (A4) | <input type="checkbox"/> Loamy Gleyed Matrix (F2) |
| <input type="checkbox"/> Stratified Layers (A5) | <input checked="" type="checkbox"/> Depleted Matrix (F3) |
| <input type="checkbox"/> Depleted Below Dark Surface (A11) | <input type="checkbox"/> Redox Dark Surface (F6) |
| <input type="checkbox"/> Thick Dark Surface (A12) | <input type="checkbox"/> Depleted Dark Surface (F7) |
| <input type="checkbox"/> Sandy Mucky Mineral (S1) | <input type="checkbox"/> Redox Depressions (F8) |
| <input type="checkbox"/> Sandy Gleyed Matrix (S4) | |
| <input type="checkbox"/> Sandy Redox (S5) | |
| <input type="checkbox"/> Stripped Matrix (S6) | |
| <input type="checkbox"/> Dark Surface (S7) (LRR R, MLRA 149B) | |

Indicators for Problematic Hydric Soils³:

- ☐ 2 cm Muck (A10) (**LRR K, L, MLRA 149B**)
- ☐ Coast Prairie Redox (A16) (**LRR K, L, R**)
- ☐ 5 cm Mucky Peat or Peat (S3) (**LRR K, L, R**)
- ☐ Dark Surface (S7) (**LRR K, L, M**)
- ☐ Polyvalue Below Surface (S8) (**LRR K, L**)
- ☐ Thin Dark Surface (S9) (**LRR K, L**)
- ☐ Iron-Manganese Masses (F12) (**LRR K, L, R**)
- ☐ Piedmont Floodplain Soils (F19) (**MLRA 149B**)
- ☐ Mesic Spodic (TA6) (**MLRA 144A, 145, 149B**)
- ☐ Red Parent Material (F21)
- ☐ Very Shallow Dark Surface (TF12)
- ☐ Other (Explain in Remarks)

³Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed): No

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes X No

Remarks:



north



east



south



west



soil profile

WETLAND DETERMINATION DATA FORM – Northcentral and Northeast Region

Project/Site: Beaver-Henrietta 138 kV Transmission Line City/County: Amherst Township, Lorain County Sampling Date: 11/19/2019
 Applicant/Owner: FirstEnergy State: OH Sampling Point: W-BCR-111919-02S
 Investigator(s): JFW, BCR Section, Township, Range: N/A
 Landform (hillslope, terrace, etc.): Flat Local relief (concave, convex, none): Undulating Slope (%): 0
 Subregion (LRR or MLRA): LRR R Lat: 41.39110 Long: -82.26890 Datum: WGS 84
 Soil Map Unit Name: Om - Olmsted fine sandy loam NWI classification: none

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No _____ (If no, explain in Remarks.)
 Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes X No _____
 Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

| | |
|--|---|
| Hydrophytic Vegetation Present? Yes <u>X</u> No _____ | Is the Sampled Area within a Wetland? Yes <u>X</u> No _____ If yes, optional Wetland Site ID: _____ |
| Hydric Soil Present? Yes <u>X</u> No _____ | |
| Wetland Hydrology Present? Yes <u>X</u> No _____ | |
| Remarks: (Explain alternative procedures here or in a separate report.) PSS just outside of existing T-line ROW. Wetland extends east into ROW and transitions to PEM (W-BCR-111919-02E). | |

HYDROLOGY

| | | |
|--|---|---|
| Wetland Hydrology Indicators: Primary Indicators (minimum of one is required; check all that apply) | | Secondary Indicators (minimum of two required) |
| <input type="checkbox"/> Surface Water (A1) <input type="checkbox"/> High Water Table (A2) <input type="checkbox"/> Saturation (A3) <input type="checkbox"/> Water Marks (B1) <input type="checkbox"/> Sediment Deposits (B2) <input type="checkbox"/> Drift Deposits (B3) <input type="checkbox"/> Algal Mat or Crust (B4) <input type="checkbox"/> Iron Deposits (B5) <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) <input type="checkbox"/> Sparsely Vegetated Concave Surface (B8) | <input type="checkbox"/> Water-Stained Leaves (B9) <input type="checkbox"/> Aquatic Fauna (B13) <input type="checkbox"/> Marl Deposits (B15) <input type="checkbox"/> Hydrogen Sulfide Odor (C1) <input type="checkbox"/> Oxidized Rhizospheres on Living Roots (C3) <input type="checkbox"/> Presence of Reduced Iron (C4) <input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6) <input type="checkbox"/> Thin Muck Surface (C7) <input type="checkbox"/> Other (Explain in Remarks) | <input type="checkbox"/> Surface Soil Cracks (B6) <input type="checkbox"/> Drainage Patterns (B10) <input type="checkbox"/> Moss Trim Lines (B16) <input type="checkbox"/> Dry-Season Water Table (C2) <input type="checkbox"/> Crayfish Burrows (C8) <input type="checkbox"/> Saturation Visible on Aerial Imagery (C9) <input type="checkbox"/> Stunted or Stressed Plants (D1) <input checked="" type="checkbox"/> Geomorphic Position (D2) <input type="checkbox"/> Shallow Aquitard (D3) <input type="checkbox"/> Microtopographic Relief (D4) <input checked="" type="checkbox"/> FAC-Neutral Test (D5) |
| Field Observations: Surface Water Present? Yes _____ No <u>X</u> Depth (inches): _____ Water Table Present? Yes _____ No <u>X</u> Depth (inches): _____ Saturation Present? Yes _____ No <u>X</u> Depth (inches): _____ (includes capillary fringe) | | Wetland Hydrology Present? Yes <u>X</u> No _____ |
| Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available: | | |
| Remarks: | | |

VEGETATION – Use scientific names of plants.

Sampling Point: W-BCR-111919-02S

| Tree Stratum (Plot size: <u>30</u>) | Absolute % Cover | Dominant Species? | Indicator Status | | | | | | | | | | | | | | | |
|---|------------------|-------------------|------------------|---|-------------------|--------------|-----------------------|-----------------|-----------------------|-----------------|-----------------------|------------------|------------------------|-----------------|----------------------|----------------|-------------------------------|----------------|
| 1. <u>Salix nigra</u> | <u>20</u> | <u>Y</u> | <u>OBL</u> | Dominance Test worksheet: Number of Dominant Species That Are OBL, FACW, or FAC: <u>3</u> (A) Total Number of Dominant Species Across All Strata: <u>4</u> (B) Percent of Dominant Species That Are OBL, FACW, or FAC: <u>75.00</u> (A/B) | | | | | | | | | | | | | | |
| 2. _____ | _____ | _____ | _____ | | | | | | | | | | | | | | | |
| 3. _____ | _____ | _____ | _____ | | | | | | | | | | | | | | | |
| 4. _____ | _____ | _____ | _____ | | | | | | | | | | | | | | | |
| 5. _____ | _____ | _____ | _____ | | | | | | | | | | | | | | | |
| 6. _____ | _____ | _____ | _____ | | | | | | | | | | | | | | | |
| 7. _____ | _____ | _____ | _____ | | | | | | | | | | | | | | | |
| <u>20</u> = Total Cover | | | | | | | | | | | | | | | | | | |
| Sapling/Shrub Stratum (Plot size: <u>15</u>) | | | | | | | | | | | | | | | | | | |
| 1. <u>Frangula alnus</u> | <u>30</u> | <u>Y</u> | <u>FAC</u> | Prevalence Index worksheet: <table style="width: 100%;"> <tr> <th style="text-align: left;">Total % Cover of:</th> <th style="text-align: left;">Multiply by:</th> </tr> <tr> <td>OBL species <u>40</u></td> <td>x 1 = <u>40</u></td> </tr> <tr> <td>FACW species <u>5</u></td> <td>x 2 = <u>10</u></td> </tr> <tr> <td>FAC species <u>35</u></td> <td>x 3 = <u>105</u></td> </tr> <tr> <td>FACU species <u>22</u></td> <td>x 4 = <u>88</u></td> </tr> <tr> <td>UPL species <u>0</u></td> <td>x 5 = <u>0</u></td> </tr> <tr> <td>Column Totals: <u>102</u> (A)</td> <td><u>243</u> (B)</td> </tr> </table> Prevalence Index = B/A = <u>2.38</u> | Total % Cover of: | Multiply by: | OBL species <u>40</u> | x 1 = <u>40</u> | FACW species <u>5</u> | x 2 = <u>10</u> | FAC species <u>35</u> | x 3 = <u>105</u> | FACU species <u>22</u> | x 4 = <u>88</u> | UPL species <u>0</u> | x 5 = <u>0</u> | Column Totals: <u>102</u> (A) | <u>243</u> (B) |
| Total % Cover of: | Multiply by: | | | | | | | | | | | | | | | | | |
| OBL species <u>40</u> | x 1 = <u>40</u> | | | | | | | | | | | | | | | | | |
| FACW species <u>5</u> | x 2 = <u>10</u> | | | | | | | | | | | | | | | | | |
| FAC species <u>35</u> | x 3 = <u>105</u> | | | | | | | | | | | | | | | | | |
| FACU species <u>22</u> | x 4 = <u>88</u> | | | | | | | | | | | | | | | | | |
| UPL species <u>0</u> | x 5 = <u>0</u> | | | | | | | | | | | | | | | | | |
| Column Totals: <u>102</u> (A) | <u>243</u> (B) | | | | | | | | | | | | | | | | | |
| 2. <u>Lonicera morrowii</u> | <u>20</u> | <u>Y</u> | <u>FACU</u> | | | | | | | | | | | | | | | |
| 3. <u>Viburnum dentatum</u> | <u>5</u> | <u>N</u> | <u>FAC</u> | | | | | | | | | | | | | | | |
| 4. _____ | _____ | _____ | _____ | | | | | | | | | | | | | | | |
| 5. _____ | _____ | _____ | _____ | | | | | | | | | | | | | | | |
| 6. _____ | _____ | _____ | _____ | | | | | | | | | | | | | | | |
| 7. _____ | _____ | _____ | _____ | | | | | | | | | | | | | | | |
| <u>55</u> = Total Cover | | | | | | | | | | | | | | | | | | |
| Herb Stratum (Plot size: <u>5</u>) | | | | | | | | | | | | | | | | | | |
| 1. <u>Scirpus cyperinus</u> | <u>20</u> | <u>Y</u> | <u>OBL</u> | Hydrophytic Vegetation Indicators: <input type="checkbox"/> 1 - Rapid Test for Hydrophytic Vegetation <input checked="" type="checkbox"/> 2 - Dominance Test is >50% <input checked="" type="checkbox"/> 3 - Prevalence Index is ≤3.0 ¹ <input type="checkbox"/> 4 - Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet) <input type="checkbox"/> Problematic Hydrophytic Vegetation ¹ (Explain) ¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic. | | | | | | | | | | | | | | |
| 2. <u>Onoclea sensibilis</u> | <u>5</u> | <u>N</u> | <u>FACW</u> | | | | | | | | | | | | | | | |
| 3. <u>Andropogon gerardii</u> | <u>2</u> | <u>N</u> | <u>FACU</u> | | | | | | | | | | | | | | | |
| 4. _____ | _____ | _____ | _____ | | | | | | | | | | | | | | | |
| 5. _____ | _____ | _____ | _____ | | | | | | | | | | | | | | | |
| 6. _____ | _____ | _____ | _____ | | | | | | | | | | | | | | | |
| 7. _____ | _____ | _____ | _____ | | | | | | | | | | | | | | | |
| 8. _____ | _____ | _____ | _____ | | | | | | | | | | | | | | | |
| 9. _____ | _____ | _____ | _____ | | | | | | | | | | | | | | | |
| 10. _____ | _____ | _____ | _____ | | | | | | | | | | | | | | | |
| 11. _____ | _____ | _____ | _____ | | | | | | | | | | | | | | | |
| 12. _____ | _____ | _____ | _____ | | | | | | | | | | | | | | | |
| <u>27</u> = Total Cover | | | | | | | | | | | | | | | | | | |
| Woody Vine Stratum (Plot size: <u>30</u>) | | | | | | | | | | | | | | | | | | |
| 1. _____ | _____ | _____ | _____ | Hydrophytic Vegetation Present? Yes <u>X</u> No | | | | | | | | | | | | | | |
| 2. _____ | _____ | _____ | _____ | | | | | | | | | | | | | | | |
| 3. _____ | _____ | _____ | _____ | | | | | | | | | | | | | | | |
| 4. _____ | _____ | _____ | _____ | | | | | | | | | | | | | | | |
| <u>0</u> = Total Cover | | | | | | | | | | | | | | | | | | |
| Remarks: (Include photo numbers here or on a separate sheet.) | | | | | | | | | | | | | | | | | | |

SOIL

Sampling Point: W-BCR-111919-02S

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

[illegible]

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains.

²Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- | | |
|--|---|
| <input type="checkbox"/> Histosol (A1) | <input type="checkbox"/> Polyvalue Below Surface (S8) (LRR R, MLRA 149B) |
| <input type="checkbox"/> Histic Epipedon (A2) | |
| <input type="checkbox"/> Black Histic (A3) | <input type="checkbox"/> Thin Dark Surface (S9) (LRR R, MLRA 149B) |
| <input type="checkbox"/> Hydrogen Sulfide (A4) | <input type="checkbox"/> Loamy Mucky Mineral (F1) (LRR K, L) |
| <input type="checkbox"/> Stratified Layers (A5) | <input type="checkbox"/> Loamy Gleyed Matrix (F2) |
| <input type="checkbox"/> Depleted Below Dark Surface (A11) | <input checked="" type="checkbox"/> Depleted Matrix (F3) |
| <input type="checkbox"/> Thick Dark Surface (A12) | <input checked="" type="checkbox"/> Redox Dark Surface (F6) |
| <input type="checkbox"/> Sandy Mucky Mineral (S1) | <input type="checkbox"/> Depleted Dark Surface (F7) |
| <input type="checkbox"/> Sandy Gleyed Matrix (S4) | <input type="checkbox"/> Redox Depressions (F8) |
| <input type="checkbox"/> Sandy Redox (S5) | |
| <input type="checkbox"/> Stripped Matrix (S6) | |
| <input type="checkbox"/> Dark Surface (S7) (LRR R, MLRA 149B) | |

Indicators for Problematic Hydric Soils³:

- ☐ 2 cm Muck (A10) (**LRR K, L, MLRA 149B**)
- ☐ Coast Prairie Redox (A16) (**LRR K, L, R**)
- ☐ 5 cm Mucky Peat or Peat (S3) (**LRR K, L, R**)
- ☐ Dark Surface (S7) (**LRR K, L, M**)
- ☐ Polyvalue Below Surface (S8) (**LRR K, L**)
- ☐ Thin Dark Surface (S9) (**LRR K, L**)
- ☐ Iron-Manganese Masses (F12) (**LRR K, L, R**)
- ☐ Piedmont Floodplain Soils (F19) (**MLRA 149B**)
- ☐ Mesic Spodic (TA6) (**MLRA 144A, 145, 149B**)
- ☐ Red Parent Material (F21)
- ☐ Very Shallow Dark Surface (TF12)
- ☐ Other (Explain in Remarks)

³Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed): No

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes X No

Remarks:



north



east



south



west



soil profile

WETLAND DETERMINATION DATA FORM – Northcentral and Northeast Region

Project/Site: Beaver-Henrietta 138 kV Transmission Line City/County: Amherst Township, Lorain County Sampling Date: 11/19/2019
 Applicant/Owner: FirstEnergy State: OH Sampling Point: W-BCR-111919-01
 Investigator(s): BCR, JFW Section, Township, Range: N/A
 Landform (hillslope, terrace, etc.): Flat Local relief (concave, convex, none): Flat Slope (%): 0
 Subregion (LRR or MLRA): LRR R Lat: 41.38867 Long: -82.26839 Datum: WGS 84
 Soil Map Unit Name: MtB - Mitiwanga silt loam, 2 to 6 percent slopes NWI classification: none

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No _____ (If no, explain in Remarks.)
 Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes X No _____
 Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

| | |
|---|---|
| Hydrophytic Vegetation Present? Yes <u>X</u> No _____ Hydric Soil Present? Yes <u>X</u> No _____ Wetland Hydrology Present? Yes <u>X</u> No _____ | Is the Sampled Area within a Wetland? Yes <u>X</u> No _____ If yes, optional Wetland Site ID: _____ |
| Remarks: (Explain alternative procedures here or in a separate report.) PEM in existing T-line ROW, west of two-track and east of residential area. | |

HYDROLOGY

| | | |
|--|---|---|
| Wetland Hydrology Indicators: Primary Indicators (minimum of one is required; check all that apply) | | Secondary Indicators (minimum of two required) |
| <input type="checkbox"/> Surface Water (A1) <input type="checkbox"/> High Water Table (A2) <input type="checkbox"/> Saturation (A3) <input type="checkbox"/> Water Marks (B1) <input type="checkbox"/> Sediment Deposits (B2) <input type="checkbox"/> Drift Deposits (B3) <input type="checkbox"/> Algal Mat or Crust (B4) <input type="checkbox"/> Iron Deposits (B5) <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) <input type="checkbox"/> Sparsely Vegetated Concave Surface (B8) | <input type="checkbox"/> Water-Stained Leaves (B9) <input type="checkbox"/> Aquatic Fauna (B13) <input type="checkbox"/> Marl Deposits (B15) <input type="checkbox"/> Hydrogen Sulfide Odor (C1) <input type="checkbox"/> Oxidized Rhizospheres on Living Roots (C3) <input type="checkbox"/> Presence of Reduced Iron (C4) <input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6) <input type="checkbox"/> Thin Muck Surface (C7) <input type="checkbox"/> Other (Explain in Remarks) | <input type="checkbox"/> Surface Soil Cracks (B6) <input type="checkbox"/> Drainage Patterns (B10) <input type="checkbox"/> Moss Trim Lines (B16) <input type="checkbox"/> Dry-Season Water Table (C2) <input type="checkbox"/> Crayfish Burrows (C8) <input type="checkbox"/> Saturation Visible on Aerial Imagery (C9) <input type="checkbox"/> Stunted or Stressed Plants (D1) <input checked="" type="checkbox"/> Geomorphic Position (D2) <input type="checkbox"/> Shallow Aquitard (D3) <input type="checkbox"/> Microtopographic Relief (D4) <input checked="" type="checkbox"/> FAC-Neutral Test (D5) |
| Field Observations: Surface Water Present? Yes _____ No <u>X</u> Depth (inches): _____ Water Table Present? Yes _____ No <u>X</u> Depth (inches): _____ Saturation Present? Yes _____ No <u>X</u> Depth (inches): _____ (includes capillary fringe) | | Wetland Hydrology Present? Yes <u>X</u> No _____ |
| Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available: | | |
| Remarks: | | |

Sampling Point: W-BCR-111919-01

| Tree Stratum (Plot size: 30) | | Absolute % Cover | Dominant Species? | Indicator Status |
|--|----------------------------|------------------|-------------------|------------------|
| 1. | | | | |
| 2. | | | | |
| 3. | | | | |
| 4. | | | | |
| 5. | | | | |
| 6. | | | | |
| 7. | | | | |
| | | 0 | = Total Cover | |
| Sapling/Shrub Stratum (Plot size: 15) | | Absolute % Cover | Dominant Species? | Indicator Status |
| 1. | | | | |
| 2. | | | | |
| 3. | | | | |
| 4. | | | | |
| 5. | | | | |
| 6. | | | | |
| 7. | | | | |
| | | 0 | = Total Cover | |
| Herb Stratum (Plot size: 5) | | Absolute % Cover | Dominant Species? | Indicator Status |
| 1. | Scirpus cyperinus | 60 | Y | OBL |
| 2. | Poa palustris | 40 | Y | FACW |
| 3. | Persicaria sagittata | 10 | N | OBL |
| 4. | Verbena hastata | 10 | N | FACW |
| 5. | Dichanthelium clandestinum | 20 | N | FACW |
| 6. | Ludwigia alternifolia | 3 | N | OBL |
| 7. | Mimulus ringens | 1 | N | OBL |
| 8. | | | | |
| 9. | | | | |
| 10. | | | | |
| 11. | | | | |
| 12. | | | | |
| | | 144 | = Total Cover | |
| Woody Vine Stratum (Plot size: 30) | | Absolute % Cover | Dominant Species? | Indicator Status |
| 1. | | | | |
| 2. | | | | |
| 3. | | | | |
| 4. | | | | |
| | | 0 | = Total Cover | |

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A)

Total Number of Dominant Species Across All Strata: 2 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100.00 (A/B)

Prevalence Index worksheet:

| Total % Cover of: | Multiply by: |
|------------------------|--------------|
| OBL species 74 | x 1 = 74 |
| FACW species 70 | x 2 = 140 |
| FAC species 0 | x 3 = 0 |
| FACU species 0 | x 4 = 0 |
| UPL species 0 | x 5 = 0 |
| Column Totals: 144 (A) | 214 (B) |

Prevalence Index = B/A = 1.49

Hydrophytic Vegetation Indicators:

☐ 1 - Rapid Test for Hydrophytic Vegetation

☒ 2 - Dominance Test is >50%

☒ 3 - Prevalence Index is ≤3.0¹

☐ 4 - Morphological Adaptations¹ (Provide supporting data in Remarks or on a separate sheet)

☐ Problematic Hydrophytic Vegetation¹ (Explain)

¹Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Vegetation Strata:

Tree – Woody plants 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/shrub – Woody plants less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall.

Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vines – All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? Yes ☒ No

Remarks: (Include photo numbers here or on a separate sheet.)

SOIL

Sampling Point: W-BCR-111919-01

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

[illegible]¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains.²Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- | | |
|---|--|
| <input type="checkbox"/> Histosol (A1) | <input type="checkbox"/> Polyvalue Below Surface (S8) (LRR R, |
| <input type="checkbox"/> Histic Epipedon (A2) | MLRA 149B) |
| <input type="checkbox"/> Black Histic (A3) | <input type="checkbox"/> Thin Dark Surface (S9) (LRR R, MLRA 149B) |
| <input type="checkbox"/> Hydrogen Sulfide (A4) | <input type="checkbox"/> Loamy Mucky Mineral (F1) (LRR K, L) |
| <input type="checkbox"/> Stratified Layers (A5) | <input type="checkbox"/> Loamy Gleyed Matrix (F2) |
| <input type="checkbox"/> Depleted Below Dark Surface (A11) | <input type="checkbox"/> Depleted Matrix (F3) |
| <input type="checkbox"/> Thick Dark Surface (A12) | <input checked="" type="checkbox"/> Redox Dark Surface (F6) |
| <input type="checkbox"/> Sandy Mucky Mineral (S1) | <input type="checkbox"/> Depleted Dark Surface (F7) |
| <input type="checkbox"/> Sandy Gleyed Matrix (S4) | <input type="checkbox"/> Redox Depressions (F8) |
| <input type="checkbox"/> Sandy Redox (S5) | |
| <input type="checkbox"/> Stripped Matrix (S6) | |
| <input type="checkbox"/> Dark Surface (S7) (LRR R, MLRA 149B) | |

Indicators for Problematic Hydric Soils³:

- ☐ 2 cm Muck (A10) (**LRR K, L, MLRA 149B**)
- ☐ Coast Prairie Redox (A16) (**LRR K, L, R**)
- ☐ 5 cm Mucky Peat or Peat (S3) (**LRR K, L, R**)
- ☐ Dark Surface (S7) (**LRR K, L, M**)
- ☐ Polyvalue Below Surface (S8) (**LRR K, L**)
- ☐ Thin Dark Surface (S9) (**LRR K, L**)
- ☐ Iron-Manganese Masses (F12) (**LRR K, L, R**)
- ☐ Piedmont Floodplain Soils (F19) (**MLRA 149B**)
- ☐ Mesic Spodic (TA6) (**MLRA 144A, 145, 149B**)
- ☐ Red Parent Material (F21)
- ☐ Very Shallow Dark Surface (TF12)
- ☐ Other (Explain in Remarks)

³Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed): No

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes X No

Remarks:



north



east



south



west



soil profile

WETLAND DETERMINATION DATA FORM – Northcentral and Northeast Region

Project/Site: Beaver-Henrietta 138 kV Transmission Line City/County: Amherst Township, Lorain County Sampling Date: 11/18/2019
 Applicant/Owner: FirstEnergy State: OH Sampling Point: W-BCR-111819-03E
 Investigator(s): BCR, JFW Section, Township, Range: N/A
 Landform (hillslope, terrace, etc.): Flat Local relief (concave, convex, none): Concave Slope (%): 1
 Subregion (LRR or MLRA): LRR R Lat: 41.38693 Long: -82.26906 Datum: WGS 84
 Soil Map Unit Name: MtA - Mitiwanga silt loam, 0 to 2 percent slopes NWI classification: none

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No _____ (If no, explain in Remarks.)
 Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes X No _____
 Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

| | |
|---|---|
| Hydrophytic Vegetation Present? Yes <u>X</u> No _____ | Is the Sampled Area within a Wetland? Yes <u>X</u> No _____ If yes, optional Wetland Site ID: _____ |
| Hydric Soil Present? Yes <u>X</u> No _____ | |
| Wetland Hydrology Present? Yes <u>X</u> No _____ | |
| Remarks: (Explain alternative procedures here or in a separate report.) PEM in existing T-line ROW. Wetland extends out of existing ROW and transitions to PSS (W-BCR-111819-03S). | |

HYDROLOGY

| | | |
|--|---|---|
| Wetland Hydrology Indicators: Primary Indicators (minimum of one is required; check all that apply) | | Secondary Indicators (minimum of two required) |
| <input type="checkbox"/> Surface Water (A1) <input type="checkbox"/> High Water Table (A2) <input type="checkbox"/> Saturation (A3) <input type="checkbox"/> Water Marks (B1) <input type="checkbox"/> Sediment Deposits (B2) <input type="checkbox"/> Drift Deposits (B3) <input type="checkbox"/> Algal Mat or Crust (B4) <input type="checkbox"/> Iron Deposits (B5) <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) <input type="checkbox"/> Sparsely Vegetated Concave Surface (B8) | <input type="checkbox"/> Water-Stained Leaves (B9) <input type="checkbox"/> Aquatic Fauna (B13) <input type="checkbox"/> Marl Deposits (B15) <input type="checkbox"/> Hydrogen Sulfide Odor (C1) <input type="checkbox"/> Oxidized Rhizospheres on Living Roots (C3) <input type="checkbox"/> Presence of Reduced Iron (C4) <input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6) <input type="checkbox"/> Thin Muck Surface (C7) <input type="checkbox"/> Other (Explain in Remarks) | <input type="checkbox"/> Surface Soil Cracks (B6) <input type="checkbox"/> Drainage Patterns (B10) <input type="checkbox"/> Moss Trim Lines (B16) <input type="checkbox"/> Dry-Season Water Table (C2) <input type="checkbox"/> Crayfish Burrows (C8) <input type="checkbox"/> Saturation Visible on Aerial Imagery (C9) <input type="checkbox"/> Stunted or Stressed Plants (D1) <input checked="" type="checkbox"/> Geomorphic Position (D2) <input type="checkbox"/> Shallow Aquitard (D3) <input type="checkbox"/> Microtopographic Relief (D4) <input checked="" type="checkbox"/> FAC-Neutral Test (D5) |
| Field Observations: Surface Water Present? Yes _____ No <u>X</u> Depth (inches): _____ Water Table Present? Yes _____ No <u>X</u> Depth (inches): _____ Saturation Present? Yes _____ No <u>X</u> Depth (inches): _____ (includes capillary fringe) | | Wetland Hydrology Present? Yes <u>X</u> No _____ |
| Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available: | | |
| Remarks: | | |

VEGETATION – Use scientific names of plants.

Sampling Point: W-BCR-111819-03E

| Tree Stratum (Plot size: 30) | Absolute % Cover | Dominant Species? | Indicator Status | | | | | | | | | | | | | | | |
|---|------------------|-------------------|------------------|--|-------------------|--------------|------------------------|------------------|-----------------------|----------------|----------------------|-----------------|-----------------------|----------------|----------------------|----------------|-------------------------------|----------------|
| 1. _____ | _____ | _____ | _____ | Dominance Test worksheet: Number of Dominant Species That Are OBL, FACW, or FAC: <u>2</u> (A) Total Number of Dominant Species Across All Strata: <u>2</u> (B) Percent of Dominant Species That Are OBL, FACW, or FAC: <u>100.00</u> (A/B) | | | | | | | | | | | | | | |
| 2. _____ | _____ | _____ | _____ | | | | | | | | | | | | | | | |
| 3. _____ | _____ | _____ | _____ | | | | | | | | | | | | | | | |
| 4. _____ | _____ | _____ | _____ | | | | | | | | | | | | | | | |
| 5. _____ | _____ | _____ | _____ | | | | | | | | | | | | | | | |
| 6. _____ | _____ | _____ | _____ | | | | | | | | | | | | | | | |
| 7. _____ | _____ | _____ | _____ | | | | | | | | | | | | | | | |
| <u>0</u> = Total Cover | | | | | | | | | | | | | | | | | | |
| Sapling/Shrub Stratum (Plot size: 15) | | | | Prevalence Index worksheet: <table style="width: 100%;"> <tr> <td style="width: 50%;">Total % Cover of:</td> <td style="width: 50%;">Multiply by:</td> </tr> <tr> <td>OBL species <u>110</u></td> <td>x 1 = <u>110</u></td> </tr> <tr> <td>FACW species <u>2</u></td> <td>x 2 = <u>4</u></td> </tr> <tr> <td>FAC species <u>5</u></td> <td>x 3 = <u>15</u></td> </tr> <tr> <td>FACU species <u>0</u></td> <td>x 4 = <u>0</u></td> </tr> <tr> <td>UPL species <u>0</u></td> <td>x 5 = <u>0</u></td> </tr> <tr> <td>Column Totals: <u>117</u> (A)</td> <td><u>129</u> (B)</td> </tr> </table> Prevalence Index = B/A = <u>1.10</u> | Total % Cover of: | Multiply by: | OBL species <u>110</u> | x 1 = <u>110</u> | FACW species <u>2</u> | x 2 = <u>4</u> | FAC species <u>5</u> | x 3 = <u>15</u> | FACU species <u>0</u> | x 4 = <u>0</u> | UPL species <u>0</u> | x 5 = <u>0</u> | Column Totals: <u>117</u> (A) | <u>129</u> (B) |
| Total % Cover of: | Multiply by: | | | | | | | | | | | | | | | | | |
| OBL species <u>110</u> | x 1 = <u>110</u> | | | | | | | | | | | | | | | | | |
| FACW species <u>2</u> | x 2 = <u>4</u> | | | | | | | | | | | | | | | | | |
| FAC species <u>5</u> | x 3 = <u>15</u> | | | | | | | | | | | | | | | | | |
| FACU species <u>0</u> | x 4 = <u>0</u> | | | | | | | | | | | | | | | | | |
| UPL species <u>0</u> | x 5 = <u>0</u> | | | | | | | | | | | | | | | | | |
| Column Totals: <u>117</u> (A) | <u>129</u> (B) | | | | | | | | | | | | | | | | | |
| 1. <u>Cephalanthus occidentalis</u> | <u>10</u> | <u>Y</u> | <u>OBL</u> | | | | | | | | | | | | | | | |
| 2. _____ | _____ | _____ | _____ | | | | | | | | | | | | | | | |
| 3. _____ | _____ | _____ | _____ | | | | | | | | | | | | | | | |
| 4. _____ | _____ | _____ | _____ | | | | | | | | | | | | | | | |
| 5. _____ | _____ | _____ | _____ | | | | | | | | | | | | | | | |
| 6. _____ | _____ | _____ | _____ | | | | | | | | | | | | | | | |
| 7. _____ | _____ | _____ | _____ | | | | | | | | | | | | | | | |
| <u>10</u> = Total Cover | | | | | | | | | | | | | | | | | | |
| Herb Stratum (Plot size: 5) | | | | Hydrophytic Vegetation Indicators: <input checked="" type="checkbox"/> 1 - Rapid Test for Hydrophytic Vegetation <input checked="" type="checkbox"/> 2 - Dominance Test is >50% <input checked="" type="checkbox"/> 3 - Prevalence Index is ≤3.0 ¹ <input type="checkbox"/> 4 - Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet) <input type="checkbox"/> Problematic Hydrophytic Vegetation ¹ (Explain) ¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic. | | | | | | | | | | | | | | |
| 1. <u>Scirpus cyperinus</u> | <u>60</u> | <u>Y</u> | <u>OBL</u> | | | | | | | | | | | | | | | |
| 2. <u>Juncus effusus</u> | <u>20</u> | <u>N</u> | <u>OBL</u> | | | | | | | | | | | | | | | |
| 3. <u>Apocynum cannabinum</u> | <u>5</u> | <u>N</u> | <u>FAC</u> | | | | | | | | | | | | | | | |
| 4. <u>Lythrum salicaria</u> | <u>5</u> | <u>N</u> | <u>OBL</u> | | | | | | | | | | | | | | | |
| 5. <u>Mimulus ringens</u> | <u>3</u> | <u>N</u> | <u>OBL</u> | | | | | | | | | | | | | | | |
| 6. <u>Onoclea sensibilis</u> | <u>2</u> | <u>N</u> | <u>FACW</u> | | | | | | | | | | | | | | | |
| 7. <u>Carex lurida</u> | <u>10</u> | <u>N</u> | <u>OBL</u> | | | | | | | | | | | | | | | |
| 8. <u>Carex lupulina</u> | <u>2</u> | <u>N</u> | <u>OBL</u> | | | | | | | | | | | | | | | |
| 9. _____ | _____ | _____ | _____ | | | | | | | | | | | | | | | |
| 10. _____ | _____ | _____ | _____ | | | | | | | | | | | | | | | |
| 11. _____ | _____ | _____ | _____ | | | | | | | | | | | | | | | |
| 12. _____ | _____ | _____ | _____ | | | | | | | | | | | | | | | |
| <u>107</u> = Total Cover | | | | | | | | | | | | | | | | | | |
| Woody Vine Stratum (Plot size: 30) | | | | Definitions of Vegetation Strata: Tree – Woody plants 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height. Sapling/shrub – Woody plants less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall. Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall. Woody vines – All woody vines greater than 3.28 ft in height. | | | | | | | | | | | | | | |
| 1. _____ | _____ | _____ | _____ | | | | | | | | | | | | | | | |
| 2. _____ | _____ | _____ | _____ | | | | | | | | | | | | | | | |
| 3. _____ | _____ | _____ | _____ | | | | | | | | | | | | | | | |
| 4. _____ | _____ | _____ | _____ | | | | | | | | | | | | | | | |
| <u>0</u> = Total Cover | | | | | | | | | | | | | | | | | | |
| Remarks: (Include photo numbers here or on a separate sheet.) | | | | Hydrophytic Vegetation Present? Yes <u>X</u> No | | | | | | | | | | | | | | |

SOIL

Sampling Point: W-BCR-111819-03E

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

[illegible]¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains.²Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- | | |
|---|--|
| <input type="checkbox"/> Histosol (A1) | <input type="checkbox"/> Polyvalue Below Surface (S8) (LRR R, |
| <input type="checkbox"/> Histic Epipedon (A2) | MLRA 149B) |
| <input type="checkbox"/> Black Histic (A3) | <input type="checkbox"/> Thin Dark Surface (S9) (LRR R, MLRA 149B) |
| <input type="checkbox"/> Hydrogen Sulfide (A4) | <input type="checkbox"/> Loamy Mucky Mineral (F1) (LRR K, L) |
| <input type="checkbox"/> Stratified Layers (A5) | <input type="checkbox"/> Loamy Gleyed Matrix (F2) |
| <input type="checkbox"/> Depleted Below Dark Surface (A11) | <input checked="" type="checkbox"/> Depleted Matrix (F3) |
| <input type="checkbox"/> Thick Dark Surface (A12) | <input type="checkbox"/> Redox Dark Surface (F6) |
| <input type="checkbox"/> Sandy Mucky Mineral (S1) | <input type="checkbox"/> Depleted Dark Surface (F7) |
| <input type="checkbox"/> Sandy Gleyed Matrix (S4) | <input type="checkbox"/> Redox Depressions (F8) |
| <input type="checkbox"/> Sandy Redox (S5) | |
| <input type="checkbox"/> Stripped Matrix (S6) | |
| <input type="checkbox"/> Dark Surface (S7) (LRR R, MLRA 149B) | |

Indicators for Problematic Hydric Soils³:

- ☐ 2 cm Muck (A10) (**LRR K, L, MLRA 149B**)
- ☐ Coast Prairie Redox (A16) (**LRR K, L, R**)
- ☐ 5 cm Mucky Peat or Peat (S3) (**LRR K, L, R**)
- ☐ Dark Surface (S7) (**LRR K, L, M**)
- ☐ Polyvalue Below Surface (S8) (**LRR K, L**)
- ☐ Thin Dark Surface (S9) (**LRR K, L**)
- ☐ Iron-Manganese Masses (F12) (**LRR K, L, R**)
- ☐ Piedmont Floodplain Soils (F19) (**MLRA 149B**)
- ☐ Mesic Spodic (TA6) (**MLRA 144A, 145, 149B**)
- ☐ Red Parent Material (F21)
- ☐ Very Shallow Dark Surface (TF12)
- ☐ Other (Explain in Remarks)

³Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed): No

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes X No

Remarks:



north



east



south



west



soil profile

WETLAND DETERMINATION DATA FORM – Northcentral and Northeast Region

Project/Site: Beaver-Henrietta 138 kV Transmission Line City/County: Amherst Township, Lorain County Sampling Date: 11/18/2019
 Applicant/Owner: FirstEnergy State: OH Sampling Point: W-BCR-111819-03S
 Investigator(s): JFW, BCR Section, Township, Range: N/A
 Landform (hillslope, terrace, etc.): Undulating Local relief (concave, convex, none): Concave Slope (%): 1
 Subregion (LRR or MLRA): LRR R Lat: 41.38697 Long: -82.26929 Datum: WGS 84
 Soil Map Unit Name: MtA - Mitiwanga silt loam, 0 to 2 percent slopes NWI classification: none

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No _____ (If no, explain in Remarks.)
 Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes X No _____
 Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

| | |
|---|---|
| Hydrophytic Vegetation Present? Yes <u>X</u> No _____ Hydric Soil Present? Yes <u>X</u> No _____ Wetland Hydrology Present? Yes <u>X</u> No _____ | Is the Sampled Area within a Wetland? Yes <u>X</u> No _____ If yes, optional Wetland Site ID: _____ |
| Remarks: (Explain alternative procedures here or in a separate report.) PSS in low area within woodlot adjacent to existing T-line ROW. Wetland extends into ROW where it transitions into PEM (W-BCR-111819-03E). | |

HYDROLOGY

| | | |
|---|---|--|
| Wetland Hydrology Indicators: Primary Indicators (minimum of one is required; check all that apply) | | Secondary Indicators (minimum of two required) |
| <input type="checkbox"/> Surface Water (A1) <input type="checkbox"/> High Water Table (A2) <input type="checkbox"/> Saturation (A3) <input checked="" type="checkbox"/> Water Marks (B1) <input type="checkbox"/> Sediment Deposits (B2) <input type="checkbox"/> Drift Deposits (B3) <input type="checkbox"/> Algal Mat or Crust (B4) <input type="checkbox"/> Iron Deposits (B5) <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) <input type="checkbox"/> Sparsely Vegetated Concave Surface (B8) | <input type="checkbox"/> Water-Stained Leaves (B9) <input type="checkbox"/> Aquatic Fauna (B13) <input type="checkbox"/> Marl Deposits (B15) <input type="checkbox"/> Hydrogen Sulfide Odor (C1) <input type="checkbox"/> Oxidized Rhizospheres on Living Roots (C3) <input type="checkbox"/> Presence of Reduced Iron (C4) <input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6) <input type="checkbox"/> Thin Muck Surface (C7) <input type="checkbox"/> Other (Explain in Remarks) | <input type="checkbox"/> Surface Soil Cracks (B6) <input type="checkbox"/> Drainage Patterns (B10) <input type="checkbox"/> Moss Trim Lines (B16) <input type="checkbox"/> Dry-Season Water Table (C2) <input type="checkbox"/> Crayfish Burrows (C8) <input type="checkbox"/> Saturation Visible on Aerial Imagery (C9) <input type="checkbox"/> Stunted or Stressed Plants (D1) <input checked="" type="checkbox"/> Geomorphic Position (D2) <input type="checkbox"/> Shallow Aquitard (D3) <input type="checkbox"/> Microtopographic Relief (D4) <input type="checkbox"/> FAC-Neutral Test (D5) |
| Field Observations: Surface Water Present? Yes _____ No <u>X</u> Depth (inches): _____ Water Table Present? Yes _____ No <u>X</u> Depth (inches): _____ Saturation Present? Yes _____ No <u>X</u> Depth (inches): _____ (includes capillary fringe) | | Wetland Hydrology Present? Yes <u>X</u> No _____ |
| Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available: | | |
| Remarks: | | |

VEGETATION – Use scientific names of plants.

Sampling Point: W-BCR-111819-03S

| Tree Stratum (Plot size: 30) | Absolute % Cover | Dominant Species? | Indicator Status | | | | | | | | | | | | | | | |
|---|------------------|-------------------|------------------|---|-------------------|--------------|-----------------------|-----------------|-----------------------|-----------------|-----------------------|-----------------|------------------------|-----------------|----------------------|----------------|-------------------------------|----------------|
| 1. <u>Acer saccharum</u> | 10 | Y | FACU | Dominance Test worksheet: Number of Dominant Species That Are OBL, FACW, or FAC: <u>2</u> (A) Total Number of Dominant Species Across All Strata: <u>3</u> (B) Percent of Dominant Species That Are OBL, FACW, or FAC: <u>66</u> (A/B) | | | | | | | | | | | | | | |
| 2. _____ | _____ | _____ | _____ | | | | | | | | | | | | | | | |
| 3. _____ | _____ | _____ | _____ | | | | | | | | | | | | | | | |
| 4. _____ | _____ | _____ | _____ | | | | | | | | | | | | | | | |
| 5. _____ | _____ | _____ | _____ | | | | | | | | | | | | | | | |
| 6. _____ | _____ | _____ | _____ | | | | | | | | | | | | | | | |
| 7. _____ | _____ | _____ | _____ | | | | | | | | | | | | | | | |
| 30 = Total Cover | | | | | | | | | | | | | | | | | | |
| Sapling/Shrub Stratum (Plot size: 15) | | | | | | | | | | | | | | | | | | |
| 1. <u>Cephalanthus occidentalis</u> | 60 | Y | OBL | Prevalence Index worksheet: <table style="width: 100%;"> <tr> <th style="text-align: left;">Total % Cover of:</th> <th style="text-align: left;">Multiply by:</th> </tr> <tr> <td>OBL species <u>60</u></td> <td>x 1 = <u>60</u></td> </tr> <tr> <td>FACW species <u>5</u></td> <td>x 2 = <u>10</u></td> </tr> <tr> <td>FAC species <u>10</u></td> <td>x 3 = <u>30</u></td> </tr> <tr> <td>FACU species <u>15</u></td> <td>x 4 = <u>60</u></td> </tr> <tr> <td>UPL species <u>0</u></td> <td>x 5 = <u>0</u></td> </tr> <tr> <td>Column Totals: <u>115</u> (A)</td> <td><u>160</u> (B)</td> </tr> </table> Prevalence Index = B/A = <u>1.39</u> | Total % Cover of: | Multiply by: | OBL species <u>60</u> | x 1 = <u>60</u> | FACW species <u>5</u> | x 2 = <u>10</u> | FAC species <u>10</u> | x 3 = <u>30</u> | FACU species <u>15</u> | x 4 = <u>60</u> | UPL species <u>0</u> | x 5 = <u>0</u> | Column Totals: <u>115</u> (A) | <u>160</u> (B) |
| Total % Cover of: | Multiply by: | | | | | | | | | | | | | | | | | |
| OBL species <u>60</u> | x 1 = <u>60</u> | | | | | | | | | | | | | | | | | |
| FACW species <u>5</u> | x 2 = <u>10</u> | | | | | | | | | | | | | | | | | |
| FAC species <u>10</u> | x 3 = <u>30</u> | | | | | | | | | | | | | | | | | |
| FACU species <u>15</u> | x 4 = <u>60</u> | | | | | | | | | | | | | | | | | |
| UPL species <u>0</u> | x 5 = <u>0</u> | | | | | | | | | | | | | | | | | |
| Column Totals: <u>115</u> (A) | <u>160</u> (B) | | | | | | | | | | | | | | | | | |
| 2. <u>Frangula alnus</u> | 10 | N | FAC | | | | | | | | | | | | | | | |
| 3. _____ | _____ | _____ | _____ | | | | | | | | | | | | | | | |
| 4. _____ | _____ | _____ | _____ | | | | | | | | | | | | | | | |
| 5. _____ | _____ | _____ | _____ | | | | | | | | | | | | | | | |
| 6. _____ | _____ | _____ | _____ | | | | | | | | | | | | | | | |
| 7. _____ | _____ | _____ | _____ | | | | | | | | | | | | | | | |
| 70 = Total Cover | | | | | | | | | | | | | | | | | | |
| Herb Stratum (Plot size: 5) | | | | | | | | | | | | | | | | | | |
| 1. <u>Smilax glauca</u> | 2 | N | FACU | Hydrophytic Vegetation Indicators: <input checked="" type="checkbox"/> 1 - Rapid Test for Hydrophytic Vegetation <input checked="" type="checkbox"/> 2 - Dominance Test is >50% <input checked="" type="checkbox"/> 3 - Prevalence Index is ≤3.0 ¹ <input type="checkbox"/> 4 - Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet) <input type="checkbox"/> Problematic Hydrophytic Vegetation ¹ (Explain) ¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic. | | | | | | | | | | | | | | |
| 2. <u>Carex sp.</u> | 5 | Y | FACW | | | | | | | | | | | | | | | |
| 3. _____ | _____ | _____ | _____ | | | | | | | | | | | | | | | |
| 4. _____ | _____ | _____ | _____ | | | | | | | | | | | | | | | |
| 5. _____ | _____ | _____ | _____ | | | | | | | | | | | | | | | |
| 6. _____ | _____ | _____ | _____ | | | | | | | | | | | | | | | |
| 7. _____ | _____ | _____ | _____ | | | | | | | | | | | | | | | |
| 8. _____ | _____ | _____ | _____ | | | | | | | | | | | | | | | |
| 9. _____ | _____ | _____ | _____ | | | | | | | | | | | | | | | |
| 10. _____ | _____ | _____ | _____ | | | | | | | | | | | | | | | |
| 11. _____ | _____ | _____ | _____ | | | | | | | | | | | | | | | |
| 12. _____ | _____ | _____ | _____ | | | | | | | | | | | | | | | |
| 10 = Total Cover | | | | | | | | | | | | | | | | | | |
| Woody Vine Stratum (Plot size: 30) | | | | | | | | | | | | | | | | | | |
| 1. _____ | _____ | _____ | _____ | Hydrophytic Vegetation Present? Yes <u>X</u> No | | | | | | | | | | | | | | |
| 2. _____ | _____ | _____ | _____ | | | | | | | | | | | | | | | |
| 3. _____ | _____ | _____ | _____ | | | | | | | | | | | | | | | |
| 4. _____ | _____ | _____ | _____ | | | | | | | | | | | | | | | |
| 0 = Total Cover | | | | | | | | | | | | | | | | | | |
| Remarks: (Include photo numbers here or on a separate sheet.) Carex sp. assigned FACW indicator based on presence of wetland hydrology and soil. | | | | | | | | | | | | | | | | | | |

SOIL

Sampling Point: W-BCR-111819-03S

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

[illegible]

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains.

²Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- | | |
|--|---|
| <input type="checkbox"/> Histosol (A1) | <input type="checkbox"/> Polyvalue Below Surface (S8) (LRR R, MLRA 149B) |
| <input type="checkbox"/> Histic Epipedon (A2) | <input type="checkbox"/> Thin Dark Surface (S9) (LRR R, MLRA 149B) |
| <input type="checkbox"/> Black Histic (A3) | <input type="checkbox"/> Loamy Mucky Mineral (F1) (LRR K, L) |
| <input type="checkbox"/> Hydrogen Sulfide (A4) | <input type="checkbox"/> Loamy Gleyed Matrix (F2) |
| <input type="checkbox"/> Stratified Layers (A5) | <input checked="" type="checkbox"/> Depleted Matrix (F3) |
| <input type="checkbox"/> Depleted Below Dark Surface (A11) | <input type="checkbox"/> Redox Dark Surface (F6) |
| <input type="checkbox"/> Thick Dark Surface (A12) | <input type="checkbox"/> Depleted Dark Surface (F7) |
| <input type="checkbox"/> Sandy Mucky Mineral (S1) | <input type="checkbox"/> Redox Depressions (F8) |
| <input type="checkbox"/> Sandy Gleyed Matrix (S4) | |
| <input type="checkbox"/> Sandy Redox (S5) | |
| <input type="checkbox"/> Stripped Matrix (S6) | |
| <input type="checkbox"/> Dark Surface (S7) (LRR R, MLRA 149B) | |

Indicators for Problematic Hydric Soils³:

- ☐ 2 cm Muck (A10) (**LRR K, L, MLRA 149B**)
- ☐ Coast Prairie Redox (A16) (**LRR K, L, R**)
- ☐ 5 cm Mucky Peat or Peat (S3) (**LRR K, L, R**)
- ☐ Dark Surface (S7) (**LRR K, L, M**)
- ☐ Polyvalue Below Surface (S8) (**LRR K, L**)
- ☐ Thin Dark Surface (S9) (**LRR K, L**)
- ☐ Iron-Manganese Masses (F12) (**LRR K, L, R**)
- ☐ Piedmont Floodplain Soils (F19) (**MLRA 149B**)
- ☐ Mesic Spodic (TA6) (**MLRA 144A, 145, 149B**)
- ☐ Red Parent Material (F21)
- ☐ Very Shallow Dark Surface (TF12)
- ☐ Other (Explain in Remarks)

³Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed): No

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes X No

Remarks:



north



east



south



west



soil profile

WETLAND DETERMINATION DATA FORM – Northcentral and Northeast Region

Project/Site: Beaver-Henrietta 138 kV Transmission Line City/County: Amherst Township, Lorain County Sampling Date: 11/18/2019
 Applicant/Owner: FirstEnergy State: OH Sampling Point: W-BCR-111819-02
 Investigator(s): BCR, JFW Section, Township, Range: N/A
 Landform (hillslope, terrace, etc.): Flat Local relief (concave, convex, none): Concave Slope (%): 1
 Subregion (LRR or MLRA): LRR R Lat: 41.38380 Long: -82.26933 Datum: WGS 84
 Soil Map Unit Name: JsA - Jintown sandy loam, 0 to 2 percent slopes NWI classification: none

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No _____ (If no, explain in Remarks.)
 Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes X No _____
 Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

| | |
|---|---|
| Hydrophytic Vegetation Present? Yes <u>X</u> No _____ Hydric Soil Present? Yes <u>X</u> No _____ Wetland Hydrology Present? Yes <u>X</u> No _____ | Is the Sampled Area within a Wetland? Yes <u>X</u> No _____ If yes, optional Wetland Site ID: _____ |
| Remarks: (Explain alternative procedures here or in a separate report.) PEM in an existing T-line ROW. | |

HYDROLOGY

| | | |
|--|---|---|
| Wetland Hydrology Indicators: Primary Indicators (minimum of one is required; check all that apply) | | Secondary Indicators (minimum of two required) |
| <input type="checkbox"/> Surface Water (A1) <input type="checkbox"/> High Water Table (A2) <input type="checkbox"/> Saturation (A3) <input type="checkbox"/> Water Marks (B1) <input type="checkbox"/> Sediment Deposits (B2) <input type="checkbox"/> Drift Deposits (B3) <input type="checkbox"/> Algal Mat or Crust (B4) <input type="checkbox"/> Iron Deposits (B5) <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) <input type="checkbox"/> Sparsely Vegetated Concave Surface (B8) | <input type="checkbox"/> Water-Stained Leaves (B9) <input type="checkbox"/> Aquatic Fauna (B13) <input type="checkbox"/> Marl Deposits (B15) <input type="checkbox"/> Hydrogen Sulfide Odor (C1) <input type="checkbox"/> Oxidized Rhizospheres on Living Roots (C3) <input type="checkbox"/> Presence of Reduced Iron (C4) <input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6) <input type="checkbox"/> Thin Muck Surface (C7) <input type="checkbox"/> Other (Explain in Remarks) | <input type="checkbox"/> Surface Soil Cracks (B6) <input type="checkbox"/> Drainage Patterns (B10) <input type="checkbox"/> Moss Trim Lines (B16) <input type="checkbox"/> Dry-Season Water Table (C2) <input type="checkbox"/> Crayfish Burrows (C8) <input type="checkbox"/> Saturation Visible on Aerial Imagery (C9) <input type="checkbox"/> Stunted or Stressed Plants (D1) <input checked="" type="checkbox"/> Geomorphic Position (D2) <input type="checkbox"/> Shallow Aquitard (D3) <input type="checkbox"/> Microtopographic Relief (D4) <input checked="" type="checkbox"/> FAC-Neutral Test (D5) |
| Field Observations: Surface Water Present? Yes _____ No <u>X</u> Depth (inches): _____ Water Table Present? Yes _____ No <u>X</u> Depth (inches): _____ Saturation Present? Yes _____ No <u>X</u> Depth (inches): _____ (includes capillary fringe) | | Wetland Hydrology Present? Yes <u>X</u> No _____ |
| Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available: | | |
| Remarks: | | |

VEGETATION – Use scientific names of plants.

Sampling Point: W-BCR-111819-02

| Tree Stratum (Plot size: 30) | Absolute % Cover | Dominant Species? | Indicator Status | | | | | | | | | | | | | | | |
|---|------------------|-------------------|------------------|--|-------------------|--------------|----------------|----------|-----------------|----------|---------------|---------|-----------------|----------|---------------|---------|------------------------|---------|
| 1. _____ | _____ | _____ | _____ | Dominance Test worksheet: Number of Dominant Species That Are OBL, FACW, or FAC: 3 (A) Total Number of Dominant Species Across All Strata: 3 (B) Percent of Dominant Species That Are OBL, FACW, or FAC: 100.00 (A/B) | | | | | | | | | | | | | | |
| 2. _____ | _____ | _____ | _____ | | | | | | | | | | | | | | | |
| 3. _____ | _____ | _____ | _____ | | | | | | | | | | | | | | | |
| 4. _____ | _____ | _____ | _____ | | | | | | | | | | | | | | | |
| 5. _____ | _____ | _____ | _____ | | | | | | | | | | | | | | | |
| 6. _____ | _____ | _____ | _____ | | | | | | | | | | | | | | | |
| 7. _____ | _____ | _____ | _____ | | | | | | | | | | | | | | | |
| 0 = Total Cover | | | | Prevalence Index worksheet: <table style="width: 100%;"> <tr> <td style="width: 50%;">Total % Cover of:</td> <td style="width: 50%;">Multiply by:</td> </tr> <tr> <td>OBL species 70</td> <td>x 1 = 70</td> </tr> <tr> <td>FACW species 30</td> <td>x 2 = 60</td> </tr> <tr> <td>FAC species 0</td> <td>x 3 = 0</td> </tr> <tr> <td>FACU species 13</td> <td>x 4 = 52</td> </tr> <tr> <td>UPL species 0</td> <td>x 5 = 0</td> </tr> <tr> <td>Column Totals: 113 (A)</td> <td>182 (B)</td> </tr> </table> Prevalence Index = B/A = 1.61 | Total % Cover of: | Multiply by: | OBL species 70 | x 1 = 70 | FACW species 30 | x 2 = 60 | FAC species 0 | x 3 = 0 | FACU species 13 | x 4 = 52 | UPL species 0 | x 5 = 0 | Column Totals: 113 (A) | 182 (B) |
| Total % Cover of: | Multiply by: | | | | | | | | | | | | | | | | | |
| OBL species 70 | x 1 = 70 | | | | | | | | | | | | | | | | | |
| FACW species 30 | x 2 = 60 | | | | | | | | | | | | | | | | | |
| FAC species 0 | x 3 = 0 | | | | | | | | | | | | | | | | | |
| FACU species 13 | x 4 = 52 | | | | | | | | | | | | | | | | | |
| UPL species 0 | x 5 = 0 | | | | | | | | | | | | | | | | | |
| Column Totals: 113 (A) | 182 (B) | | | | | | | | | | | | | | | | | |
| 0 = Total Cover | | | | | | | | | | | | | | | | | | |
| Sapling/Shrub Stratum (Plot size: 15) | | | | | | | | | | | | | | | | | | |
| 1. _____ | _____ | _____ | _____ | | | | | | | | | | | | | | | |
| 2. _____ | _____ | _____ | _____ | | | | | | | | | | | | | | | |
| 3. _____ | _____ | _____ | _____ | | | | | | | | | | | | | | | |
| 4. _____ | _____ | _____ | _____ | | | | | | | | | | | | | | | |
| 5. _____ | _____ | _____ | _____ | | | | | | | | | | | | | | | |
| 6. _____ | _____ | _____ | _____ | | | | | | | | | | | | | | | |
| 7. _____ | _____ | _____ | _____ | | | | | | | | | | | | | | | |
| 0 = Total Cover | | | | Hydrophytic Vegetation Indicators: ___ 1 - Rapid Test for Hydrophytic Vegetation X 2 - Dominance Test is >50% X 3 - Prevalence Index is ≤3.0 ¹ ___ 4 - Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet) ___ Problematic Hydrophytic Vegetation ¹ (Explain) ¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic. | | | | | | | | | | | | | | |
| Herb Stratum (Plot size: 5) | | | | | | | | | | | | | | | | | | |
| 1. Juncus effusus | 50 | Y | OBL | | | | | | | | | | | | | | | |
| 2. Epilobium coloratum | 20 | Y | OBL | | | | | | | | | | | | | | | |
| 3. Eupatorium perfoliatum | 20 | Y | FACW | | | | | | | | | | | | | | | |
| 4. Solidago gigantea | 10 | N | FACW | | | | | | | | | | | | | | | |
| 5. Rubus allegheniensis | 8 | N | FACU | | | | | | | | | | | | | | | |
| 6. Cirsium arvense | 5 | N | FACU | | | | | | | | | | | | | | | |
| 7. _____ | _____ | _____ | _____ | | | | | | | | | | | | | | | |
| 8. _____ | _____ | _____ | _____ | | | | | | | | | | | | | | | |
| 9. _____ | _____ | _____ | _____ | | | | | | | | | | | | | | | |
| 10. _____ | _____ | _____ | _____ | | | | | | | | | | | | | | | |
| 11. _____ | _____ | _____ | _____ | | | | | | | | | | | | | | | |
| 12. _____ | _____ | _____ | _____ | | | | | | | | | | | | | | | |
| 113 = Total Cover | | | | Definitions of Vegetation Strata: Tree – Woody plants 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height. Sapling/shrub – Woody plants less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall. Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall. Woody vines – All woody vines greater than 3.28 ft in height. | | | | | | | | | | | | | | |
| Woody Vine Stratum (Plot size: 30) | | | | | | | | | | | | | | | | | | |
| 1. _____ | _____ | _____ | _____ | | | | | | | | | | | | | | | |
| 2. _____ | _____ | _____ | _____ | | | | | | | | | | | | | | | |
| 3. _____ | _____ | _____ | _____ | | | | | | | | | | | | | | | |
| 4. _____ | _____ | _____ | _____ | | | | | | | | | | | | | | | |
| 5. _____ | _____ | _____ | _____ | | | | | | | | | | | | | | | |
| 0 = Total Cover | | | | | | | | | | | | | | | | | | |
| Remarks: (Include photo numbers here or on a separate sheet.) | | | | | | | | | | | | | | | | | | |

SOIL

Sampling Point: W-BCR-111819-02

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

[illegible]

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains.

²Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- | | |
|--|---|
| <input type="checkbox"/> Histosol (A1) | <input type="checkbox"/> Polyvalue Below Surface (S8) (LRR R, MLRA 149B) |
| <input type="checkbox"/> Histic Epipedon (A2) | <input type="checkbox"/> Thin Dark Surface (S9) (LRR R, MLRA 149B) |
| <input type="checkbox"/> Black Histic (A3) | <input type="checkbox"/> Loamy Mucky Mineral (F1) (LRR K, L) |
| <input type="checkbox"/> Hydrogen Sulfide (A4) | <input type="checkbox"/> Loamy Gleyed Matrix (F2) |
| <input type="checkbox"/> Stratified Layers (A5) | <input checked="" type="checkbox"/> Depleted Matrix (F3) |
| <input type="checkbox"/> Depleted Below Dark Surface (A11) | <input type="checkbox"/> Redox Dark Surface (F6) |
| <input type="checkbox"/> Thick Dark Surface (A12) | <input type="checkbox"/> Depleted Dark Surface (F7) |
| <input type="checkbox"/> Sandy Mucky Mineral (S1) | <input type="checkbox"/> Redox Depressions (F8) |
| <input type="checkbox"/> Sandy Gleyed Matrix (S4) | |
| <input type="checkbox"/> Sandy Redox (S5) | |
| <input type="checkbox"/> Stripped Matrix (S6) | |
| <input type="checkbox"/> Dark Surface (S7) (LRR R, MLRA 149B) | |

Indicators for Problematic Hydric Soils³:

- ☐ 2 cm Muck (A10) (**LRR K, L, MLRA 149B**)
- ☐ Coast Prairie Redox (A16) (**LRR K, L, R**)
- ☐ 5 cm Mucky Peat or Peat (S3) (**LRR K, L, R**)
- ☐ Dark Surface (S7) (**LRR K, L, M**)
- ☐ Polyvalue Below Surface (S8) (**LRR K, L**)
- ☐ Thin Dark Surface (S9) (**LRR K, L**)
- ☐ Iron-Manganese Masses (F12) (**LRR K, L, R**)
- ☐ Piedmont Floodplain Soils (F19) (**MLRA 149B**)
- ☐ Mesic Spodic (TA6) (**MLRA 144A, 145, 149B**)
- ☐ Red Parent Material (F21)
- ☐ Very Shallow Dark Surface (TF12)
- ☐ Other (Explain in Remarks)

³Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed): No

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes X No

Remarks:



north



east



south



west



Soil Profile

WETLAND DETERMINATION DATA FORM – Northcentral and Northeast Region

Project/Site: Beaver-Henrietta 138 kV Transmission Line City/County: Amherst Township, Lorain County Sampling Date: 11/18/2019
 Applicant/Owner: FirstEnergy State: OH Sampling Point: W-BCR-111819-01
 Investigator(s): BCR, JFW Section, Township, Range: N/A
 Landform (hillslope, terrace, etc.): Flat Local relief (concave, convex, none): Concave Slope (%): 5
 Subregion (LRR or MLRA): LRR R Lat: 41.38366 Long: -82.26951 Datum: WGS 84
 Soil Map Unit Name: JsA - Jintown sandy loam, 0 to 2 percent slopes NWI classification: none

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No _____ (If no, explain in Remarks.)
 Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes X No _____
 Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

| | |
|---|---|
| Hydrophytic Vegetation Present? Yes <u>X</u> No _____ | Is the Sampled Area within a Wetland? Yes <u>X</u> No _____ If yes, optional Wetland Site ID: _____ |
| Hydric Soil Present? Yes <u>X</u> No _____ | |
| Wetland Hydrology Present? Yes <u>X</u> No _____ | |
| Remarks: (Explain alternative procedures here or in a separate report.) PEM in an existing T-line ROW. | |

HYDROLOGY

| | | |
|--|---|---|
| Wetland Hydrology Indicators: Primary Indicators (minimum of one is required; check all that apply) | | Secondary Indicators (minimum of two required) |
| <input type="checkbox"/> Surface Water (A1) <input type="checkbox"/> High Water Table (A2) <input type="checkbox"/> Saturation (A3) <input type="checkbox"/> Water Marks (B1) <input type="checkbox"/> Sediment Deposits (B2) <input type="checkbox"/> Drift Deposits (B3) <input type="checkbox"/> Algal Mat or Crust (B4) <input type="checkbox"/> Iron Deposits (B5) <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) <input type="checkbox"/> Sparsely Vegetated Concave Surface (B8) | <input type="checkbox"/> Water-Stained Leaves (B9) <input type="checkbox"/> Aquatic Fauna (B13) <input type="checkbox"/> Marl Deposits (B15) <input type="checkbox"/> Hydrogen Sulfide Odor (C1) <input type="checkbox"/> Oxidized Rhizospheres on Living Roots (C3) <input type="checkbox"/> Presence of Reduced Iron (C4) <input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6) <input type="checkbox"/> Thin Muck Surface (C7) <input type="checkbox"/> Other (Explain in Remarks) | <input type="checkbox"/> Surface Soil Cracks (B6) <input type="checkbox"/> Drainage Patterns (B10) <input type="checkbox"/> Moss Trim Lines (B16) <input type="checkbox"/> Dry-Season Water Table (C2) <input type="checkbox"/> Crayfish Burrows (C8) <input type="checkbox"/> Saturation Visible on Aerial Imagery (C9) <input type="checkbox"/> Stunted or Stressed Plants (D1) <input checked="" type="checkbox"/> Geomorphic Position (D2) <input type="checkbox"/> Shallow Aquitard (D3) <input type="checkbox"/> Microtopographic Relief (D4) <input checked="" type="checkbox"/> FAC-Neutral Test (D5) |
| Field Observations: Surface Water Present? Yes _____ No <u>X</u> Depth (inches): _____ Water Table Present? Yes _____ No <u>X</u> Depth (inches): _____ Saturation Present? Yes _____ No <u>X</u> Depth (inches): _____ (includes capillary fringe) | | Wetland Hydrology Present? Yes <u>X</u> No _____ |
| Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available: | | |
| Remarks: | | |

Sampling Point: W-BCR-111819-01

| | | | | | | | | |
|---|--|--|--|---------------------|----------------------|---------------------|--|---|
| Tree Stratum (Plot size: 30) | | | | Absolute % Cover | Dominant Species? | Indicator Status | Dominance Test worksheet: | |
| 1. | | | | | | | Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A) | |
| 2. | | | | | | | Total Number of Dominant Species Across All Strata: 2 (B) | |
| 3. | | | | | | | Percent of Dominant Species That Are OBL, FACW, or FAC: 100.00 (A/B) | |
| 4. | | | | | | | | |
| 5. | | | | | | | | |
| 6. | | | | | | | | |
| 7. | | | | | | | | |
| | | | | 0 = Total Cover | | | | |
| Sapling/Shrub Stratum (Plot size: 15) | | | | | | | | Prevalence Index worksheet: |
| 1. | | | | | | | Total % Cover of: | Multiply by: |
| 2. | | | | | | | OBL species 55 | x 1 = 55 |
| 3. | | | | | | | FACW species 0 | x 2 = 0 |
| 4. | | | | | | | FAC species 0 | x 3 = 0 |
| 5. | | | | | | | FACU species 10 | x 4 = 40 |
| 6. | | | | | | | UPL species 0 | x 5 = 0 |
| 7. | | | | | | | Column Totals: 65 (A) | 95 (B) |
| | | | | 0 = Total Cover | | | Prevalence Index = B/A = 1.46 | |
| Herb Stratum (Plot size: 5) | | | | | | | | Hydrophytic Vegetation Indicators: |
| 1. Juncus effusus | | | | 30 | Y | OBL | ___ 1 - Rapid Test for Hydrophytic Vegetation | |
| 2. Ludwigia alternifolia | | | | 20 | Y | OBL | <input checked="" type="checkbox"/> 2 - Dominance Test is >50% | |
| 3. Epilobium coloratum | | | | 5 | N | OBL | <input checked="" type="checkbox"/> 3 - Prevalence Index is ≤3.0 ¹ | |
| 4. Symphyotrichum pilosum | | | | 10 | N | FACU | ___ 4 - Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet) | |
| 5. | | | | | | | ___ Problematic Hydrophytic Vegetation ¹ (Explain) | |
| 6. | | | | | | | ¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic. | |
| 7. | | | | | | | Definitions of Vegetation Strata: | |
| 8. | | | | | | | Tree – Woody plants 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height. | |
| 9. | | | | | | | Sapling/shrub – Woody plants less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall. | |
| 10. | | | | | | | Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall. | |
| 11. | | | | | | | Woody vines – All woody vines greater than 3.28 ft in height. | |
| 12. | | | | | | | | |
| | | | | 65 = Total Cover | | | | |
| Woody Vine Stratum (Plot size: 30) | | | | | | | | Hydrophytic Vegetation Present? Yes <input checked="" type="checkbox"/> No |
| 1. | | | | | | | | |
| 2. | | | | | | | | |
| 3. | | | | | | | | |
| 4. | | | | | | | | |
| | | | | 0 = Total Cover | | | | |
| Remarks: (Include photo numbers here or on a separate sheet.) | | | | | | | | |

SOIL

Sampling Point: W-BCR-111819-01

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

[illegible]

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains.

²Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- | | |
|--|---|
| <input type="checkbox"/> Histosol (A1) | <input type="checkbox"/> Polyvalue Below Surface (S8) (LRR R, MLRA 149B) |
| <input type="checkbox"/> Histic Epipedon (A2) | <input type="checkbox"/> Thin Dark Surface (S9) (LRR R, MLRA 149B) |
| <input type="checkbox"/> Black Histic (A3) | <input type="checkbox"/> Loamy Mucky Mineral (F1) (LRR K, L) |
| <input type="checkbox"/> Hydrogen Sulfide (A4) | <input type="checkbox"/> Loamy Gleyed Matrix (F2) |
| <input type="checkbox"/> Stratified Layers (A5) | <input checked="" type="checkbox"/> Depleted Matrix (F3) |
| <input type="checkbox"/> Depleted Below Dark Surface (A11) | <input type="checkbox"/> Redox Dark Surface (F6) |
| <input type="checkbox"/> Thick Dark Surface (A12) | <input type="checkbox"/> Depleted Dark Surface (F7) |
| <input type="checkbox"/> Sandy Mucky Mineral (S1) | <input type="checkbox"/> Redox Depressions (F8) |
| <input type="checkbox"/> Sandy Gleyed Matrix (S4) | |
| <input type="checkbox"/> Sandy Redox (S5) | |
| <input type="checkbox"/> Stripped Matrix (S6) | |
| <input type="checkbox"/> Dark Surface (S7) (LRR R, MLRA 149B) | |

Indicators for Problematic Hydric Soils³:

- ☐ 2 cm Muck (A10) (**LRR K, L, MLRA 149B**)
- ☐ Coast Prairie Redox (A16) (**LRR K, L, R**)
- ☐ 5 cm Mucky Peat or Peat (S3) (**LRR K, L, R**)
- ☐ Dark Surface (S7) (**LRR K, L, M**)
- ☐ Polyvalue Below Surface (S8) (**LRR K, L**)
- ☐ Thin Dark Surface (S9) (**LRR K, L**)
- ☐ Iron-Manganese Masses (F12) (**LRR K, L, R**)
- ☐ Piedmont Floodplain Soils (F19) (**MLRA 149B**)
- ☐ Mesic Spodic (TA6) (**MLRA 144A, 145, 149B**)
- ☐ Red Parent Material (F21)
- ☐ Very Shallow Dark Surface (TF12)
- ☐ Other (Explain in Remarks)

³Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

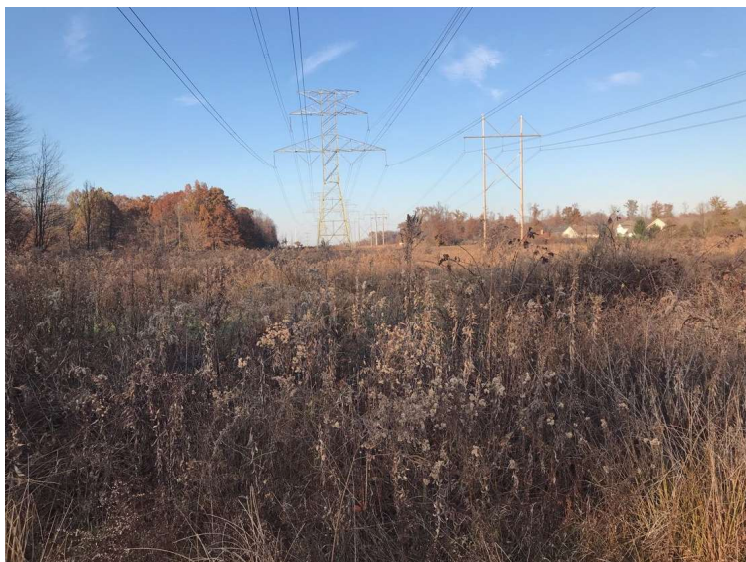
Restrictive Layer (if observed): Yes

Type: Rocky

Depth (inches): 12

Hydric Soil Present? Yes X No

Remarks:



north



east



south



west



soil profile

WETLAND DETERMINATION DATA FORM – Northcentral and Northeast Region

Project/Site: Beaver-Henrietta 138 kV Transmission Line City/County: Lorain County Sampling Date: 01/27/2020
 Applicant/Owner: FirstEnergy State: OH Sampling Point: W-BAO-012720-01E
 Investigator(s): BAO Section, Township, Range: N/A
 Landform (hillslope, terrace, etc.): Flat Local relief (concave, convex, none): Concave Slope (%): 1
 Subregion (LRR or MLRA): LRR R Lat: 41.387915 Long: -82.264987 Datum: WGS 84
 Soil Map Unit Name: HsA: Haskins loam, 0 to 2 percent slopes NWI classification: N/A

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No _____ (If no, explain in Remarks.)
 Are Vegetation ✓, Soil ✓, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes X No _____
 Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

| | |
|--|---|
| Hydrophytic Vegetation Present? Yes <u>X</u> No _____ | Is the Sampled Area within a Wetland? Yes <u>X</u> No _____ If yes, optional Wetland Site ID: <u>Wetland BH-06E</u> |
| Hydric Soil Present? Yes <u>X</u> No _____ | |
| Wetland Hydrology Present? Yes <u>X</u> No _____ | |
| Remarks: (Explain alternative procedures here or in a separate report.) PEM located in ROW that is regularly mowed, part of PEM/PFO complex | |

HYDROLOGY

| | | |
|--|--|--|
| Wetland Hydrology Indicators: Primary Indicators (minimum of one is required; check all that apply) | | Secondary Indicators (minimum of two required) |
| <input checked="" type="checkbox"/> Surface Water (A1) <input type="checkbox"/> High Water Table (A2) <input checked="" type="checkbox"/> Saturation (A3) <input type="checkbox"/> Water Marks (B1) <input type="checkbox"/> Sediment Deposits (B2) <input type="checkbox"/> Drift Deposits (B3) <input type="checkbox"/> Algal Mat or Crust (B4) <input type="checkbox"/> Iron Deposits (B5) <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) <input type="checkbox"/> Sparsely Vegetated Concave Surface (B8) | <input type="checkbox"/> Water-Stained Leaves (B9) <input type="checkbox"/> Aquatic Fauna (B13) <input type="checkbox"/> Marl Deposits (B15) <input type="checkbox"/> Hydrogen Sulfide Odor (C1) <input checked="" type="checkbox"/> Oxidized Rhizospheres on Living Roots (C3) <input type="checkbox"/> Presence of Reduced Iron (C4) <input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6) <input type="checkbox"/> Thin Muck Surface (C7) <input type="checkbox"/> Other (Explain in Remarks) | <input type="checkbox"/> Surface Soil Cracks (B6) <input checked="" type="checkbox"/> Drainage Patterns (B10) <input type="checkbox"/> Moss Trim Lines (B16) <input type="checkbox"/> Dry-Season Water Table (C2) <input type="checkbox"/> Crayfish Burrows (C8) <input checked="" type="checkbox"/> Saturation Visible on Aerial Imagery (C9) <input type="checkbox"/> Stunted or Stressed Plants (D1) <input type="checkbox"/> Geomorphic Position (D2) <input type="checkbox"/> Shallow Aquitard (D3) <input type="checkbox"/> Microtopographic Relief (D4) <input checked="" type="checkbox"/> FAC-Neutral Test (D5) |
| Field Observations: Surface Water Present? Yes <u>X</u> No _____ Depth (inches): <u>2.00</u> Water Table Present? Yes _____ No <u>X</u> Depth (inches): _____ Saturation Present? Yes <u>X</u> No _____ Depth (inches): <u>0</u> (includes capillary fringe) | | Wetland Hydrology Present? Yes <u>X</u> No _____ |
| Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available: | | |
| Remarks: Saturation and inundation in some areas of wetland | | |

VEGETATION – Use scientific names of plants.

Sampling Point: W-BAO-012720-01E

| Tree Stratum (Plot size: 30) | Absolute % Cover | Dominant Species? | Indicator Status | | | | | | | | | | | | | | | |
|---|------------------|-------------------|------------------|---|-------------------|--------------|-----------------------|-----------------|------------------------|------------------|----------------------|----------------|-----------------------|----------------|----------------------|----------------|------------------------------|----------------|
| 1. _____ | _____ | _____ | _____ | Dominance Test worksheet: Number of Dominant Species That Are OBL, FACW, or FAC: <u>2</u> (A) Total Number of Dominant Species Across All Strata: <u>2</u> (B) Percent of Dominant Species That Are OBL, FACW, or FAC: <u>100</u> (A/B) | | | | | | | | | | | | | | |
| 2. _____ | _____ | _____ | _____ | | | | | | | | | | | | | | | |
| 3. _____ | _____ | _____ | _____ | | | | | | | | | | | | | | | |
| 4. _____ | _____ | _____ | _____ | | | | | | | | | | | | | | | |
| 5. _____ | _____ | _____ | _____ | | | | | | | | | | | | | | | |
| 6. _____ | _____ | _____ | _____ | | | | | | | | | | | | | | | |
| 7. _____ | _____ | _____ | _____ | | | | | | | | | | | | | | | |
| <u>0</u> = Total Cover | | | | Prevalence Index worksheet: <table style="width: 100%;"> <tr> <td style="width: 50%;">Total % Cover of:</td> <td style="width: 50%;">Multiply by:</td> </tr> <tr> <td>OBL species <u>35</u></td> <td>x 1 = <u>35</u></td> </tr> <tr> <td>FACW species <u>55</u></td> <td>x 2 = <u>110</u></td> </tr> <tr> <td>FAC species <u>0</u></td> <td>x 3 = <u>0</u></td> </tr> <tr> <td>FACU species <u>0</u></td> <td>x 4 = <u>0</u></td> </tr> <tr> <td>UPL species <u>0</u></td> <td>x 5 = <u>0</u></td> </tr> <tr> <td>Column Totals: <u>90</u> (A)</td> <td><u>145</u> (B)</td> </tr> </table> Prevalence Index = B/A = <u>1.61</u> | Total % Cover of: | Multiply by: | OBL species <u>35</u> | x 1 = <u>35</u> | FACW species <u>55</u> | x 2 = <u>110</u> | FAC species <u>0</u> | x 3 = <u>0</u> | FACU species <u>0</u> | x 4 = <u>0</u> | UPL species <u>0</u> | x 5 = <u>0</u> | Column Totals: <u>90</u> (A) | <u>145</u> (B) |
| Total % Cover of: | Multiply by: | | | | | | | | | | | | | | | | | |
| OBL species <u>35</u> | x 1 = <u>35</u> | | | | | | | | | | | | | | | | | |
| FACW species <u>55</u> | x 2 = <u>110</u> | | | | | | | | | | | | | | | | | |
| FAC species <u>0</u> | x 3 = <u>0</u> | | | | | | | | | | | | | | | | | |
| FACU species <u>0</u> | x 4 = <u>0</u> | | | | | | | | | | | | | | | | | |
| UPL species <u>0</u> | x 5 = <u>0</u> | | | | | | | | | | | | | | | | | |
| Column Totals: <u>90</u> (A) | <u>145</u> (B) | | | | | | | | | | | | | | | | | |
| <u>0</u> = Total Cover | | | | | | | | | | | | | | | | | | |
| Sapling/Shrub Stratum (Plot size: 15) | | | | | | | | | | | | | | | | | | |
| 1. _____ | _____ | _____ | _____ | | | | | | | | | | | | | | | |
| 2. _____ | _____ | _____ | _____ | | | | | | | | | | | | | | | |
| 3. _____ | _____ | _____ | _____ | | | | | | | | | | | | | | | |
| 4. _____ | _____ | _____ | _____ | | | | | | | | | | | | | | | |
| 5. _____ | _____ | _____ | _____ | | | | | | | | | | | | | | | |
| 6. _____ | _____ | _____ | _____ | | | | | | | | | | | | | | | |
| 7. _____ | _____ | _____ | _____ | | | | | | | | | | | | | | | |
| <u>0</u> = Total Cover | | | | | | | | | | | | | | | | | | |
| Herb Stratum (Plot size: 5) | | | | | | | | | | | | | | | | | | |
| 1. <u>Juncus effusus</u> | <u>25</u> | <u>Y</u> | <u>OBL</u> | Hydrophytic Vegetation Indicators: <input checked="" type="checkbox"/> 1 - Rapid Test for Hydrophytic Vegetation <input checked="" type="checkbox"/> 2 - Dominance Test is >50% <input checked="" type="checkbox"/> 3 - Prevalence Index is ≤3.0 ¹ <input type="checkbox"/> 4 - Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet) <input type="checkbox"/> Problematic Hydrophytic Vegetation ¹ (Explain) ¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic. | | | | | | | | | | | | | | |
| 2. <u>Phalaris arundinacea</u> | <u>40</u> | <u>Y</u> | <u>FACW</u> | | | | | | | | | | | | | | | |
| 3. <u>Onoclea sensibilis</u> | <u>5</u> | <u>N</u> | <u>FACW</u> | | | | | | | | | | | | | | | |
| 4. <u>Ludwigia alternifolia</u> | <u>5</u> | <u>N</u> | <u>OBL</u> | | | | | | | | | | | | | | | |
| 5. <u>Dichanthelium clandestinum</u> | <u>10</u> | <u>N</u> | <u>FACW</u> | | | | | | | | | | | | | | | |
| 6. <u>Carex sp.</u> | <u>5</u> | <u>N</u> | <u>UNK</u> | | | | | | | | | | | | | | | |
| 7. <u>Persicaria sagittata</u> | <u>5</u> | <u>N</u> | <u>OBL</u> | | | | | | | | | | | | | | | |
| 8. _____ | _____ | _____ | _____ | | | | | | | | | | | | | | | |
| 9. _____ | _____ | _____ | _____ | | | | | | | | | | | | | | | |
| 10. _____ | _____ | _____ | _____ | | | | | | | | | | | | | | | |
| 11. _____ | _____ | _____ | _____ | | | | | | | | | | | | | | | |
| 12. _____ | _____ | _____ | _____ | | | | | | | | | | | | | | | |
| <u>95</u> = Total Cover | | | | | | | | | | | | | | | | | | |
| Woody Vine Stratum (Plot size: 30) | | | | | | | | | | | | | | | | | | |
| 1. _____ | _____ | _____ | _____ | | | | | | | | | | | | | | | |
| 2. _____ | _____ | _____ | _____ | | | | | | | | | | | | | | | |
| 3. _____ | _____ | _____ | _____ | | | | | | | | | | | | | | | |
| 4. _____ | _____ | _____ | _____ | | | | | | | | | | | | | | | |
| <u>0</u> = Total Cover | | | | | | | | | | | | | | | | | | |
| Remarks: (Include photo numbers here or on a separate sheet.) | | | | | | | | | | | | | | | | | | |

SOIL

Sampling Point: W-BAO-012720-01E

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

[illegible]

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains.

²Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- | | |
|--|---|
| <input type="checkbox"/> Histosol (A1) | <input type="checkbox"/> Polyvalue Below Surface (S8) (LRR R, MLRA 149B) |
| <input type="checkbox"/> Histic Epipedon (A2) | <input type="checkbox"/> Thin Dark Surface (S9) (LRR R, MLRA 149B) |
| <input type="checkbox"/> Black Histic (A3) | <input type="checkbox"/> Loamy Mucky Mineral (F1) (LRR K, L) |
| <input type="checkbox"/> Hydrogen Sulfide (A4) | <input type="checkbox"/> Loamy Gleyed Matrix (F2) |
| <input type="checkbox"/> Stratified Layers (A5) | <input checked="" type="checkbox"/> Depleted Matrix (F3) |
| <input type="checkbox"/> Depleted Below Dark Surface (A11) | <input type="checkbox"/> Redox Dark Surface (F6) |
| <input type="checkbox"/> Thick Dark Surface (A12) | <input type="checkbox"/> Depleted Dark Surface (F7) |
| <input type="checkbox"/> Sandy Mucky Mineral (S1) | <input type="checkbox"/> Redox Depressions (F8) |
| <input type="checkbox"/> Sandy Gleyed Matrix (S4) | |
| <input type="checkbox"/> Sandy Redox (S5) | |
| <input type="checkbox"/> Stripped Matrix (S6) | |
| <input type="checkbox"/> Dark Surface (S7) (LRR R, MLRA 149B) | |

Indicators for Problematic Hydric Soils³:

- ☐ 2 cm Muck (A10) (**LRR K, L, MLRA 149B**)
- ☐ Coast Prairie Redox (A16) (**LRR K, L, R**)
- ☐ 5 cm Mucky Peat or Peat (S3) (**LRR K, L, R**)
- ☐ Dark Surface (S7) (**LRR K, L, M**)
- ☐ Polyvalue Below Surface (S8) (**LRR K, L**)
- ☐ Thin Dark Surface (S9) (**LRR K, L**)
- ☐ Iron-Manganese Masses (F12) (**LRR K, L, R**)
- ☐ Piedmont Floodplain Soils (F19) (**MLRA 149B**)
- ☐ Mesic Spodic (TA6) (**MLRA 144A, 145, 149B**)
- ☐ Red Parent Material (F21)
- ☐ Very Shallow Dark Surface (TF12)
- ☐ Other (Explain in Remarks)

³Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed): No

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes X No

Remarks:



north



south



east



west



soil

WETLAND DETERMINATION DATA FORM – Northcentral and Northeast Region

Project/Site: Beaver-Henrietta 138 kV City/County: Lorain County Sampling Date: 01/28/2020
 Applicant/Owner: FirstEnergy State: OH Sampling Point: W-BAO-012720-01F
 Investigator(s): BAO Section, Township, Range: N/A
 Landform (hillslope, terrace, etc.): Flat Local relief (concave, convex, none): Hummocky Slope (%): 0
 Subregion (LRR or MLRA): LRR R Lat: 41.38775 Long: -82.26443 Datum: WGS 84
 Soil Map Unit Name: HsA: Haskins loam, 0 to 2 percent slopes NWI classification: N/A

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No _____ (If no, explain in Remarks.)
 Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes X No _____
 Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

| | |
|---|---|
| Hydrophytic Vegetation Present? Yes <u>X</u> No _____ Hydric Soil Present? Yes <u>X</u> No _____ Wetland Hydrology Present? Yes <u>X</u> No _____ | Is the Sampled Area within a Wetland? Yes <u>X</u> No _____ If yes, optional Wetland Site ID: <u>Wetland BH-06F</u> |
| Remarks: (Explain alternative procedures here or in a separate report.) PFO portion of Wetland BH-06 wetland complex | |

HYDROLOGY

| | | |
|--|--|---|
| Wetland Hydrology Indicators: Primary Indicators (minimum of one is required; check all that apply) | | Secondary Indicators (minimum of two required) |
| <input type="checkbox"/> Surface Water (A1) <input type="checkbox"/> High Water Table (A2) <input checked="" type="checkbox"/> Saturation (A3) <input checked="" type="checkbox"/> Water Marks (B1) <input type="checkbox"/> Sediment Deposits (B2) <input type="checkbox"/> Drift Deposits (B3) <input type="checkbox"/> Algal Mat or Crust (B4) <input type="checkbox"/> Iron Deposits (B5) <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) <input type="checkbox"/> Sparsely Vegetated Concave Surface (B8) | <input checked="" type="checkbox"/> Water-Stained Leaves (B9) <input type="checkbox"/> Aquatic Fauna (B13) <input type="checkbox"/> Marl Deposits (B15) <input type="checkbox"/> Hydrogen Sulfide Odor (C1) <input type="checkbox"/> Oxidized Rhizospheres on Living Roots (C3) <input type="checkbox"/> Presence of Reduced Iron (C4) <input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6) <input type="checkbox"/> Thin Muck Surface (C7) <input type="checkbox"/> Other (Explain in Remarks) | <input type="checkbox"/> Surface Soil Cracks (B6) <input checked="" type="checkbox"/> Drainage Patterns (B10) <input type="checkbox"/> Moss Trim Lines (B16) <input type="checkbox"/> Dry-Season Water Table (C2) <input type="checkbox"/> Crayfish Burrows (C8) <input type="checkbox"/> Saturation Visible on Aerial Imagery (C9) <input type="checkbox"/> Stunted or Stressed Plants (D1) <input type="checkbox"/> Geomorphic Position (D2) <input type="checkbox"/> Shallow Aquitard (D3) <input type="checkbox"/> Microtopographic Relief (D4) <input checked="" type="checkbox"/> FAC-Neutral Test (D5) |
| Field Observations: Surface Water Present? Yes _____ No <u>X</u> Depth (inches): _____ Water Table Present? Yes _____ No <u>X</u> Depth (inches): _____ Saturation Present? Yes <u>X</u> No _____ Depth (inches): <u>0.00</u> (includes capillary fringe) | | Wetland Hydrology Present? Yes <u>X</u> No _____ |
| Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available: | | |
| Remarks: Saturation was noted at the surface. Water marks and buttressed trunks were also observed | | |

VEGETATION – Use scientific names of plants.

Sampling Point: W-BAO-012720-01F

| Tree Stratum (Plot size: 30) | Absolute % Cover | Dominant Species? | Indicator Status | | | | | | | | | | | | | | | |
|---|------------------|-------------------|------------------|--|-------------------|--------------|-----------------------|-----------------|------------------------|-----------------|-----------------------|------------------|-----------------------|----------------|----------------------|----------------|-------------------------------|----------------|
| 1. <u>Ulmus americana</u> | 20 | Y | FACW | Dominance Test worksheet: Number of Dominant Species That Are OBL, FACW, or FAC: <u>4</u> (A) Total Number of Dominant Species Across All Strata: <u>4</u> (B) Percent of Dominant Species That Are OBL, FACW, or FAC: <u>100</u> (A/B) | | | | | | | | | | | | | | |
| 2. <u>Acer rubrum</u> | 40 | Y | FAC | | | | | | | | | | | | | | | |
| 3. <u>Acer saccharinum</u> | 10 | N | FACW | | | | | | | | | | | | | | | |
| 4. _____ | _____ | _____ | _____ | | | | | | | | | | | | | | | |
| 5. _____ | _____ | _____ | _____ | | | | | | | | | | | | | | | |
| 6. _____ | _____ | _____ | _____ | | | | | | | | | | | | | | | |
| 7. _____ | _____ | _____ | _____ | | | | | | | | | | | | | | | |
| <u>70</u> = Total Cover | | | | | | | | | | | | | | | | | | |
| Sapling/Shrub Stratum (Plot size: 15) | Absolute % Cover | Dominant Species? | Indicator Status | | | | | | | | | | | | | | | |
| 1. _____ | _____ | _____ | _____ | Prevalence Index worksheet: <table style="width: 100%;"> <tr> <th style="width: 50%;">Total % Cover of:</th> <th style="width: 50%;">Multiply by:</th> </tr> <tr> <td>OBL species <u>35</u></td> <td>x 1 = <u>35</u></td> </tr> <tr> <td>FACW species <u>40</u></td> <td>x 2 = <u>80</u></td> </tr> <tr> <td>FAC species <u>85</u></td> <td>x 3 = <u>255</u></td> </tr> <tr> <td>FACU species <u>0</u></td> <td>x 4 = <u>0</u></td> </tr> <tr> <td>UPL species <u>0</u></td> <td>x 5 = <u>0</u></td> </tr> <tr> <td>Column Totals: <u>160</u> (A)</td> <td><u>370</u> (B)</td> </tr> </table> Prevalence Index = B/A = <u>2.31</u> | Total % Cover of: | Multiply by: | OBL species <u>35</u> | x 1 = <u>35</u> | FACW species <u>40</u> | x 2 = <u>80</u> | FAC species <u>85</u> | x 3 = <u>255</u> | FACU species <u>0</u> | x 4 = <u>0</u> | UPL species <u>0</u> | x 5 = <u>0</u> | Column Totals: <u>160</u> (A) | <u>370</u> (B) |
| Total % Cover of: | Multiply by: | | | | | | | | | | | | | | | | | |
| OBL species <u>35</u> | x 1 = <u>35</u> | | | | | | | | | | | | | | | | | |
| FACW species <u>40</u> | x 2 = <u>80</u> | | | | | | | | | | | | | | | | | |
| FAC species <u>85</u> | x 3 = <u>255</u> | | | | | | | | | | | | | | | | | |
| FACU species <u>0</u> | x 4 = <u>0</u> | | | | | | | | | | | | | | | | | |
| UPL species <u>0</u> | x 5 = <u>0</u> | | | | | | | | | | | | | | | | | |
| Column Totals: <u>160</u> (A) | <u>370</u> (B) | | | | | | | | | | | | | | | | | |
| 2. _____ | _____ | _____ | _____ | | | | | | | | | | | | | | | |
| 3. _____ | _____ | _____ | _____ | | | | | | | | | | | | | | | |
| 4. _____ | _____ | _____ | _____ | | | | | | | | | | | | | | | |
| 5. _____ | _____ | _____ | _____ | | | | | | | | | | | | | | | |
| 6. _____ | _____ | _____ | _____ | | | | | | | | | | | | | | | |
| 7. _____ | _____ | _____ | _____ | | | | | | | | | | | | | | | |
| <u>0</u> = Total Cover | | | | | | | | | | | | | | | | | | |
| Herb Stratum (Plot size: 5) | Absolute % Cover | Dominant Species? | Indicator Status | | | | | | | | | | | | | | | |
| 1. <u>Scirpus cyperinus</u> | 20 | Y | OBL | Hydrophytic Vegetation Indicators: <input type="checkbox"/> 1 - Rapid Test for Hydrophytic Vegetation <input checked="" type="checkbox"/> 2 - Dominance Test is >50% <input checked="" type="checkbox"/> 3 - Prevalence Index is ≤3.0 ¹ <input checked="" type="checkbox"/> 4 - Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet) <input type="checkbox"/> Problematic Hydrophytic Vegetation ¹ (Explain) ¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic. | | | | | | | | | | | | | | |
| 2. <u>Carex vulpinoidea</u> | 10 | N | OBL | | | | | | | | | | | | | | | |
| 3. <u>Carex sp.</u> | 40 | Y | FAC | | | | | | | | | | | | | | | |
| 4. <u>Carex intumescens</u> | 10 | N | FACW | | | | | | | | | | | | | | | |
| 5. <u>Juncus sp.</u> | 5 | N | FAC | | | | | | | | | | | | | | | |
| 6. <u>Mimulus ringens</u> | 5 | N | OBL | | | | | | | | | | | | | | | |
| 7. _____ | _____ | _____ | _____ | | | | | | | | | | | | | | | |
| 8. _____ | _____ | _____ | _____ | | | | | | | | | | | | | | | |
| 9. _____ | _____ | _____ | _____ | | | | | | | | | | | | | | | |
| 10. _____ | _____ | _____ | _____ | | | | | | | | | | | | | | | |
| 11. _____ | _____ | _____ | _____ | | | | | | | | | | | | | | | |
| 12. _____ | _____ | _____ | _____ | | | | | | | | | | | | | | | |
| <u>90</u> = Total Cover | | | | | | | | | | | | | | | | | | |
| Woody Vine Stratum (Plot size: 30) | Absolute % Cover | Dominant Species? | Indicator Status | | | | | | | | | | | | | | | |
| 1. _____ | _____ | _____ | _____ | Hydrophytic Vegetation Present? Yes <u>X</u> No | | | | | | | | | | | | | | |
| 2. _____ | _____ | _____ | _____ | | | | | | | | | | | | | | | |
| 3. _____ | _____ | _____ | _____ | | | | | | | | | | | | | | | |
| 4. _____ | _____ | _____ | _____ | | | | | | | | | | | | | | | |
| <u>0</u> = Total Cover | | | | | | | | | | | | | | | | | | |
| Remarks: (Include photo numbers here or on a separate sheet.) buttressed trees | | | | | | | | | | | | | | | | | | |

SOIL

Sampling Point: W-BAO-012720-01F

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

[illegible]

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains.

²Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- | | |
|--|---|
| <input type="checkbox"/> Histosol (A1) | <input type="checkbox"/> Polyvalue Below Surface (S8) (LRR R, MLRA 149B) |
| <input type="checkbox"/> Histic Epipedon (A2) | <input type="checkbox"/> Thin Dark Surface (S9) (LRR R, MLRA 149B) |
| <input type="checkbox"/> Black Histic (A3) | <input type="checkbox"/> Loamy Mucky Mineral (F1) (LRR K, L) |
| <input type="checkbox"/> Hydrogen Sulfide (A4) | <input type="checkbox"/> Loamy Gleyed Matrix (F2) |
| <input type="checkbox"/> Stratified Layers (A5) | <input checked="" type="checkbox"/> Depleted Matrix (F3) |
| <input type="checkbox"/> Depleted Below Dark Surface (A11) | <input type="checkbox"/> Redox Dark Surface (F6) |
| <input type="checkbox"/> Thick Dark Surface (A12) | <input type="checkbox"/> Depleted Dark Surface (F7) |
| <input type="checkbox"/> Sandy Mucky Mineral (S1) | <input type="checkbox"/> Redox Depressions (F8) |
| <input type="checkbox"/> Sandy Gleyed Matrix (S4) | |
| <input type="checkbox"/> Sandy Redox (S5) | |
| <input type="checkbox"/> Stripped Matrix (S6) | |
| <input type="checkbox"/> Dark Surface (S7) (LRR R, MLRA 149B) | |

Indicators for Problematic Hydric Soils³:

- ☐ 2 cm Muck (A10) (**LRR K, L, MLRA 149B**)
- ☐ Coast Prairie Redox (A16) (**LRR K, L, R**)
- ☐ 5 cm Mucky Peat or Peat (S3) (**LRR K, L, R**)
- ☐ Dark Surface (S7) (**LRR K, L, M**)
- ☐ Polyvalue Below Surface (S8) (**LRR K, L**)
- ☐ Thin Dark Surface (S9) (**LRR K, L**)
- ☐ Iron-Manganese Masses (F12) (**LRR K, L, R**)
- ☐ Piedmont Floodplain Soils (F19) (**MLRA 149B**)
- ☐ Mesic Spodic (TA6) (**MLRA 144A, 145, 149B**)
- ☐ Red Parent Material (F21)
- ☐ Very Shallow Dark Surface (TF12)
- ☐ Other (Explain in Remarks)

³Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed): No

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes X No

Remarks:



north



south



west



east



soil

WETLAND DETERMINATION DATA FORM – Northcentral and Northeast Region

Project/Site: Beaver-Henrietta 138 kV Transmission Line City/County: Amherst Township, Lorain County Sampling Date: 11/19/2019
 Applicant/Owner: FirstEnergy State: OH Sampling Point: U-BCR-111919-02
 Investigator(s): BCR, JFW Section, Township, Range: N/A
 Landform (hillslope, terrace, etc.): Footslope Local relief (concave, convex, none): Hummocky Slope (%): 8
 Subregion (LRR or MLRA): LRR R Lat: 41.39100 Long: -82.26887 Datum: WGS 84
 Soil Map Unit Name: OtB - Oshtemo sandy loam, 2 to 6 percent slopes NWI classification: none

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No _____ (If no, explain in Remarks.)
 Are Vegetation _____, Soil ✓, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes X No _____
 Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

| | |
|---|---|
| Hydrophytic Vegetation Present? Yes _____ No <u>X</u> Hydric Soil Present? Yes <u>X</u> No _____ Wetland Hydrology Present? Yes _____ No <u>X</u> | Is the Sampled Area within a Wetland? Yes _____ No <u>X</u> If yes, optional Wetland Site ID: _____ |
| Remarks: (Explain alternative procedures here or in a separate report.) Upland point associated with W-BCR-111919-02E/S. Close to a recently installed T-line structure, just south of N Ridge Rd. | |

HYDROLOGY

| | | |
|--|---|---|
| Wetland Hydrology Indicators: Primary Indicators (minimum of one is required; check all that apply) | | Secondary Indicators (minimum of two required) |
| <input type="checkbox"/> Surface Water (A1) <input type="checkbox"/> High Water Table (A2) <input type="checkbox"/> Saturation (A3) <input type="checkbox"/> Water Marks (B1) <input type="checkbox"/> Sediment Deposits (B2) <input type="checkbox"/> Drift Deposits (B3) <input type="checkbox"/> Algal Mat or Crust (B4) <input type="checkbox"/> Iron Deposits (B5) <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) <input type="checkbox"/> Sparsely Vegetated Concave Surface (B8) | <input type="checkbox"/> Water-Stained Leaves (B9) <input type="checkbox"/> Aquatic Fauna (B13) <input type="checkbox"/> Marl Deposits (B15) <input type="checkbox"/> Hydrogen Sulfide Odor (C1) <input type="checkbox"/> Oxidized Rhizospheres on Living Roots (C3) <input type="checkbox"/> Presence of Reduced Iron (C4) <input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6) <input type="checkbox"/> Thin Muck Surface (C7) <input type="checkbox"/> Other (Explain in Remarks) | <input type="checkbox"/> Surface Soil Cracks (B6) <input type="checkbox"/> Drainage Patterns (B10) <input type="checkbox"/> Moss Trim Lines (B16) <input type="checkbox"/> Dry-Season Water Table (C2) <input type="checkbox"/> Crayfish Burrows (C8) <input type="checkbox"/> Saturation Visible on Aerial Imagery (C9) <input type="checkbox"/> Stunted or Stressed Plants (D1) <input type="checkbox"/> Geomorphic Position (D2) <input type="checkbox"/> Shallow Aquitard (D3) <input type="checkbox"/> Microtopographic Relief (D4) <input type="checkbox"/> FAC-Neutral Test (D5) |
| Field Observations: Surface Water Present? Yes _____ No <u>X</u> Depth (inches): _____ Water Table Present? Yes _____ No <u>X</u> Depth (inches): _____ Saturation Present? Yes _____ No <u>X</u> Depth (inches): _____ (includes capillary fringe) | | Wetland Hydrology Present? Yes _____ No <u>X</u> |
| Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available: | | |
| Remarks: | | |

VEGETATION – Use scientific names of plants.

 Sampling Point: U-BCR-111919-02

| Tree Stratum (Plot size: <u>30</u>) | Absolute % Cover | Dominant Species? | Indicator Status | | | | | | | | | | | | | | | |
|---|---------------------|----------------------|---------------------|--|-------------------|--------------|----------------------|----------------|------------------------|-----------------|----------------------|----------------|------------------------|------------------|----------------------|----------------|-------------------------------|----------------|
| 1. _____ | _____ | _____ | _____ | Dominance Test worksheet: Number of Dominant Species That Are OBL, FACW, or FAC: <u>0</u> (A) Total Number of Dominant Species Across All Strata: <u>2</u> (B) Percent of Dominant Species That Are OBL, FACW, or FAC: <u>0.00</u> (A/B) | | | | | | | | | | | | | | |
| 2. _____ | _____ | _____ | _____ | | | | | | | | | | | | | | | |
| 3. _____ | _____ | _____ | _____ | | | | | | | | | | | | | | | |
| 4. _____ | _____ | _____ | _____ | | | | | | | | | | | | | | | |
| 5. _____ | _____ | _____ | _____ | | | | | | | | | | | | | | | |
| 6. _____ | _____ | _____ | _____ | | | | | | | | | | | | | | | |
| 7. _____ | _____ | _____ | _____ | | | | | | | | | | | | | | | |
| <u>0</u> = Total Cover | | | | | | | | | | | | | | | | | | |
| Sapling/Shrub Stratum (Plot size: <u>15</u>) | | | | | | | | | | | | | | | | | | |
| 1. _____ | _____ | _____ | _____ | Prevalence Index worksheet: <table style="width: 100%;"> <tr> <td style="width: 50%;">Total % Cover of:</td> <td style="width: 50%;">Multiply by:</td> </tr> <tr> <td>OBL species <u>5</u></td> <td>x 1 = <u>5</u></td> </tr> <tr> <td>FACW species <u>30</u></td> <td>x 2 = <u>60</u></td> </tr> <tr> <td>FAC species <u>0</u></td> <td>x 3 = <u>0</u></td> </tr> <tr> <td>FACU species <u>90</u></td> <td>x 4 = <u>360</u></td> </tr> <tr> <td>UPL species <u>0</u></td> <td>x 5 = <u>0</u></td> </tr> <tr> <td>Column Totals: <u>125</u> (A)</td> <td><u>425</u> (B)</td> </tr> </table> Prevalence Index = B/A = <u>3.40</u> | Total % Cover of: | Multiply by: | OBL species <u>5</u> | x 1 = <u>5</u> | FACW species <u>30</u> | x 2 = <u>60</u> | FAC species <u>0</u> | x 3 = <u>0</u> | FACU species <u>90</u> | x 4 = <u>360</u> | UPL species <u>0</u> | x 5 = <u>0</u> | Column Totals: <u>125</u> (A) | <u>425</u> (B) |
| Total % Cover of: | Multiply by: | | | | | | | | | | | | | | | | | |
| OBL species <u>5</u> | x 1 = <u>5</u> | | | | | | | | | | | | | | | | | |
| FACW species <u>30</u> | x 2 = <u>60</u> | | | | | | | | | | | | | | | | | |
| FAC species <u>0</u> | x 3 = <u>0</u> | | | | | | | | | | | | | | | | | |
| FACU species <u>90</u> | x 4 = <u>360</u> | | | | | | | | | | | | | | | | | |
| UPL species <u>0</u> | x 5 = <u>0</u> | | | | | | | | | | | | | | | | | |
| Column Totals: <u>125</u> (A) | <u>425</u> (B) | | | | | | | | | | | | | | | | | |
| 2. _____ | _____ | _____ | _____ | | | | | | | | | | | | | | | |
| 3. _____ | _____ | _____ | _____ | | | | | | | | | | | | | | | |
| 4. _____ | _____ | _____ | _____ | | | | | | | | | | | | | | | |
| 5. _____ | _____ | _____ | _____ | | | | | | | | | | | | | | | |
| 6. _____ | _____ | _____ | _____ | | | | | | | | | | | | | | | |
| 7. _____ | _____ | _____ | _____ | | | | | | | | | | | | | | | |
| <u>0</u> = Total Cover | | | | | | | | | | | | | | | | | | |
| Herb Stratum (Plot size: <u>5</u>) | | | | | | | | | | | | | | | | | | |
| 1. <u>Solidago altissima</u> | <u>50</u> | <u>Y</u> | <u>FACU</u> | Hydrophytic Vegetation Indicators: <input type="checkbox"/> 1 - Rapid Test for Hydrophytic Vegetation <input type="checkbox"/> 2 - Dominance Test is >50% <input type="checkbox"/> 3 - Prevalence Index is ≤3.0 ¹ <input type="checkbox"/> 4 - Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet) <input type="checkbox"/> Problematic Hydrophytic Vegetation ¹ (Explain) ¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic. | | | | | | | | | | | | | | |
| 2. <u>Rubus allegheniensis</u> | <u>40</u> | <u>Y</u> | <u>FACU</u> | | | | | | | | | | | | | | | |
| 3. <u>Dichanthelium clandestinum</u> | <u>20</u> | <u>N</u> | <u>FACW</u> | | | | | | | | | | | | | | | |
| 4. <u>Phalaris arundinacea</u> | <u>10</u> | <u>N</u> | <u>FACW</u> | | | | | | | | | | | | | | | |
| 5. <u>Juncus effusus</u> | <u>5</u> | <u>N</u> | <u>OBL</u> | | | | | | | | | | | | | | | |
| 6. _____ | _____ | _____ | _____ | | | | | | | | | | | | | | | |
| 7. _____ | _____ | _____ | _____ | | | | | | | | | | | | | | | |
| 8. _____ | _____ | _____ | _____ | | | | | | | | | | | | | | | |
| 9. _____ | _____ | _____ | _____ | | | | | | | | | | | | | | | |
| 10. _____ | _____ | _____ | _____ | | | | | | | | | | | | | | | |
| 11. _____ | _____ | _____ | _____ | | | | | | | | | | | | | | | |
| 12. _____ | _____ | _____ | _____ | | | | | | | | | | | | | | | |
| <u>125</u> = Total Cover | | | | | | | | | | | | | | | | | | |
| Woody Vine Stratum (Plot size: <u>30</u>) | | | | | | | | | | | | | | | | | | |
| 1. _____ | _____ | _____ | _____ | Hydrophytic Vegetation Present? Yes _____ No <u>X</u> | | | | | | | | | | | | | | |
| 2. _____ | _____ | _____ | _____ | | | | | | | | | | | | | | | |
| 3. _____ | _____ | _____ | _____ | | | | | | | | | | | | | | | |
| 4. _____ | _____ | _____ | _____ | | | | | | | | | | | | | | | |
| <u>0</u> = Total Cover | | | | | | | | | | | | | | | | | | |
| Remarks: (Include photo numbers here or on a separate sheet.) | | | | | | | | | | | | | | | | | | |

SOIL

Sampling Point: U-BCR-111919-02

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

[illegible]

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains.

²Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- | | |
|--|---|
| <input type="checkbox"/> Histosol (A1) | <input type="checkbox"/> Polyvalue Below Surface (S8) (LRR R, MLRA 149B) |
| <input type="checkbox"/> Histic Epipedon (A2) | |
| <input type="checkbox"/> Black Histic (A3) | <input type="checkbox"/> Thin Dark Surface (S9) (LRR R, MLRA 149B) |
| <input type="checkbox"/> Hydrogen Sulfide (A4) | <input type="checkbox"/> Loamy Mucky Mineral (F1) (LRR K, L) |
| <input type="checkbox"/> Stratified Layers (A5) | <input type="checkbox"/> Loamy Gleyed Matrix (F2) |
| <input type="checkbox"/> Depleted Below Dark Surface (A11) | <input type="checkbox"/> Depleted Matrix (F3) |
| <input type="checkbox"/> Thick Dark Surface (A12) | <input checked="" type="checkbox"/> Redox Dark Surface (F6) |
| <input type="checkbox"/> Sandy Mucky Mineral (S1) | <input type="checkbox"/> Depleted Dark Surface (F7) |
| <input type="checkbox"/> Sandy Gleyed Matrix (S4) | <input type="checkbox"/> Redox Depressions (F8) |
| <input type="checkbox"/> Sandy Redox (S5) | |
| <input type="checkbox"/> Stripped Matrix (S6) | |
| <input type="checkbox"/> Dark Surface (S7) (LRR R, MLRA 149B) | |

Indicators for Problematic Hydric Soils³:

- ☐ 2 cm Muck (A10) (**LRR K, L, MLRA 149B**)
- ☐ Coast Prairie Redox (A16) (**LRR K, L, R**)
- ☐ 5 cm Mucky Peat or Peat (S3) (**LRR K, L, R**)
- ☐ Dark Surface (S7) (**LRR K, L, M**)
- ☐ Polyvalue Below Surface (S8) (**LRR K, L**)
- ☐ Thin Dark Surface (S9) (**LRR K, L**)
- ☐ Iron-Manganese Masses (F12) (**LRR K, L, R**)
- ☐ Piedmont Floodplain Soils (F19) (**MLRA 149B**)
- ☐ Mesic Spodic (TA6) (**MLRA 144A, 145, 149B**)
- ☐ Red Parent Material (F21)
- ☐ Very Shallow Dark Surface (TF12)
- ☐ Other (Explain in Remarks)

³Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed): No

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes X No

Remarks:



soil profile



southeast

WETLAND DETERMINATION DATA FORM – Northcentral and Northeast Region

Project/Site: Beaver-Henrietta 138 kV Transmission Line City/County: Amherst Township, Lorain County Sampling Date: 11/19/2019
 Applicant/Owner: FirstEnergy State: OH Sampling Point: U-BCR-111919-01
 Investigator(s): JFW, BCR Section, Township, Range: N/A
 Landform (hillslope, terrace, etc.): Flat Local relief (concave, convex, none): Flat Slope (%): 0
 Subregion (LRR or MLRA): LRR R Lat: 41.38873 Long: -82.26840 Datum: WGS 84
 Soil Map Unit Name: MtB - Mitiwanga silt loam, 2 to 6 percent slopes NWI classification: none

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No _____ (If no, explain in Remarks.)
 Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes X No _____
 Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

| | |
|---|---|
| Hydrophytic Vegetation Present? Yes <u>X</u> No _____ Hydric Soil Present? Yes _____ No <u>X</u> Wetland Hydrology Present? Yes _____ No <u>X</u> | Is the Sampled Area within a Wetland? Yes _____ No <u>X</u> If yes, optional Wetland Site ID: _____ |
| Remarks: (Explain alternative procedures here or in a separate report.) Upland point associated with W-BCR-111919-01, in T-line ROW. | |

HYDROLOGY

| | | |
|--|---|---|
| Wetland Hydrology Indicators: Primary Indicators (minimum of one is required; check all that apply) | | Secondary Indicators (minimum of two required) |
| <input type="checkbox"/> Surface Water (A1) <input type="checkbox"/> High Water Table (A2) <input type="checkbox"/> Saturation (A3) <input type="checkbox"/> Water Marks (B1) <input type="checkbox"/> Sediment Deposits (B2) <input type="checkbox"/> Drift Deposits (B3) <input type="checkbox"/> Algal Mat or Crust (B4) <input type="checkbox"/> Iron Deposits (B5) <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) <input type="checkbox"/> Sparsely Vegetated Concave Surface (B8) | <input type="checkbox"/> Water-Stained Leaves (B9) <input type="checkbox"/> Aquatic Fauna (B13) <input type="checkbox"/> Marl Deposits (B15) <input type="checkbox"/> Hydrogen Sulfide Odor (C1) <input type="checkbox"/> Oxidized Rhizospheres on Living Roots (C3) <input type="checkbox"/> Presence of Reduced Iron (C4) <input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6) <input type="checkbox"/> Thin Muck Surface (C7) <input type="checkbox"/> Other (Explain in Remarks) | <input type="checkbox"/> Surface Soil Cracks (B6) <input type="checkbox"/> Drainage Patterns (B10) <input type="checkbox"/> Moss Trim Lines (B16) <input type="checkbox"/> Dry-Season Water Table (C2) <input type="checkbox"/> Crayfish Burrows (C8) <input type="checkbox"/> Saturation Visible on Aerial Imagery (C9) <input type="checkbox"/> Stunted or Stressed Plants (D1) <input type="checkbox"/> Geomorphic Position (D2) <input type="checkbox"/> Shallow Aquitard (D3) <input type="checkbox"/> Microtopographic Relief (D4) <input type="checkbox"/> FAC-Neutral Test (D5) |
| Field Observations: Surface Water Present? Yes _____ No <u>X</u> Depth (inches): _____ Water Table Present? Yes _____ No <u>X</u> Depth (inches): _____ Saturation Present? Yes _____ No <u>X</u> Depth (inches): _____ (includes capillary fringe) | | Wetland Hydrology Present? Yes _____ No <u>X</u> |
| Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available: | | |
| Remarks: | | |

VEGETATION – Use scientific names of plants.

 Sampling Point: U-BCR-111919-01

| Tree Stratum (Plot size: <u>30</u>) | Absolute % Cover | Dominant Species? | Indicator Status | | | | | | | | | | | | | | | |
|---|---------------------|----------------------|---------------------|--|-------------------|--------------|----------------------|----------------|------------------------|-----------------|-----------------------|-----------------|------------------------|------------------|----------------------|----------------|-------------------------------|----------------|
| 1. _____ | _____ | _____ | _____ | Dominance Test worksheet: Number of Dominant Species That Are OBL, FACW, or FAC: <u>2</u> (A) Total Number of Dominant Species Across All Strata: <u>3</u> (B) Percent of Dominant Species That Are OBL, FACW, or FAC: <u>66.67</u> (A/B) | | | | | | | | | | | | | | |
| 2. _____ | _____ | _____ | _____ | | | | | | | | | | | | | | | |
| 3. _____ | _____ | _____ | _____ | | | | | | | | | | | | | | | |
| 4. _____ | _____ | _____ | _____ | | | | | | | | | | | | | | | |
| 5. _____ | _____ | _____ | _____ | | | | | | | | | | | | | | | |
| 6. _____ | _____ | _____ | _____ | | | | | | | | | | | | | | | |
| 7. _____ | _____ | _____ | _____ | | | | | | | | | | | | | | | |
| <u>0</u> = Total Cover | | | | Prevalence Index worksheet: <table style="width: 100%;"> <tr> <td style="width: 50%;">Total % Cover of:</td> <td style="width: 50%;">Multiply by:</td> </tr> <tr> <td>OBL species <u>0</u></td> <td>x 1 = <u>0</u></td> </tr> <tr> <td>FACW species <u>37</u></td> <td>x 2 = <u>74</u></td> </tr> <tr> <td>FAC species <u>25</u></td> <td>x 3 = <u>75</u></td> </tr> <tr> <td>FACU species <u>45</u></td> <td>x 4 = <u>180</u></td> </tr> <tr> <td>UPL species <u>0</u></td> <td>x 5 = <u>0</u></td> </tr> <tr> <td>Column Totals: <u>107</u> (A)</td> <td><u>329</u> (B)</td> </tr> </table> Prevalence Index = B/A = <u>3.07</u> | Total % Cover of: | Multiply by: | OBL species <u>0</u> | x 1 = <u>0</u> | FACW species <u>37</u> | x 2 = <u>74</u> | FAC species <u>25</u> | x 3 = <u>75</u> | FACU species <u>45</u> | x 4 = <u>180</u> | UPL species <u>0</u> | x 5 = <u>0</u> | Column Totals: <u>107</u> (A) | <u>329</u> (B) |
| Total % Cover of: | Multiply by: | | | | | | | | | | | | | | | | | |
| OBL species <u>0</u> | x 1 = <u>0</u> | | | | | | | | | | | | | | | | | |
| FACW species <u>37</u> | x 2 = <u>74</u> | | | | | | | | | | | | | | | | | |
| FAC species <u>25</u> | x 3 = <u>75</u> | | | | | | | | | | | | | | | | | |
| FACU species <u>45</u> | x 4 = <u>180</u> | | | | | | | | | | | | | | | | | |
| UPL species <u>0</u> | x 5 = <u>0</u> | | | | | | | | | | | | | | | | | |
| Column Totals: <u>107</u> (A) | <u>329</u> (B) | | | | | | | | | | | | | | | | | |
| <u>0</u> = Total Cover | | | | | | | | | | | | | | | | | | |
| Sapling/Shrub Stratum (Plot size: <u>15</u>) | | | | | | | | | | | | | | | | | | |
| 1. _____ | _____ | _____ | _____ | | | | | | | | | | | | | | | |
| 2. _____ | _____ | _____ | _____ | | | | | | | | | | | | | | | |
| 3. _____ | _____ | _____ | _____ | | | | | | | | | | | | | | | |
| 4. _____ | _____ | _____ | _____ | | | | | | | | | | | | | | | |
| 5. _____ | _____ | _____ | _____ | | | | | | | | | | | | | | | |
| 6. _____ | _____ | _____ | _____ | | | | | | | | | | | | | | | |
| 7. _____ | _____ | _____ | _____ | | | | | | | | | | | | | | | |
| <u>0</u> = Total Cover | | | | | | | | | | | | | | | | | | |
| Herb Stratum (Plot size: <u>5</u>) | | | | | | | | | | | | | | | | | | |
| 1. <u>Dichanthelium clandestinum</u> | <u>30</u> | <u>Y</u> | <u>FACW</u> | Hydrophytic Vegetation Indicators: <input type="checkbox"/> 1 - Rapid Test for Hydrophytic Vegetation <input checked="" type="checkbox"/> 2 - Dominance Test is >50% <input type="checkbox"/> 3 - Prevalence Index is ≤3.0 ¹ <input type="checkbox"/> 4 - Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet) <input type="checkbox"/> Problematic Hydrophytic Vegetation ¹ (Explain) ¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic. | | | | | | | | | | | | | | |
| 2. <u>Euthamia graminifolia</u> | <u>25</u> | <u>Y</u> | <u>FAC</u> | | | | | | | | | | | | | | | |
| 3. <u>Rubus allegheniensis</u> | <u>15</u> | <u>N</u> | <u>FACU</u> | | | | | | | | | | | | | | | |
| 4. <u>Schedonorus arundinaceus</u> | <u>30</u> | <u>Y</u> | <u>FACU</u> | | | | | | | | | | | | | | | |
| 5. <u>Verbena hastata</u> | <u>2</u> | <u>N</u> | <u>FACW</u> | | | | | | | | | | | | | | | |
| 6. <u>Solidago gigantea</u> | <u>5</u> | <u>N</u> | <u>FACW</u> | | | | | | | | | | | | | | | |
| 7. _____ | _____ | _____ | _____ | | | | | | | | | | | | | | | |
| 8. _____ | _____ | _____ | _____ | | | | | | | | | | | | | | | |
| 9. _____ | _____ | _____ | _____ | | | | | | | | | | | | | | | |
| 10. _____ | _____ | _____ | _____ | | | | | | | | | | | | | | | |
| 11. _____ | _____ | _____ | _____ | | | | | | | | | | | | | | | |
| 12. _____ | _____ | _____ | _____ | | | | | | | | | | | | | | | |
| <u>107</u> = Total Cover | | | | | | | | | | | | | | | | | | |
| Woody Vine Stratum (Plot size: <u>30</u>) | | | | | | | | | | | | | | | | | | |
| 1. _____ | _____ | _____ | _____ | | | | | | | | | | | | | | | |
| 2. _____ | _____ | _____ | _____ | | | | | | | | | | | | | | | |
| 3. _____ | _____ | _____ | _____ | | | | | | | | | | | | | | | |
| 4. _____ | _____ | _____ | _____ | | | | | | | | | | | | | | | |
| <u>0</u> = Total Cover | | | | | | | | | | | | | | | | | | |
| Remarks: (Include photo numbers here or on a separate sheet.) | | | | | | | | | | | | | | | | | | |

Definitions of Vegetation Strata:

Tree – Woody plants 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/shrub – Woody plants less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall.

Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vines – All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? Yes X No

SOIL

Sampling Point: U-BCR-111919-01

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

[illegible]

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains.

²Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- | | |
|--|---|
| <input type="checkbox"/> Histosol (A1) | <input type="checkbox"/> Polyvalue Below Surface (S8) (LRR R, MLRA 149B) |
| <input type="checkbox"/> Histic Epipedon (A2) | <input type="checkbox"/> Thin Dark Surface (S9) (LRR R, MLRA 149B) |
| <input type="checkbox"/> Black Histic (A3) | <input type="checkbox"/> Loamy Mucky Mineral (F1) (LRR K, L) |
| <input type="checkbox"/> Hydrogen Sulfide (A4) | <input type="checkbox"/> Loamy Gleyed Matrix (F2) |
| <input type="checkbox"/> Stratified Layers (A5) | <input type="checkbox"/> Depleted Matrix (F3) |
| <input type="checkbox"/> Depleted Below Dark Surface (A11) | <input type="checkbox"/> Redox Dark Surface (F6) |
| <input type="checkbox"/> Thick Dark Surface (A12) | <input type="checkbox"/> Depleted Dark Surface (F7) |
| <input type="checkbox"/> Sandy Mucky Mineral (S1) | <input type="checkbox"/> Redox Depressions (F8) |
| <input type="checkbox"/> Sandy Gleyed Matrix (S4) | |
| <input type="checkbox"/> Sandy Redox (S5) | |
| <input type="checkbox"/> Stripped Matrix (S6) | |
| <input type="checkbox"/> Dark Surface (S7) (LRR R, MLRA 149B) | |

Indicators for Problematic Hydric Soils³:

- ☐ 2 cm Muck (A10) (**LRR K, L, MLRA 149B**)
- ☐ Coast Prairie Redox (A16) (**LRR K, L, R**)
- ☐ 5 cm Mucky Peat or Peat (S3) (**LRR K, L, R**)
- ☐ Dark Surface (S7) (**LRR K, L, M**)
- ☐ Polyvalue Below Surface (S8) (**LRR K, L**)
- ☐ Thin Dark Surface (S9) (**LRR K, L**)
- ☐ Iron-Manganese Masses (F12) (**LRR K, L, R**)
- ☐ Piedmont Floodplain Soils (F19) (**MLRA 149B**)
- ☐ Mesic Spodic (TA6) (**MLRA 144A, 145, 149B**)
- ☐ Red Parent Material (F21)
- ☐ Very Shallow Dark Surface (TF12)
- ☐ Other (Explain in Remarks)

³Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed): Yes

Type: Rocky

Depth (inches): 12

Hydric Soil Present? Yes _____ No X

Remarks:



north



soil profile

WETLAND DETERMINATION DATA FORM – Northcentral and Northeast Region

Project/Site: Beaver-Henrietta 138 kV Transmission Line City/County: Amherst Township, Lorain County Sampling Date: 11/19/2019
 Applicant/Owner: FirstEnergy State: OH Sampling Point: U-BCR-111819-03
 Investigator(s): BCR, JFW Section, Township, Range: N/A
 Landform (hillslope, terrace, etc.): Flat Local relief (concave, convex, none): Flat Slope (%): 2
 Subregion (LRR or MLRA): LRR R Lat: 41.38708 Long: -82.26900 Datum: WGS 84
 Soil Map Unit Name: MtA - Mitiwanga silt loam, 0 to 2 percent slopes NWI classification: none

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No _____ (If no, explain in Remarks.)
 Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes X No _____
 Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

| | |
|---|---|
| Hydrophytic Vegetation Present? Yes <u>X</u> No _____ | Is the Sampled Area within a Wetland? Yes _____ No <u>X</u> If yes, optional Wetland Site ID: _____ |
| Hydric Soil Present? Yes <u>X</u> No _____ | |
| Wetland Hydrology Present? Yes _____ No <u>X</u> | |
| Remarks: (Explain alternative procedures here or in a separate report.) Upland point associated with W-BCR-111819-03E/S, in a T-line ROW | |

HYDROLOGY

| | | |
|--|---|---|
| Wetland Hydrology Indicators: Primary Indicators (minimum of one is required; check all that apply) | | Secondary Indicators (minimum of two required) |
| <input type="checkbox"/> Surface Water (A1) <input type="checkbox"/> High Water Table (A2) <input type="checkbox"/> Saturation (A3) <input type="checkbox"/> Water Marks (B1) <input type="checkbox"/> Sediment Deposits (B2) <input type="checkbox"/> Drift Deposits (B3) <input type="checkbox"/> Algal Mat or Crust (B4) <input type="checkbox"/> Iron Deposits (B5) <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) <input type="checkbox"/> Sparsely Vegetated Concave Surface (B8) | <input type="checkbox"/> Water-Stained Leaves (B9) <input type="checkbox"/> Aquatic Fauna (B13) <input type="checkbox"/> Marl Deposits (B15) <input type="checkbox"/> Hydrogen Sulfide Odor (C1) <input type="checkbox"/> Oxidized Rhizospheres on Living Roots (C3) <input type="checkbox"/> Presence of Reduced Iron (C4) <input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6) <input type="checkbox"/> Thin Muck Surface (C7) <input type="checkbox"/> Other (Explain in Remarks) | <input type="checkbox"/> Surface Soil Cracks (B6) <input type="checkbox"/> Drainage Patterns (B10) <input type="checkbox"/> Moss Trim Lines (B16) <input type="checkbox"/> Dry-Season Water Table (C2) <input type="checkbox"/> Crayfish Burrows (C8) <input type="checkbox"/> Saturation Visible on Aerial Imagery (C9) <input type="checkbox"/> Stunted or Stressed Plants (D1) <input type="checkbox"/> Geomorphic Position (D2) <input type="checkbox"/> Shallow Aquitard (D3) <input type="checkbox"/> Microtopographic Relief (D4) <input type="checkbox"/> FAC-Neutral Test (D5) |
| Field Observations: Surface Water Present? Yes _____ No <u>X</u> Depth (inches): _____ Water Table Present? Yes _____ No <u>X</u> Depth (inches): _____ Saturation Present? Yes _____ No <u>X</u> Depth (inches): _____ (includes capillary fringe) | | Wetland Hydrology Present? Yes _____ No <u>X</u> |
| Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available: | | |
| Remarks: | | |

VEGETATION – Use scientific names of plants.

 Sampling Point: U-BCR-111819-03

| Tree Stratum (Plot size: <u>30</u>) | Absolute % Cover | Dominant Species? | Indicator Status | | | | | | | | | | | | | | | |
|---|---------------------|----------------------|---------------------|--|-------------------|--------------|-----------------------|-----------------|------------------------|------------------|-----------------------|------------------|------------------------|------------------|----------------------|----------------|-------------------------------|----------------|
| 1. _____ | _____ | _____ | _____ | Dominance Test worksheet: Number of Dominant Species That Are OBL, FACW, or FAC: <u>3</u> (A) Total Number of Dominant Species Across All Strata: <u>4</u> (B) Percent of Dominant Species That Are OBL, FACW, or FAC: <u>75.00</u> (A/B) | | | | | | | | | | | | | | |
| 2. _____ | _____ | _____ | _____ | | | | | | | | | | | | | | | |
| 3. _____ | _____ | _____ | _____ | | | | | | | | | | | | | | | |
| 4. _____ | _____ | _____ | _____ | | | | | | | | | | | | | | | |
| 5. _____ | _____ | _____ | _____ | | | | | | | | | | | | | | | |
| 6. _____ | _____ | _____ | _____ | | | | | | | | | | | | | | | |
| 7. _____ | _____ | _____ | _____ | | | | | | | | | | | | | | | |
| <u>0</u> = Total Cover | | | | Prevalence Index worksheet: <table style="width: 100%;"> <tr> <th style="text-align: left;">Total % Cover of:</th> <th style="text-align: left;">Multiply by:</th> </tr> <tr> <td>OBL species <u>10</u></td> <td>x 1 = <u>10</u></td> </tr> <tr> <td>FACW species <u>55</u></td> <td>x 2 = <u>110</u></td> </tr> <tr> <td>FAC species <u>50</u></td> <td>x 3 = <u>150</u></td> </tr> <tr> <td>FACU species <u>40</u></td> <td>x 4 = <u>160</u></td> </tr> <tr> <td>UPL species <u>0</u></td> <td>x 5 = <u>0</u></td> </tr> <tr> <td>Column Totals: <u>155</u> (A)</td> <td><u>430</u> (B)</td> </tr> </table> Prevalence Index = B/A = <u>2.77</u> | Total % Cover of: | Multiply by: | OBL species <u>10</u> | x 1 = <u>10</u> | FACW species <u>55</u> | x 2 = <u>110</u> | FAC species <u>50</u> | x 3 = <u>150</u> | FACU species <u>40</u> | x 4 = <u>160</u> | UPL species <u>0</u> | x 5 = <u>0</u> | Column Totals: <u>155</u> (A) | <u>430</u> (B) |
| Total % Cover of: | Multiply by: | | | | | | | | | | | | | | | | | |
| OBL species <u>10</u> | x 1 = <u>10</u> | | | | | | | | | | | | | | | | | |
| FACW species <u>55</u> | x 2 = <u>110</u> | | | | | | | | | | | | | | | | | |
| FAC species <u>50</u> | x 3 = <u>150</u> | | | | | | | | | | | | | | | | | |
| FACU species <u>40</u> | x 4 = <u>160</u> | | | | | | | | | | | | | | | | | |
| UPL species <u>0</u> | x 5 = <u>0</u> | | | | | | | | | | | | | | | | | |
| Column Totals: <u>155</u> (A) | <u>430</u> (B) | | | | | | | | | | | | | | | | | |
| <u>75</u> = Total Cover | | | | | | | | | | | | | | | | | | |
| Sapling/Shrub Stratum (Plot size: <u>15</u>) | | | | | | | | | | | | | | | | | | |
| 1. <u>Frangula alnus</u> | <u>30</u> | <u>Y</u> | <u>FAC</u> | | | | | | | | | | | | | | | |
| 2. <u>Rubus allegheniensis</u> | <u>40</u> | <u>Y</u> | <u>FACU</u> | | | | | | | | | | | | | | | |
| 3. <u>Phragmites australis</u> | <u>5</u> | <u>N</u> | <u>FACW</u> | | | | | | | | | | | | | | | |
| 4. _____ | _____ | _____ | _____ | | | | | | | | | | | | | | | |
| 5. _____ | _____ | _____ | _____ | | | | | | | | | | | | | | | |
| 6. _____ | _____ | _____ | _____ | | | | | | | | | | | | | | | |
| 7. _____ | _____ | _____ | _____ | | | | | | | | | | | | | | | |
| <u>75</u> = Total Cover | | | | | | | | | | | | | | | | | | |
| Herb Stratum (Plot size: <u>5</u>) | | | | | | | | | | | | | | | | | | |
| 1. <u>Solidago gigantea</u> | <u>50</u> | <u>Y</u> | <u>FACW</u> | | | | | | | | | | | | | | | |
| 2. <u>Dichanthelium acuminatum</u> | <u>20</u> | <u>Y</u> | <u>FAC</u> | | | | | | | | | | | | | | | |
| 3. <u>Persicaria sagittata</u> | <u>10</u> | <u>N</u> | <u>OBL</u> | | | | | | | | | | | | | | | |
| 4. _____ | _____ | _____ | _____ | | | | | | | | | | | | | | | |
| 5. _____ | _____ | _____ | _____ | | | | | | | | | | | | | | | |
| 6. _____ | _____ | _____ | _____ | | | | | | | | | | | | | | | |
| 7. _____ | _____ | _____ | _____ | | | | | | | | | | | | | | | |
| 8. _____ | _____ | _____ | _____ | | | | | | | | | | | | | | | |
| 9. _____ | _____ | _____ | _____ | | | | | | | | | | | | | | | |
| 10. _____ | _____ | _____ | _____ | | | | | | | | | | | | | | | |
| 11. _____ | _____ | _____ | _____ | | | | | | | | | | | | | | | |
| 12. _____ | _____ | _____ | _____ | | | | | | | | | | | | | | | |
| <u>80</u> = Total Cover | | | | | | | | | | | | | | | | | | |
| Woody Vine Stratum (Plot size: <u>30</u>) | | | | | | | | | | | | | | | | | | |
| 1. _____ | _____ | _____ | _____ | | | | | | | | | | | | | | | |
| 2. _____ | _____ | _____ | _____ | | | | | | | | | | | | | | | |
| 3. _____ | _____ | _____ | _____ | | | | | | | | | | | | | | | |
| 4. _____ | _____ | _____ | _____ | | | | | | | | | | | | | | | |
| <u>0</u> = Total Cover | | | | | | | | | | | | | | | | | | |
| Remarks: (Include photo numbers here or on a separate sheet.) | | | | | | | | | | | | | | | | | | |

Hydrophytic Vegetation Indicators:
 ___ 1 - Rapid Test for Hydrophytic Vegetation
X 2 - Dominance Test is >50%
X 3 - Prevalence Index is ≤3.0¹
 ___ 4 - Morphological Adaptations¹ (Provide supporting data in Remarks or on a separate sheet)
 ___ Problematic Hydrophytic Vegetation¹ (Explain)

¹Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Vegetation Strata:

Tree – Woody plants 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/shrub – Woody plants less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall.

Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vines – All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? Yes X No

SOIL

Sampling Point: U-BCR-111819-03

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

[illegible]

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains.

²Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- | | |
|--|---|
| <input type="checkbox"/> Histosol (A1) | <input type="checkbox"/> Polyvalue Below Surface (S8) (LRR R, MLRA 149B) |
| <input type="checkbox"/> Histic Epipedon (A2) | <input type="checkbox"/> Thin Dark Surface (S9) (LRR R, MLRA 149B) |
| <input type="checkbox"/> Black Histic (A3) | <input type="checkbox"/> Loamy Mucky Mineral (F1) (LRR K, L) |
| <input type="checkbox"/> Hydrogen Sulfide (A4) | <input type="checkbox"/> Loamy Gleyed Matrix (F2) |
| <input type="checkbox"/> Stratified Layers (A5) | <input checked="" type="checkbox"/> Depleted Matrix (F3) |
| <input type="checkbox"/> Depleted Below Dark Surface (A11) | <input type="checkbox"/> Redox Dark Surface (F6) |
| <input type="checkbox"/> Thick Dark Surface (A12) | <input type="checkbox"/> Depleted Dark Surface (F7) |
| <input type="checkbox"/> Sandy Mucky Mineral (S1) | <input type="checkbox"/> Redox Depressions (F8) |
| <input type="checkbox"/> Sandy Gleyed Matrix (S4) | |
| <input type="checkbox"/> Sandy Redox (S5) | |
| <input type="checkbox"/> Stripped Matrix (S6) | |
| <input type="checkbox"/> Dark Surface (S7) (LRR R, MLRA 149B) | |

Indicators for Problematic Hydric Soils³:

- ☐ 2 cm Muck (A10) (**LRR K, L, MLRA 149B**)
- ☐ Coast Prairie Redox (A16) (**LRR K, L, R**)
- ☐ 5 cm Mucky Peat or Peat (S3) (**LRR K, L, R**)
- ☐ Dark Surface (S7) (**LRR K, L, M**)
- ☐ Polyvalue Below Surface (S8) (**LRR K, L**)
- ☐ Thin Dark Surface (S9) (**LRR K, L**)
- ☐ Iron-Manganese Masses (F12) (**LRR K, L, R**)
- ☐ Piedmont Floodplain Soils (F19) (**MLRA 149B**)
- ☐ Mesic Spodic (TA6) (**MLRA 144A, 145, 149B**)
- ☐ Red Parent Material (F21)
- ☐ Very Shallow Dark Surface (TF12)
- ☐ Other (Explain in Remarks)

³Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed): Yes

Type: Rocky

Depth (inches): 8

Hydric Soil Present? Yes X No

Remarks:



west



Soil Profile

WETLAND DETERMINATION DATA FORM – Northcentral and Northeast Region

Project/Site: Beaver-Henrietta 138 kV Transmission Line City/County: Amherst Township, Lorain County Sampling Date: 11/18/2019
 Applicant/Owner: FirstEnergy State: OH Sampling Point: U-BCR-111819-01,02
 Investigator(s): BCR, JFW Section, Township, Range: N/A
 Landform (hillslope, terrace, etc.): Flat Local relief (concave, convex, none): Flat Slope (%): 0
 Subregion (LRR or MLRA): LRR R Lat: 41.38374 Long: -82.26935 Datum: WGS 84
 Soil Map Unit Name: JsA - Jintown sandy loam, 0 to 2 percent slopes NWI classification: none

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No _____ (If no, explain in Remarks.)
 Are Vegetation ✓, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes X No _____
 Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

| | |
|--|---|
| Hydrophytic Vegetation Present? Yes _____ No <u>X</u> Hydric Soil Present? Yes <u>X</u> No _____ Wetland Hydrology Present? Yes _____ No <u>X</u> | Is the Sampled Area within a Wetland? Yes _____ No <u>X</u> If yes, optional Wetland Site ID: _____ |
| Remarks: (Explain alternative procedures here or in a separate report.) Upland point associated with W-BCR-111819-01 and W-BCR-111819-02. In an existing T-line ROW, on a mowed path. | |

HYDROLOGY

| | | |
|--|---|---|
| Wetland Hydrology Indicators: Primary Indicators (minimum of one is required; check all that apply) | | Secondary Indicators (minimum of two required) |
| <input type="checkbox"/> Surface Water (A1) <input type="checkbox"/> High Water Table (A2) <input type="checkbox"/> Saturation (A3) <input type="checkbox"/> Water Marks (B1) <input type="checkbox"/> Sediment Deposits (B2) <input type="checkbox"/> Drift Deposits (B3) <input type="checkbox"/> Algal Mat or Crust (B4) <input type="checkbox"/> Iron Deposits (B5) <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) <input type="checkbox"/> Sparsely Vegetated Concave Surface (B8) | <input type="checkbox"/> Water-Stained Leaves (B9) <input type="checkbox"/> Aquatic Fauna (B13) <input type="checkbox"/> Marl Deposits (B15) <input type="checkbox"/> Hydrogen Sulfide Odor (C1) <input type="checkbox"/> Oxidized Rhizospheres on Living Roots (C3) <input type="checkbox"/> Presence of Reduced Iron (C4) <input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6) <input type="checkbox"/> Thin Muck Surface (C7) <input type="checkbox"/> Other (Explain in Remarks) | <input type="checkbox"/> Surface Soil Cracks (B6) <input type="checkbox"/> Drainage Patterns (B10) <input type="checkbox"/> Moss Trim Lines (B16) <input type="checkbox"/> Dry-Season Water Table (C2) <input type="checkbox"/> Crayfish Burrows (C8) <input type="checkbox"/> Saturation Visible on Aerial Imagery (C9) <input type="checkbox"/> Stunted or Stressed Plants (D1) <input type="checkbox"/> Geomorphic Position (D2) <input type="checkbox"/> Shallow Aquitard (D3) <input type="checkbox"/> Microtopographic Relief (D4) <input type="checkbox"/> FAC-Neutral Test (D5) |
| Field Observations: Surface Water Present? Yes _____ No <u>X</u> Depth (inches): _____ Water Table Present? Yes _____ No <u>X</u> Depth (inches): _____ Saturation Present? Yes _____ No <u>X</u> Depth (inches): _____ (includes capillary fringe) | | Wetland Hydrology Present? Yes _____ No <u>X</u> |
| Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available: | | |
| Remarks: | | |

VEGETATION – Use scientific names of plants.

Sampling Point: U-BCR-111819-01.02

| Tree Stratum (Plot size: 30) | Absolute % Cover | Dominant Species? | Indicator Status | | | | | | | | | | | | | | | |
|---|------------------|-------------------|------------------|--|-------------------|--------------|---------------|---------|----------------|---------|----------------|----------|-----------------|-----------|---------------|---------|-----------------------|---------|
| 1. _____ | _____ | _____ | _____ | Dominance Test worksheet: Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A) Total Number of Dominant Species Across All Strata: 3 (B) Percent of Dominant Species That Are OBL, FACW, or FAC: 33.33 (A/B) | | | | | | | | | | | | | | |
| 2. _____ | _____ | _____ | _____ | | | | | | | | | | | | | | | |
| 3. _____ | _____ | _____ | _____ | | | | | | | | | | | | | | | |
| 4. _____ | _____ | _____ | _____ | | | | | | | | | | | | | | | |
| 5. _____ | _____ | _____ | _____ | | | | | | | | | | | | | | | |
| 6. _____ | _____ | _____ | _____ | | | | | | | | | | | | | | | |
| 7. _____ | _____ | _____ | _____ | | | | | | | | | | | | | | | |
| 0 = Total Cover | | | | Prevalence Index worksheet: <table style="width: 100%;"> <tr> <th style="text-align: left;">Total % Cover of:</th> <th style="text-align: left;">Multiply by:</th> </tr> <tr> <td>OBL species 0</td> <td>x 1 = 0</td> </tr> <tr> <td>FACW species 0</td> <td>x 2 = 0</td> </tr> <tr> <td>FAC species 20</td> <td>x 3 = 60</td> </tr> <tr> <td>FACU species 70</td> <td>x 4 = 280</td> </tr> <tr> <td>UPL species 0</td> <td>x 5 = 0</td> </tr> <tr> <td>Column Totals: 90 (A)</td> <td>340 (B)</td> </tr> </table> Prevalence Index = B/A = 3.78 | Total % Cover of: | Multiply by: | OBL species 0 | x 1 = 0 | FACW species 0 | x 2 = 0 | FAC species 20 | x 3 = 60 | FACU species 70 | x 4 = 280 | UPL species 0 | x 5 = 0 | Column Totals: 90 (A) | 340 (B) |
| Total % Cover of: | Multiply by: | | | | | | | | | | | | | | | | | |
| OBL species 0 | x 1 = 0 | | | | | | | | | | | | | | | | | |
| FACW species 0 | x 2 = 0 | | | | | | | | | | | | | | | | | |
| FAC species 20 | x 3 = 60 | | | | | | | | | | | | | | | | | |
| FACU species 70 | x 4 = 280 | | | | | | | | | | | | | | | | | |
| UPL species 0 | x 5 = 0 | | | | | | | | | | | | | | | | | |
| Column Totals: 90 (A) | 340 (B) | | | | | | | | | | | | | | | | | |
| Sapling/Shrub Stratum (Plot size: 15) 1. _____ 2. _____ 3. _____ 4. _____ 5. _____ 6. _____ 7. _____ <div style="text-align: right;">0 = Total Cover</div> | | | | Hydrophytic Vegetation Indicators: ___ 1 - Rapid Test for Hydrophytic Vegetation ___ 2 - Dominance Test is >50% ___ 3 - Prevalence Index is ≤3.0 ¹ ___ 4 - Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet) ___ Problematic Hydrophytic Vegetation ¹ (Explain) ¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic. | | | | | | | | | | | | | | |
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| Herb Stratum (Plot size: 5) 1. _____ <i>Dichanthelium acuminatum</i> 20 Y FAC 2. _____ <i>Schedonorus arundinaceus</i> 50 Y FACU 3. _____ <i>Solidago altissima</i> 20 Y FACU 4. _____ 5. _____ 6. _____ 7. _____ 8. _____ 9. _____ 10. _____ 11. _____ 12. _____ <div style="text-align: right;">90 = Total Cover</div> | | | | Definitions of Vegetation Strata: Tree – Woody plants 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height. Sapling/shrub – Woody plants less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall. Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall. Woody vines – All woody vines greater than 3.28 ft in height. | | | | | | | | | | | | | | |
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| Woody Vine Stratum (Plot size: 30) 1. _____ 2. _____ 3. _____ 4. _____ <div style="text-align: right;">0 = Total Cover</div> | | | | Hydrophytic Vegetation Present? Yes _____ No X | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | | |
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| Remarks: (Include photo numbers here or on a separate sheet.) | | | | | | | | | | | | | | | | | | |

SOIL

Sampling Point: U-BCR-111819-01,02

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

[illegible]

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains.

²Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- | | |
|--|---|
| <input type="checkbox"/> Histosol (A1) | <input type="checkbox"/> Polyvalue Below Surface (S8) (LRR R, MLRA 149B) |
| <input type="checkbox"/> Histic Epipedon (A2) | <input type="checkbox"/> Thin Dark Surface (S9) (LRR R, MLRA 149B) |
| <input type="checkbox"/> Black Histic (A3) | <input type="checkbox"/> Loamy Mucky Mineral (F1) (LRR K, L) |
| <input type="checkbox"/> Hydrogen Sulfide (A4) | <input type="checkbox"/> Loamy Gleyed Matrix (F2) |
| <input type="checkbox"/> Stratified Layers (A5) | <input checked="" type="checkbox"/> Depleted Matrix (F3) |
| <input type="checkbox"/> Depleted Below Dark Surface (A11) | <input type="checkbox"/> Redox Dark Surface (F6) |
| <input type="checkbox"/> Thick Dark Surface (A12) | <input type="checkbox"/> Depleted Dark Surface (F7) |
| <input type="checkbox"/> Sandy Mucky Mineral (S1) | <input type="checkbox"/> Redox Depressions (F8) |
| <input type="checkbox"/> Sandy Gleyed Matrix (S4) | |
| <input type="checkbox"/> Sandy Redox (S5) | |
| <input type="checkbox"/> Stripped Matrix (S6) | |
| <input type="checkbox"/> Dark Surface (S7) (LRR R, MLRA 149B) | |

Indicators for Problematic Hydric Soils³:

- ☐ 2 cm Muck (A10) (**LRR K, L, MLRA 149B**)
- ☐ Coast Prairie Redox (A16) (**LRR K, L, R**)
- ☐ 5 cm Mucky Peat or Peat (S3) (**LRR K, L, R**)
- ☐ Dark Surface (S7) (**LRR K, L, M**)
- ☐ Polyvalue Below Surface (S8) (**LRR K, L**)
- ☐ Thin Dark Surface (S9) (**LRR K, L**)
- ☐ Iron-Manganese Masses (F12) (**LRR K, L, R**)
- ☐ Piedmont Floodplain Soils (F19) (**MLRA 149B**)
- ☐ Mesic Spodic (TA6) (**MLRA 144A, 145, 149B**)
- ☐ Red Parent Material (F21)
- ☐ Very Shallow Dark Surface (TF12)
- ☐ Other (Explain in Remarks)

³Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed): No

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes X No

Remarks:



east



soil profile

WETLAND DETERMINATION DATA FORM – Northcentral and Northeast Region

Project/Site: Beaver-Henrietta 138kV Transmission Line City/County: Lorain Sampling Date: 01/27/2020
 Applicant/Owner: FirstEnergy State: OH Sampling Point: U-BAO-012720-01
 Investigator(s): BAO Section, Township, Range: N/A
 Landform (hillslope, terrace, etc.): Flat Local relief (concave, convex, none): Flat Slope (%): 0
 Subregion (LRR or MLRA): LRR R Lat: 41.38791 Long: -82.2649325 Datum: WGS 84
 Soil Map Unit Name: HsA: Haskins loam, 0 to 2 percent slopes NWI classification: N/A

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No _____ (If no, explain in Remarks.)
 Are Vegetation ✓, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes X No _____
 Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

| | |
|---|---|
| Hydrophytic Vegetation Present? Yes <u>X</u> No _____ Hydric Soil Present? Yes _____ No <u>X</u> Wetland Hydrology Present? Yes _____ No <u>X</u> | Is the Sampled Area within a Wetland? Yes _____ No <u>X</u> If yes, optional Wetland Site ID: _____ |
| Remarks: (Explain alternative procedures here or in a separate report.) residential mowed yard located adjacent to PEM wetland | |

HYDROLOGY

| | | |
|--|---|---|
| Wetland Hydrology Indicators: Primary Indicators (minimum of one is required; check all that apply) | | Secondary Indicators (minimum of two required) |
| <input type="checkbox"/> Surface Water (A1) <input type="checkbox"/> High Water Table (A2) <input type="checkbox"/> Saturation (A3) <input type="checkbox"/> Water Marks (B1) <input type="checkbox"/> Sediment Deposits (B2) <input type="checkbox"/> Drift Deposits (B3) <input type="checkbox"/> Algal Mat or Crust (B4) <input type="checkbox"/> Iron Deposits (B5) <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) <input type="checkbox"/> Sparsely Vegetated Concave Surface (B8) | <input type="checkbox"/> Water-Stained Leaves (B9) <input type="checkbox"/> Aquatic Fauna (B13) <input type="checkbox"/> Marl Deposits (B15) <input type="checkbox"/> Hydrogen Sulfide Odor (C1) <input type="checkbox"/> Oxidized Rhizospheres on Living Roots (C3) <input type="checkbox"/> Presence of Reduced Iron (C4) <input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6) <input type="checkbox"/> Thin Muck Surface (C7) <input type="checkbox"/> Other (Explain in Remarks) | <input type="checkbox"/> Surface Soil Cracks (B6) <input type="checkbox"/> Drainage Patterns (B10) <input type="checkbox"/> Moss Trim Lines (B16) <input type="checkbox"/> Dry-Season Water Table (C2) <input type="checkbox"/> Crayfish Burrows (C8) <input type="checkbox"/> Saturation Visible on Aerial Imagery (C9) <input type="checkbox"/> Stunted or Stressed Plants (D1) <input type="checkbox"/> Geomorphic Position (D2) <input type="checkbox"/> Shallow Aquitard (D3) <input type="checkbox"/> Microtopographic Relief (D4) <input type="checkbox"/> FAC-Neutral Test (D5) |
| Field Observations: Surface Water Present? Yes _____ No <u>X</u> Depth (inches): _____ Water Table Present? Yes _____ No <u>X</u> Depth (inches): _____ Saturation Present? Yes _____ No <u>X</u> Depth (inches): _____ (includes capillary fringe) | | Wetland Hydrology Present? Yes _____ No <u>X</u> |
| Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available: | | |
| Remarks: | | |

VEGETATION – Use scientific names of plants.

Sampling Point: U-BAO-012720-01

| Tree Stratum (Plot size: 30) | Absolute % Cover | Dominant Species? | Indicator Status | | | | | | | | | | | | | | | |
|--|------------------|-------------------|------------------|---|-------------------|--------------|---------------|---------|-----------------|----------|----------------|-----------|----------------|---------|----------------|----------|------------------------|---------|
| 1. _____ | _____ | _____ | _____ | Dominance Test worksheet: Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A) Total Number of Dominant Species Across All Strata: 2 (B) Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B) | | | | | | | | | | | | | | |
| 2. _____ | _____ | _____ | _____ | | | | | | | | | | | | | | | |
| 3. _____ | _____ | _____ | _____ | | | | | | | | | | | | | | | |
| 4. _____ | _____ | _____ | _____ | | | | | | | | | | | | | | | |
| 5. _____ | _____ | _____ | _____ | | | | | | | | | | | | | | | |
| 6. _____ | _____ | _____ | _____ | | | | | | | | | | | | | | | |
| 7. _____ | _____ | _____ | _____ | | | | | | | | | | | | | | | |
| | | 0 = Total Cover | | Prevalence Index worksheet: <table style="width: 100%;"> <tr> <th style="width: 50%;">Total % Cover of:</th> <th style="width: 50%;">Multiply by:</th> </tr> <tr> <td>OBL species 0</td> <td>x 1 = 0</td> </tr> <tr> <td>FACW species 20</td> <td>x 2 = 40</td> </tr> <tr> <td>FAC species 65</td> <td>x 3 = 195</td> </tr> <tr> <td>FACU species 0</td> <td>x 4 = 0</td> </tr> <tr> <td>UPL species 15</td> <td>x 5 = 75</td> </tr> <tr> <td>Column Totals: 100 (A)</td> <td>310 (B)</td> </tr> </table> Prevalence Index = B/A = 3.10 | Total % Cover of: | Multiply by: | OBL species 0 | x 1 = 0 | FACW species 20 | x 2 = 40 | FAC species 65 | x 3 = 195 | FACU species 0 | x 4 = 0 | UPL species 15 | x 5 = 75 | Column Totals: 100 (A) | 310 (B) |
| Total % Cover of: | Multiply by: | | | | | | | | | | | | | | | | | |
| OBL species 0 | x 1 = 0 | | | | | | | | | | | | | | | | | |
| FACW species 20 | x 2 = 40 | | | | | | | | | | | | | | | | | |
| FAC species 65 | x 3 = 195 | | | | | | | | | | | | | | | | | |
| FACU species 0 | x 4 = 0 | | | | | | | | | | | | | | | | | |
| UPL species 15 | x 5 = 75 | | | | | | | | | | | | | | | | | |
| Column Totals: 100 (A) | 310 (B) | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | | |
| 0 = Total Cover | | | | | | | | | | | | | | | | | | |
| Sapling/Shrub Stratum (Plot size: 15) 1. _____ 2. _____ 3. _____ 4. _____ 5. _____ 6. _____ 7. _____ | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | | |
| 0 = Total Cover | | | | | | | | | | | | | | | | | | |
| Herb Stratum (Plot size: 5) 1. Dichanthelium clandestinum 20 Y FACW 2. Poa sp. 60 Y FAC 3. Daucus carota 15 N UPL 4. Setaria pumila 5 N FAC 5. _____ 6. _____ 7. _____ 8. _____ 9. _____ 10. _____ 11. _____ 12. _____ | | | | | | | | | | | | | | | | | | |
| | | 100 = Total Cover | | Hydrophytic Vegetation Indicators: ___ 1 - Rapid Test for Hydrophytic Vegetation <u>X</u> 2 - Dominance Test is >50% ___ 3 - Prevalence Index is ≤3.0 ¹ ___ 4 - Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet) ___ Problematic Hydrophytic Vegetation ¹ (Explain) ¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic. | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | | |
| Woody Vine Stratum (Plot size: 30) 1. _____ 2. _____ 3. _____ 4. _____ | | | | | | | | | | | | | | | | | | |
| | | 0 = Total Cover | | Definitions of Vegetation Strata: Tree – Woody plants 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height. Sapling/shrub – Woody plants less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall. Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall. Woody vines – All woody vines greater than 3.28 ft in height. | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | | |
| Remarks: (Include photo numbers here or on a separate sheet.) | | | | | | | | | | | | | | | | | | |

SOIL

Sampling Point: U-BAO-012720-01

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

[illegible]¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains.²Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- | | | |
|--------------------------|--------------------------------------|--------------------------|
| <input type="checkbox"/> | Histosol (A1) | <input type="checkbox"/> |
| <input type="checkbox"/> | Histic Epipedon (A2) | <input type="checkbox"/> |
| <input type="checkbox"/> | Black Histic (A3) | <input type="checkbox"/> |
| <input type="checkbox"/> | Hydrogen Sulfide (A4) | <input type="checkbox"/> |
| <input type="checkbox"/> | Stratified Layers (A5) | <input type="checkbox"/> |
| <input type="checkbox"/> | Depleted Below Dark Surface (A11) | <input type="checkbox"/> |
| <input type="checkbox"/> | Thick Dark Surface (A12) | <input type="checkbox"/> |
| <input type="checkbox"/> | Sandy Mucky Mineral (S1) | <input type="checkbox"/> |
| <input type="checkbox"/> | Sandy Gleyed Matrix (S4) | <input type="checkbox"/> |
| <input type="checkbox"/> | Sandy Redox (S5) | <input type="checkbox"/> |
| <input type="checkbox"/> | Stripped Matrix (S6) | <input type="checkbox"/> |
| <input type="checkbox"/> | Dark Surface (S7) (LRR R. MLRA 149B) | <input type="checkbox"/> |

- ☐ Polyvalue Below Surface (S8) (**LRR R, MLRA 149B**)
- ☐ Thin Dark Surface (S9) (**LRR R, MLRA 149B**)
- ☐ Loamy Mucky Mineral (F1) (**LRR K, L**)
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)

Indicators for Problematic Hydric Soils³:

- ☐ 2 cm Muck (A10) (**LRR K, L, MLRA 149B**)
- ☐ Coast Prairie Redox (A16) (**LRR K, L, R**)
- ☐ 5 cm Mucky Peat or Peat (S3) (**LRR K, L, R**)
- ☐ Dark Surface (S7) (**LRR K, L, M**)
- ☐ Polyvalue Below Surface (S8) (**LRR K, L**)
- ☐ Thin Dark Surface (S9) (**LRR K, L**)
- ☐ Iron-Manganese Masses (F12) (**LRR K, L, R**)
- ☐ Piedmont Floodplain Soils (F19) (**MLRA 149B**)
- ☐ Mesic Spodic (TA6) (**MLRA 144A, 145, 149B**)
- ☐ Red Parent Material (F21)
- ☐ Very Shallow Dark Surface (TF12)
- ☐ Other (Explain in Remarks)

³Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed): No

Type:

Depth (inches): _____

Hydric Soil Present? Yes _____ No X

Remarks:



north



south



west



east



Appendix B

OEPA ORAM Datasheets

| | | |
|--|---|-------------------------|
| Site: Beaver-Henrietta, W-BCR-111919-02 | Rater(s): Brian Robertson Jen Wessel | Date: 11/19/2019 |
|--|---|-------------------------|

| | | |
|------------|------------|---------------------------------------|
| 2.0 | 2.0 | Metric 1. Wetland Area (size). |
| max 6 pts. | subtotal | |

Select one size class and assign score.

- ☐ >50 acres (>20.2ha) (6 pts)
☐ 25 to <50 acres (10.1 to <20.2ha) (5 pts)
☐ 10 to <25 acres (4 to <10.1ha) (4 pts)
☐ 3 to <10 acres (1.2 to <4ha) (3 pts)
☒ 0.3 to <3 acres (0.12 to <1.2ha) (2pts)
☐ 0.1 to <0.3 acres (0.04 to <0.12ha) (1 pt)
☐ <0.1 acres (0.04ha) (0 pts)

| | | |
|-------------|-----------|---|
| 10 | 12 | Metric 2. Upland buffers and surrounding land use. |
| max 14 pts. | subtotal | |

2a. Calculate average buffer width. Select only one and assign score. Do not double check.

- ☐ WIDE. Buffers average 50m (164ft) or more around wetland perimeter (7)
☒ MEDIUM. Buffers average 25m to <50m (82 to <164ft) around wetland perimeter (4)
☐ NARROW. Buffers average 10m to <25m (32ft to <82ft) around wetland perimeter (1)
☐ VERY NARROW. Buffers average <10m (<32ft) around wetland perimeter (0)

2b. Intensity of surrounding land use. Select one or double check and average.

- ☐ VERY LOW. 2nd growth or older forest, prairie, savannah, wildlife area, etc. (7)
☒ LOW. Old field (>10 years), shrubland, young second growth forest. (5)
☒ MODERATELY HIGH. Residential, fenced pasture, park, conservation tillage, new fallow field. (3)
☐ HIGH. Urban, industrial, open pasture, row cropping, mining, construction. (1)

| | | |
|-------------|-------------|-----------------------------|
| 8.5 | 20.5 | Metric 3. Hydrology. |
| max 30 pts. | subtotal | |

3a. Sources of Water. Score all that apply.

- ☐ High pH groundwater (5)
☐ Other groundwater (3)
☒ Precipitation (1)
☐ Seasonal/Intermittent surface water (3)
☐ Perennial surface water (lake or stream) (5)

3c. Maximum water depth. Select only one and assign score.

- ☐ >0.7 (27.6in) (3)
☐ 0.4 to 0.7m (15.7 to 27.6in) (2)
☒ <0.4m (<15.7in) (1)

3e. Modifications to natural hydrologic regime. Score one or double check and average.

- ☐ None or none apparent (12)
☐ Recovered (7)
☒ Recovering (3)
☐ Recent or no recovery (1)

3b. Connectivity. Score all that apply.

- ☐ 100 year floodplain (1)
☐ Between stream/lake and other human use (1)
☒ Part of wetland/upland (e.g. forest), complex (1)
☐ Part of riparian or upland corridor (1)

3d. Duration inundation/saturation. Score one or dbl check.

- ☐ Semi- to permanently inundated/saturated (4)
☒ Regularly inundated/saturated (3)
☒ Seasonally inundated (2)
☐ Seasonally saturated in upper 30cm (12in) (1)

Check all disturbances observed

- | | |
|---|---|
| <input type="checkbox"/> ditch | <input type="checkbox"/> point source (nonstormwater) |
| <input type="checkbox"/> tile | <input checked="" type="checkbox"/> filling/grading |
| <input type="checkbox"/> dike | <input checked="" type="checkbox"/> road bed/RR track |
| <input type="checkbox"/> weir | <input type="checkbox"/> dredging |
| <input type="checkbox"/> stormwater input | <input type="checkbox"/> other _____ |

| | | |
|-------------|-------------|--|
| 10.5 | 31.0 | Metric 4. Habitat Alteration and Development. |
| max 20 pts. | subtotal | |

4a. Substrate disturbance. Score one or double check and average.

- ☐ None or none apparent (4)
☒ Recovered (3)
☐ Recovering (2)
☐ Recent or no recovery (1)

4b. Habitat development. Select only one and assign score.

- ☐ Excellent (7)
☐ Very good (6)
☐ Good (5)
☐ Moderately good (4)
☒ Fair (3)
☐ Poor to fair (2)
☐ Poor (1)

4c. Habitat alteration. Score one or double check and average.

- ☐ None or none apparent (9)
☒ Recovered (6)
☒ Recovering (3)
☐ Recent or no recovery (1)

Check all disturbances observed

- | | |
|--|---|
| <input checked="" type="checkbox"/> mowing | <input type="checkbox"/> shrub/sapling removal |
| <input checked="" type="checkbox"/> grazing | <input type="checkbox"/> herbaceous/aquatic bed removal |
| <input checked="" type="checkbox"/> clearcutting | <input type="checkbox"/> sedimentation |
| <input type="checkbox"/> selective cutting | <input type="checkbox"/> dredging |
| <input type="checkbox"/> woody debris removal | <input type="checkbox"/> farming |
| <input type="checkbox"/> toxic pollutants | <input type="checkbox"/> nutrient enrichment |

31.0

subtotal this page

| | | |
|--|---|-------------------------|
| Site: Beaver-Henrietta, W-BCR-111919-02 | Rater(s): Brian Robertson Jen Wessel | Date: 11/19/2019 |
|--|---|-------------------------|

31.0

subtotal first page

| | |
|-----|----|
| 0.0 | 31 |
|-----|----|

max 10 pts.

subtotal

Metric 5. Special Wetlands.

Check all that apply and score as indicated.

- ☐ Bog (10)
- ☐ Fen (10)
- ☐ Old growth forest (10)
- ☐ Mature forested wetland (5)
- ☐ Lake Erie coastal/tributary wetland-unrestricted hydrology (10)
- ☐ Lake Erie coastal/tributary wetland-restricted hydrology (5)
- ☐ Lake Plain Sand Prairies (Oak Openings) (10)
- ☐ Relict Wet Prairies (10)
- ☐ Known occurrence state/federal threatened or endangered species (10)
- ☐ Significant migratory songbird/water fowl habitat or usage (10)
- ☐ Category 1 Wetland. See Question 1 Qualitative Rating (-10)

| | |
|---|------|
| 3 | 34.0 |
|---|------|

max 20 pts.

subtotal

Metric 6. Plant communities, interspersions, microtopography.

6a. Wetland Vegetation Communities.

Score all present using 0 to 3 scale.

- ☐ 0 Aquatic bed
- ☐ 1 Emergent
- ☐ 1 Shrub
- ☐ 0 Forest
- ☐ 0 Mudflats
- ☐ 0 Open water
- ☐ 0 Other _____

6b. horizontal (plan view) Interspersion.

Select only one.

- ☐ High (5)
- ☐ Moderately high(4)
- ☐ Moderate (3)
- ☐ Moderately low (2)
- ☒ Low (1)
- ☐ None (0)

6c. Coverage of invasive plants. Refer to Table 1 ORAM long form for list. Add or deduct points for coverage

- ☐ Extensive >75% cover (-5)
- ☒ Moderate 25-75% cover (-3)
- ☐ Sparse 5-25% cover (-1)
- ☐ Nearly absent <5% cover (0)
- ☐ Absent (1)

6d. Microtopography.

Score all present using 0 to 3 scale.

- ☒ 2 Vegetated hummocks/tussocks
- ☐ 1 Coarse woody debris >15cm (6in)
- ☐ 0 Standing dead >25cm (10in) dbh
- ☐ 0 Amphibian breeding pools

Category 2

Vegetation Community Cover Scale

| | |
|---|---|
| 0 | Absent or comprises <0.1ha (0.2471 acres) contiguous area |
| 1 | Present and either comprises small part of wetland's vegetation and is of moderate quality, or comprises a significant part but is of low quality |
| 2 | Present and either comprises significant part of wetland's vegetation and is of moderate quality or comprises a small part and is of high quality |
| 3 | Present and comprises significant part, or more, of wetland's vegetation and is of high quality |

Narrative Description of Vegetation Quality

| | |
|------|--|
| low | Low spp diversity and/or predominance of nonnative or disturbance tolerant native species |
| mod | Native spp are dominant component of the vegetation, although nonnative and/or disturbance tolerant native spp can also be present, and species diversity moderate to moderately high, but generally w/o presence of rare threatened or endangered spp |
| high | A predominance of native species, with nonnative spp and/or disturbance tolerant native spp absent or virtually absent, and high spp diversity and often, but not always, the presence of rare, threatened, or endangered spp |

Mudflat and Open Water Class Quality

| | |
|---|---|
| 0 | Absent <0.1ha (0.247 acres) |
| 1 | Low 0.1 to <1ha (0.247 to 2.47 acres) |
| 2 | Moderate 1 to <4ha (2.47 to 9.88 acres) |
| 3 | High 4ha (9.88 acres) or more |

Microtopography Cover Scale

| | |
|---|--|
| 0 | Absent |
| 1 | Present very small amounts or if more common of marginal quality |
| 2 | Present in moderate amounts, but not of highest quality or in small amounts of highest quality |
| 3 | Present in moderate or greater amounts and of highest quality |

| | |
|----|----------------------------------|
| 34 | GRAND TOTAL (max 100 pts) |
|----|----------------------------------|

Site: Beaver-Henrietta, W-BCR-111919-01**Rater(s):** Brian Robertson Jen Wessel**Date:** 11/19/2019**0.0**

max 6 pts.

0.0

subtotal

Metric 1. Wetland Area (size).

Select one size class and assign score.

- ☐ >50 acres (>20.2ha) (6 pts)
☐ 25 to <50 acres (10.1 to <20.2ha) (5 pts)
☐ 10 to <25 acres (4 to <10.1ha) (4 pts)
☐ 3 to <10 acres (1.2 to <4ha) (3 pts)
☐ 0.3 to <3 acres (0.12 to <1.2ha) (2pts)
☐ 0.1 to <0.3 acres (0.04 to <0.12ha) (1 pt)
☒ <0.1 acres (0.04ha) (0 pts)

6

max 14 pts.

6

subtotal

Metric 2. Upland buffers and surrounding land use.

2a. Calculate average buffer width. Select only one and assign score. Do not double check.

- ☐ WIDE. Buffers average 50m (164ft) or more around wetland perimeter (7)
☒ MEDIUM. Buffers average 25m to <50m (82 to <164ft) around wetland perimeter (4)
☐ NARROW. Buffers average 10m to <25m (32ft to <82ft) around wetland perimeter (1)
☐ VERY NARROW. Buffers average <10m (<32ft) around wetland perimeter (0)

2b. Intensity of surrounding land use. Select one or double check and average.

- ☐ VERY LOW. 2nd growth or older forest, prairie, savannah, wildlife area, etc. (7)
☐ LOW. Old field (>10 years), shrubland, young second growth forest. (5)
☒ MODERATELY HIGH. Residential, fenced pasture, park, conservation tillage, new fallow field. (3)
☒ HIGH. Urban, industrial, open pasture, row cropping, mining, construction. (1)

5.5

max 30 pts.

11.5

subtotal

Metric 3. Hydrology.

3a. Sources of Water. Score all that apply.

- ☐ High pH groundwater (5)
☐ Other groundwater (3)
☒ Precipitation (1)
☐ Seasonal/Intermittent surface water (3)
☐ Perennial surface water (lake or stream) (5)

3c. Maximum water depth. Select only one and assign score.

- ☐ >0.7 (27.6in) (3)
☐ 0.4 to 0.7m (15.7 to 27.6in) (2)
☒ <0.4m (<15.7in) (1)

3e. Modifications to natural hydrologic regime. Score one or double check and average.

- ☐ None or none apparent (12)
☐ Recovered (7)
☒ Recovering (3)
☒ Recent or no recovery (1)

3b. Connectivity. Score all that apply.

- ☐ 100 year floodplain (1)
☐ Between stream/lake and other human use (1)
☐ Part of wetland/upland (e.g. forest), complex (1)
☐ Part of riparian or upland corridor (1)

3d. Duration inundation/saturation. Score one or dbl check.

- ☐ Semi- to permanently inundated/saturated (4)
☐ Regularly inundated/saturated (3)
☒ Seasonally inundated (2)
☒ Seasonally saturated in upper 30cm (12in) (1)

Check all disturbances observed

- | | |
|---|---|
| <input type="checkbox"/> ditch | <input type="checkbox"/> point source (nonstormwater) |
| <input type="checkbox"/> tile | <input checked="" type="checkbox"/> filling/grading |
| <input type="checkbox"/> dike | <input checked="" type="checkbox"/> road bed/RR track |
| <input type="checkbox"/> weir | <input type="checkbox"/> dredging |
| <input type="checkbox"/> stormwater input | <input type="checkbox"/> other _____ |

5.0

max 20 pts.

16.5

subtotal

Metric 4. Habitat Alteration and Development.

4a. Substrate disturbance. Score one or double check and average.

- ☐ None or none apparent (4)
☒ Recovered (3)
☐ Recovering (2)
☒ Recent or no recovery (1)

4b. Habitat development. Select only one and assign score.

- ☐ Excellent (7)
☐ Very good (6)
☐ Good (5)
☐ Moderately good (4)
☐ Fair (3)
☐ Poor to fair (2)
☒ Poor (1)

4c. Habitat alteration. Score one or double check and average.

- ☐ None or none apparent (9)
☐ Recovered (6)
☒ Recovering (3)
☒ Recent or no recovery (1)

Check all disturbances observed

- | | |
|--|---|
| <input checked="" type="checkbox"/> mowing | <input type="checkbox"/> shrub/sapling removal |
| <input checked="" type="checkbox"/> grazing | <input type="checkbox"/> herbaceous/aquatic bed removal |
| <input checked="" type="checkbox"/> clearcutting | <input checked="" type="checkbox"/> sedimentation |
| <input type="checkbox"/> selective cutting | <input type="checkbox"/> dredging |
| <input type="checkbox"/> woody debris removal | <input type="checkbox"/> farming |
| <input type="checkbox"/> toxic pollutants | <input type="checkbox"/> nutrient enrichment |

16.5

subtotal this page

| | | |
|--|---|-------------------------|
| Site: Beaver-Henrietta, W-BCR-111919-01 | Rater(s): Brian Robertson Jen Wessel | Date: 11/19/2019 |
|--|---|-------------------------|

16.5

subtotal first page

| | |
|-----|------|
| 0.0 | 16.5 |
|-----|------|

max 10 pts.

subtotal

Metric 5. Special Wetlands.

Check all that apply and score as indicated.

- ☐ Bog (10)
- ☐ Fen (10)
- ☐ Old growth forest (10)
- ☐ Mature forested wetland (5)
- ☐ Lake Erie coastal/tributary wetland-unrestricted hydrology (10)
- ☐ Lake Erie coastal/tributary wetland-restricted hydrology (5)
- ☐ Lake Plain Sand Prairies (Oak Openings) (10)
- ☐ Relict Wet Prairies (10)
- ☐ Known occurrence state/federal threatened or endangered species (10)
- ☐ Significant migratory songbird/water fowl habitat or usage (10)
- ☐ Category 1 Wetland. See Question 1 Qualitative Rating (-10)

| | |
|---|------|
| 2 | 18.5 |
|---|------|

max 20 pts.

subtotal

Metric 6. Plant communities, interspersions, microtopography.

6a. Wetland Vegetation Communities.

Score all present using 0 to 3 scale.

- ☐ 0 Aquatic bed
- ☐ 1 Emergent
- ☐ 0 Shrub
- ☐ 0 Forest
- ☐ 0 Mudflats
- ☐ 0 Open water
- ☐ 0 Other _____

6b. horizontal (plan view) Interspersion.

Select only one.

- ☐ High (5)
- ☐ Moderately high(4)
- ☐ Moderate (3)
- ☐ Moderately low (2)
- ☐ Low (1)
- ☒ None (0)

6c. Coverage of invasive plants. Refer to Table 1 ORAM long form for list. Add or deduct points for coverage

- ☐ Extensive >75% cover (-5)
- ☐ Moderate 25-75% cover (-3)
- ☐ Sparse 5-25% cover (-1)
- ☐ Nearly absent <5% cover (0)
- ☒ Absent (1)

6d. Microtopography.

Score all present using 0 to 3 scale.

- ☐ 0 Vegetated hummocks/tussocks
- ☐ 0 Coarse woody debris >15cm (6in)
- ☐ 0 Standing dead >25cm (10in) dbh
- ☐ 0 Amphibian breeding pools

Category 1

Vegetation Community Cover Scale

| | |
|---|---|
| 0 | Absent or comprises <0.1ha (0.2471 acres) contiguous area |
| 1 | Present and either comprises small part of wetland's vegetation and is of moderate quality, or comprises a significant part but is of low quality |
| 2 | Present and either comprises significant part of wetland's vegetation and is of moderate quality or comprises a small part and is of high quality |
| 3 | Present and comprises significant part, or more, of wetland's vegetation and is of high quality |

Narrative Description of Vegetation Quality

| | |
|------|--|
| low | Low spp diversity and/or predominance of nonnative or disturbance tolerant native species |
| mod | Native spp are dominant component of the vegetation, although nonnative and/or disturbance tolerant native spp can also be present, and species diversity moderate to moderately high, but generally w/o presence of rare threatened or endangered spp |
| high | A predominance of native species, with nonnative spp and/or disturbance tolerant native spp absent or virtually absent, and high spp diversity and often, but not always, the presence of rare, threatened, or endangered spp |

Mudflat and Open Water Class Quality

| | |
|---|---|
| 0 | Absent <0.1ha (0.247 acres) |
| 1 | Low 0.1 to <1ha (0.247 to 2.47 acres) |
| 2 | Moderate 1 to <4ha (2.47 to 9.88 acres) |
| 3 | High 4ha (9.88 acres) or more |

Microtopography Cover Scale

| | |
|---|--|
| 0 | Absent |
| 1 | Present very small amounts or if more common of marginal quality |
| 2 | Present in moderate amounts, but not of highest quality or in small amounts of highest quality |
| 3 | Present in moderate or greater amounts and of highest quality |

18.5

GRAND TOTAL (max 100 pts)

| | | |
|--|---|-------------------------|
| Site: Beaver-Henrietta, W-BCR-111819-03 | Rater(s): Brian Robertson Jen Wessel | Date: 11/18/2019 |
|--|---|-------------------------|

| | | |
|------------|------------|---------------------------------------|
| 2.0 | 2.0 | Metric 1. Wetland Area (size). |
|------------|------------|---------------------------------------|

max 6 pts.

subtotal

Select one size class and assign score.

- ☐ >50 acres (>20.2ha) (6 pts)
- ☐ 25 to <50 acres (10.1 to <20.2ha) (5 pts)
- ☐ 10 to <25 acres (4 to <10.1ha) (4 pts)
- ☐ 3 to <10 acres (1.2 to <4ha) (3 pts)
- ☒ 0.3 to <3 acres (0.12 to <1.2ha) (2pts)
- ☐ 0.1 to <0.3 acres (0.04 to <0.12ha) (1 pt)
- ☐ <0.1 acres (0.04ha) (0 pts)

| | | |
|-----------|-------------|---|
| 10 | 12.0 | Metric 2. Upland buffers and surrounding land use. |
|-----------|-------------|---|

max 14 pts.

subtotal

2a. Calculate average buffer width. Select only one and assign score. Do not double check.

- ☐ WIDE. Buffers average 50m (164ft) or more around wetland perimeter (7)
- ☒ MEDIUM. Buffers average 25m to <50m (82 to <164ft) around wetland perimeter (4)
- ☐ NARROW. Buffers average 10m to <25m (32ft to <82ft) around wetland perimeter (1)
- ☐ VERY NARROW. Buffers average <10m (<32ft) around wetland perimeter (0)

2b. Intensity of surrounding land use. Select one or double check and average.

- ☐ VERY LOW. 2nd growth or older forest, prairie, savannah, wildlife area, etc. (7)
- ☒ LOW. Old field (>10 years), shrubland, young second growth forest. (5)
- ☒ MODERATELY HIGH. Residential, fenced pasture, park, conservation tillage, new fallow field. (3)
- ☐ HIGH. Urban, industrial, open pasture, row cropping, mining, construction. (1)

| | | |
|-------------|-------------|-----------------------------|
| 10.5 | 22.5 | Metric 3. Hydrology. |
|-------------|-------------|-----------------------------|

max 30 pts.

subtotal

3a. Sources of Water. Score all that apply.

- ☐ High pH groundwater (5)
- ☐ Other groundwater (3)
- ☒ Precipitation (1)
- ☐ Seasonal/Intermittent surface water (3)
- ☐ Perennial surface water (lake or stream) (5)

3c. Maximum water depth. Select only one and assign score.

- ☐ >0.7 (27.6in) (3)
- ☐ 0.4 to 0.7m (15.7 to 27.6in) (2)
- ☒ <0.4m (<15.7in) (1)

3e. Modifications to natural hydrologic regime. Score one or double check and average.

- ☐ None or none apparent (12)
- ☒ Recovered (7)
- ☒ Recovering (3)
- ☐ Recent or no recovery (1)

3b. Connectivity. Score all that apply.

- ☐ 100 year floodplain (1)
- ☐ Between stream/lake and other human use (1)
- ☒ Part of wetland/upland (e.g. forest), complex (1)
- ☐ Part of riparian or upland corridor (1)

3d. Duration inundation/saturation. Score one or dbl check.

- ☐ Semi- to permanently inundated/saturated (4)
- ☒ Regularly inundated/saturated (3)
- ☒ Seasonally inundated (2)
- ☐ Seasonally saturated in upper 30cm (12in) (1)

| | |
|--|--|
| Check all disturbances observed | |
| <input type="checkbox"/> ditch <input type="checkbox"/> tile <input type="checkbox"/> dike <input type="checkbox"/> weir <input type="checkbox"/> stormwater input | <input type="checkbox"/> point source (nonstormwater) <input checked="" type="checkbox"/> filling/grading <input checked="" type="checkbox"/> road bed/RR track <input type="checkbox"/> dredging <input type="checkbox"/> other _____ |

| | | |
|-------------|-------------|--|
| 13.0 | 35.5 | Metric 4. Habitat Alteration and Development. |
|-------------|-------------|--|

max 20 pts.

subtotal

4a. Substrate disturbance. Score one or double check and average.

- ☐ None or none apparent (4)
- ☒ Recovered (3)
- ☐ Recovering (2)
- ☐ Recent or no recovery (1)

4b. Habitat development. Select only one and assign score.

- ☐ Excellent (7)
- ☐ Very good (6)
- ☐ Good (5)
- ☒ Moderately good (4)
- ☐ Fair (3)
- ☐ Poor to fair (2)
- ☐ Poor (1)

4c. Habitat alteration. Score one or double check and average.

- ☒ None or none apparent (9)
- ☐ Recovered (6)
- ☒ Recovering (3)
- ☐ Recent or no recovery (1)

| | |
|--|--|
| Check all disturbances observed | |
| <input checked="" type="checkbox"/> mowing <input type="checkbox"/> grazing <input checked="" type="checkbox"/> clearcutting <input type="checkbox"/> selective cutting <input type="checkbox"/> woody debris removal <input type="checkbox"/> toxic pollutants | <input type="checkbox"/> shrub/sapling removal <input type="checkbox"/> herbaceous/aquatic bed removal <input type="checkbox"/> sedimentation <input type="checkbox"/> dredging <input type="checkbox"/> farming <input type="checkbox"/> nutrient enrichment |

35.5

subtotal this page

| | | |
|--|---|-------------------------|
| Site: Beaver-Henrietta, W-BCR-111819-03 | Rater(s): Brian Robertson Jen Wessel | Date: 11/18/2019 |
|--|---|-------------------------|

35.5

subtotal first page

| | |
|-----|------|
| 0.0 | 35.5 |
|-----|------|

max 10 pts.

subtotal

Metric 5. Special Wetlands.

Check all that apply and score as indicated.

- ☐ Bog (10)
- ☐ Fen (10)
- ☐ Old growth forest (10)
- ☐ Mature forested wetland (5)
- ☐ Lake Erie coastal/tributary wetland-unrestricted hydrology (10)
- ☐ Lake Erie coastal/tributary wetland-restricted hydrology (5)
- ☐ Lake Plain Sand Prairies (Oak Openings) (10)
- ☐ Relict Wet Prairies (10)
- ☐ Known occurrence state/federal threatened or endangered species (10)
- ☐ Significant migratory songbird/water fowl habitat or usage (10)
- ☐ Category 1 Wetland. See Question 1 Qualitative Rating (-10)

| | |
|----|------|
| 11 | 46.5 |
|----|------|

max 20 pts.

subtotal

Metric 6. Plant communities, interspersions, microtopography.

6a. Wetland Vegetation Communities.

Score all present using 0 to 3 scale.

- 0

 Aquatic bed
- 1

 Emergent
- 2

 Shrub
- 1

 Forest
- 0

 Mudflats
- 0

 Open water
- 0

 Other _____

6b. horizontal (plan view) Interspersion.

Select only one.

- ☐ High (5)
- ☐ Moderately high(4)
- ☒ Moderate (3)
- ☐ Moderately low (2)
- ☐ Low (1)
- ☐ None (0)

6c. Coverage of invasive plants. Refer to Table 1 ORAM long form for list. Add or deduct points for coverage

- ☐ Extensive >75% cover (-5)
- ☐ Moderate 25-75% cover (-3)
- ☐ Sparse 5-25% cover (-1)
- ☒ Nearly absent <5% cover (0)
- ☐ Absent (1)

6d. Microtopography.

Score all present using 0 to 3 scale.

- 1

 Vegetated hummocks/tussocks
- 1

 Coarse woody debris >15cm (6in)
- 0

 Standing dead >25cm (10in) dbh
- 2

 Amphibian breeding pools

Category 2

Vegetation Community Cover Scale

| | |
|---|---|
| 0 | Absent or comprises <0.1ha (0.2471 acres) contiguous area |
| 1 | Present and either comprises small part of wetland's vegetation and is of moderate quality, or comprises a significant part but is of low quality |
| 2 | Present and either comprises significant part of wetland's vegetation and is of moderate quality or comprises a small part and is of high quality |
| 3 | Present and comprises significant part, or more, of wetland's vegetation and is of high quality |

Narrative Description of Vegetation Quality

| | |
|------|--|
| low | Low spp diversity and/or predominance of nonnative or disturbance tolerant native species |
| mod | Native spp are dominant component of the vegetation, although nonnative and/or disturbance tolerant native spp can also be present, and species diversity moderate to moderately high, but generally w/o presence of rare threatened or endangered spp |
| high | A predominance of native species, with nonnative spp and/or disturbance tolerant native spp absent or virtually absent, and high spp diversity and often, but not always, the presence of rare, threatened, or endangered spp |

Mudflat and Open Water Class Quality

| | |
|---|---|
| 0 | Absent <0.1ha (0.247 acres) |
| 1 | Low 0.1 to <1ha (0.247 to 2.47 acres) |
| 2 | Moderate 1 to <4ha (2.47 to 9.88 acres) |
| 3 | High 4ha (9.88 acres) or more |

Microtopography Cover Scale

| | |
|---|--|
| 0 | Absent |
| 1 | Present very small amounts or if more common of marginal quality |
| 2 | Present in moderate amounts, but not of highest quality or in small amounts of highest quality |
| 3 | Present in moderate or greater amounts and of highest quality |

46.5

GRAND TOTAL (max 100 pts)

Site: Beaver-Henrietta, W-BCR-111819-02**Rater(s):** Brian Robertson Jen Wessel**Date:** 11/18/2019**0.0**

max 6 pts.

0.0

subtotal

Metric 1. Wetland Area (size).

Select one size class and assign score.

- ☐ >50 acres (>20.2ha) (6 pts)
☐ 25 to <50 acres (10.1 to <20.2ha) (5 pts)
☐ 10 to <25 acres (4 to <10.1ha) (4 pts)
☐ 3 to <10 acres (1.2 to <4ha) (3 pts)
☐ 0.3 to <3 acres (0.12 to <1.2ha) (2pts)
☐ 0.1 to <0.3 acres (0.04 to <0.12ha) (1 pt)
☒ <0.1 acres (0.04ha) (0 pts)

10

max 14 pts.

10

subtotal

Metric 2. Upland buffers and surrounding land use.

2a. Calculate average buffer width. Select only one and assign score. Do not double check.

- ☐ WIDE. Buffers average 50m (164ft) or more around wetland perimeter (7)
☒ MEDIUM. Buffers average 25m to <50m (82 to <164ft) around wetland perimeter (4)
☐ NARROW. Buffers average 10m to <25m (32ft to <82ft) around wetland perimeter (1)
☐ VERY NARROW. Buffers average <10m (<32ft) around wetland perimeter (0)

2b. Intensity of surrounding land use. Select one or double check and average.

- ☐ VERY LOW. 2nd growth or older forest, prairie, savannah, wildlife area, etc. (7)
☒ LOW. Old field (>10 years), shrubland, young second growth forest. (5)
☒ MODERATELY HIGH. Residential, fenced pasture, park, conservation tillage, new fallow field. (3)
☐ HIGH. Urban, industrial, open pasture, row cropping, mining, construction. (1)

6

max 30 pts.

16

subtotal

Metric 3. Hydrology.

3a. Sources of Water. Score all that apply.

- ☐ High pH groundwater (5)
☐ Other groundwater (3)
☒ Precipitation (1)
☐ Seasonal/Intermittent surface water (3)
☐ Perennial surface water (lake or stream) (5)

3c. Maximum water depth. Select only one and assign score.

- ☐ >0.7 (27.6in) (3)
☐ 0.4 to 0.7m (15.7 to 27.6in) (2)
☒ <0.4m (<15.7in) (1)

3e. Modifications to natural hydrologic regime. Score one or double check and average.

- ☐ None or none apparent (12)
☐ Recovered (7)
☒ Recovering (3)
☐ Recent or no recovery (1)

3b. Connectivity. Score all that apply.

- ☐ 100 year floodplain (1)
☐ Between stream/lake and other human use (1)
☐ Part of wetland/upland (e.g. forest), complex (1)
☐ Part of riparian or upland corridor (1)

3d. Duration inundation/saturation. Score one or dbl check.

- ☐ Semi- to permanently inundated/saturated (4)
☐ Regularly inundated/saturated (3)
☐ Seasonally inundated (2)
☒ Seasonally saturated in upper 30cm (12in) (1)

Check all disturbances observed

- | | |
|---|---|
| <input type="checkbox"/> ditch | <input type="checkbox"/> point source (nonstormwater) |
| <input type="checkbox"/> tile | <input checked="" type="checkbox"/> filling/grading |
| <input type="checkbox"/> dike | <input checked="" type="checkbox"/> road bed/RR track |
| <input type="checkbox"/> weir | <input type="checkbox"/> dredging |
| <input type="checkbox"/> stormwater input | <input type="checkbox"/> other _____ |

7.0

max 20 pts.

23.0

subtotal

Metric 4. Habitat Alteration and Development.

4a. Substrate disturbance. Score one or double check and average.

- ☐ None or none apparent (4)
☒ Recovered (3)
☐ Recovering (2)
☐ Recent or no recovery (1)

4b. Habitat development. Select only one and assign score.

- ☐ Excellent (7)
☐ Very good (6)
☐ Good (5)
☐ Moderately good (4)
☐ Fair (3)
☐ Poor to fair (2)
☒ Poor (1)

4c. Habitat alteration. Score one or double check and average.

- ☐ None or none apparent (9)
☐ Recovered (6)
☒ Recovering (3)
☐ Recent or no recovery (1)

Check all disturbances observed

- | | |
|--|---|
| <input checked="" type="checkbox"/> mowing | <input type="checkbox"/> shrub/sapling removal |
| <input checked="" type="checkbox"/> grazing | <input type="checkbox"/> herbaceous/aquatic bed removal |
| <input checked="" type="checkbox"/> clearcutting | <input type="checkbox"/> sedimentation |
| <input type="checkbox"/> selective cutting | <input type="checkbox"/> dredging |
| <input type="checkbox"/> woody debris removal | <input type="checkbox"/> farming |
| <input type="checkbox"/> toxic pollutants | <input type="checkbox"/> nutrient enrichment |

23.0

subtotal this page

| | | |
|--|---|-------------------------|
| Site: Beaver-Henrietta, W-BCR-111819-02 | Rater(s): Brian Robertson Jen Wessel | Date: 11/18/2019 |
|--|---|-------------------------|

23.0

subtotal first page

| | |
|------------|-----------|
| 0.0 | 23 |
|------------|-----------|

max 10 pts.

subtotal

Metric 5. Special Wetlands.

Check all that apply and score as indicated.

- ☐ Bog (10)
- ☐ Fen (10)
- ☐ Old growth forest (10)
- ☐ Mature forested wetland (5)
- ☐ Lake Erie coastal/tributary wetland-unrestricted hydrology (10)
- ☐ Lake Erie coastal/tributary wetland-restricted hydrology (5)
- ☐ Lake Plain Sand Prairies (Oak Openings) (10)
- ☐ Relict Wet Prairies (10)
- ☐ Known occurrence state/federal threatened or endangered species (10)
- ☐ Significant migratory songbird/water fowl habitat or usage (10)
- ☐ Category 1 Wetland. See Question 1 Qualitative Rating (-10)

| | |
|----------|-------------|
| 2 | 25.0 |
|----------|-------------|

max 20 pts.

subtotal

Metric 6. Plant communities, interspersions, microtopography.

6a. Wetland Vegetation Communities.

Score all present using 0 to 3 scale.

- ☐ 0 Aquatic bed
- ☐ 1 Emergent
- ☐ 0 Shrub
- ☐ 0 Forest
- ☐ 0 Mudflats
- ☐ 0 Open water
- ☐ 0 Other _____

6b. horizontal (plan view) Interspersion.

Select only one.

- ☐ High (5)
- ☐ Moderately high(4)
- ☐ Moderate (3)
- ☐ Moderately low (2)
- ☐ Low (1)
- ☒ None (0)

6c. Coverage of invasive plants. Refer to Table 1 ORAM long form for list. Add or deduct points for coverage

- ☐ Extensive >75% cover (-5)
- ☐ Moderate 25-75% cover (-3)
- ☐ Sparse 5-25% cover (-1)
- ☐ Nearly absent <5% cover (0)
- ☒ Absent (1)

6d. Microtopography.

Score all present using 0 to 3 scale.

- ☐ 0 Vegetated hummocks/tussocks
- ☐ 0 Coarse woody debris >15cm (6in)
- ☐ 0 Standing dead >25cm (10in) dbh
- ☐ 0 Amphibian breeding pools

Category 1

Vegetation Community Cover Scale

| | |
|---|---|
| 0 | Absent or comprises <0.1ha (0.2471 acres) contiguous area |
| 1 | Present and either comprises small part of wetland's vegetation and is of moderate quality, or comprises a significant part but is of low quality |
| 2 | Present and either comprises significant part of wetland's vegetation and is of moderate quality or comprises a small part and is of high quality |
| 3 | Present and comprises significant part, or more, of wetland's vegetation and is of high quality |

Narrative Description of Vegetation Quality

| | |
|------|--|
| low | Low spp diversity and/or predominance of nonnative or disturbance tolerant native species |
| mod | Native spp are dominant component of the vegetation, although nonnative and/or disturbance tolerant native spp can also be present, and species diversity moderate to moderately high, but generally w/o presence of rare threatened or endangered spp |
| high | A predominance of native species, with nonnative spp and/or disturbance tolerant native spp absent or virtually absent, and high spp diversity and often, but not always, the presence of rare, threatened, or endangered spp |

Mudflat and Open Water Class Quality

| | |
|---|---|
| 0 | Absent <0.1ha (0.247 acres) |
| 1 | Low 0.1 to <1ha (0.247 to 2.47 acres) |
| 2 | Moderate 1 to <4ha (2.47 to 9.88 acres) |
| 3 | High 4ha (9.88 acres) or more |

Microtopography Cover Scale

| | |
|---|--|
| 0 | Absent |
| 1 | Present very small amounts or if more common of marginal quality |
| 2 | Present in moderate amounts, but not of highest quality or in small amounts of highest quality |
| 3 | Present in moderate or greater amounts and of highest quality |

| | |
|-----------|----------------------------------|
| 25 | GRAND TOTAL (max 100 pts) |
|-----------|----------------------------------|

Wetland BH-05

ORAM v. 5.0 Field Form Quantitative Rating

| | | |
|--|---|-------------------------|
| Site: Beaver-Henrietta, W-BCR-111819-01 | Rater(s): Brian Robertson Jen Wessel | Date: 11/18/2019 |
|--|---|-------------------------|

| | |
|-----|-----|
| 0.0 | 0.0 |
|-----|-----|

max 6 pts. subtotal

Metric 1. Wetland Area (size).

Select one size class and assign score.

- ☐ >50 acres (>20.2ha) (6 pts)
- ☐ 25 to <50 acres (10.1 to <20.2ha) (5 pts)
- ☐ 10 to <25 acres (4 to <10.1ha) (4 pts)
- ☐ 3 to <10 acres (1.2 to <4ha) (3 pts)
- ☐ 0.3 to <3 acres (0.12 to <1.2ha) (2pts)
- ☐ 0.1 to <0.3 acres (0.04 to <0.12ha) (1 pt)
- ☒ <0.1 acres (0.04ha) (0 pts)

| | |
|----|----|
| 10 | 10 |
|----|----|

max 14 pts. subtotal

Metric 2. Upland buffers and surrounding land use.

2a. Calculate average buffer width. Select only one and assign score. Do not double check.

- ☐ WIDE. Buffers average 50m (164ft) or more around wetland perimeter (7)
- ☒ MEDIUM. Buffers average 25m to <50m (82 to <164ft) around wetland perimeter (4)
- ☐ NARROW. Buffers average 10m to <25m (32ft to <82ft) around wetland perimeter (1)
- ☐ VERY NARROW. Buffers average <10m (<32ft) around wetland perimeter (0)

2b. Intensity of surrounding land use. Select one or double check and average.

- ☐ VERY LOW. 2nd growth or older forest, prairie, savannah, wildlife area, etc. (7)
- ☒ LOW. Old field (>10 years), shrubland, young second growth forest. (5)
- ☒ MODERATELY HIGH. Residential, fenced pasture, park, conservation tillage, new fallow field. (3)
- ☐ HIGH. Urban, industrial, open pasture, row cropping, mining, construction. (1)

| | |
|---|----|
| 6 | 16 |
|---|----|

max 30 pts. subtotal

Metric 3. Hydrology.

3a. Sources of Water. Score all that apply.

- ☐ High pH groundwater (5)
- ☐ Other groundwater (3)
- ☒ Precipitation (1)
- ☐ Seasonal/Intermittent surface water (3)
- ☐ Perennial surface water (lake or stream) (5)

3c. Maximum water depth. Select only one and assign score.

- ☐ >0.7 (27.6in) (3)
- ☐ 0.4 to 0.7m (15.7 to 27.6in) (2)
- ☒ <0.4m (<15.7in) (1)

3e. Modifications to natural hydrologic regime. Score one or double check and average.

- ☐ None or none apparent (12)
- ☐ Recovered (7)
- ☒ Recovering (3)
- ☐ Recent or no recovery (1)

3b. Connectivity. Score all that apply.

- ☐ 100 year floodplain (1)
- ☐ Between stream/lake and other human use (1)
- ☐ Part of wetland/upland (e.g. forest), complex (1)
- ☐ Part of riparian or upland corridor (1)

3d. Duration inundation/saturation. Score one or dbl check.

- ☐ Semi- to permanently inundated/saturated (4)
- ☐ Regularly inundated/saturated (3)
- ☐ Seasonally inundated (2)
- ☒ Seasonally saturated in upper 30cm (12in) (1)

| | |
|---|---|
| Check all disturbances observed | |
| <input type="checkbox"/> ditch | <input type="checkbox"/> point source (nonstormwater) |
| <input type="checkbox"/> tile | <input checked="" type="checkbox"/> filling/grading |
| <input type="checkbox"/> dike | <input checked="" type="checkbox"/> road bed/RR track |
| <input type="checkbox"/> weir | <input type="checkbox"/> dredging |
| <input type="checkbox"/> stormwater input | <input type="checkbox"/> other _____ |

| | |
|-----|------|
| 6.0 | 22.0 |
|-----|------|

max 20 pts. subtotal

Metric 4. Habitat Alteration and Development.

4a. Substrate disturbance. Score one or double check and average.

- ☐ None or none apparent (4)
- ☐ Recovered (3)
- ☒ Recovering (2)
- ☐ Recent or no recovery (1)

4b. Habitat development. Select only one and assign score.

- ☐ Excellent (7)
- ☐ Very good (6)
- ☐ Good (5)
- ☐ Moderately good (4)
- ☐ Fair (3)
- ☐ Poor to fair (2)
- ☒ Poor (1)

4c. Habitat alteration. Score one or double check and average.

- ☐ None or none apparent (9)
- ☐ Recovered (6)
- ☒ Recovering (3)
- ☐ Recent or no recovery (1)

| | |
|--|---|
| Check all disturbances observed | |
| <input checked="" type="checkbox"/> mowing | <input type="checkbox"/> shrub/sapling removal |
| <input checked="" type="checkbox"/> grazing | <input type="checkbox"/> herbaceous/aquatic bed removal |
| <input checked="" type="checkbox"/> clearcutting | <input type="checkbox"/> sedimentation |
| <input type="checkbox"/> selective cutting | <input type="checkbox"/> dredging |
| <input type="checkbox"/> woody debris removal | <input type="checkbox"/> farming |
| <input type="checkbox"/> toxic pollutants | <input type="checkbox"/> nutrient enrichment |

| |
|------|
| 22.0 |
|------|

subtotal this page

| | | |
|--|---|-------------------------|
| Site: Beaver-Henrietta, W-BCR-111819-01 | Rater(s): Brian Robertson Jen Wessel | Date: 11/18/2019 |
|--|---|-------------------------|

22.0

subtotal first page

| | |
|------------|-----------|
| 0.0 | 22 |
|------------|-----------|

max 10 pts.

subtotal

Metric 5. Special Wetlands.

Check all that apply and score as indicated.

- ☐ Bog (10)
- ☐ Fen (10)
- ☐ Old growth forest (10)
- ☐ Mature forested wetland (5)
- ☐ Lake Erie coastal/tributary wetland-unrestricted hydrology (10)
- ☐ Lake Erie coastal/tributary wetland-restricted hydrology (5)
- ☐ Lake Plain Sand Prairies (Oak Openings) (10)
- ☐ Relict Wet Prairies (10)
- ☐ Known occurrence state/federal threatened or endangered species (10)
- ☐ Significant migratory songbird/water fowl habitat or usage (10)
- ☐ Category 1 Wetland. See Question 1 Qualitative Rating (-10)

| | |
|----------|-------------|
| 2 | 24.0 |
|----------|-------------|

max 20 pts.

subtotal

Metric 6. Plant communities, interspersions, microtopography.

6a. Wetland Vegetation Communities.

Score all present using 0 to 3 scale.

- ☐ 0 Aquatic bed
- ☐ 1 Emergent
- ☐ 0 Shrub
- ☐ 0 Forest
- ☐ 0 Mudflats
- ☐ 0 Open water
- ☐ 0 Other _____

6b. horizontal (plan view) Interspersion.

Select only one.

- ☐ High (5)
- ☐ Moderately high(4)
- ☐ Moderate (3)
- ☐ Moderately low (2)
- ☐ Low (1)
- ☒ None (0)

6c. Coverage of invasive plants. Refer to Table 1 ORAM long form for list. Add or deduct points for coverage

- ☐ Extensive >75% cover (-5)
- ☐ Moderate 25-75% cover (-3)
- ☐ Sparse 5-25% cover (-1)
- ☐ Nearly absent <5% cover (0)
- ☒ Absent (1)

6d. Microtopography.

Score all present using 0 to 3 scale.

- ☐ 0 Vegetated hummocks/tussocks
- ☐ 0 Coarse woody debris >15cm (6in)
- ☐ 0 Standing dead >25cm (10in) dbh
- ☐ 0 Amphibian breeding pools

Category 1

Vegetation Community Cover Scale

| | |
|---|---|
| 0 | Absent or comprises <0.1ha (0.2471 acres) contiguous area |
| 1 | Present and either comprises small part of wetland's vegetation and is of moderate quality, or comprises a significant part but is of low quality |
| 2 | Present and either comprises significant part of wetland's vegetation and is of moderate quality or comprises a small part and is of high quality |
| 3 | Present and comprises significant part, or more, of wetland's vegetation and is of high quality |

Narrative Description of Vegetation Quality

| | |
|------|--|
| low | Low spp diversity and/or predominance of nonnative or disturbance tolerant native species |
| mod | Native spp are dominant component of the vegetation, although nonnative and/or disturbance tolerant native spp can also be present, and species diversity moderate to moderately high, but generally w/o presence of rare threatened or endangered spp |
| high | A predominance of native species, with nonnative spp and/or disturbance tolerant native spp absent or virtually absent, and high spp diversity and often, but not always, the presence of rare, threatened, or endangered spp |

Mudflat and Open Water Class Quality

| | |
|---|---|
| 0 | Absent <0.1ha (0.247 acres) |
| 1 | Low 0.1 to <1ha (0.247 to 2.47 acres) |
| 2 | Moderate 1 to <4ha (2.47 to 9.88 acres) |
| 3 | High 4ha (9.88 acres) or more |

Microtopography Cover Scale

| | |
|---|--|
| 0 | Absent |
| 1 | Present very small amounts or if more common of marginal quality |
| 2 | Present in moderate amounts, but not of highest quality or in small amounts of highest quality |
| 3 | Present in moderate or greater amounts and of highest quality |

| | |
|-----------|----------------------------------|
| 24 | GRAND TOTAL (max 100 pts) |
|-----------|----------------------------------|

Site: Beaver-Henrietta, W-BAO-012720-01 **Rater(s):** Ben Otto**Date:** 02/27/2020**2.0****2.0**

max 6 pts.

subtotal

Metric 1. Wetland Area (size).

Select one size class and assign score.

- ☐ >50 acres (>20.2ha) (6 pts)
☐ 25 to <50 acres (10.1 to <20.2ha) (5 pts)
☐ 10 to <25 acres (4 to <10.1ha) (4 pts)
☐ 3 to <10 acres (1.2 to <4ha) (3 pts)
☒ 0.3 to <3 acres (0.12 to <1.2ha) (2pts)
☐ 0.1 to <0.3 acres (0.04 to <0.12ha) (1 pt)
☐ <0.1 acres (0.04ha) (0 pts)

10**12.0**

max 14 pts.

subtotal

Metric 2. Upland buffers and surrounding land use.

2a. Calculate average buffer width. Select only one and assign score. Do not double check.

- ☐ WIDE. Buffers average 50m (164ft) or more around wetland perimeter (7)
☒ MEDIUM. Buffers average 25m to <50m (82 to <164ft) around wetland perimeter (4)
☐ NARROW. Buffers average 10m to <25m (32ft to <82ft) around wetland perimeter (1)
☐ VERY NARROW. Buffers average <10m (<32ft) around wetland perimeter (0)

2b. Intensity of surrounding land use. Select one or double check and average.

- ☐ VERY LOW. 2nd growth or older forest, prairie, savannah, wildlife area, etc. (7)
☒ LOW. Old field (>10 years), shrubland, young second growth forest. (5)
☒ MODERATELY HIGH. Residential, fenced pasture, park, conservation tillage, new fallow field. (3)
☐ HIGH. Urban, industrial, open pasture, row cropping, mining, construction. (1)

9.5**21.5**

max 30 pts.

subtotal

Metric 3. Hydrology.

3a. Sources of Water. Score all that apply.

- ☐ High pH groundwater (5)
☐ Other groundwater (3)
☒ Precipitation (1)
☐ Seasonal/intermittent surface water (3)
☐ Perennial surface water (lake or stream) (5)

3c. Maximum water depth. Select only one and assign score.

- ☐ >0.7 (27.6in) (3)
☐ 0.4 to 0.7m (15.7 to 27.6in) (2)
☒ <0.4m (<15.7in) (1)

3e. Modifications to natural hydrologic regime. Score one or double check and average.

- ☐ None or none apparent (12)
☒ Recovered (7)
☒ Recovering (3)
☐ Recent or no recovery (1)

3b. Connectivity. Score all that apply.

- ☐ 100 year floodplain (1)
☐ Between stream/lake and other human use (1)
☒ Part of wetland/upland (e.g. forest), complex (1)
☐ Part of riparian or upland corridor (1)

3d. Duration inundation/saturation. Score one or dbl check.

- ☐ Semi- to permanently inundated/saturated (4)
☐ Regularly inundated/saturated (3)
☒ Seasonally inundated (2)
☒ Seasonally saturated in upper 30cm (12in) (1)

Check all disturbances observed

- ☐ ditch
☐ tile
☐ dike
☐ weir
☐ stormwater input
☐ point source (nonstormwater)
☒ filling/grading
☒ road bed/RR track
☐ dredging
☐ other _____

10.0**31.5**

max 20 pts.

subtotal

Metric 4. Habitat Alteration and Development.

4a. Substrate disturbance. Score one or double check and average.

- ☐ None or none apparent (4)
☒ Recovered (3)
☒ Recovering (2)
☐ Recent or no recovery (1)

4b. Habitat development. Select only one and assign score.

- ☐ Excellent (7)
☐ Very good (6)
☐ Good (5)
☒ Moderately good (4)
☐ Fair (3)
☐ Poor to fair (2)
☐ Poor (1)

4c. Habitat alteration. Score one or double check and average.

- ☐ None or none apparent (9)
☒ Recovered (6)
☒ Recovering (3)
☐ Recent or no recovery (1)

Check all disturbances observed

- ☒ mowing
☒ grazing
☒ clearcutting
☒ selective cutting
☐ woody debris removal
☐ toxic pollutants
☐ shrub/sapling removal
☐ herbaceous/aquatic bed removal
☐ sedimentation
☐ dredging
☐ farming
☐ nutrient enrichment

31.5

subtotal this page

| | | |
|--|---------------------------|-------------------------|
| Site: Beaver-Henrietta, W-BAO-012720-01 | Rater(s): Ben Otto | Date: 02/27/2020 |
|--|---------------------------|-------------------------|

31.5

subtotal first page

| | |
|-----|------|
| 0.0 | 31.5 |
|-----|------|

max 10 pts.

subtotal

Metric 5. Special Wetlands.

Check all that apply and score as indicated.

- ☐ Bog (10)
- ☐ Fen (10)
- ☐ Old growth forest (10)
- ☐ Mature forested wetland (5)
- ☐ Lake Erie coastal/tributary wetland-unrestricted hydrology (10)
- ☐ Lake Erie coastal/tributary wetland-restricted hydrology (5)
- ☐ Lake Plain Sand Prairies (Oak Openings) (10)
- ☐ Relict Wet Prairies (10)
- ☐ Known occurrence state/federal threatened or endangered species (10)
- ☐ Significant migratory songbird/water fowl habitat or usage (10)
- ☐ Category 1 Wetland. See Question 1 Qualitative Rating (-10)

| | |
|---|------|
| 5 | 37.5 |
|---|------|

max 20 pts.

subtotal

Metric 6. Plant communities, interspersions, microtopography.

6a. Wetland Vegetation Communities.

Score all present using 0 to 3 scale.

- ☐ 0 Aquatic bed
- ☐ 1 Emergent
- ☐ 0 Shrub
- ☐ 2 Forest
- ☐ 0 Mudflats
- ☐ 0 Open water
- ☐ 0 Other _____

6b. horizontal (plan view) Interspersion.

Select only one.

- ☐ High (5)
- ☐ Moderately high (4)
- ☒ Moderate (3)
- ☐ Moderately low (2)
- ☐ Low (1)
- ☐ None (0)

6c. Coverage of invasive plants. Refer to Table 1 ORAM long form for list. Add or deduct points for coverage

- ☐ Extensive >75% cover (-5)
- ☒ Moderate 25-75% cover (-3)
- ☐ Sparse 5-25% cover (-1)
- ☐ Nearly absent <5% cover (0)
- ☐ Absent (1)

6d. Microtopography.

Score all present using 0 to 3 scale.

- ☒ 1 Vegetated hummocks/tussocks
- ☐ Coarse woody debris >15cm (6in)
- ☐ 0 Standing dead >25cm (10in) dbh
- ☐ 1 Amphibian breeding pools

Category 2

Vegetation Community Cover Scale

| | |
|---|---|
| 0 | Absent or comprises <0.1ha (0.2471 acres) contiguous area |
| 1 | Present and either comprises small part of wetland's vegetation and is of moderate quality, or comprises a significant part but is of low quality |
| 2 | Present and either comprises significant part of wetland's vegetation and is of moderate quality or comprises a small part and is of high quality |
| 3 | Present and comprises significant part, or more, of wetland's vegetation and is of high quality |

Narrative Description of Vegetation Quality

| | |
|------|--|
| low | Low spp diversity and/or predominance of nonnative or disturbance tolerant native species |
| mod | Native spp are dominant component of the vegetation, although nonnative and/or disturbance tolerant native spp can also be present, and species diversity moderate to moderately high, but generally w/o presence of rare threatened or endangered spp |
| high | A predominance of native species, with nonnative spp and/or disturbance tolerant native spp absent or virtually absent, and high spp diversity and often, but not always, the presence of rare, threatened, or endangered spp |

Mudflat and Open Water Class Quality

| | |
|---|---|
| 0 | Absent <0.1ha (0.247 acres) |
| 1 | Low 0.1 to <1ha (0.247 to 2.47 acres) |
| 2 | Moderate 1 to <4ha (2.47 to 9.88 acres) |
| 3 | High 4ha (9.88 acres) or more |

Microtopography Cover Scale

| | |
|---|--|
| 0 | Absent |
| 1 | Present very small amounts or if more common of marginal quality |
| 2 | Present in moderate amounts, but not of highest quality or in small amounts of highest quality |
| 3 | Present in moderate or greater amounts and of highest quality |

37.5

GRAND TOTAL (max 100 pts)

Appendix C

OEPA QHEI Datasheets



Qualitative Habitat Evaluation Index and Use Assessment Field Sheet

QHEI Score: 66.5

Stream & Location: Quarry Creek (S-BCR-111919-01), FirstEnergy Beaver-Henrietta

RM: 4.0 **Date:** 11/19/2019

Brian Robertson

Scorers Full Name & Affiliation: Jacobs Engineering

River Code: 04110001-07-03

STORET #:
Lat./ Long.: 41.38268 / -82.27193

Office verified location ☒
1] SUBSTRATE Check **ONLY** Two substrate **TYPE BOXES**; estimate % or note every type present

Check ONE (Or 2 & average)

| BEST TYPES | | OTHER TYPES | | ORIGIN | | QUALITY | |
|---|--------------------------------------|---|--------------------------------------|---|-------------------------------|--|---|
| <input type="checkbox"/> BLDR /SLABS [10] | <input type="checkbox"/> POOL RIFFLE | <input type="checkbox"/> HARDPAN [4] | <input type="checkbox"/> POOL RIFFLE | <input type="checkbox"/> LIMESTONE [1] | <input type="checkbox"/> SILT | <input type="checkbox"/> HEAVY [-2] | Substrate <div style="border: 1px solid black; border-radius: 50%; width: 40px; height: 40px; text-align: center; line-height: 40px;">16</div> Maximum 20 |
| <input type="checkbox"/> BOULDER [9] | | <input type="checkbox"/> DETRITUS [3] | | <input checked="" type="checkbox"/> TILLS [1] | | <input type="checkbox"/> MODERATE [-1] | |
| <input checked="" type="checkbox"/> COBBLE [8] | | <input type="checkbox"/> MUCK [2] | | <input type="checkbox"/> WETLANDS [0] | | <input checked="" type="checkbox"/> NORMAL [0] | |
| <input type="checkbox"/> GRAVEL [7] | | <input type="checkbox"/> SILT [2] | | <input type="checkbox"/> HARDPAN [0] | | <input type="checkbox"/> FREE [1] | |
| <input type="checkbox"/> SAND [6] | | <input type="checkbox"/> ARTIFICIAL [0] | | <input type="checkbox"/> SANDSTONE [0] | | <input type="checkbox"/> EXTENSIVE [-2] | |
| <input type="checkbox"/> BEDROCK [5] | | | | <input type="checkbox"/> RIP/RAP [0] | | <input type="checkbox"/> MODERATE [-1] | |
| (Score natural substrates; ignore sludge from point-sources) | | | | <input type="checkbox"/> LACUSTURINE [0] | EMBEDDEDNESS | <input checked="" type="checkbox"/> NORMAL [0] | |
| NUMBER OF BEST TYPES: <input type="checkbox"/> 4 or more [2] <input checked="" type="checkbox"/> 3 or less [0] | | | | <input type="checkbox"/> SHALE [-1] | | <input type="checkbox"/> NONE [1] | |
| Comments | | | | <input type="checkbox"/> COAL FINES [-2] | | | |

2] INSTREAM COVER Indicate presence 0 to 3: 0-Absent; 1-Very small amounts or if more common of marginal quality; 2-Moderate amounts, but not of highest quality or in small amounts of highest quality; 3-Highest quality in moderate or greater amounts (e.g., very large boulders in deep or fast water, large diameter log that is stable, well developed rootwad in deep / fast water, or deep, well-defined, functional pools.

AMOUNT

Check ONE (Or 2 & average)

| | | | |
|--------------------------------|------------------|--------------------------|---|
| 1 UNDERCUT BANKS [1] | POOLS > 70cm [2] | OXBOWS, BACKWATERS [1] | <input type="checkbox"/> EXTENSIVE >75% [11] |
| 2 OVERHANGING VEGETATION [1] | ROOTWADS [1] | AQUATIC MACROPHYTES [1] | <input checked="" type="checkbox"/> MODERATE 25-75% [7] |
| 1 SHALLOWS (IN SLOW WATER) [1] | BOULDERS [1] | LOGS OR WOODY DEBRIS [1] | <input type="checkbox"/> SPARSE 5-<25% [3] |
| 1 ROOTMATS [1] | | | <input type="checkbox"/> NEARLY ABSENT <5% [1] |

Comments
Cover
Maximum 20
12

3] CHANNEL MORPHOLOGY Check ONE in each category (Or 2 & average)

| SINUOSITY | DEVELOPMENT | CHANNELIZATION | STABILITY |
|--|--|--|--|
| <input type="checkbox"/> HIGH [4] | <input type="checkbox"/> EXCELLENT [7] | <input type="checkbox"/> NONE [6] | <input type="checkbox"/> HIGH [3] |
| <input checked="" type="checkbox"/> MODERATE [3] | <input checked="" type="checkbox"/> GOOD [5] | <input type="checkbox"/> RECOVERED [4] | <input checked="" type="checkbox"/> MODERATE [2] |
| <input type="checkbox"/> LOW [2] | <input checked="" type="checkbox"/> FAIR [3] | <input checked="" type="checkbox"/> RECOVERING [3] | <input type="checkbox"/> LOW [1] |
| <input type="checkbox"/> NONE [1] | <input type="checkbox"/> POOR [1] | <input type="checkbox"/> RECENT OR NO RECOVERY [1] | |

Comments
Channel
Maximum 20
12

4] BANK EROSION AND RIPARIAN ZONE Check ONE in each category for **EACH BANK** (Or 2 per bank & average)

River right looking downstream

| EROSION | RIPARIAN WIDTH | FLOOD PLAIN QUALITY | CONSERVATION TILLAGE |
|---|---|--|--|
| <input checked="" type="checkbox"/> NONE / LITTLE [3] | <input type="checkbox"/> WIDE > 50m [4] | <input type="checkbox"/> FOREST, SWAMP [3] | <input type="checkbox"/> CONSERVATION TILLAGE [1] |
| <input type="checkbox"/> MODERATE [2] | <input checked="" type="checkbox"/> MODERATE 10-50m [3] | <input checked="" type="checkbox"/> SHRUB OR OLD FIELD [2] | <input type="checkbox"/> URBAN OR INDUSTRIAL [0] |
| <input type="checkbox"/> HEAVY / SEVERE [1] | <input checked="" type="checkbox"/> NARROW 5-10m [2] | <input checked="" type="checkbox"/> RESIDENTIAL, PARK, NEW FIELD [1] | <input type="checkbox"/> MINING / CONSTRUCTION [0] |
| | <input type="checkbox"/> VERY NARROW < 5m [1] | <input type="checkbox"/> FENCED PASTURE [1] | |
| | <input type="checkbox"/> NONE [0] | <input type="checkbox"/> OPEN PASTURE, ROWCROP [0] | |

Comments

Indicate predominant land use(s) past 100m riparian.

Riparian
Maximum 10
6

5] POOL / GLIDE AND RIFFLE / RUN QUALITY
MAXIMUM DEPTH

Check ONE (ONLY!)

- ☐ > 1m [6]
☐ 0.7-<1m [4]
☒ 0.4-<0.7m [2]
☐ 0.2-<0.4m [1]
☐ < 0.2m [0]

CHANNEL WIDTH

Check ONE (Or 2 & average)

- ☒ POOL WIDTH > RIFFLE WIDTH [2]
☐ POOL WIDTH = RIFFLE WIDTH [1]
☐ POOL WIDTH < RIFFLE WIDTH [0]

CURRENT VELOCITY

Check ALL that apply

- ☐ TORRENTIAL [-1] ☒ SLOW [1]
☐ VERY FAST [1] ☐ INTERSTITIAL [-1]
☐ FAST [1] ☐ INTERMITTENT [-2]
☒ MODERATE [1] ☐ EDDIES [1]

Indicate for reach - pools and riffles.

Recreation Potential
Primary Contact ☐
Secondary Contact ☒

(circle one and comment on back)

Comments
Pool / Current
Maximum 12
6.00

Indicate for functional riffles; Best areas must be large enough to support a population of riffle-obligate species:

Check ONE (Or 2 & average).

☐ NO RIFFLE [metric=0]

RIFFLE DEPTH
RUN DEPTH
RIFFLE / RUN SUBSTRATE
RIFFLE / RUN EMBEDDEDNESS

- ☐ BEST AREAS > 10cm [2]
☒ BEST AREAS 5-10cm [1]
☐ BEST AREAS < 5cm [metric=0]

- ☐ MAXIMUM > 50cm [2]
☒ MAXIMUM < 50cm [1]

- ☒ STABLE (e.g., Cobble, Boulder) [2]
☒ MOD. STABLE (e.g., Large Gravel) [1]
☐ UNSTABLE (e.g., Fine Gravel, Sand) [0]

- ☐ NONE [2]
☒ LOW [1]
☐ MODERATE [0]
☐ EXTENSIVE [-1]

Comments
Riffle / Run
Maximum 8
4.50

6] GRADIENT (20 ft/mi)

DRAINAGE AREA (1.85 mi²)

- ☐ VERY LOW - LOW [2-4]
☐ MODERATE [6-10]
☐ HIGH - VERY HIGH [10-6]

%POOL: 15

%GLIDE: 50

%RUN: 25

%RIFFLE: 10

Gradient
Maximum 10
10

AJ SAMPLED REACH

Check ALL that apply

METHOD

- ☐ BOAT
☒ WADE
☐ L. LINE
☐ OTHER

STAGE

- 1st - sample pass-- 2nd
☐ HIGH
☐ UP
☒ NORMAL
☐ LOW
☐ DRY

DISTANCE

- ☐ 0.5 Km
☐ 0.2 Km
☐ 0.15 Km
☒ 0.12 Km
☐ OTHER

CLARITY

- 1st - sample pass-- 2nd
☐ < 20 cm
☒ 20-40 cm
☐ 40-70 cm
☐ > 70 cm/ CTB
☐ SECCHI DEPTH

meters

CANOPY

- ☒ > 85%- OPEN
☐ 55%-<85%
☐ 30%-<55%
☐ 10%-<30%
☐ <10%- CLOSED

CJ RECREATION

AREA DEPTH
POOL: ☐ >100ft² ☐ >3ft

BJ AESTHETICS

- ☐ NUISANCE ALGAE
☐ INVASIVE MACROPHYTES
☐ EXCESS TURBIDITY
☐ DISCOLORATION
☐ FOAM / SCUM
☐ OIL SHEEN
☐ TRASH / LITTER
☐ NUISANCE ODOR
☐ SLUDGE DEPOSITS
☐ CSOs/SSOs/OUTFALLS

DJ MAINTENANCE

- PUBLIC / PRIVATE / BOTH / NA
✓ ACTIVE / HISTORIC / BOTH / NA
✓ YOUNG - SUCCESSION - OLD
SPRAY / SNAG / ✓ REMOVED
✓ MODIFIED / DIPPED OUT / NA
LEVEED / ONE SIDED
RELOCATED / CUTOFFS
MOVING - BEDLOAD - ✓ STABLE
ARMORED / SLUMPS
ISLANDS / SCoured
IMPOUNDED / DESICCATED
FLOOD CONTROL / DRAINAGE

Circle some & COMMENT

EJ ISSUES

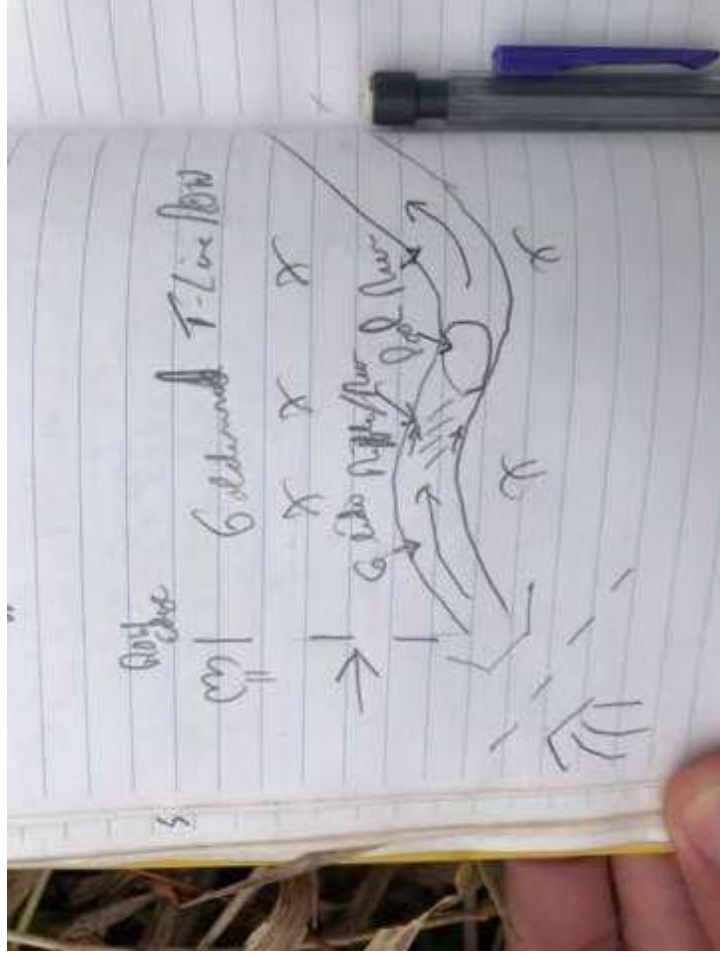
- WWTP / CSO / NPDES / INDUSTRY
HARDENED / URBAN / DIRT&GRIME
CONTAMINATED / LANDFILL
BMPs - CONSTRUCTION - SEDIMENT
LOGGING / IRRIGATION / COOLING
BANK / EROSION / SURFACE
FALSE BANK / MANURE / LAGOON
WASH H2O / TILE / H2O TABLE
ACID / MINE / QUARRY / FLOW
NATURAL / WETLAND / STAGNANT
PARK / GOLF / LAWN / HOME
ATMOSPHERE / DATA PAUCITY

FJ MEASUREMENTS

- ✓ width
✓ depth
max. depth
✓ bankfull width
bankfull x depth
W/D ratio
bankfull max. depth
floodprone x² width
entrench. ratio

Legacy Tree:

Stream Drawing:



Stream surrounded by maintained right of way residential and agricultural land uses

Comment RE: Reach consistency/ Is reach typical of stream?, Recreation/ Observed - Inferred, Other/ Sampling observations, Concerns, Access directions, etc.
Reach least disturbed area within survey. Most of stream within survey corridor cleared riparian with moderate to high intensity surrounding land use. MPD=16",
OHWM=7', TOB=8.5'

Appendix D

OEPA HHEI Datasheets



Primary Headwater Habitat Evaluation Form

15

HHEI Score (sum of metrics 1, 2, 3) :

SITE NAME/LOCATION **FirstEnergy Beaver-Henrietta**SITE NUMBER **S-MJA-012720-01**RIVER BASIN **04110001**DRAINAGE AREA (mi²) **0.12**LENGTH OF STREAM REACH (ft) **30**LAT. **41.38553**LONG. **-82.26485**

RIVER CODE

RIVER MILE

DATE **01/27/2020**SCORER **MJA**COMMENTS **Ephemeral**

NOTE: Complete All Items On This Form - Refer to "Field Evaluation Manual for Ohio's PWH Streams" for Instructions

STREAM CHANNEL

☐ NONE / NATURAL CHANNEL☐ RECOVERED☐ RECOVERING☒ RECENT OR NO RECOVERY

MODIFICATIONS:

Stream flowing from drainage tile in crop field.

1. **SUBSTRATE** (Estimate percent of every type of substrate present. Check ONLY two predominant substrate TYPE boxes (Max of 32). Add total number of significant substrate types found (Max of 8). Final metric score is sum of boxes A & B.

| TYPE | PERCENT | TYPE | PERCENT |
|--|---------------------------------|--|----------------------------------|
| <input type="checkbox"/> BLDR SLABS [16 pts] | <input type="text" value="0%"/> | <input checked="" type="checkbox"/> SILT [3 pt] | <input type="text" value="65%"/> |
| <input type="checkbox"/> BOULDER (>256 mm) [16 pts] | <input type="text" value="0%"/> | <input type="checkbox"/> LEAF PACK/WOODY DEBRIS [3 pts] | <input type="text" value="0%"/> |
| <input type="checkbox"/> BEDROCK [16 pt] | <input type="text" value="0%"/> | <input type="checkbox"/> FINE DETRITUS [3 pts] | <input type="text" value="0%"/> |
| <input type="checkbox"/> COBBLE (65-256 mm) [12 pts] | <input type="text" value="0%"/> | <input checked="" type="checkbox"/> CLAY or HARDPAN [0 pt] | <input type="text" value="35%"/> |
| <input type="checkbox"/> GRAVEL (2-64 mm) [9 pts] | <input type="text" value="0%"/> | <input type="checkbox"/> MUCK [0 pts] | <input type="text" value="0%"/> |
| <input type="checkbox"/> SAND (<2 mm) [6 pts] | <input type="text" value="0%"/> | <input type="checkbox"/> ARTIFICIAL [3 pts] | <input type="text" value="0%"/> |

Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock

(A)

Substrate Percentage Check

(B)

SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES:

TOTAL NUMBER OF SUBSTRATE TYPES:

HHEI Metric Points

Substrate Max = 40

5

A + B

Pool Depth Max = 30

5

Bankfull Width Max=30

5

2. **Maximum Pool Depth** (Measure the maximum pool depth within the 61 meter (200 ft) evaluation reach at the time of evaluation. Avoid plunge pools from road culverts or storm water pipes) (Check ONLY one box):

| | |
|--|--|
| <input type="checkbox"/> > 30 centimeters [20 pts] | <input type="checkbox"/> > 5 cm - 10 cm [15 pts] |
| <input type="checkbox"/> > 22.5 - 30 cm [30 pts] | <input checked="" type="checkbox"/> < 5 cm [5 pts] |
| <input type="checkbox"/> > 10 - 22.5 cm [25 pts] | <input type="checkbox"/> NO WATER OR MOIST CHANNEL [0 pts] |

COMMENTS

MAXIMUM POOL DEPTH

(Inches):

3. **BANK FULL WIDTH** (Measured as the average of 3-4 measurements) (Check ONLY one box):

| | |
|---|---|
| <input type="checkbox"/> > 4.0 meters (> 13') [30 pts] | <input type="checkbox"/> > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts] |
| <input type="checkbox"/> > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts] | <input checked="" type="checkbox"/> ≤ 1.0 m (≤ 3' 3") [5 pts] |
| <input type="checkbox"/> > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts] | |

COMMENTS

AVERAGE BANKFULL WIDTH

(Feet):

This information must also be completed

RIPARIAN ZONE AND FLOODPLAIN QUALITY

☆NOTE: River Left (L) and Right (R) as looking downstream ☆

RIPARIAN WIDTH

| L | R | (Per Bank) |
|-------------------------------------|-------------------------------------|----------------|
| <input type="checkbox"/> | <input checked="" type="checkbox"/> | Wide >10m |
| <input type="checkbox"/> | <input type="checkbox"/> | Moderate 5-10m |
| <input checked="" type="checkbox"/> | <input type="checkbox"/> | Narrow <5m |
| <input type="checkbox"/> | <input type="checkbox"/> | None |

COMMENTS

FLOODPLAIN QUALITY

| L | R | (Most Predominant per Bank) |
|-------------------------------------|-------------------------------------|-------------------------------------|
| <input type="checkbox"/> | <input checked="" type="checkbox"/> | Mature Forest, Wetland |
| <input checked="" type="checkbox"/> | <input type="checkbox"/> | Immature Forest, Shrub or Old Field |
| <input type="checkbox"/> | <input type="checkbox"/> | Residential, Park, New Field |
| <input type="checkbox"/> | <input type="checkbox"/> | Fenced Pasture |

| L | R | |
|-------------------------------------|--------------------------|------------------------|
| <input type="checkbox"/> | <input type="checkbox"/> | Conservation Tillage |
| <input type="checkbox"/> | <input type="checkbox"/> | Urban or Industrial |
| <input checked="" type="checkbox"/> | <input type="checkbox"/> | Open Pasture, Row Crop |
| <input type="checkbox"/> | <input type="checkbox"/> | Mining or Construction |

FLOW REGIME (At Time of Evaluation) (Check ONLY one box):

| | |
|---|--|
| <input checked="" type="checkbox"/> Stream Flowing | <input type="checkbox"/> Moist Channel, isolated pools, no flow (Intermittent) |
| <input type="checkbox"/> Subsurface flow with isolated pools (Interstitial) | <input type="checkbox"/> Dry channel, no water (Ephemeral) |

COMMENTS Recent precipitation, estimated ephemeralSINUOSITY (Number of bends per 61 m (200 ft) of channel) (Check ONLY one box):

| | | | |
|---|------------------------------|------------------------------|------------------------------|
| <input type="checkbox"/> None | <input type="checkbox"/> 1.0 | <input type="checkbox"/> 2.0 | <input type="checkbox"/> 3.0 |
| <input checked="" type="checkbox"/> 0.5 | <input type="checkbox"/> 1.5 | <input type="checkbox"/> 2.5 | <input type="checkbox"/> >3 |

STREAM GRADIENT ESTIMATE

☐ Flat (0.5 ft/100 ft)
 ☒ Flat to Moderate
 ☐ Moderate (2 ft/100 ft)
 ☐ Moderate to Severe
 ☐ Severe (10 ft/100 ft)

QHEI PERFORMED? - ☐ Yes ☒ No QHEI Score (If Yes, Attach Completed QHEI Form)

| | | | |
|---|--------------|--------------------------------|---|
| <input checked="" type="checkbox"/> WWH Name: | Quarry Creek | Distance from Evaluated Stream | 0 |
| <input type="checkbox"/> CWH Name: | | Distance from Evaluated Stream | |
| <input type="checkbox"/> EWH Name: | | Distance from Evaluated Stream | |

USGS Quadrangle Name: **Vermillion East** NRCS Soil Map Page: **1** NRCS Soil Map Stream Order: **1**

County: **Lorain** Township / City: **Amherst Township**

Base Flow Conditions? (Y/N): Date of last precipitation: Quantity:

Photograph Information:

Elevated Turbidity? (Y/N): Canopy (% open):

Were samples collected for water chemistry? (Y/N): (Note lab sample no. or id. and attach results) Lab Number:

Field Measures: Temp (°C) Dissolved Oxygen (mg/l) pH (S.U.) Conductivity (µmhos/cm)

Is the sampling reach representative of the stream (Y/N) If not, please explain:

Additional comments/description of pollution impacts: _____

Performed? (Y/N): (If Yes, Record all observations. Voucher collections optional. NOTE: all voucher samples must be labeled with the site ID number. Include appropriate field data sheets from the Primary Headwater Habitat Assessment Manual)

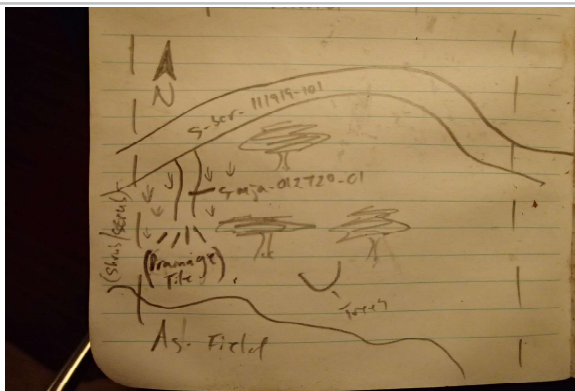
Fish Observed? (Y/N) Voucher? (Y/N) Salamanders Observed? (Y/N) Voucher? (Y/N)

Frogs or Tadpoles Observed? (Y/N) Voucher? (Y/N) Aquatic Macroinvertebrates Observed? (Y/N) Voucher? (Y/N)

Comments Regarding Biology:

Include important landmarks and other features of interest for site evaluation and a narrative description of the stream's location

FLOW 



Site Photos



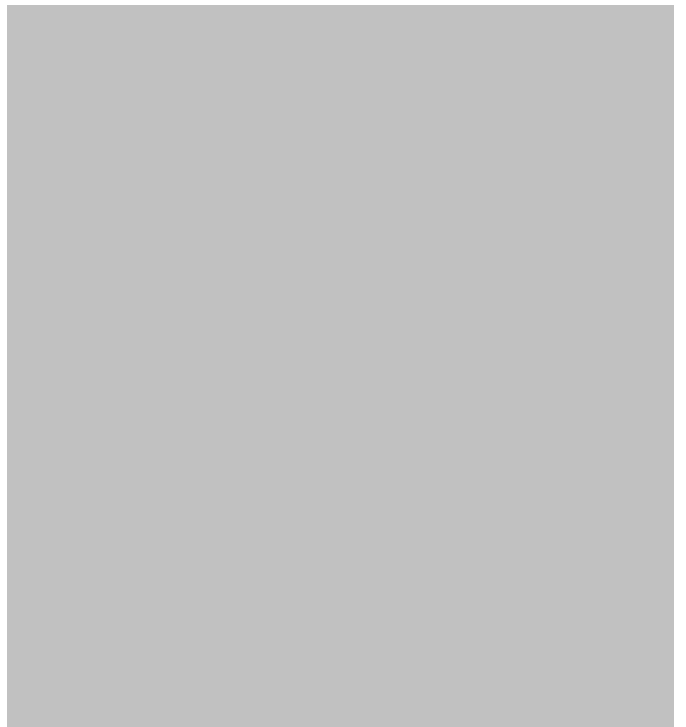
upstream



downstream



substrate



Appendix E

Representative Photographs



| Site Name | Cowardin Class | Photo Direction | Date of Survey |
|----------------|----------------|-----------------|----------------|
| Wetland BH-01E | PEM | North | 11/19/2019 |



| Site Name | Cowardin Class | Photo Direction | Date of Survey |
|----------------|----------------|-----------------|----------------|
| Wetland BH-01S | PSS | North | 11/19/2019 |



| Site Name | Cowardin Class | Photo Direction | Date of Survey |
|---------------|----------------|-----------------|----------------|
| Wetland BH-02 | PEM | Northeast | 11/19/2019 |



| Site Name | Cowardin Class | Photo Direction | Date of Survey |
|----------------|----------------|-----------------|----------------|
| Wetland BH-03E | PEM | South | 11/18/2019 |



| Site Name | Cowardin Class | Photo Direction | Date of Survey |
|----------------|----------------|-----------------|----------------|
| Wetland BH-03S | PSS | West | 11/18/2019 |



| Site Name | Cowardin Class | Photo Direction | Date of Survey |
|---------------|----------------|-----------------|----------------|
| Wetland BH-04 | PEM | North | 11/18/2019 |



| Site Name | Cowardin Class | Photo Direction | Date of Survey |
|---------------|----------------|-----------------|----------------|
| Wetland BH-05 | PEM | Southeast | 11/18/2019 |



| Site Name | Cowardin Class | Photo Direction | Date of Survey |
|----------------|----------------|-----------------|----------------|
| Wetland BH-06E | PEM | North | 01/27/2020 |



| Site Name | Cowardin Class | Photo Direction | Date of Survey |
|----------------|----------------|-----------------|----------------|
| Wetland BH-06F | PFO | North | 01/28/2020 |



| Site Name | Flow Regime | Photo Direction | Date of Survey |
|--------------|-------------|-----------------|----------------|
| Stream BH-01 | Perennial | Downstream | 11/19/2019 |



| Site Name | Flow Regime | Photo Direction | Date of Survey |
|--------------|-------------|-----------------|----------------|
| Stream BH-02 | Ephemeral | Downstream | 01/27/2020 |